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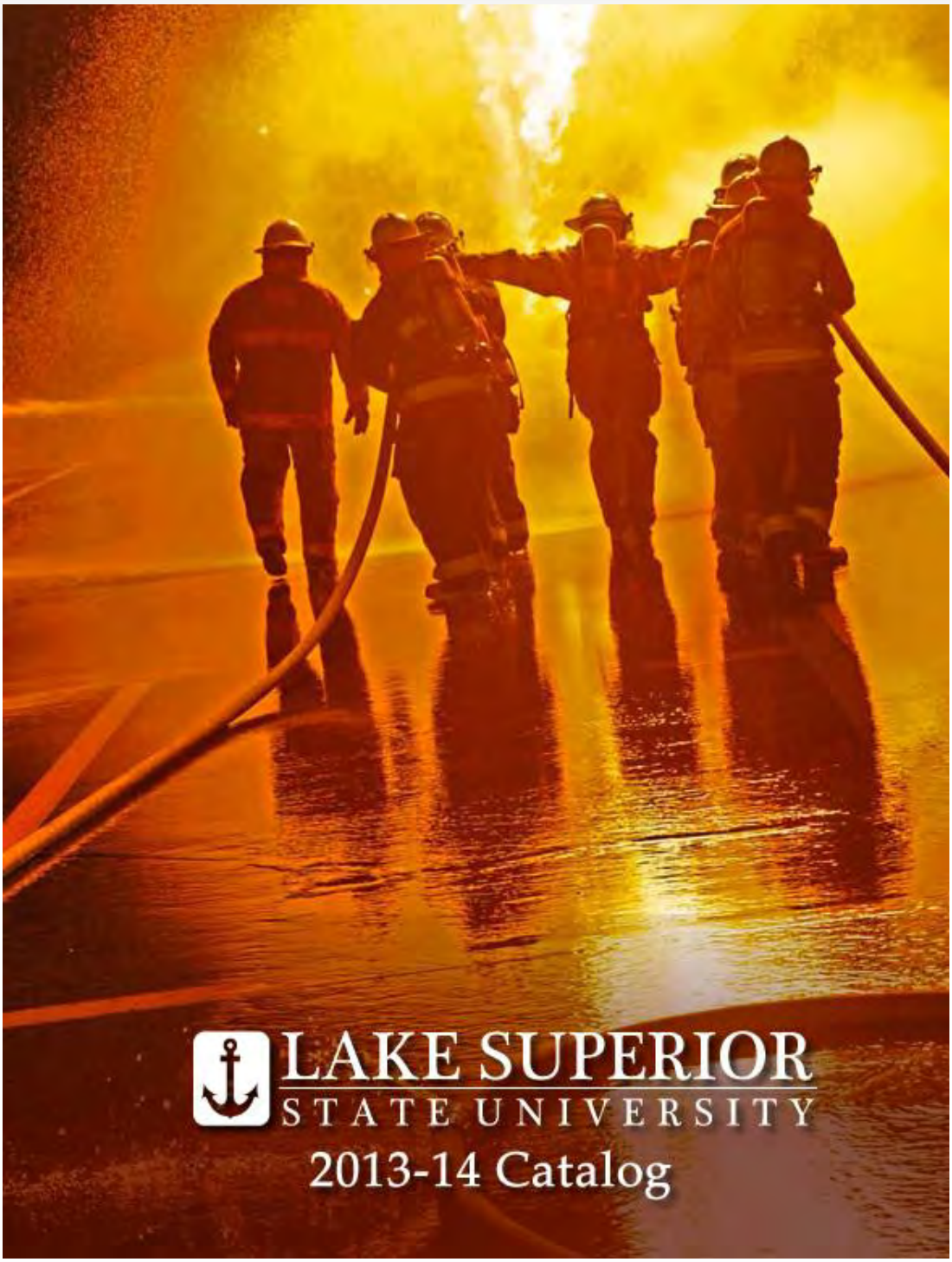
## Catalog Cover





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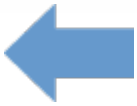
## Catalog Home

**Welcome to Lake Superior State University's electronic catalog.**

This catalog includes general information about Lake Superior State University and its academic programs, including degree requirements for masters, bachelors, associates and certificates. Course descriptions are available, as well as program information for each major and minor. It is recommended that if you have questions about your program, you speak to your academic advisor..



Use the links on the left to navigate the site.

**Apply Online at: http://www.lssu.edu/admissions/**

***Printing:*** At the top right of each web page is a printer icon. Click on this icon to print the current catalog page.

## Disclaimer

The University makes every effort to ensure the Catalog is current at the time of publication and that it contains relevent policies, procedures, degree requirements and other information of importance to its constituents. Because the institution is dynamic, the LSSU Catalog is for informational purposes and does not constitute a contract between the University and its students on either a collective or individual basis. Changes sometimes occur after the Catalog has been published. Please contact the appropriate office for the most up-to-date information.

It is the policy of Lake Superior State University that no person shall be discriminated against, excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination in employment, or in any program or activity for which the University is responsible on the basis of race, color, national origin or ancestry, gender, age, disability, religion, height, weight, sexual preference, marital status or veteran status.

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# Admissions

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## Freshmen

A freshman student is defined as a student who has not enrolled in a postsecondary institution anytime after the summer following high school graduation.

You may apply to Lake Superior State University anytime during your final year of high school. The best time to apply is early in your senior year. Applications are processed continuously. When all necessary materials have arrived you will be notified of a decision as soon as possible. To complete your admission file you must submit an official high school transcript, application fee, and ACT scores (if you graduated from high school within 26 months of entering LSSU). Although ACT scores are preferred, we will also accept SAT scores.

The primary factors used to determine admission are cumulative grade point average (GPA), high school course curriculum, and ACT or SAT results. LSSU recommends that students follow a college preparatory curriculum mirroring the Michigan Merit Curriculum. The middle 50 percent of our entering freshmen class typically have high school GPAs ranging from 2.9 to 3.6 and ACT scores ranging from 22-25. Students should feel free to submit any additional materials which may aid the Admissions Office in reviewing unusual circumstances which may have impacted high school performance. ACT or SAT scores will not be used in the admissions process if you graduated from high school two or more years ago.

Your admission will be contingent upon satisfactory completion of current coursework and receipt of a final high school transcript with verification of graduation from an accredited school or passing on the GED. To be considered official, all transcripts and test score reports must be mailed from your high school guidance office or testing agency directly to Lake Superior State University. Transcripts delivered via approved platforms such as "Parchment" will also be considered official. Please contact the Admissions Office for information regarding approved current electronic delivery methods.

LSSU assigns each student an individual student identification number. Your student number will be provided to you when you are admitted. While we do not use social security numbers as your student identification, we do use it to match your application record with your other permanent records. Financial aid applications will not be processed without your social security number. Social security numbers should be included on your application for admission. Canadian and international student applicants should not use their social insurance number. LSSU will use your assigned student identification number.

Students denied regular admission may reapply after attending another accredited college and earning at least 19 semester (29 quarter) hours of transferable credit. Evaluation is then based upon the college record.

## Home Schooled Students

Lake Superior State University does not have separate requirements for home schooled applicants. Like all applicants, home schooled students will need to provide a transcript of their high school coursework as well as ACT or SAT scores. Admission will be determined on the basis of your high school grade point average, coursework completed, and ACT or SAT scores.

## ACT

The ACT is offered nationally five times a year at many locations including our campus. Registration forms are available in high school counseling offices, the LSSU Testing Services at 906-635- 2027 or at www.actstudent.org.

United States residents applying for academic scholarships must have their ACT scores sent prior to the March 1 scholarship deadline.

## Transfer Students

A transfer student is defined as a student who enrolls in a postsecondary institution anytime after the summer following high school graduation.

Transfer students must possess a 2.0 cumulative college GPA and be eligible to return to your former college(s). If you have completed fewer than 19 semester (29 quarter) hours of credit, you must also send an official high school transcript or GED scores in addition to your college transcript (and ACT scores if you graduated from high school within 26 months of the semester of entry).

Contact the college's Registrar's Office or high school guidance office to have an official transcript mailed to our Admissions Office. Transcripts sent via facsimile or hand delivered are not considered official. All transcripts become the property of Lake Superior State University and are not returnable.

Your complete application should be submitted at least 30 days prior to the semester of entry. Transfer students denied admission may reapply after taking additional courses that raise their overall GPA to above a 2.0.

## Credit Evaluations

Official evaluation of transfer credit is made upon acceptance to LSSU. The Admissions Office will help you with an unofficial transcript review at your request.

If a course taken at another institution is not offered at LSSU, elective credit may be granted for that course. Elective credits may be applied toward degree requirements but may not be used to satisfy any specific course requirement.

Courses with grades less than C- will not transfer.  A grade of C or higher may be required for some programs.

The Admissions Office completes transfer credit evaluations based on equivalencies determined by the faculty.  The decision on courses and transfer credit granted may be appealed first to the academic dean and then to the provost.

## Provisional Credit

Credit earned at an institution not listed in the American Council of Education's publication, Accredited Institutions of Post-Secondary Education is granted provisionally. You must complete at least 15 semester hours of credit with a cumulative GPA of 2.00 at LSSU before provisional credits will become part of your permanent record.

## MACRAO Agreement

Michigan community college students admitted to Lake Superior State University who have the MACRAO stamp on their transcript are recognized as having completed the general education requirements at Lake Superior State University.

## Sault College Agreement

Sault College of Applied Arts and Technology students admitted to Lake Superior State University who have the GECERT stamp (liberal studies degree) on their transcript are recognized as having completed the general education requirements at Lake Superior State University.

## Residency Requirement

There is no limit to the number of transfer credits allowed from other institutions but students are required to complete LSSU's Residency Requirements.

## Early Admission Policy

Students under the age of 18 that apply for early admission to LSSU who do not possess a high school diploma or GED will be counseled on an individual basis by a member of the Admissions staff.

## Former Students

Former Lake Superior State University students who miss one or more semesters (not including summer) must submit an Application for Readmission prior to the semester of re-entry. There is no application fee. If you have attended another college during the period of absence, you must submit official transcripts and meet our transfer student admissions requirements. Those students who were academically dismissed must meet the requirements for re-enrollment as defined by the Scholastic Standards Committee.

## Guest Students

Students enrolled at another college or university may be admitted to LSSU for one semester as a guest student. An extension of one additional semester may be granted for extenuating circumstances. If you intend to enroll full time for more than one semester, you must submit an Application for Admission as a transfer student. Guest students assume responsibility for determining if LSSU courses apply to their program at the college from which they intend to graduate.

## Ontario Students

Ontario student applicants must satisfy entrance requirements comparable to those of United States students. Please refer to the "Freshmen" and "Transfer" sections of the catalog for details. Ontario students are not required to take the ACT or SAT for admission consideration.

If you have completed grade 13 or OAC courses before September 1990, you will receive transfer credit at the University for each course in which your final mark was at least a 60 percent. Transfer credit is not given for any OAC courses taken after September 1990. However, completion of OAC courses prepares some students to earn credit through testing. See section titled "Credit by

Examination".

Admitted Ontario students must provide verification of ability to pay in order to receive a Certificate of Eligibility for Non-Immigrant (F-1) Student Status (Form I-20) required to attend a university in the United States. This is not an admissions requirement for Ontario students; however, an I-20 form is required for you to cross into the U.S. to attend classes. Please refer to "Verification of Ability to Pay" section in the catalog for details.

If you are a Permanent Resident or able to be in the U.S. with another form of documentation, we will need a copy of this documentation for our records.

If you are a Canadian Aboriginal or Native American (excluding METIS) with at least 50% blood quantum and have J-treaty privileges (carry a tribal ID), you are exempt from needing an I-20 form. You must provide our office with a copy of your tribal ID and an official tribal-issued letter showing proof of blood quantum.

Ontario students planning to attend part-time (less than 12 credits) and commute to the University will be issued a new I-20 form each semester upon the verification of the payment of tuition and fees, or after submission of financial information as outlined above.

Ontario students are required to provide a copy of a valid Provincial Health Card (both sides) verifying coverage under a provincial health care program. LSSU highly recommends that students purchase adequate health insurance coverage while in the U.S. Students, however, may request to waive the purchase of additional health and accident insurance.

## International Students (Excluding Ontario Students)

We recommend international students submit all application material by July 15 for the fall semester and November 15 for the spring semester. You will be required to provide official transcripts evaluated by World Evaluation Service (WES) or Education Credential Evaluators (ECE) on a comprehensive course-by-course basis. Websites for WES and ECE are www.wes.org and www.ece.org. This applies to both first time in college students as well as transfer students. Transfer students who have earned less than 19 semester hours of college credit will also need to provide their high school transcripts.

International applicants must also provide verification of ability to pay, prove English proficiency, and purchase health and accident insurance through the University sponsored program. Please refer to those sections for specific information.

Applicants should not consider themselves admitted to LSSU until they have provided all required documents and have received an official letter of acceptance. Following the letter of acceptance, the I-20 form is sent, as required by the U.S. Immigration and Naturalization Services.

If you are a Permanent Resident or able to be in the U.S. with another form of documentation, we will need a copy of this documentation for our records.

If you are a Canadian Aboriginal or Native American (excluding METIS) with at least 50% blood quantum and have J-treaty privileges (carry a tribal ID), you are exempt from needing an I-20 form. You must provide our office with a copy of your tribal ID and an official tribal-issued letter showing proof of blood quantum. International students are required to purchase a health and accident insurance through the University sponsored program.

## Verification of Ability to Pay – Ontario and International Students

The U.S. Immigration and Naturalization Services (INS) requires that LSSU have verification of your ability to pay for tuition/books and expenses before we can issue a Certificate of Eligibility for Non-Immigrant (F-1) Student Status (I-20). This form is required for you to cross the border into the United States.

An acceptable financial document must have been submitted not more than nine (9) months before the term you intend to enroll at LSSU. The document also needs to be current within the last 90 days. Inclusion of false information in the financial statements is grounds for dismissal. Verification may be documented by the following: personal savings or verification of loans or scholarships received, a parent or sponsor, government or sponsoring agency, or by LSSU anticipated support.

As of September 1, 2004, the U.S. Department of Homeland Security (DHS) has implemented a rule requiring F-1 visa applicants to pay a one-time fee to supplement the administration and maintenance costs of the Student and Exchange Information System (SEVIS). Because we will be issuing you an initial I-20 form, you will be required to pay this SEVIS fee. Information about payment of the fee and the processing of your I-20 form upon entry to the U.S. will be provided to you with your initial I-20 form. You may also check our website for additional information: https://www.lssu.edu/admissions/how-to-apply/international-student-admissions-application/.

## Proof of English Proficiency

Proof of English proficiency is required for admission to LSSU as an international student. English proficiency can be proven in several ways:

1. Score 500 or above on the paper-based Test of English as a Foreign Language (TOEFL) or a score of 61 on the internet-based TOEFL. Please use institutional code 1421 to report scores directly to LSSU. More information on TOEFL may be found at www.toefl.org or 609-771-7100.
2. Score of 72 on the Michigan English Language Assessment Battery (MELAB). Write: English Language Institute, MELAB Testing, 3020 North University Building, University of Michigan, Ann Arbor, Michigan 48109-1057, U.S.A.
3. Completion of Level 112 at any ELS Language Center located in the U.S. More information can be found at: www.studyUSA.com or at www.els.com, 1-609-750-3500 or info@els.com.
4. APIEL - Advanced Placement English Language Test with a score of 3 or higher.
5. SAT/ACT critical reading score of 480 or higher, minimum overall score of 965 or higher, ACT equivalent is 20.
6. Completion of two (2) years of study at a school, college or university located in an English-speaking country.
7. IELTS - International English Language Testing System with a score of 6.0 or higher.

## Undocumented Students

Students who are undocumented are considered domestic students, not international students for admissions consideration. They must meet our regular admission requirements. Undocumented students will be classified as non-residents, unless they can document they are living in Michigan. Undocumented students are not eligible for financial aid or scholarships.

## Part-time Enrollment

You may enroll as a part-time student and take up to 11 credits per semester in courses for which you have sufficient academic background. United States students attending part-time who are not seeking financial aid or a degree or certificate do not have to formally apply for admission.

Canadian (commuter) students wishing to attend part-time must apply for admission and be accepted into a degree program. Note that all other international students must maintain full-time enrollment (12+ credits) to maintain F-1 status.

As a non-admitted part-time student, you are not assigned a faculty advisor. You are encouraged to seek assistance in selecting courses from the appropriate academic departments.

Current high school students should refer to the section regarding dual enrollment.

## Tech Prep

The national tech prep movement is supported at LSSU. As a testimony of its institutional support, grades earned in applied high school science and mathematics courses contribute to the high school GPA computed for university admission. Tech prep, with its emphasis upon curricular integration between secondary and post-secondary educational institutions, helps Lake State create a broader array of educational options for our students.

Lake Superior State University has articulation agreements with area high schools to enhance applied and career educational opportunities at the post-secondary level. In tandem with its regional secondary education partners, LSSU has created pathways to applied education for specified curricula in business and technology. University course credits count toward degree requirements for high school work if certain competencies are met. Check with your high school guidance counselor or an LSSU admissions advisor to verify whether a specific course may apply. Additional information may also be found at: https://www.lssu.edu/provost/academic-affairs/career-technical-education/**.**

## Dual Enrollment for High School Students

Effective July 2012, State law now allows qualifying 9th and 10th grade students (in addition to 11th and 12th grades) to attend as a dual enrolled student in a postsecondary institution. To be eligible, students must be enrolled in at least one (1) high school class in a school district. Students must receive a qualifying score in each subject area on a reading assessment or the Michigan merit exam (MME) in order to be eligible to take all eligible courses; otherwise, he/she can only take courses in the area for which a qualifying score was achieved. If no qualifying score was achieved, the student is limited to a course in computer science, or foreign language, or a course in fine arts as permitted by the school district. Students must also meet any course prerequisite requirements. Eligible students are limited to no more than ten (10) courses overall if the school district covers the cost; this limit does not apply if the student is covering costs.

Registration will be coordinated by the Admissions Office in conjunction with the Registrar's Office, once a student has completed the required form and has been approved as a Dual Enrollee. Students may pick up the Dual Enrollment Form from their high school guidance office, the LSSU Admissions Office, or at https://www.lssu.edu/early-college-program/dual-enrollment/. Attendance as a high school dual enrollee does not constitute admission to a four-year degree program. LSSU encourages students to apply for admission early in their senior

year for a major of their choice.

## Placement Testing (COMPASS)

LSSU will use ACT and/or SAT to place students in courses required for their degree and matched to their level of academic preparation. Occasionally, these test scores do not reflect a student's true preparedness or, depending on their admission status, ACT or SAT scores may not have been required. In that case, students will take English, reading, and math placement tests to determine which courses they should schedule. The COMPASS table shows the relationship between ACT/SAT scores and LSSU English or math courses.

Students with high ACT or placement scores are invited to enroll in honors English. High scores in mathematics will also allow students to enroll in higher-level math courses.

Students with low scores in English, reading and mathematics will be required to take preparatory coursework that do not count towards degree requirements.

Transfer students without appropriate course work in English and mathematics (see degree requirements) are also required to take placement tests. Transfer students may meet placement requirements by their ACT scores if they submit ACT scores to LSSU.

## Credit by Examination

You may earn university credit by examination. The University grants credit from Advanced Placement, International Baccalaureate (IB), College Level Examination Program (CLEP) and departmental exams. If you are already attending Lake State, you may earn credit through both CLEP and departmental exams.

You must meet the following criteria before credit by examination will be entered on your transcript:

1. be an admitted full-time student, and
2. be enrolled at Lake Superior State University.

## Advanced Placement Program (AP)

Advanced Placement Exams are administered at high schools each May. LSSU grants credit in select AP exams passed with a score of three or higher. If an essay is part of an individual exam, it must be submitted to University Testing Services for evaluation. To receive credit, the essay must be satisfactory and you must have a minimum score of three on the test. Credit for AP is granted as shown on the AP table.

## International Baccalaureate (IB)

Lake Superior State University offers college credit for students who complete IB coursework with strong results. LSSU will grant credit only for Higher Level exams and scores of 5 or above. Credit for IB is granted as shown on the IB table.

## College Level Examination Program (CLEP)

You may take CLEP exams at a computer testing center, including Lake Superior State University's Testing Services. LSSU offers CLEP exams every month except December. Credit for CLEP is granted as shown on the CLEP table.

You may receive credit toward specified courses that meet general education requirements.

CLEP general and subject examination credit may not be used to repeat courses previously taken unless permission is granted from the academic department offering the course.

Grades for general examinations are recorded as credit without grade points.

Credit may be earned for individual courses by passing CLEP subject examinations.

## Dantes ACE Credit

LSSU is proud to accept your credit for prior military experiences. Once we receive an official transcript, your transcripts (including military training) will be evaluated and credit will be granted based on American council on Education (ACE) recommendations. If your Dante's equivalence is not listed, contact the Registrar's Office for further review. Credit is granted as shown on the table.

## Departmental Exams

Departments may provide their own examinations for certain courses. You must have the written approval of the appropriate School Chair to take the examination. An application form for credit by exam can be found online and in Anchor Access. There is a fee charged per credit hour. An examination grade of 2.00 or better is required for credit to be earned. Credit earned by exam is recorded as transfer credit on the student's transcript. Some universities may not accept transfer credit earned by departmental exam.

## Health Record

Everyone entering Lake Superior State University for the first time should complete an Immunization Record and Health History Questionnaire. The form is mailed to admitted students. These questionnaires are not considered for admission to the University. The information helps the University's Health Care Center better serve your needs.

Note: Information in the admissions section of the catalog is for information only and not part of an enrollment contract.

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# Financial Aid

## Links

- Website

## Overview

**NOTE: Students are automatically considered for Board of Trustees Scholarships upon completing application to LSSU by March 1st for the following fall semester.**

**Financial Aid Mission Statement**

The mission of the Financial Aid Office is to provide accurate and timely financial aid information to students to meet their educational expenses.

Our goal is to offer all students a balanced financial aid package that is competitive and attractive, and best utilizes the resources available.

We strive to assist and educate our students by providing the best service possible so that they can focus on their educational experience.

**Financial Aid Office**

The LSSU Financial Aid Office staff is available to assist students with the financial aid process. Our experienced staff is available during office hours to respond to financial aid questions and requests. No appointments are necessary. Students are assisted in the office on a walk-in basis or may call (906) 635-2678 to speak with a financial aid representative. The Financial Aid Office email address is finaid@lssu.edu and website is http://www.lssu.edu/finaid. The Financial Aid Office is located in the Fletcher Center for Student Services on the campus of Lake Superior State University.

**Financial Aid Offer**

Financial aid is any money used for students' educational expenses and includes grants, scholarships, loans and student employment. An offer of financial aid in the form of a university scholarship is made when a qualified student is initially admitted to LSSU. Other offers of aid follow the admission and receipt of federal applications or athletic tenders. LSSU participates in federal, state and province aid programs and provides a generous institutional scholarship and grant program. An "Official Offer of Award" letter from the Financial Aid Office is sent after all documents needed to complete a student award are received and reviewed.

**Applying for Federal Financial Aid**

To apply for most types of aid, students must complete a Free Application for Federal Student Aid (FAFSA). This application must be renewed each academic

year for a student to continue receiving financial aid. The priority filing date for the FAFSA is March 1, and students who have completed a FAFSA by this date will be considered first for priority financial aid. Priority aid includes certain federal and state grants, the Perkins Loan and Federal Work Study. **Title IV School Code for LSSU is 002293.**

**Scholarship Selection**

Scholarship recipients are usually selected based on competitive examinations, scholastic records and/or financial need. The American College Test (ACT) serves as the University's primary test for scholarship applicants. Test results must be on file by March 1.

**Scholarship requirements**

Incoming freshmen must have a minimum GPA of 3.3 and ACT of 21 to automatically qualify for a scholarship. The recipient of any award must be a full-time student carrying 12 academic hours or more each semester.

## Satisfactory Academic Progress (SAP) Requirements for the Retention of Financial Aid at Lake Superior State University

***If you are receiving any form of financial aid, you must meet these satisfactory academic progress requirements to retain your aid each semester.***

Financial aid regulations require that a student must make satisfactory progress to remain eligible for financial aid. Financial aid programs affected by this policy include Federal Pell Grant, Federal Perkins Loan, Federal Work-Study, Federal Supplemental Educational Opportunity Grant, Federal Direct Loans, Federal PLUS Loans, State of Michigan and Institutional Scholarships, Grants, Loan and Work Programs, and some Rebates and Tuition Waivers.

The **minimum requirements** for all types of financial aid include three standard measures — the cumulative GPA, the number of credits earned each semester, and the pace of completing your degree. In addition, there are some types of aid with more stringent requirements, such as scholarship renewal requirements.

**Minimum GPA Standard:** Students must maintain a minimum cumulative grade point average (GPA) of 2.0 each semester to remain in good standing.

**Credits Earned Standard:** Each student's progress in total overall credits attempted and earned will be reviewed every semester. Students must earn 67% of the total number of credits attempted to maintain eligibility for aid.

| Overall Att. Credits | Must Earn 67% | Attempted Credits | Must Earn 67% | Attempted Credits | Must Earn 67% |
|---|---|---|---|---|---|
| 175 | 118 | 20-21 | 14 | 11-12 | 8 |
| 150 | 101 | 19 | 13 | 10 | 7 |
| 100 | 67 | 17-18 | 12 | 8-9 | 6 |
| 75 | 51 | 16 | 11 | 7 | 5 |
| 50 | 34 | 14-15 | 10 | 5-6 | 4 |
| 25 | 17 | 13 | 9 | 4 | 3 |
| | | | | 1-3 | all |

Each semester the total number of credits attempted and earned will be evaluated, including
remedial coursework. All prior LSSU credits will be used to determine if the student has earned at least 67% of their total credits attempted. For example, if

a student attempts 16 credits for fall and 16 credits for spring semester, the student must earn 22 credits to meet the 67% completion requirement. (16 + 16 = 32 x 67% = 21.44 credits or 22.)

> NOTE: Transfer credits that have been evaluated and accepted for credit at LSSU will be added to both the credits attempted and earned cumulative totals, however, transfer students must also earn 67% of their LSSU credits each semester to maintain good standing. Consortium students must earn 67% of the combined total credits each semester (credits at both LSSU & the community college) to maintain good standing at LSSU.

**Maximum Time Frame — 150% of Length of Program:** A student must complete the highest degree being sought within 150% of the published length of his/her program. For example, students working on a baccalaureate program of 124 credits may receive aid for 186 attempted credits, ***including transfer attempted credits:***

| Degree | Average Credits Needed | Maximum Time Frame |
|---|---|---|
| Paramedic Certificate | 40 | Within 60 attempted credits |
| LPN Certificate | 47 | Within 71 attempted credits |
| Pre-Nursing BSN | 56 | Within 84 attempted credits |
| Associate | 62 | Within 93 attempted credits |
| Associate Health Care Provider | 75 | Within 113 attempted credits |
| Bachelor | 124 | Within 186 attempted credits |
| Teaching Certificate | 136 | Within 204 attempted credits |
| Master's | 32 | Within 48 attempted credits |

***One WARNING SEMESTER***

If a student does not meet the Financial Aid Satisfactory Academic Progress (SAP) at the end of each semester, the student will be given one warning semester. Students may receive aid during the warning semester. If a student fails to meet the standard for the second consecutive semester enrolled, the financial aid **will be suspended**. During the *WARNING SEMESTER*, it is ***highly recommended that students plan ahead and work with an advisor to correct deficiencies.***

**Financial Aid Suspension**

No aid will be granted once a student's eligibility is suspended, including but not limited to federal, state and institutional aid.

**Right to Appeal**

A student whose aid is suspended may request reinstatement through the Financial Aid Appeals Committee. The student must effectively demonstrate that the failure to meet SAP was due to an unusual or extenuating circumstance, and explain what has changed. The directions and required forms for the appeal process are available online at www.lssu.edu/finaid/pdfs/appealprocess.pdf

**Financial Aid Self-Reinstatement**

Once financial aid is suspended, both the cumulative GPA and credit hour completion standards must be met in subsequent semesters of at least six

credits before reinstatement of aid is possible. Students who successfully complete a minimum of six credits at LSSU while not receiving financial aid must contact the Financial Aid Office to request a review for reinstatement.

If completion of "I" grades or other record changes warrant a reinstatement, a copy of the transcript must be submitted to the Financial Aid Office with a written request for a review.

**Repeat Policy for Financial Aid Recipients**

Students may use financial aid to repeat coursework that has been previously failed. Students may also use financial aid one time when repeating coursework to improve an earned letter grade of D- or higher.

For example, a student taking a course for the first time who received an F grade could have financial aid to repeat the course. If the student received a D grade for the repeated course, the student ***could*** have financial aid one more time to repeat the course to raise the grade. Students advised to retake passed courses more than once to improve their GPA may do so at their own expense, provided the repeats are allowed by the department.

> Note: Satisfactory Academic Progress Policy is in compliance with the Department of Education Final Regulations published Oct. 29, 2010 - 34CFR 668.16(e), 668.32(f) & 668.34.

## LSSU Scholarship Renewal Requirements

Congratulations on receiving a Lake Superior State University scholarship. If your scholarship was offered to you as a "renewable" award, it is important that you have met the criteria listed below each spring when your eligibility is reviewed for the next year.

**General renewal requirements include:**

1. **You must earn a minimum of 24 LSSU credits each academic year** while receiving a scholarship, unless otherwise noted in your award, and the minimum cumulative GPA as required by the award.
2. You must maintain enrollment each semester (fall & spring) as a continuous full- time LSSU student. Enrollment for summer semester is not included.
3. If you withdraw or leave LSSU for any reason, your scholarship will automatically terminate. If you plan to leave for a study abroad program, internship or health reasons, you may write an appeal to have your scholarship postponed until you return.
4. To receive the room and board component of any scholarship, you must be in the on-campus room and board program for the semester. If you leave on-campus housing, the room and board award will be terminated. If you return to campus housing (you must be on the room and board plan for the full semester), you can request reinstatement of the room and board component prior to the beginning of the semester you return.
5. Most scholarships offered to freshmen are renewable for up to four years. Students in their teaching internship semester may be eligible to receive a 9th semester renewal.
6. Changing majors does not affect the Board of Trustees' Scholarships, but may affect departmental awards that require enrollment in certain majors.
7. **Scholarships are not reinstated on appeal,** except for students who have left school for reasons stated in #3.
8. The scholarship renewal policy is separate from the University's Academic Standards and Satisfactory Progress Standards for the retention of other

forms of financial aid.

9. If you do not meet renewal requirements when your eligibility is reviewed each year, but raise your LSSU cumulative GPA or credits earned to the minimum requirements prior to the start of the next semester, you must notify the Financial Aid Office in writing that your student record has been updated with new information warranting a review.
10. LSSU Regional Center students may reactivate a Board of Trustees renewable scholarship by notifying the Financial Aid Office prior to semesters of full-time attendance in LSSU courses, provided that GPA requirements are met.

*Note: Some types of financial aid awards, such as an employee rebate, the Native American Tuition Waiver, or the Tuition Incentive Program, could affect your eligibility for an LSSU scholarship. Please contact the Financial Aid Office for further details.*

In addition to earning the minimum number of credits (24) required each year, scholarship winners must meet the following minimum cumulative GPA requirements to maintain their awards:

**Board of Trustees Distinguished Scholarship & LSSU Partial to Full Tuition Scholarships (>$5000 per year):**

3.00 or better cumulative gpa after 2 semesters of study

3.10 or better cumulative gpa after 4 semesters of study

3.20 or better cumulative gpa after 6 semesters of study

**Board of Trustees Academic Excellence Scholarship, Board of Trustees Recognition Scholarship, Board of Trustees Ontario Scholarships, Board of Trustees Foreign Scholarships, Board of Trustee Transfer Scholarships, LSSU Foundation Scholarships*:**

2.50 or better cumulative gpa after 2 semesters of study

2.60 or better cumulative gpa after 4 semesters of study

2.70 or better cumulative gpa after 6 semesters of study

* Includes most other renewable institutional scholarships with a value less than $5000 per year, unless otherwise stated in criteria.

*Note:* Transfer credits are included when determining "semesters of study."

Laker USA Scholarship (the difference between in-state and out-of-state tuition) is renewable for students who earn 24 credits per year and maintain a minimum cumulative GPA of 2.0 or higher.

**Frequently Asked Questions**

Full tuition scholarships are limited to 12-17 credits per semester for the academic year and do NOT include any special course fees, program fees, media fees, etc.

Full tuition scholarships can not be combined with tuition waivers, such as Michigan Indian Tuition Waiver or Employee Rebates.

Recipients of donor-funded scholarships are encouraged to write thank you

letters to the donors and may be invited to special donor events.

Departmental scholarship recipients must notify the Financial Aid Office if changing their major course of study to determine the effect on their award!

**New Scholarships for Current Students**

Renewable scholarships are based on your grade level and number of credits transferred or earned at the time of your award. For example, if you are offered a renewable scholarship as a sophomore, you will generally be eligible for two additional years of scholarship. If an ending date is not stated in your offer of scholarship, please contact the Financial Aid Office if you have questions about the renewal features of your award. Except for students in their fifth year of the teaching program, scholarships are generally not available to students with more than four years of higher education or eight semesters of study or more than 124 attempted credits.

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# Scholarships, Grants, Loans

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# Costs

## Links

- Costs Website
- Financial Aid Website
- Business Office Website
- Registrar's Office Website

## Overview

An exact outline of University fees and assessments can be found in the Admissions Office. These costs are determined by the Lake Superior State University Board of Trustees.

A fee of $25 for filing online or $35 for paper filing (United States funds) must accompany each Application for Admission to Lake Superior State University. The fee is nonrefundable and does not apply toward tuition or other fees.

## Michigan Residency Policy for Tuition Purposes

Lake Superior State University has a commitment to the resident taxpayers of the State of Michigan to provide educational opportunity at lower tuition rates than those charged to non-residents. Therefore, there are two general tuition rates, one for Michigan residents and a higher rate for non-residents.

Since a student typically comes to the University for the primary or sole reason of attending the University rather than to establish a domicile in Michigan, a student who enrolls in the University as a non-resident shall continue to be so classified throughout their attendance as a student, unless they demonstrate that their previous domicile has been abandoned and a Michigan domicile established.

Status as a resident for tuition purposes is defined as a student that is domiciled in Michigan. For University purposes, domicile is defined as the place where a student intends that their true, fixed and permanent home (both during and after they complete their education at the University) and principal establishment to be and to which the individual intends to return whenever absent from the University. An individual whose activities and circumstances, as documented to the University, demonstrate the establishment of a domicile in Michigan and intends to be domiciled will be eligible for classification as a resident. An individual whose presence in Michigan is based on activities or circumstances that are indeterminate or temporary, such as educational pursuits, will be presumed not to be domiciled in Michigan.

The domicile of a dependent student is presumed to be the same as that of the student's parents. For tuition purposes, a student is considered to be a dependent of the student's parents and/or legal guardians if they are financially

dependent upon their parents or have not attained independent status. Students with independent status may apply for re-classification of their residency status after six months of continuous residency in Michigan prior to the first day of classes in the semester. If only one parent is domiciled in Michigan, the student will be presumed to be a Michigan resident regardless of whether that parent is the student's custodial parent.

A Michigan resident absent from the state for periods of up to one year shall not forfeit his or her residence for tuition purposes, provided that he or she has taken no action to become a resident of another state. Students, though, may need to demonstrate continuous residency for purposes of specific grants or scholarships.

The residence of a student who otherwise would be classified as nonresident will follow that of his or her spouse if the spouse is classified as a resident.

In-state tuition will be granted to active duty members of the armed forces of the United States, their spouses and dependents. In-state status will continue to be recognized as long as the spouse or dependent is continually enrolled at the University. All honorably discharged veterans will be granted in-state residency for tuition purposes.

Children of LSSU alumni are eligible for resident tuition rates.

Aliens lawfully admitted for permanent residence in the United States who have a permanent visa, may register as residents of the state provided they have met the other requirements for residency.

Initial decisions on classification of residency shall be made by the Director of Admissions. Requests for reclassification to become a resident shall be made to the Registrar. Students may appeal these decisions to the Vice President for Enrollment Services.

The following circumstances may lend support to a claim of residency, though not conclusive and exhaustive:

- A person appointed to a regular, full-time position at the university
- An employment transfer to Michigan
- Continuous residence in Michigan during periods when not enrolled as a student
- Reliance upon only Michigan sources of financial support
- Permanent, full-time, employment in Michigan provided that the employment is the person’s primary purpose for being in Michigan
- One parent of a dependent student is a Michigan resident domiciled in the state

The following circumstances, in and of themselves, do not lend support for a claim of residency:

- Voter registration in Michigan
- Possession of a Michigan’s driver license
- Short-term or temporary employment in Michigan
- Lease of living quarters
- Dependence on student financial aid for living expenses

Students requesting a change in their residence status must submit a Change of

Residency Request and documentation to the Registrar prior to the first day of the semester.

## Policy: Tuition/Fees

All tuition and fees are payable according to established due dates. Students delinquent in payment of a financial obligation are subject to enrollment cancellation and/or late fees until all amounts due the University are paid or satisfactory arrangements are made with the Business Office.

Anyone who is delinquent in any obligation to the University will not be allowed to register for classes. Additionally, University services will not be provided until financial obligations are met. Registration is not complete until fees are paid. A check or draft returned to the University and not honored by the bank constitutes nonpayment and may result in cancellation of registration.

Students auditing a class are assessed full tuition and fees for the course and an AU grade is recorded on the student's official transcript upon completion of the course. Michigan residents who are 60 years of age or older may audit undergraduate courses compliments of LSSU. No records are kept of their audits.

In addition to tuition, there are various fees assessed to students in specific situations.

**Activity Course Fee:** The activity course fee is an additional charge applied to one-credit courses in music and recreation. These courses are elective.

This activity fee is assessed on all students enrolling in one-credit music (one-credit activity and performance courses with an MUSC prefix, except MUSC210) or one-credit recreation (one-credit activity courses with an RECA prefix) classes.

**Administrative Fee:** Administrative fees will be charged for PLATO software and departmental exams.

**Enrollment Fee:** The enrollment fee is a one-time fee established to partially cover the costs associated with the orientation of new students.

The enrollment fee is assessed on all new and transfer students when they are admitted to a degree program.

**Program Fees:** The program fee is an additional charge per credit for courses in engineering, nursing, chemistry, natural science and paramedic technology.

**Distance Education Fees:** These fees are charged for courses delivered to regional center students and other distance education students other than in a face-to-face format with instructors. There will be a fee for courses delivered via Interactive TV, via the Internet, and via CD/WebCT.

**Regional Center Fee:** The regional center fee is an additional charge per credit, charged for courses delivered by instructors at the regional centers.

The regional center fee is assessed on all students registering for a course at an LSSU Regional Center (Escanaba, Dearborn, Gaylord and Petoskey).

**Special Course Fee:** Special course fees are charged to cover costs of supplies, equipment, maintenance, and student transportation over and above the normal costs for all courses. These fees become part of the department supply and equipment budget.

Special course fees are assessed on students taking the course for which the fee is charged.

**Credit by exam:** Credit by departmental examination is available to full-time students. If a 2.00 or better is scored, the credit is recorded on your transcript. The fee charged is $50 per credit hour.

**Student Activity and Media Fee:** This fee was requested by the Student Government and approved by the Board of Trustees on June 30, 2003, to support Student Government, student activities, the student radio station WLSO, and the student newspaper, The Compass.

The student activity and media fee is a flat fee assessed on all enrolled students except those registered for internship classes, for classes at a regional center, or dually-enrolled at LSSU and a high school.

**Vehicle Registration Fee:** This fee entitles a student to register one student vehicle to be parked in a campus parking lot.

The fee is refunded only under certain conditions. Vehicle registration information is available at https://www.lssu.edu/public-safety/parking/.

## Withdrawal/Refunds

If you decide to drop your classes, you, must complete the following:

1. Pick up a Withdrawal Form at the Registrar's Office, located in the Fletcher Center for Student Services.
2. Gather the required signatures (shown on the form). Note: if you have received federal loans as financial aid, you will be required to complete an exit interview at the Financial Aid Office. You may also be required to speak with a financial aid officer. You will need to provide the complete addresses and phone numbers of two people (living at different addresses) as references for the exit interview process.
3. Deliver the completed form to the Registrar's Office and clear any outstanding charges or holds that may prevent your return at a later date or prevent the release of your academic records. Your withdrawal date will be determined by the date the completed form is submitted to the Registrar's Office. Any refunds will be calculated as of that date.

**Withdrawal and Refund Policy for Fall and Spring Semesters**

| Courses Dropped | Time of Withdrawal | % of Refund |
|---|---|---|
| Any or all classes | Prior to class - 6th school day* | 100% |
| Dropping all classes | 7th-8th school day | 90% |
| Dropping all classes | 9th-19th school day | 50% |
| Dropping all classes | 20th-38th school day | 25% |

**There are no refunds for partial drops after the sixth day.*

All withdrawals should be done in person. If you are unable to complete the process in person, the Registrar is the only University authority that can authorize the process of your withdrawal over the phone. Please contact the Registrar's Office at 906-635-2682 for assistance. If you are a federal recipient,

you will need to complete your exit process with the Financial Aid Office.

After your completed Withdrawal Form is accepted, your University charges will be reduced according to the withdrawal and refund policy. If you have not received any form of financial aid and there is a credit balance on your account, you will be sent a refund check. If you have received aid, your aid may have to be returned to the appropriate source. You may then have a balance due to the University. A bill will be sent and is payable upon receipt.

Financial Aid Return Policy: Applies to students receiving federal and state financial aid including loans and scholarships, and institutional and private aid.

- First, your account will be credited according to Lake Superior State University's Refund Policy (on or prior to the 38-day withdrawal period). The summer semester refund policy is shortened.
- Then, your financial aid will be reduced in direct proportion to the length of time you remained enrolled, up to 60 percent of the semester.
- PLEASE NOTE: If you have received a payment for excess financial aid and you with-draw, you could owe the University and/or the federal government money.
- Any remaining refund due you, after all funding sources have received the appropriate credit, will be refunded directly to you.

For example: If there are 101 days in the semester and you withdraw on the 45th day, your federal aid would be reduced to 45% (45/101). If your total cost to attend was $4,000 and it was paid with federal aid of $2,400 and a personal payment of $1,600, your federal aid would be reduced to $1,080. You could owe the University $1,320.

Attendance Policy for federal financial aid recipients: Regular class attendance is required for students receiving federal financial aid. If you are reported for non-attendance in any or all of your courses, your financial aid may be withdrawn.

If you fail to demonstrate attendance by earning credits for a semester while receiving federal aid, your aid may be returned and you may owe unearned funds back to the University.

**Leaving school:** For information about leaving the University see Withdrawal. Non-attendance of classes or checking out of campus housing does not constitute withdrawal, nor does academic dismissal. Students who leave but do not withdraw are responsible for full tuition and fees and will receive failing grades on their transcript unless an official Withdrawal Request Form is filed with the Registrar's Office.

Students who fail to earn credits for the semester while receiving financial aid are subject to Title IV refund requirements and may lose all or part of their financial aid.

**Transcript fee:** One official transcript is provided to all students, either before or after graduation. There is a $5 fee for each additional transcript.

**Delinquent accounts:** Students with delinquent accounts may be removed from class, have their diploma withheld, and/or have transcript requests denied.

## Room and Board Applications

**Housing applications:** Unmarried students enrolled for 12 or more credit hours and who are within 27 calendar months of their graduation from high school at the beginning of the academic year (for this purpose, high school graduation

dates are assumed to be June 1st) must reside in a University residence hall.

The exceptions are:

1. if you live with parents within a 60-mile radius, or the three-county (Luce, Chippewa, and Mackinac) service area of the University campus. An exemption application, available in the Housing Office, must be approved by the Director of Campus Life and Housing.
2. if you are exempted in writing by the Director of Campus Life and Housing when residence hall space is filled.
3. if you face unusual financial or health problems and are exempted by the Director of Campus Life and Housing.

Applications for housing must be made to the Housing Office. Students indicating interest in on-campus accommodations on the University admissions application are sent housing information. Room assignments are made upon receipt of the first room and board payment. Applications are voided if first room and board payment is not received by June 1st. If application is canceled by notification to the Director of Campus Life and Housing by June 1st, all monies paid will be refunded. If cancellation is between June 1st and the opening of the residence halls, LSSU retains $100. Cancellation after the halls open is subject to a $500 penalty. You must be accepted for admission and be enrolled in and attending classes to live on campus.

**Room and board:** Students are billed for room and board and tuition each semester. A payment plan may be set up with the Business Office located in the Fletcher Center. A cost sheet is available from the Student Service Center.

**Housing deposit:** If you are living on campus, there is a $150 damage deposit prior to checking into the hall. This deposit is refunded, less monies owed to the University, when you leave campus housing.

**Regulations:** Regulations and expectations of your conduct as a member of the LSSU community will be provided when you take residence.

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# Academic Services

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- Audio-Visual Center
- Blackboard User Support Services
- Career Services
- Computer Services (IT)
- Continuing Education
- IPASS, Student First, Campus Connections, Foster Youth in Transition (FYIT)
- Learning Center
- Liberal Arts — Undeclared/Undecided Student Program
- Library (Kenneth J. Shouldice)
- Testing Services - *includes placement testing*

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# Campus Life

Campus life is an important part of your Lake Superior State University experience. There are countless opportunities to enhance your educational experience. We encourage you to participate in student activities and to get involved with the campus. It is a great way to meet people and gain invaluable experiences and insights that will help when you graduate.

There are more than 60 different clubs and organizations at LSSU. There is always something going on so you can be a part of the campus scene.

We have 11 sports at Lake State: basketball, cross country, track and tennis for men and women; ice hockey for men; and volleyball and softball for women. In addition, the University has an extensive intramurals program including sports such as broomball, basketball, hockey and more.

Beyond the programs and services on campus, you have the natural splendor of the Upper Peninsula and Canada. Good hunting and excellent fishing are found within a few miles of campus. Favorite winter sports are skating, hockey, snowshoeing, tobogganing, ice fishing and skiing.

- Campus Life Webiste
- Counseling Services
- Student Government
- Recognized Organizations
- Housing
- Dining Services
- Athletics
- Health Service
- Upward Bound
- Student-Faculty Relations Committee (Appeals) *(see below)*
- Disability Services and the Ability Center for Exceptional Students (ACES)

## The LSSU Ombudsman

If you're a student in need of assistance to resolve a conflict or dispute within the University then you should contact the LSSU Ombudsman. The Ombudsman is a senior faculty member appointed by the President and Provost to assist students in resolving these types of issues. The Ombudsman carries out these duties in a neutral, impartial, confidential, informal and independent manner.

**What does an Ombudsman do?**

Following a request for assistance, the Ombudsman will take one or more of the following actions: (1) listen carefully to the concern, (2) explain relevant student rights and responsibilities, (3) review relevant University policies or regulations, (4) suggest fair and equitable options, (5) refer the individual to an appropriate university resource or (6) investigate, when necessary.

Specifically the LSSU Ombudsman:

- meets with the respective student and listens intently,
- discusses conflicts, disputes, and complaints that the student has about the functioning of the University, including policies, and procedures, the actions of others, and treatment that is unfair,
- helps the student identify and evaluate the options available to address his/her concerns
- works with the student to promote the development of critical thinking and problem solving skills,
- helps the student to understand their rights and will encourage and coach the student to work on their own behalf to resolve conflicts,
- answers questions or find others who are able to answer the respective questions,
- engages in shuttle diplomacy between parties who are finding it difficult to solve a problem between the two of them, or
- identifies problem areas, and areas of conflict, that exist within the University and makes recommendations to the University leadership.

**Are there things the Ombudsman cannot do?**

Yes. The Ombudsman is not an advocate for any group on campus; instead, the Ombudsman is an advocate for fairness. The Ombudsman also does not provide legal service, represent students or instructors at academic grievance or disciplinary hearings or mediate disputes between or among faculty or between faculty and administrators. The Ombudsman does not accept formal complaints, or notices, for the University.

Specifically the LSSU Ombudsman does not:

- administer sanctions,
- determine "guilt" or "innocence" of those being accused of wrong doing ,
- make academic or administrative decisions for other parts of the University
- give legal advice,
- participate in formal grievance processes, hearings or judicial processes,
- accept official "notice" for the University about issues,
- keep official University records and/or written accounts of individual meetings with students, or
- respond to subpoenas or other requests for information because of assertion of Ombudsman privilege.

**How can I Contact the Ombudsman?**

Students may contact the Ombudsman in person, by email, or by phone. Please remember that e-mail is not recommended for confidential discussions. The LSSU Ombudsman is:

Dr. Sally Childs
Norris Center, Room 108D
Phone #: 906-635-2610
Email: schilds@lssu.edu

**Other Information:**

According to the International Ombudsman Association

(www.ombudsassociation.org) Code of Ethics, an Ombudsman practices:

**Independence**

An Ombudsman is independent in structure, function, and appearance to the highest degree possible within the organization

**Neutrality and Impartiality**

The Ombudsman, as a designated neutral, remains unaligned and impartial. The Ombudsman does not engage in any situation which could create a conflict of interest.

**Confidentiality**

The Ombudsman holds all communications with those seeking assistance in strict confidence, and does not disclose confidential communications unless given permission to do so. The only exception to this privilege of confidentiality is where there appears to be imminent risk of serious harm.

**Informality**

The Ombudsman, as an informal resource, does not participate in formal adjudicative or administrative procedure related to concerns brought to his/her attention.

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# Academic Policies

Please familiarize yourself with the academic policies described in this catalog. They will help you obtain your educational objectives. Faculty advisors, staff and administrative personnel will also help you negotiate your way through these policies — seek their advice whenever you have questions!

## Student Classifications

0 to 25 credits = freshman
26 to 55 credits = sophomore
56 to 87 credits = junior
88+ = senior

## The Academic Year

Lake Superior State University operates on a semester system. There are two regular 15-week semesters (fall and spring) which begin in August or September and end in April or May. The summer semester consists of classes offered in two six-week sessions, or one 12-week session. Please view the Important Dates for specific information for each semester.

## Academic Credit

One credit is equal to 14 hours of classroom instruction in lecture/recitation courses. For example, a three-credit course might be scheduled 9-9:50 a.m. Monday, Wednesday and Friday for 14 weeks plus one week for exams. Laboratory classes, field work or other non-lecture classes meet for more than one hour a week per credit.

You should expect to spend two hours of study or class preparation for each hour spent in class.

The average credit-hour load for full-time students is 16 credits. A minimum of 124 credits is required for all baccalaureate degrees; a minimum of 62 credits is required for all associate degrees.

## Student Curriculum Choice and Advising

When you apply for admission, you are asked to declare a major. The major you declare will determine which major department you are in and the academic advisor assigned to you. Please get to know your advisor well and meet with him/her often to get help in class selection, degree progress and career advice. You may change your major curriculum by processing a Curriculum Change Form, available in Anchor Access and in the academic offices. Curriculum change forms must be filed with the Registrar's Office for each curriculum change.

If you are unsure of your major, you will be assigned to the Liberal Arts-Undecided major and the academic advisor assigned to you will be a staff member of Career Services.

## Semester Course Selection

Registration for the next semester takes place near the end of your current semester.

Three weeks before registration, course schedules listing times, dates and locations will be available online at: http://www.lssu.edu/scheduling, and in Anchor Access. Review the class offerings, read the instructions for scheduling, and meet with your advisor to select courses for the next semester.

You must sign up for classes for the semester in which you will be doing the actual work.

Please review all the registration information carefully as it has dates for registration according to class level, dates for tuition payments, and information regarding prerequisites, corequisites and other course requirements.

It is your responsibility to ensure that the classes you take count toward your degree program. You may, however, be required to take developmental courses (course numbers beginning with "0", such as MATH081), which will not count toward graduation.

**Test Scores:** When you apply for admission, you will send your ACT scores to Lake Superior State University. Your scores determine the level of English and mathematics courses into which you will be placed. If you have been out of high school more than 26 months and have not taken the ACT, you will take placement tests at the Testing Center at Lake Superior State to determine your placement in English and math.

**Prerequisites:** Many courses require that you complete English, reading and/or mathematics, or other preliminary classes before registering for the course. If you are currently enrolled in a course which is prerequisite to a course you need the following semester, you may register for the course on the presumption you will successfully complete the current course. If you do not earn the prerequisite grade required for the next course, you should consult your advisor and make a plan for an alternate course. Exceptions may be made only by the dean of the college or the instructor of the course.

**Maximum credit load:** You may carry up to 20 credits per semester. You may take more credits if you have a 3.00 GPA or higher and have written approval from the appropriate dean. Students on academic probation should not take more than 15 credits.

**Repeats**: This policy is in effect for all students starting at Lake Superior State University as of the Fall Semester 2011. You may repeat a class in which you earn a grade other than "W" or "N" only twice without special permission.

1. Courses transferred from other institutions are included in this policy.
2. Both the original and repeat grades will show on the transcript, but hours earned toward graduation will only count once.
3. For the purpose of calculating the cumulative grade point average, only the grade of the last attempt will be used.

To repeat a course more than twice, the student must attain the permission of the course instructor and the dean of the college offering that course. Permission is only granted under extenuating circumstances.

**Policy on substitutions or waivers for failed classes:** If you fail a class required for your degree program, you must repeat the class and receive a passing grade.

If the failed class is no longer offered because of program changes and/or course deletions, the dean may approve a substitution or waiver recommended by the academic chair. The chair must provide reasons for the recommendation on the substitution/waiver form which is sent to the dean's office for approval. Upon approval, the dean will then send the form to the Registrar's Office.

**Adding/Dropping courses through the Add/Drop Period:** You may add or drop courses online using Anchor Access through the sixth day of the fall or spring semester. If you are attending a summer semester, you can add or drop courses online through the fourth day of the semester.

If you wish to add a course that is full or without having the necessary prerequisites, you must contact the instructor for that course to request permission. If the instructor approves the request, he/she will complete an Instructor Override for you. You must then go online and register for that course.

Courses dropped through the sixth day (fourth for summer semester) will not appear on your academic transcript.

**Adding courses after the Add/Drop Period of the semester:** Online registration ends on the sixth day of the semester (fourth for summer semester). If you wish to add a course after this date, you must have the instructor's permission. You will need to complete a Schedule Adjustment Form, have the instructor sign it giving permission, and then process the form at the Registrar's Office, located in the Fletcher Center for Student Services.

**Dropping courses after the Add/Drop Period of the semester:** You may drop a full-semester course during the first eight weeks (40 days) of the semester. For courses running less than a full semester (e.g. seven-week class), check online for the official drop dates — the time period for dropping will be approximately equal to one-half of the course instructional period. If you drop a course, you will receive an N grade on your academic transcript. N grades are not counted in the academic GPA.

Dropping a class after the official drop date requires extenuating circumstances, and you must obtain a late Withdrawal form. You must:

1. Complete the form (including listing a reason for the drop).
2. Get the instructor's signature and the instructor's recommendation.
3. Take the completed form to the appropriate dean (of the class being dropped), for his/her review and decision.
4. If the dean approves the drop, you must then take the form to the Registrar's Office for processing.

A W grade will appear on your permanent record and will not affect your GPA.

**Complete Withdrawal:** If you are an enrolled student and drop all of your classes during the first eight weeks of the fall or spring semester (dates vary for summer semester), you may be eligible for tuition refund. To receive any refund, fill out a Withdrawal Form at the Registrar's Office. (Please check online for the refund policy and dates.)

Before leaving, be sure you have cleared any holds on your records so you can return at a later date or have transcripts of your academic records sent.

**Late Withdrawal:** Students requesting a late withdrawal from all of their courses after the official drop date must contact the Registrar's Office to make the request. Students will need to provide documentation of extenuating circumstances.

**Class attendance:** Regular class attendance and active participation in classes are important elements in the learning process. You are at the University primarily for the sake of intellectual growth and development. Attendance and participation provide appropriate opportunities for the evaluation of your progress.

You are personally responsible for the satisfactory completion of the course work prescribed by your instructors. This means that you are expected to attend classes regularly, and that you are responsible for the work assigned in class, the material covered in class, and for participation in class activities (including discussion and listening) designed by the instructor as part of the learning experience. However, mere physical attendance should not be a criterion for evaluation of your performance.

Participation in an official University function is an excused absence when approved by the provost. You will not be penalized for such participation. You are responsible for work missed and must confer with your instructor on this matter.

## Grading System

**Grades and Grade Points**

| Grade | Grade Points per Credit |
|---|---|
| A+ | 4.00 |
| A Excellent | 4.00 |
| A- | 3.70 |
| B+ | 3.30 |
| B Good | 3.00 |
| B- | 2.70 |
| C+ | 2.30 |
| C Average | 2.00 |
| C- | 1.70 |
| D+ | 1.30 |
| D Inferior | 1.00 |
| D- | 0.70 |
| F Failure | 0.00 |
| I Incomplete | 0.00 |
| N No Grade | 0.00 |
| W Late Withdrawal | 0.00 |
| AU Audit | 0.00 |
| CR Credit | 0.00 |

CR (undergraduate level) is equal to a 2.00

CR (graduate level) is equal to a 3.00

NC No Credit 0.00

**Grade Point Average (GPA):** To calculate your GPA for a semester, divide the total quality points earned by the GPA hours. GPA hours include those earned or failed but not those classes taken for credit/no credit. Cumulative GPA is calculated by dividing total quality points earned by the number of GPA hours carried in all semesters. If you repeat a course, count only the credits carried and the points of the last grade earned. Only the grade of your last attempt is calculated in your GPA.

A cumulative GPA of 2.00 for all credits is required for graduation. Further, a 2.00 cumulative grade point average for all credits in major, minor(s), and general education is required. Some programs require a higher GPA in the major curriculum.

**"I" (incomplete) grade:** Students may request an "I" (incomplete) grade for a course if extenuating circumstances beyond their control prevent the completion of the course requirements by the end of the semester. Examples of extenuating circumstances may include health issues, death of a parent/spouse/child, or military service. Students and faculty must be aware that an "I" (incomplete) grade counts toward the student's attempted credits for a semester and may thus affect Satisfactory Academic Progress. Students receiving financial aid must consult with the Financial Aid Office to discuss their specific situation when electing to drop a course or requesting an "I" (incomplete) grade.

Appropriate documentation is required. Students will need to be enrolled and have completed the majority of the work required for a course during the semester to be eligible to request an "I" (incomplete grade). An "I" (incomplete) grade may be issued in a course that by design can not be completed in one semester. An example of this type of course would be a study abroad course that requires the student to be out of the country until after the official semester end date. An "I" (incomplete) grade shall not be issued as a midterm grade for any course.

Students must work with the instructor to complete all missing requirements by a date specified by the instructor. If a date is not given, the student will have a maximum of two semesters (excluding summer semesters) to complete the requirements for the course and to have the "I" (incomplete) grade changed to an appropriate final grade. Students should not re-enroll in any class in which they currently have an "I" (incomplete) grade.

If the "I" (incomplete) grade has not been changed to an appropriate final grade by the end of two semesters (excluding summer semesters) the "I" (incomplete) grade will be changed to an "F" (failure) grade.

Students are **not** eligible to receive a degree or certificate with an "I" (incomplete) grade on their academic record.

**N and W grades:** These grades are given to those classes that you have officially dropped (N) or withdrawn (W).

## Dean's List

Full time students carrying at least 12 graded credits of college-level courses (100 level or above) in a semester with a grade point average (gpa) of 3.500 or higher, and NOT having any incomplete ("I") grades, will earn Dean's List honors, which acknowledge outstanding academic achievement.

If a grade is changed within 30 days from the end of the semester because of an instructor error in the recording of a grade, or because the student has completed the work required to resolve an Incomplete ("I") grade, the student will be considered for Dean's List honors.

Effective fall semester 2006, students earning Dean's List honors will have this designation noted on their LSSU academic transcript.

## Grade Appeal Policy

Lake Superior State University has established procedures for students to appeal a course grade. The only concerns that may be grounds for an appeal are the grades, and the consistent application of class requirements and policies as they pertain to grades. As with other concerns, a student may want to consult with the Student Ombudsman, www.lssu.edu/ombudsman, to discuss the matter.

A student who has concerns regarding an assigned grade may take the following

steps:

1. Contact the professor and explain the problem. Initial notice of a concern regarding a course grade must be given within 30 calendar days of the posting of the grade.
2. If the professor and student do not come to an agreement, the student may present his/her concerns to the Chair of the School offering the course, supported by appropriate documentation.
3. If mediation facilitated by the School Chair does not resolve the issue, the student should file a written appeal with the respective Dean that clearly identifies the concern with the grade and the class requirements and policies that were not consistently applied. The Dean must respond in writing to the student within 15 calendar days of receipt of the appeal.

If these steps do not resolve the problem, the student may petition the Provost in writing to convene an ad hoc Grade Review Board for a hearing of the issue. The petition shall set forth in detail the basis for the review. This petition must be submitted within 60 calendar days of the completion of the term in which the grade was assigned. The Board may grant an extension on this time limit in extenuating circumstances.

The members of the Grade Review Board, appointed by the Provost or his/her designee, shall include a Dean of a college other than that in which the course is housed, two faculty members from schools other than that of the course, and two students of junior or senior standing. The Provost or his/her designee will convene the Board for Grade Review Hearing and may participate in deliberations; however, he/she will not cast a vote should there be dispute in determining recommendations.

At the Grade Review Hearing, the student shall present his/her argument, followed by the professor's response. The Board shall promptly prepare a written recommendation and forward copies to all parties involved, including the Chairperson, Dean, and Provost. The report shall include dissenting opinions on the Board, if any. Recommendations of the Board are advisory to the Provost, who will make a final determination. Records of each case heard by the Board shall be maintained in the office of the Provost.

## Undergraduate Academic Standing

## Full- and Part-Time Students Academic Probation and Dismissal Policy

**For Undergraduate Coursework**

***Effective Summer 2005***

| Cumulative GPA Hours Carried at LSSU | Minimum for Good Standing* | On Probation | Dismissal |
|---|---|---|---|
| 1 - 18.9 | 2.00 | less than 2.00 | two consecutive semesters on probation |
| 19 - or more | 2.00 | less than 2.00 | two consecutive semesters on probation |

or 1.60 or less gpa

You will be dismissed for academic deficiencies if you are on probation for two consecutive semesters at Lake Superior State University. If your cumulative GPA Hours (as shown on your transcript) are 19 or more and your grade point average is 1.60 or less, you will be dismissed. GPA Hours are those used in figuring your grade point average. Classes not at the 100-level or above are not counted in the GPA Hours. Classes with grades of CR/NC are not counted in the GPA Hours.

*A cumulative grade point average of 2.00 for all credits carried at Lake Superior State University and a cumulative grade point average of 2.00 for all courses required in your major, minor and general education is necessary for graduation (effective fall 2007).

1. You will be on academic probation if your cumulative grade point average falls below 2.00. Academic Probation limits you to 15 credits. You must contact your advisor to adjust your schedule before classes start for the next semester.

2. If you are on probation for two consecutive semesters (summer semester included if you are enrolled in summer classes), you will be academically dismissed or, if your cumulative GPA Hours are 19 or more and your grade point average is 1.60 or less, you will be academically dismissed. Your classes for the next semester(s) will be deleted.

3. After a first or second dismissal you may choose one of the following options:

    1. Allow two semesters (summer may be counted for one semester) to elapse before re-enrollment,

       or

    2. Petition the Scholastic Standards Committee for immediate readmission should extenuating circumstances exist. This action is initiated with the Chair of the Scholastic Standards Committee. The Committee can either permit early readmission with specific conditions required of you or deny your request. Subsequent to the Committee's denial, you can further appeal in writing to the Provost, whose decision is final.

4. If you continue after a dismissal, you will be dismissed again after any semester in which your cumulative grade point average falls below a 2.00. The Registrar may allow you to continue "on probation," with the record showing "on probation" instead of "academic dismissal" if your record has shown improvement during the semester and you have a 2.00 grade point average in courses carried for that semester.

5. If you are dismissed a third time, you will not be reinstated without the permission of the Provost. Three semesters must elapse from the time of dismissal before you may petition for readmission. Summer may be counted for one semester.

6. The Scholastic Standards Committee may dismiss you from the university for demonstrated academic dishonesty.

# Graduate Academic Standing

## Full- and Part-Time Students Academic Probation and Dismissal Policy

**For Graduate Level Coursework**

*Effective Summer 2011*

A cumulative grade point average of 3.00 for all graduate credits carried at Lake Superior State University and a minimum grade of B for each course, including courses transferred into the program, are required for graduation.

1. You will be on academic probation if your cumulative grade point average falls below 3.00. Academic Probation limits you to six (6) credits. You must contact your advisor to adjust your schedule before classes start for the next semester.

2. If you are on probation for more than two consecutive semesters (summer semester included if you are enrolled in summer classes), you will be academically dismissed. Your classes for the next semester will be deleted.

3. After a first or second dismissal you may choose one of the following options:

    1. Allow two semesters (summer may be counted for one semester) to elapse before re-enrollment,

        OR

    2. Petition the Scholastic Standards Committee for immediate readmission should extenuating circumstances exist. The Committee can either permit early readmission with specific conditions required of you or deny you request. Subsequent to the Committee's denial, you can further appeal to the Provost, whose decision is final.

4. If you continue after a dismissal, you will be dismissed again after any semester in which your cumulative grade point falls below a 3.00. The Registrar may allow you to continue "on probation," with the record showing "on probation" instead of "academic dismissal" if your record has shown improvement during the semester and you have a 3.00 grade point average in courses carried for that semester.

5. If you are dismissed a third time, you will not be reinstated without the permission of the Provost. Three semesters must elapse from the time of dismissal before you may petition the Provost for readmission. Summer may be counted for one semester.

6. The Scholastic Standards Committee may dismiss you from the university for demonstrated academic dishonesty.

# Credit/No Credit Courses

You may enroll in some courses on a credit/no credit basis if you are in good academic standing. The following conditions exist:

1. One course per semester may be taken as credit/no credit.
2. Only 12 credits of courses taken as credit/no credit may be applied toward a degree.
3. Courses that are required by your major, minor, or that are general education courses, can not be taken for credit/no credit.
4. You apply at the Registrar's Office to enroll for a credit/no credit course during the add/drop period; cannot change to regular grades after the add/drop period ends.
5. You maintain a 2.00 (C average) in a course to receive a CR grade.
6. Instructors are not notified that you are taking a course as credit/no credit; the CR or NC credit is assigned based on the grade your instructor submits.

Certain courses are always offered with a credit/no credit format. These courses have this information in the official course description and course syllabi. The policy and limitations outlined above do not apply to these courses.

## Cheating and Plagiarism: Academic Integrity

Academic integrity is a key component of the core values of Lake Superior State University. All members of the University community are expected to be honorable and ethical and observe standards of conduct appropriate to a community of scholars. Students are expected to behave in an ethical manner. The University community will not tolerate academic dishonesty as such behavior will cause harm to the reputation of students, faculty, and graduates of the institution. Such dishonorable behavior includes, but is not limited to, cheating, fabrication, plagiarism, and obtaining an unfair advantage. These terms are defined below:

**Cheating**

Cheating is defined as using or attempting to use unauthorized materials or information of any kind during an exam or graded assignment of any kind. Using notes, texts, help from individuals, or copying information from another individual's exam, or by using electronic or any other means constitutes cheating unless such resources are EXPLICITLY allowed by the instructor.

**Fabrication**

Fabrication is any unauthorized falsification, invention, or copying of data, falsification of information, citations, or bibliographic references in any academic work. It also includes falsifying any academic record or other University document.

**Plagiarism**

Plagiarism is representing someone else's work as one's own. Failing to cite references or presenting material, verbatim or paraphrased, that is not acknowledged and cited also constitutes plagiarism.

**Obtaining an Unfair Advantage**

Academic integrity is violated when one obtains an unfair advantage by stealing, reproducing, circulating, or otherwise gaining access to examination materials before they are distributed by the instructor. Also prohibited are stealing, destroying, defacing, or concealing library materials with the purpose of depriving others of their use.

**Possible Sanctions for Offenses**

It is in the best interest of the University community to sanction any individual who chooses not to accept the principles of academic honesty by engaging in the above acts. Appropriate sanctions may include failure of an assignment or exam, failure of a course, or dismissal from the University.

**Faculty and University Responsibilities**

Unless the faculty member has explicitly specified otherwise, students are to assume that exams are individual, closed book, and without the use of notes or similar reference materials. Unless specifically allowed by the faculty member, papers, projects, and similar products are expected to be the original individual work of the student. If notes, texts, other reference materials, group work or similar activities are to be allowed, the faculty member will specify what is permitted for a particular assignment or exam prior to disseminating the assignment or exam.

A faculty member who observes a violation in one or more of the above areas shall meet with the student to address the violation. If, in the judgment of the faculty member, academic integrity has been violated, the faculty member will impose the appropriate sanction, either a failure for the assignment or exam, or failure for the course. The faculty member will then file an Academic Integrity Incident Report with the department chair, dean, the Provost's Office, and the office of Student Affairs. This report will be kept in the Provost's Office as well as in the office of the Vice President of Student Affairs for a period of five years. A copy of this report will also be placed in the student's advising file. Academic Departments or Schools may have additional policies and procedures that could provide further recommendations to the Provost's Office when instances of academic dishonesty are suspected. This policy is also applicable in the Testing Center.

In cases of egregious or repeated violations, it may be determined by the faculty member, his/her department chair, or dean, that dismissal from the University is warranted. In this case, the chair of the Scholastic Standards Committee and the student will be notified. The Scholastic Standards Committee will then conduct a hearing in which the student is granted due process. If the committee decides that dismissal from the university is warranted, the student will have five school days to appeal the decision to the Provost of the University. The Provost may either affirm the decision to dismiss, or reinstate the student and provide a rationale for doing so.

**Theft**

Everyone is expected to show respect for University and individual property. Theft of any kind, whether of money, property, or services, violates the entire community and will not be tolerated. Destruction or mutilation of books, magazines, or other library material is considered a form of theft. Theft, damage or destruction of University property, or the property of others, is considered a serious offense against the University community and may result in penalties including the issuance of fines, removal from the campus, dismissal from the University, and/or criminal prospecution. If you have anything stolen while on University property, please notify the Public Safety Department by calling 635-2210 as soon as possible.

## Auditing a Class

Audits are designed for someone who wishes to take a particular course for its content but not be graded for the course. An LSSU student may register for any course on an audit basis provided all prerequisites have been satisfied. Normal tuition and fees are charged for audited courses.

The coursework for auditing a course is determined in conjunction with the faculty member for the course.

Auditing courses does not count as part of a student's official class load for determining financial aid eligibility, veteran's benefits or any other enrollment certification requirements.

Students may change from an audit to credit status during the first week of classes and only with the concurrence of the faculty member for the course. This change must be processed through the Registrar's Office for grading purposes.

## Senior Audit Policy

Residents of Michigan who are 60 years of age or older may take undergraduate courses at Lake Superior State University without paying tuition (tuition is waived). Such residents may register on an audit basis for any undergraduate course offered by the University, provided that space is available, and the individual meets the prerequisites or has the permission of the instructor. Verification of age must be provided to the Registrar.

Those participating in course work under this program shall be entitled to full classroom participation, and may complete all assignments and examinations for evaluation by the instructor. The purchase of textbooks, program fees, special course fees, and required materials shall be the responsibility of the participant. The student's name will not appear on an instructor's official class list or grade roster and no grade will be recorded for the student in the Registrar's Office.

## Transcripts

You may have an official copy of your permanent records sent to schools, companies and other places or persons of your choice. Complete and sign a Transcript Request Form and mail or fax it to the Registrar's Office, 650 W. Easterday Avenue, Sault Ste. Marie, MI 49783. Your first official transcript requested is free; after, there is a $5 charge for each transcript. Student copy transcripts are issued directly to you and can be requested free of charge at the Registrar's Office in the Fletcher Center. You must show a picture I.D. Any financial or other obligations to the University must be cleared before a transcript is released. You may also print an unofficial transcript on-line using Anchor Access.

## Family Educational Rights and Privacy Act (FERPA)

Section 438 of the General Education Provisions Act, as amended, sets forth the requirements to be met by an educational institution to protect the privacy of students. This act is called the Family Educational Rights and Privacy Act and shall be referred to hereafter the Act. The Act generally governs access to student educational records and the release of such records. The Act also requires that institutions of higher education must provide students access to official records directly related to the student and an opportunity for a hearing to challenge such records on the grounds that they are inaccurate, misleading or inappropriate. Educational institutions must also obtain written consent before releasing personally identifiable data about students from records to other than a specified list of exceptions. In addition, students must be notified of these rights.

In accordance with provisions of the Act and the regulations enacted by the U.S. Department of Education, Lake Superior State University has adopted the following policies and procedures:

**Section 1. General Policy on Access and Disclosure**

Lake Superior State University shall not as a matter of policy or practice:

1. Deny or prevent students at the University the right to inspect or review the educational records of such students,

   or

2. Permit the release of educational records contrary to the provisions of the Family Educational Rights and Privacy Act and the policies and procedures set forth in the following sections.

**Section 2. Notification to Students**

Under the provisions of the Act, the University must annually notify students of their rights and the institution policies pertaining to the Act. In addition, notice must be given to the location where the policy can be obtained as well as to inform the students of the right to file complaints with the U.S. Department of Education concerning alleged failures by the University to comply with the Act. In accordance with these requirements the annual notice regarding students' rights, the location of copies of the University's policies setting forth these rights, as well as the right to file complaints with the Family Educational Rights and Privacy Act Office, shall be published in the University Catalog. The annual letter to students will notify students of directory information.

The registrar is the hearing officer for the Act and is responsible for implementing the notification requirements and the distribution of copies of the policies and procedures.

**Section 3. Education Records Defined**

*"Education records"* means those records which:

1. Directly relate to a student or
2. Are maintained by the University or its agent.

The term does not include:

1. Records of institutional, supervisory, and administrative personnel which:
    1. are in the sole possession of the maker thereof, and
    2. are not accessible or revealed to any other individual except a substitute.

    A *substitute* is defined as one who performs, on a temporary basis, the duties of the individual who made the record. It does not refer to an individual who permanently succeeds the maker of the record in his or her position.
2. Records of the law enforcement unit of the University (Security Department) which are:
    1. maintained apart from the University's educational records;
    2. maintained solely for law enforcement purposes; and
    3. not disclosed to individuals other than law enforcement officials of the same jurisdiction, provided that educational records maintained by the University are not disclosed to the personnel of the law enforcement unit.

3. Records relating to an individual who is employed by the University which:
    1. are made and maintained in the normal course of business;
    2. relate exclusively to the individual in that individual's capacity as an

employee; and
3. are not available for use for any other purpose.
4. This paragraph (3) does not apply to records relating to an individual in attendance at the University who is employed as a result of his or her status as a student.

4. Records relating to an eligible student which are:
    1. created or maintained by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional acting in a professional or paraprofessional capacity, or assisting in that capacity;
    2. created, maintained, or used only in connection with the provision of treatment to the student; and
    3. not disclosed to anyone other than individuals providing the treatment; provided, that the records can be personally reviewed by a physician or other appropriate paraprofessional of the student's choice. For the purpose of this definition, "treatment" does not include remedial educational activities or activities which are part of programs of instruction at the university.

5. Records of the university which contain only information relating to a person after that person is no longer a student at the University. An example of these records would be information collected by the University pertaining to the accomplishments of its alumni.

**Section 4. Rights to Inspect and Review Education Records**

A student who is enrolled at or has attended Lake Superior State University has the right to inspect and review his/her educational records subject to the limitations set forth in Section 3 and 13.

The educational record recorded by the student will be provided within a reasonable period of time defined by availability of staff time and the records. Records will be provided no more than 45 days after the request is made.

The right to review educational records includes the right to a response from Lake Superior State University to reasonable requests for explanation and interpretations of the subject record.

**Section 5. Procedures for Inspection and Review of Records**

A written request for the inspection is required for review of educational records or release of records, where permitted, to third parties. See Section 10A for release of records to third parties. The request must be submitted to the appropriate officer. See Section 7 for list of officials maintaining educational records.

The written request under this section must contain:

1. A description of the information requested,
2. The date, if any, that the information is required,
3. The student's signature, and
4. The date the request is filed.

**Section 6. Copies of Records: Fees for Copies**

Copies of educational records will be provided under the Act under the following conditions:

1. Where failure to provide a copy would effectively prevent a student from exercising the right to inspect and review the educational record. (Examples of when this provision would be effective would be absence from the state or a confining illness.) If the student will return to the residence occupied while attending the University or be within 30 miles of campus and is not physically incapacitated during the 45-day compliance period, copies shall not be provided but the right of inspection may be exercised. Under this provision, a written request is required (see Section 10A) specifying the record to be disclosed and the reason that a personal inspection of the record cannot be made during the 45-day compliance period. Requests are reviewed on a case-by-case basis to determine if copies are required as opposed to personal inspection.
2. On request, under the provisions of Section 10B regarding records to officials of another educational institution in which the student is enrolled or seeks or intends to enroll.
3. On request, or with the consent of the student, under the provisions of Section 10A, regarding information released with the approval of the University to third parties. The University shall not charge a fee for copies of records provided under the Act. There is not a charge for search, retrieval or inspection of the record. Copies of records provided under these provisions do not carry the University seal or official signature of approval.

**Section 7. Listing of Location of Education Records**

The following is a list of the records considered educational in nature under the Act and their locations listed by Office, Type of Record, Responsible Official, and Location.

- Admissions; Academic file, Financial; Director of Admissions; Hillside House
- Career Advising and Placement; Academic, Personal, evaluations; Director; Library
- Continuing Education; Academic; Director; Library
- Human Resources; Work Evaluation, Employment; Director; Administration Building
- Financial Aid; Financial, Academic, Personal evaluation,
- Employment; Director; Fletcher Center
- Graduate Office; Academic, Financial; Coordinator; Crawford Hall
- Registrar's Office; Academic (complete and official academic record), Personal, Veterans Affairs; Registrar; Fletcher Center
- Residence Halls; Personal; Housing Manager; Cisler Center
- Residence Halls and Student Life; Discipline; Director for Student Programs and Services; Cisler Center
- Student Accounts; Financial; Director Business Operation; Fletcher Center
- Academic Areas, Academic; School/Department Chairs.

Note: All academic records are partial records with the exception of the Registrar's Office as noted above.

**Section 8. Disclosure of Restricted Information to University Officials**

Personally identifiable information from the education records of a student may be disclosed without the prior consent of the student to University officials who have a legitimate educational interest in the information. The University officials must demonstrate a need to obtain the information consistent with their official functions and the request must be consistent with normal professional practices and legal requirements.

The disclosure of personally identifiable student information under the above conditions will not be disclosed to any other party without the prior written consent of the student, except that such information may be used by the appropriate officials or agents of the University for the purpose for which the disclosure was made.

**Section 9. University Officials**

For the purpose of these procedures and policies, University officials are those individuals who have demonstrated a need for access to student records consistent with official University responsibilities and professional practices.

University officials include: Members of the faculty, professional, executive and administrative staff, including the Public Safety Department, departmental secretaries, student employees who manage student education record information, students properly appointed as members of a hearing panel or screening committee, representatives of the State Auditor General when performing their legally required duties, legal, insurance, or collection representatives of the University when performing their university-related duties requiring student record information concerning a claim or legal matter.

**Section 10. Disclosure of Personally Identifiable Information**

**A. Prior Consent for Disclosure Required**

The University shall obtain the written consent of the student before disclosing personally identifiable information from their education records to third parties other than directory information. Consent is not required where the disclosure is to the student.

If the University consents to the release of personally identifiable student information to third parties under this section (10A) at the written request of the student, the University will also provide the student with a copy.

The written consent required under this section (10A) must be signed and dated by the student and shall include:

1. A specification of the record to be disclosed.
2. The purpose of the disclosure.
3. The party or class of parties to whom disclosure may be made.
4. A statement granting consent for the release of the information.

**B. Prior Consent for Disclosure Not Required**

The University may transfer or disclose the educational records of a student, without prior written consent, on request to the officials of another educational institution in which the student is enrolled or intends to enroll.

The University, upon request, will provide the student with a copy of the transferred educational records.

Information from the educational records of a student may be disclosed, without prior written consent, if the disclosure is:

1. To federal and state authorities as provided by the Act or other legal authority.
2. In connection with financial aid for which a student has applied or received; provided that the information may be disclosed only:

1. to determine the eligibility for financial aid,
2. to determine the amount of aid
3. to determine the conditions that will be imposed regarding financial aid, or
4. to enforce the terms or conditions of the financial aid.

3. To organizations conducting studies on behalf of educational agencies or institutions for developing, validating, or administering predictive tests, administering student aid programs; and improving instruction; provided that the studies are conducted in a manner which does not permit personal identification of students by persons other than the representatives of the organization. The information must be destroyed when it is no longer needed for the purpose for which the study was conducted.
4. To accrediting organizations in order to carry out their accrediting functions.
5. To comply with a judicial order or lawfully issued subpoena; provided that Lake Superior State University will make a reasonable effort to notify the student of the order or subpoena in advance of compliance.
6. To appropriate parties in an emergency to protect the health or safety of the student or other individuals.

**Section 11. Directory Information**

Family Educational Rights and Privacy Act permits the disclosure of certain personally identifiable information from the educational record of a student if that information is designated as directory information as defined by the Act.

In order to release such information the University is required to provide public notice of the following:

1. The categories of personally identifiable information designated as directory information.
2. The right of the student to refuse to permit the designation of any or all of the categories with respect to that student.
3. The time which the student must inform the University in writing that such directory information is not to be released.

In compliance with these provisions, the University will announce its intention to release directory information each fall in the annual letter. Written requests to prohibit or restrict the use of directory information should be addressed by the last day of the add/drop period to the Registrar's Office.

The University considers the following as directory information: name, address, telephone number, place of birth, e-mail address, enrollment status (e.g., undergraduate or graduate, full time or part time) major field of study, dates of attendance, degrees, honors and awards received, including scholarships, most recent previous educational agency or institution attended by student, participation in officially recognized activities and sports, and height and weight of members of the athletic teams.

In the event that this list is altered or expanded, these provisions will be amended in accordance with the Act.

**Section 12. Record of Disclosures Required to be Maintained**

Lake Superior State University shall for each request and disclosure of personally identifiable information from a student's education records maintain a register within that file of the education records which indicates:

1. The parties who have requested or obtained information.
2. The legitimate educational interests the parties have in obtaining the information.

A record is not required for disclosures to a student, disclosures pursuant to the student's written consent when consent is specific to the party or parties, disclosures to University officials as set forth in Section 9, or disclosures of directory information as provided in Section 11.

The record of disclosures may be inspected by: the student, University officials and assistants responsible for the custody of the records, and university officials authorized in Section 9 and persons outside the University as authorized in Section 10 for the purpose of auditing the record keeping procedures of the institution.

**Section 13. Limitation on the Right to Inspect and Review Records**

The University is not required to permit a student to inspect or review the following records:

1. Financial records and statements of parents or any information contained therein.
2. Confidential letters and statements of recommendation placed in the student record prior to January 1, 1975; provided that such letters and statements were solicited with written assurance of confidentiality or sent and retained with a documented understanding of confidentiality. The documents must be used only for the purposes specifically intended.
3. Confidential letters and statements of recommendation and statements for which the student has waived the right to inspection as set forth in Section 16 and placed in a student's file after January 1, 1975 respecting:
    1. admission, or
    2. application for employment, or
    3. receipt of an honor or honorary recognition.
4. Those records which are defined not to be education records as set forth in Section 3

If the educational record of a student contains information on more than one student, the requesting student may review or inspect or be informed of only the specified information which pertains to the student making the inquiry.

**Section 14. Request to Amend Educational Records**

A student who believes information in the student's educational records is inaccurate, misleading or violates the privacy or other rights of the student may request the University amend such records.

The procedures regarding amendment to a student record are:

1. Submission of a written request to amend the record in question to the University office responsible for the content of the record.
2. A written request specifying the information to be amended and the basis for requesting a change in the record.
3. The written request should also suggest the recommended corrective action.
4. The University official responsible for establishing the content of the record in question within 14 calendar days will inform, in writing, the student that

the record will be amended or the request is denied. If additional time is required to make a decision, the student will be advised of that period required.

5. Amendments and corrections will be completed within 14 calendar days of the date of notice to the students.
6. If the University official responsible for establishing the content of the educational record denies the request to amend the record, the written notice of this decision will advise the student of the right to a hearing.

**Section 15. Right to a Hearing**

The Act provides an opportunity for a hearing to challenge the content of a student's educational record to insure that the record does not contain inaccurate or misleading information or violates the privacy or other rights of the student. This procedure can not be used to challenge grades. The following procedure defines the process after the decision of denial.

*Procedure of Hearing*

A student desiring a hearing on a denial to amend the record by the official establishing such records must:

1. Submit a written request for a hearing to the hearing officer and the registrar.
2. Designate in the request: the student's name and identification number, date of request, specific information on the record challenged, basis for amending record, summary statement of previous action taken to amend record including names of individuals contacted and from whom communications have been received.

The hearing officer will, within seven calendar days of receipt of the request for hearing, notify the student of the hearing date, time and location. At least 72 hours notice prior to the hearing will be provided to involved parties.

A full and fair opportunity is available to present evidence relevant to the question of whether the record in question is inaccurate, misleading or in violation of the privacy or other rights of the students.

The student may be assisted or represented by any individual and expense including an attorney.

The hearing officer will render a decision on the appeal within seven calendar days of hearing's conclusion. The decision shall be in writing and based solely upon the evidence presented at the hearing. The written decision to the student shall include a summary of the evidence and reasons for the decision.

If, as a result of the hearing, the hearing officer rules the information is inaccurate, misleading or in violation of any of the student's rights, the record in question will be amended within seven calendar days of the decision.

If, as a result of the hearing, the hearing officer determines that the record should not be amended, the student shall be informed of the right to place in the education record a statement commenting upon the information and setting forth the reasons for disagreeing with the University's decision.

Any explanation placed in the record of the student under this provision shall:

1. Be maintained as a part of the record as long as the record or the

contested portion thereof is retained by the University, and
2. Be disclosed by the University, along with the contested record to any party receiving such record.

**Section 16. Waivers**

A student may waive any right under the Act. The waiver shall not be valid unless it is in writing and signed by the student. The University may not require that a student waive any right under the Act. This requirement does not preclude the University from requesting such a waiver.

An applicant for admission or a student in attendance may waive the right to inspect and review confidential letters and statements of recommendation. The waiver applies to letters or statements only if it is in writing and designated by the student and if:

1. The applicant or student is notified of the names of those providing letters or statements.
2. The documents are used only for the purpose intended.
3. The waiver is not required as a condition of admission or receipt of any service or benefit from the University.

A waiver may be revoked, but that action must be in writing and filed with the office in possession of the waiver.

Students have the right to file a complaint with the U.S. Department of Education concerning alleged failures by Lake Superior State University to comply with the requirements of FERPA. The name and the address of the office that administers FERPA is:

Family Policy Compliance Office
U.S. Department of Education
400 Maryland Avenue, SW
Washington, DC 20202-5901

## Additional Information

Lake Superior State University complies with Section 113 of the Carl D. Perkins Vocational and Technical Education Act and Section 122 of the Workforce Investment Act of 1998. LSSU uses the student's SSN in order to compile required WIA and Perkins Act reports.

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## Degree Requirements

Lake Superior State University offers bachelor (also called baccalaureate) degrees, associate degrees and certificates, as well as a master of arts degree in curriculum and instruction. These degrees are offered in a wide variety of academic programs. Each academic department has a set of specific courses and other requirements for each of its degree programs. However, some requirements are of a general nature, applying to all such degrees. These are discussed below.

**Masters degree:** A minimum of 30 semester credits beyond the bachelor's degree. At least 50% of courses applied to a graduate degree are courses designed for graduate work.

**Bachelor degree:** A minimum of 124 credits (at the 100 level or higher) is required for a bachelor degree. Some programs require more than this number of credits. Requirement categories are: general education, bachelor of arts (if applicable) and departmental. Some programs require support courses and/or a minor, and free electives.

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**Associate degree:** A minimum of 62 credits (at the 100 level or higher) is required for an associate degree. Some programs require more than this number of credits. Requirement categories are: general education and departmental. some programs require support courses and free electives.

**Certificate:** A certificate may be comprised of a series of courses/experiences housed in one department, or a cluster of courses/experiences in a defined thematic area which are not confined to a single disciplinary area - referred to as a multidisciplinary certificate.

**Minor:** Academic minor programs are offered in a wide variety of disciplines. A minimum of 20 credits is required for a minor, and some require more.

**GPA:** A minimum cumulative grade point average of 2.00 for all credits carried at Lake Superior State University **and** a minimum cumulative grade point average of 2.00 for all courses required in your major, minor and general education is necessary for graduation. Some degree programs may require a higher gpa.

**Electives:** Elective courses are chosen to obtain credit beyond that of specified requirements. Free electives refer to courses you may select completely of your own choice. Designated electives refer to courses selected from a list specified by the department.

## Residency Requirements: On-campus and regional centers

**Bachelor degree candidates** must successfully complete at least 30 of the last 60 credits earned for the degree using Lake Superior State University courses. Additionally, at least 50 percent of the departmentally required 300/400 level credits must be earned using Lake Superior State University courses.

**Associate degree candidates** must successfully complete at least 15 of the last 30 credits earned for the degree using Lake Superior State University courses. Additionally, candidates must earn at least 50 percent of their departmentally required credits in courses offered by Lake Superior State University.

**Certificate candidates** must successfully complete at least 16 of their last 20 credits of their departmentally required credits in courses offered by Lake Superior State University.

**Minor candidates** must earn at least 10 of the departmentally required credits using Lake Superior State University courses.

Departmental residency requirements may exceed the residency of the University for certain degree programs.

## Multiple Majors

You may earn more than one major by completing all requirements of each desired major program. Before graduation, you must file a Degree Audit approved by the school chair for each major. The double major must be granted as one combined degree such as: bachelor of science degree in accounting and business administration.

## Multiple Degrees

If you desire to earn more than one degree, you must complete all program requirements of the additional degree(s) as certified by the school chair, comprising a minimum of 30 additional LSSU credits for each additional baccalaureate degree, or a minimum of 15 additional LSSU credits for each additional associate degree from Lake Superior State University.

There are no overlapping or additive residency requirements between the associate and baccalaureate degree tracks. The degrees stand alone. Earning an additional associate degree and a baccalaureate degree at the same time would require the completion of an additional minimum of 30 credits.

## Additional degrees for graduates of other universities

Students who hold a baccalaureate degree at another U.S. accredited institution, and who desire a baccalaureate degree from LSSU, must complete all requirements of an approved degree schedule including at least 30 additional credits in courses offered by LSSU. The degree schedule must be approved by the major school chair and sent to the Registrar's Office. Transfer credits from other universities will be evaluated for those classes used for the new degree. You should initiate the approval process with the school chair at the time of or before commencing study toward the additional degree. The schedule elected shall consist mainly of minor, major and cognate courses.

Courses considered essential to the degree but not previously elected may, at the option of the school chair, be required even though the total may exceed 30 credits. Lake Superior State University general education requirements are considered complete if you earned a bachelor’s degree at any United States accredited university or an honors bachelor’s degree from an accredited

Canadian university.

If you earned a bachelor's degree or associate's degree at another accredited institution and desire an associate's degree from Lake Superior State University, you must complete all requirements of an approved degree schedule including at least 15 additional credits in courses offered by LSSU. The degree schedule process is identical to that described above for an additional bachelor's degree. The schedule elected shall consist mainly of major and cognate courses. Courses considered essential to the degree but not previously elected may, at the option of the school and college, be required even though the total may exceed 15 credits.

## Failed Classes

If you fail a class required for your degree program, you must repeat the class and receive a passing grade. If the failed class is no longer offered because of program changes and/or course deletions, the dean may approve a substitution or waiver recommended by the academic chair. The chair must provide reasons for the recommendation on the substitution/waiver form which is sent to the dean's office.

## Exceptions to Graduation Requirements

Exceptions to specific general education requirements may be granted only by the Scholastic Standards Committee. Such exceptions are infrequently made. A petition for exceptions to general education requirements is initiated with the Chair of the Scholastic Standards Committee.

Course substitutions and waivers of departmental degree program requirements may be granted only by the dean of the school or college offering the program (major or minor).

Normally, you will graduate under the program degree requirements in effect and published in the Catalog at the time you are admitted into the given degree program, provided enrollment at the University is continuous. If enrollment is interrupted, or if you select a new major, you must satisfy program requirements in effect at the time you re-enter or officially change to the new major. If program requirements are revised during your enrollment, you will be allowed to graduate under the new requirements providing you can meet such requirements in their entirety.

The University reserves the right to change the requirements for graduation at any time as a means of keeping pace with educational developments affecting the various curricula. As such changes are made, they may, at the discretion of the University, be applied to students already enrolled. In such cases, reasonable and prudent effort will be made to provide the benefit of the new educational program without imposing undue hardship.

## Posthumous Degree Policy

A posthumous degree may be awarded in the name of a deceased student upon request of the student's family, if the deceased student had met the requirements as set forth below.

The deceased student will need to be in good academic standing with the University and have completed a majority of the requirements for the degree. The Chair of the school responsible for the student's degree program will make the recommendation to the Dean. The Dean will complete a degree audit and submit it to the Registrar who will complete a verification of the requirements, and submit the request to the Provost. If the Provost approves, the request will

be submitted for Presidential approval, and final Board of Trustees approval.

The academic transcript will be marked: "Degree Granted Posthumously". A copy of the academic record will be released, if requested, to an attorney representing the estate of the deceased student.

Deceased students not meeting the above criteria may receive a "Certificate of Achievement' if requested by the family.

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# General Education Requirements

## General Education Mission Statement

In a diverse and changing world, college graduates must be prepared for a lifetime of learning in a variety of fields. In order to meet this challenge, general education requirements foster the development of general skills and knowledge that are further developed throughout the curriculum. LSSU graduates will be able to:

- Analyze, develop, and produce rhetorically complex texts
- Communicate competently in a variety of contexts (Communication Outcomes)
- Analyze, evaluate, and explain human aesthetics and its historical development (Humanities Outcomes)
- View the world from cultural perspectives other than their own (Diversity Outcomes)
- Incorporate empirical evidence in the analysis of the causes and consequences of natural phenomena (Natural Science Outcomes)
- Think critically and analytically about the causes and consequences of human behavior (Social Science Outcomes)
- Analyze situations symbolically and quantitatively in order to make decisions and solve problems (Mathematics Outcomes)

## General Education Core Requirements (Bachelors Degree)

**Communication Skills**

- ENGL110, ENGL111, COMM101

**Humanities (Minimum 7 credits)**

- HUMN251
- *One class from:* ARTS250, ARTS251, HUGE100, HUMN203, HUMN240, HUMN252, HUMN255, MUSC220, MUSC221, NATV240, PHIL302, PHIL305 or six to eight credits from second year of foreign language.

**Mathematics (Minimum 3 credits)**

- MATH110 or higher or PHIL205

**Natural Science (Minimum 7 credits)**

- *Complete two natural science courses from:* BIOL104, BIOL105, BIOL122, BIOL131, CHEM105, CHEM108 and CHEM109, CHEM115, CHEM116,

GEOG106, GEOG108, GEOL115, GEOL121, GEOL122, NSGE100, NSCI101, NSCI102, NSCI103 and NSCI104, NSCI110, NSCI116, NSCI119, PHYS221, PHYS231.

**Social Science (Minimum 6 credits)**

- *Choose two courses from different disciplines (Subjects):* BUSN121, ECGE100, ECON201, ECON202, ECON208, ECON209, ECON302, GGGE100, GEOG201, GEOG302, HIST101, HIST102, HIST131, HIST132, HSGE100, POLI110, POLI160, POLI241, PSGE100, PSYC101, PSYC155, PYGE100, SOCY101, SOCY102, SOCY113, SOGE100.

**Diversity (Minimum 3 credits)**

- *Select one course from:* BUSN308, EDUC250, GEOG306, HIST203, HLTH328, NATV225, POLI234, POLI334, SDGE100, SOCY103, SOCY213, SOCY225, SOCY226, SOCY321.

**Total Credits Required: 35**

## General Education Core Requirements (Associates Degree)

***- Effective Through Fall Semester 2013 -***

**Communication Skills**

- ENGL110, ENGL111, COMM101

**Mathematics (Minimum 3 credits)**

- MATH110 or higher or PHIL205

**6 additional General Education credits are required (chosen from the Humanities, Mathematics, Natural Science, Social Science, or Diversity categories listed above).**

**Total Credits Required: 18**

## General Education Core Requirements (Associates Degree)

***- Effective Spring Semester 2014 -***

**Communication Skills**

- ENGL110, ENGL111, COMM101

**Mathematics (Minimum 3 credits)**

- MATH110 or higher or PHIL205

**12 additional General Education credits are required (chosen from at least two of the following categories listed above: Humanities, Natural Science,**

**Social Science, or Diversity)**

**Total Credits Required: 24**

## General Education Core Requirements (Associate of Applied Science Degree)

***- Effective Spring Semester 2014 -***

**Communication Skills**

- ENGL110
- ENGL111 or COMM101

**Mathematics (Minimum 3 credits)**

- MATH102 or higher or PHIL205

**6 additional General Education credits are required (chosen from the following categories listed above: Communication Skills, Humanities, Mathematics, Natural Science, Social Science, or Diversity).**

**Total Credits Required: 15**

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# Graduation Procedures

Two semesters prior to intended graduation, students must submit the following to the Registrar's Office:

**Graduation Application:** Students must complete a Graduation Application Form for each degree or certificate they plan to receive.

**Official Degree Audit:** The official Degree Audit for a student's major or minor specifies all required courses that have been or must be completed. The audit must be signed by the chair of the school or department offering the major or minor program. Course substitutions and waivers of departmental degree program requirements may be granted only by the chair and approved by the dean of the college offering the major or minor program. Course substitutions and waivers for education majors or minors must also have approval from the School of Education.

Exceptions to specific general education requirements may be granted only by the Scholastic Standards Committee. Such exceptions are infrequently made. A petition for exceptions to general education requirements is initiated with the Chair of Scholastic Standards.

The Registrar's Office will verify the students' Degree Audits and will send a Degree Audit Verification Form to each student and respective school or department chair. Students are responsible for examining this verification form and requesting clarification of anything that is not consistent with their records or understanding.

A final degree audit verification will be completed after grades are received at the end of the semester, for students planning to graduate as of that semester. The degree will be awarded if all requirements have been satisfied. Names of these graduates are then sent to the president for approval by the Board of Trustees. Subsequently, a diploma is provided to each student.

**Please Note:** Students are **not** eligible to receive a degree or certificate with an "I" (incomplete) grade on their academic record.

**Diploma charge:** There is no charge for the first diploma from the University. A fee is charged for replacement diplomas.

Students completing graduation requirements in the fall, spring or summer semester who need documentation of degree completion before their diploma is available, may request a letter from the Registrar's Office certifying that they have completed degree requirements.

**Graduation with honors:** Honors graduates must earn at least 30 credits at Lake Superior State University.

**Cum Laude:** Cumulative gpa of 3.50 to 3.69

**Magna Cum Laude:** Cumulative gpa of 3.70 to 3.89
**Summa Cum Laude:** Cumulative gpa of 3.90 to 4.00

Graduation diplomas with honors will be awarded to baccalaureate, associate, and certificate recipients. Honors medallions will be awarded to baccalaureate, associate and certificate recipients who graduate summa cum laude.

For the commencement ceremony and program, honors status will be determined based on the Fall Semester cumulative gpa. Official graduation with honors status will be granted based on students' final cumulative gpa at LSSU.

## Honors Degree

The University Honors Program offers highly motivated students the opportunity to develop their abilities and skills in exciting and innovative ways. The central goal of the University honors program is to create a community of scholars characterized by strong student-faculty interaction around the world of ideas. The honors program fosters an approach to education that incorporates the qualities of active participation, intellectual curiosity and an interdisciplinary focus.

Selection is based upon a number of factors, including: ACT scores, high school grade point average, application essay, personal interview and Lake State faculty nomination. Students invited to participate in the program enroll in courses designated for honors credit. The courses are distributed among the requirements for general education, the student's major, and the University honors program and may include small seminars or independent research projects.

To graduate with an honors degree in a program of study, the honors student must have formal acceptance into the University honors program and have successfully completed 21 honors credit hours with an overall grade point average of 3.5* or better at graduation. The 21 honors credit hours are to be distributed among the University's requirements for general education, the student's major and the University honors program.

Upon graduation from the honors program, the student will receive an honors degree in his/her program of study. The honors degree designation is indicated on the student's diploma and is distinct from graduating with honors (see Graduation with Honors).

**Students who entered LSSU prior to Fall 2005 will be allowed to continue in the Honors Program with a cumulative gpa of 3.3 (i.e. the previous requirement is "grandfathered" in).*

## Acceptance of Other Institutions' Honors Credits

This policy applies only to the transfer of honors credits which count towards earning an honors degree at Lake Superior State University. It does not affect non-honors course credits and the transfer of those credits to LSSU.

1. The LSSU Honors Program will accept up to 12 honors credits with a grade no lower than B taken at an accredited college or university. These accepted honors credits will count towards the 21 honors credits required to graduate from LSSU's Honors Program.
2. To graduate from the Honors Program at LSSU, students affected by this policy must meet the following requirements at LSSU:
    1. At least one, three-credit 200 or 300 level Honors seminar (e.g., HONR 302)
    2. The completion of the capstone senior thesis project

3. Students who transfer into LSSU's Honors Program will receive the same honors benefits given to other students who enter LSSU's program earlier. These include but are not limited to:
    1. Priority Registration
    2. Optional Honors Housing
    3. Opportunities to participate at Honors Program conferences

4. Students who transfer into LSSU's Honors Program will receive the same Honors designation on their Lake Superior State University diploma as other LSSU students who meet its Honors requirements by their graduation date.
5. This Policy shall commence on January 24, 2012, or as soon thereafter as administratively possible, and shall be in effect until suspended or terminated.
6. Students already admitted into the Lake Superior State University Honors Program at the time of suspension or termination will be allowed to complete the Program at LSSU under the terms of this policy enumerated (above) in numbers 1 through 4. Suspension or termination will only affect those admitted after suspension or termination of this policy.

## Commencement

From the Graduation Application Forms submitted by students, a potential graduate list is created each semester. The names of students who are listed in the annual commencement program are also compiled from the Graduation Application Forms. Names for the commencement program and diplomas will be the official, legal name as listed in the records of the University. Students may not be listed in the commencement program unless their Graduation Application Form is filed with the Registrar's Office six weeks prior to commencement. Students are expected to attend commencement exercises unless excused by the Registrar's Office.

Students completing degree requirements during the summer semester may participate in the May commencement ceremony if their Graduation Application Form is received six weeks prior to commencement.

Participation in the commencement ceremony is NOT equivalent to graduation. Because the ceremony occurs before final grades are submitted, it is not possible to determine if all degree requirements have been satisfied at that time.

## Missing Requirements

Students not graduating because of missing requirements will be sent a letter indicating what is still outstanding and will be directed to the department of their major.

## Graduation Audit Policy

Graduation Audits (Graduation Application, Degree Audit, supporting paperwork) are maintained in the Registrar's Office permanently for students that apply to graduate but ultimately do not graduate due to missing requirements.

If the student re-applies to graduate within two years from original graduation application term, the student will follow the same degree audit previously submitted.

If the student re-applies to graduate after two years from the previous graduation application, the student will be directed to contact their academic department to request a new Degree Audit. The Registrar's Office will provide

copies of the student's graduation audit paperwork to the academic department as requested. The student will also be required to complete a new Graduation Application to be submitted to the Registrar's Office with the updated, official, signed degree audit from their academic department.

Because degree programs are continually assessed, requirements may change during the student's absence. Students will need to work with their academic departments in order to fulfill the department requirements in place at the time the student returns to LSSU.

For degree programs that are no longer available (eliminated/suspended), students having completed the Graduation Application process will be directed to their academic department for advisement.

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# Course Descriptions

Each course description is preceded by the following type of heading:

**CHEM999 Chemistry**
**(3,3) 5**

*or*

**CHEM999 Chemistry**
**(3,3,1) 5**

*or*

**CHEM999 Chemistry**
**(3,3) *alternate years* 5**

The first line provides the code number (CHEM999) and the course name; see abbreviation legend below. The second line includes several pieces of information: The first two numbers in parentheses are hours of lecture-lab per week. If the course has a recitation component, it will be listed next. The far right digit indicates the number of credit hours. Sometimes, no semester will be indicated, or there may be an alternate years or "every third year" notation. Consult either the on-line course schedule listings prior to registration or your department chair concerning scheduling of such courses.

*NOTE:* Students must satisfy prerequisites and any other stated conditions before enrolling in a course, **or have permission from the instructor to waive the prerequisites**. Enrollment in a course may be revoked (with an N grade) if it is found during the regular add/drop period that the proper prerequisites have not been met. Responsibility rests with students to be certain that they have the approved prerequisites.

## Abbreviations

- ACTG - Accounting
- ARTS - Art
- BIOL - Biology
- BUSN - Business
- CHEM - Chemistry
- CHLD - Early Childhood Education
- CHIN - Chinese
- CJUS - Criminal Justice
- COMM - Communication
- CSCI - Computer Science
- DANC - Dance
- DATA - Data Processing

- ECON - Economics
- EDSE - Special Education
- EDUC - Teacher Education
- EGEE - Electrical Engineering
- EGEM - Engineering Mechanics
- EGET - Electrical Engineering Technology
- EGME - Mechanical Engineering
- EGMF - Manufacturing Technology
- EGMT - Manufacturing Engineering Technology
- EGNR - General Engineering
- EGRS - Robotics and Control Systems
- EMED - Emergency Medical Services
- ENGL - English
- EVRN - Environmental Science
- EXER - Exercise Science
- FINC - Finance
- FINE - Fine Arts
- FIRE - Fire Science
- FREN - French
- GEOG - Geography
- GEOL - Geology
- HIST - History
- HLTH - Health Sciences
- HMSV - Human Services
- HONR - Honors Program
- HUMN - Humanities
- INTB - International Business
- INTD - Interdisciplinary
- JAPN - Japanese Studies
- JOUR - Journalism
- LAWS - Law
- LIBR - Library
- LING - Linguistics
- MATH - Mathematics
- MGMT - Management
- MRKT - Marketing
- MUSC - Music
- NATV - Native American Studies
- NSCI - Natural Science
- NURS - Nursing
- OFFC - Office Administration
- PHIL - Philosophy
- PHYS - Physics
- PNUR - Practical Nursing
- POLI - Political Science
- PSYC - Psychology
- RECA - Recreational Activities
- RECS - Recreation Studies
- SERV - Student Services
- SOCY - Sociology
- SOWK - Social Work

- SPAN - Spanish
- THEA - Theatre
- USEM - University Seminar

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### ACTG132
### Principles of Accounting I
**(4,0) 4**

An introduction to the principles and procedures of accounting as applied to proprietorships and corporations. Areas of study include the accounting, internal control and the asset, liability and equity sections of the balance sheet. Prerequisite: Two years of high school algebra and equivalent/satisfactory score on ACT/SAT or Placement Exam or MATH102 with a grade of C or better.

### ACTG133
### Principles of Accounting II
**(4,0) 4**

This course emphasizes the role of managerial accounting information within a firm. Topics include budgeting, responsibility accounting, cost allocations, cost behavior, decision models, product costing, cost control, performance evaluation, capital budgeting, cash flows and methods of financial analysis. Prerequisite: Grade of C or higher in ACTG132.

### ACTG230
### Fundamentals of Accounting
**(4,) 4**

This course is designed to give non-business majors an understanding of the accounting process and the knowledge to read, understand, and use financial statements and reports in making decisions. The emphasis is on the use, rather than the generation, of accounting information. This course is not open to business majors.

### ACTG232
### Intermediate Accounting I
**(4,0) 4**

A review of the general theoretical framework and process of accounting for use as a reference in an intensive study of accounting doctrines and procedures proposed by various authoritative groups. Topics: Generally accepted accounting principles; the accounting process; balance sheet; income statement; present value principles and application; cash and temporary investments; receivables; inventories, plant and intangible assets; and long term investments. Prerequisites: ACTG132 and 133.

### ACTG233
### Intermediate Accounting II
**(4,0) 4**

Continuation of ACTG232 with reference to accounting theory as applied to specific critical areas of financial data accumulation and presentation. Emphasis is placed on valuation concepts and their influence on contemporary practice. Topics: Liabilities; long term debt securities; owner\'s equity; earnings and

revenue recognition; income taxes; leases; pensions; error correction; cash flows; and financial statement analysis. Prerequisite: Grade of C or higher in ACTG232.

### ACTG332
### Cost Management I
**(4,0) 4**

An advanced study of managerial accounting as it applies to management practices. Topics include job order and process costing systems, value chain management, activity based costing and management, joint product costing, CVP analysis, cost allocations, budgeting, and financial planning models, and allocation of support activity costs. Prerequisite: ACTG133.

### ACTG333
### Cost Management II
**(4,0) 4**

A continuation of ACTG332. Topics include strategic decision making, strategic issues in capital investment decisions, standard costing and variance analysis, performance evaluation and the balanced scorecard, responsibility accounting, investment centers and transfer pricing, target costing, theory of constraints, and strategic pricing, managing and controlling quality, management compensation, and business valuation. Prerequisite: ACTG332.

### ACTG334
### Accounting Information Systems
**(3,0) 3**

Elements that constitute an accounting system and theories upon which a system should be designed. Emphasis upon computerized accounting systems with extensive use of computers. Prerequisites: ACTG233, ACTG332, introductory data processing course.

### ACTG335
### Accounting Systems Theory
**(1,0) 1**

This course is designed to provide the student with the theory of accounting information systems. Together with computerized accounting applications, this course will substitute for ACTG334, accounting information systems. This course is designed for use only at the Regional Centers, where ACTG334 may not be offered. Prerequisites: Computerized accounting applications course and spreadsheet course.

### ACTG350
### Income Tax Practicum
**(0,3) 1**

Field instruction and practical experience in federal and state income tax preparation. Prerequisite: ACTG421. Repeat up to two times for a maximum of 2 credits.

### ACTG421
### Federal Taxation Accounting I

**(3,0) 3**

Basic concepts of the theory and practice applicable to the preparation of individual tax returns. A comprehensive analysis of regulations governing inclusions and exclusions of income; capital gains and losses; and personal, standard, and itemized deductions. Prerequisites: ACTG133 and junior standing or approval of the department.

### ACTG422
### Federal Taxation Accounting II
**(3,0) 3**

Theory and practice of income tax accounting as applied to tax credits, partnerships, and corporations. Includes some library tax research. Prerequisite: ACTG421.

### ACTG427
### Auditing
**(4,0) 4**

A study of ethical, professional, and technical standards for independent audits and auditing procedures as they apply to internal controls. A study of audit program applications as they apply to elements of the financial statements. Prerequisites: ACTG233 and 333.

### ACTG432
### Advanced Accounting: Consolidations
**(4,0) 4**

This course involves a study of corporate business combinations and the preparation of related consolidated financial statements. International accounting issues related to the hedging of foreign currency transactions, translation of foreign financial statements and the application/comparison of international accounting standards will also be presented. Prerequisite: ACTG233 with a grade of C or higher.

### ACTG433
### Advanced Accounting: Governmental
**(4,0) 4**

An introduction to governmental and nonprofit accounting as applied to state and local governments and other nongovernmental not-for-profit entities including colleges and universities, and health care organizations. Areas of study include both the source of GASB standards and statements and the application of this theory to the governmental accounting cycle. Students will also be exposed to and apply a variety of financial performance measures unique to this sector of the economy. Students will prepare a monthly transaction analysis and complete a governmental practice set. Prerequisite: ACTG233 with a grade of C or higher.

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### ARTS109
### Principles of Design and Color
**(3,0) 3**

This course acquaints students with the various possibilities of working with two-dimensional design. Using graphite, marker, collage and basic print making/stamping techniques, participants will explore line, form, shape, texture, color and the use of negative and positive space. In addition to in-class assignments, participants will be required to research, complete and present a major piece in two-dimension at the end of the semester. Prerequisite: none. Equivalent to FINE151 + VISA1516 for BRIDGE.

### ARTS110
### Fundamentals of Drawing
**(3,0) 3**

This course will introduce the participant to basic drawing techniques, focusing upon the use of predominantly dry media such as graphite, charcoal, colored clays and chalks. Students will be required to work in-studio on a number of projects (still life, object drawings, texture, tone and line explorations), working toward the creation of a portfolio of drawings for final submission. Prerequisite: none. Equivalent to FINE150+ VISA1506 for BRIDGE.

### ARTS111
### Introduction to Painting Media and Techniques
**(3,0) 3**

The course focuses on painting as a process of self-expression. Participants will be introduced to the use of acrylics, watercolors and water-soluble oils. An introduction to Itten's color theories and basic compositional styles will help ground participants in their exploration of the media offered. Brush handling, mixed-media techniques, and the use of in-studio still-life arrangements will be highlighted. Prerequisite: ARTS109. Equivalent to FINE155 + VISA 2556 for BRIDGE.

### ARTS211
### Mixed Media Explorations
**(3,0) 3**

Students will be invited to work hands-on in an open studio environment, examining the development of their own visual language in relation to the media and methodologies presented. Participants will be invited to draw from personal experiences as well as from their environment as catalysts for art making. All will be encouraged to work with acrylics, watercolors, water-based oils, drawing media, photographs/laser copies, found materials, etc. At the end of the course, participants will be required to present a brief seminar with essay. Prerequisites: ARTS109. Equivalent to FINE178 + VISA2786 for BRIDGE.

### ARTS212
### Art for Elementary Teachers
**(3, 0) 3**

This course is designed to provide an understanding of the philosophy, theories and contemporary issues of art education in kindergarten through sixth grade. Various art media will be explored by the student, and curriculum planning and evaluation will be discussed.

### ARTS250
### Art History and Appreciation I
**(4,0) 4**

Study of arts exemplified in prehistoric and primitive cultures, and in the Mesopotamian, Egyptian, Aegean, Greek, Roman, early Christian, Byzantine, Moslem, Roman and Gothic eras. The course presents a development of historic, social and aesthetic principles, including a study of signs and symbols for students of art education, science, letters, business and engineering. Art history is taught in terms of visual experience and knowledge with art films, slides and demonstrations with art materials in addition to class lectures. Universal standards that can be applied to any work of art are studied. Counts as humanities credit for general education requirements.

### ARTS251
### Art History and Appreciation II
**(4,0) 4**

A study of European and American art from the Renaissance to the 20th century, including Renaissance, baroque, rococo, neoclassic, romantic, realist and contemporary. The history of art is presented from a technical, social and aesthetic standpoint, along with a study of rhythm, motion, and proportion. Works of art are considered on their own merits and development rather than on the basis of preconceptions. Art films, color slide presentations and demonstrations using art materials supplement class lectures. Counts as humanities credit for general education requirements.

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### BIOL104
### Survey of General Biology
**(3,3) 4**

This course is a non-majors biology course that will cover the major units of general biology: (1) cells and energy; (2) genetics; (3) evolution; (4) organismal biology; (5) ecology. Developing a solid understanding of the fundamentals of general biology is vital to being an informed citizen about advances in the medical and food sciences, foundational and new information about the organization of life, and current issues of environmental and ecological concern. Course content is tied to the State of Michigan\'s benchmarks for training elementary school teachers, but any students interested in the life sciences are encouraged to take this class. The laboratory is designed to illustrate the course content as well as illustrate the principles of inquiry. Prerequisites: ENGL091, MATH086 and READ091 or equivalent test scores.

### BIOL105
### Function of the Human Body
**(3,2) 4**

Survey of the functional anatomy and the related physiological processes needed for the understanding of normal human activity. Not open to biological majors or minors. Prerequisite: ENGL091 or equivalent.

### BIOL106
### Boat Handling and Navigation
**(2,3) 3**

Topics related to the art of seamanship are covered, including the basics of boating and safety. Piloting and navigation are emphasized with an

understanding of weather, waves, and wind, as well as the use of board electronic equipment. Pre- or corequisites: MATH102.

### BIOL107
### Field Biology
**(2,3) 3**

Introduction to organisms and their environmental interactions and conservation concerns with emphasis on Eastern UP. Lab consists primarily of field experiences. Not open to biology majors. Prerequisite: ENGL091 or equivalent.

### BIOL121
### Human Anatomy and Physiology I
**(3,3) 4**

This is the first half of a two-course sequence. This course covers organization of the human body, basic principles of chemistry, the integumentary system, the skeletal and muscular systems, the nervous system and special senses. Laboratory experiences are designed to complement the lecture topics. This course may not be used as a general education natural science elective nor does this sequence apply toward a major or minor in biological science. Prerequisites: High school chemistry, ENGL091 or equivalent, and MATH086 or equivalent satisfactory score on ACT or Placement Exam.

### BIOL122
### Human Anatomy and Physiology II
**(3,3) 4**

The second half of the Human Anatomy and Physiology sequence emphasizes the endocrine system, cardiovascular system, lymphatics and the immune response, respiratory system, digestive system, urinary system and the reproductive system. Laboratory experiences are coordinated with the lecture discussions. Prerequisite: BIOL121.

### BIOL126
### Interpretation of Maps and Aerial Photographs
**(1,3) 2**

Introduction to use and interpretation of 1:24,000 USGS topographic maps. Topics covered include: determination and calculation of scale, map coordinate systems, projections, and locating features using the General Land Office Survey System. Local landforms will be interpreted from aerial photography at a variety of scales and correlated with map interpretations. Land use and cover will be determined using both black and white and color infrared photography. Pre- or corequisite: MATH102 or higher.

### BIOL131
### General Biology: Cells
**(3,3) 4**

This course is an introduction to the cellular aspects of general biology. This course will provide an overview of cellular biology and serve as a framework for further biological studies. Topics to be covered include basic chemistry of the cell, function of cellular organelles, cellular metabolism including respiration and photosynthesis, the cell cycle, mitosis, meiosis, simple transmission genetics, introduction to molecular and developmental biology. The laboratory introduces

the student to inquiry based scientific method. Prerequisites: MATH086, ENGL091, or equivalent scores on the math and English placement exams.

### BIOL132
### General Biology:Organisms
**(3,3) 4**

An introduction to the diversity of life, including the morphology, physiology, reproduction, general habitats and taxonomy of organisms. Adaptation to environment and modern concepts of evolution are stressed as unifying themes throughout the course. Prerequisites: MATH086, ENGL091, or equivalent scores on the math and English placement exams.

### BIOL199
### Freshman Seminar
**(1,0) 1**

A partial focus for this course will be on academic skills and the transition from high school to college. Topics will include time management, use of campus resources, development of critical thinking, and strengthening study skills. At other times students will meet in discipline-based groups in conjunction with BIOL299, BIOL399 and BIOL499. These meetings will include discussion of literature relevant to the discipline and progress reports from upper-class students engaged in scholarly projects.

### BIOL202
### Field Botany
**(2,3) 3**

A study of the common families, genera, and species, especially those in the local flora. Prerequisite: BIOL132

### BIOL203
### Fundamentals of Natural Resources
**(3,0) 3**

This course will introduce students to the history of natural resource conservation and management, career opportunities within the field of natural resources, and interaction between humans and the environment. The course will focus extensively on basic concepts in human dimensions as they apply to natural resource conservation and management. Course topics include assessing social attitudes and values, social conflicts and conflict resolution, legal and regulatory framework of natural resource management, and the role of stakeholder groups in conservation and management. Prerequisite: ENGL111. Pre- or corequisite: COMM101.

### BIOL204
### General Microbiology
**(3,3) 4**

This course will deal with the history and scope of microbiology, a study of microbial structure, growth, nutrition, metabolism, genetics, taxonomy and control. A study of mycoplasma, viruses and molds will be incorporated with genetic engineering and recombinant DNA. Labs will emphasize the identification and cultivation of molds and bacteria. Prerequisites: BIOL131 and CHEM115.

### BIOL206
### Medical Laboratory Practices
**(2,0) 2**

Covers fundamental principles of medical laboratory science including safety, specimen handling, measurement, common calculations, organization of the medical laboratory, automation, and quality control. Prerequisites: MATH111, CHEM115, BIOL131.

### BIOL220
### Genetics
**(3,3) 4**

This course covers the three major subdivisions of the study of genetics - Mendelian or transmission genetics, molecular biology, and population genetics. Transmission genetics topics will include traditional genetics problems and modes of inheritance; mitosis, meiosis and control of the cell cycle; chromosomal structure and recombination. Molecular topics will include information on DNA structure and replication, transcription, translation, gene cloning, genomics, and current research in DNA technology. Topics in population genetics will include aspects of the Hardy-Weinberg theory. The laboratory will include exercises in both traditional and molecular genetics. Prerequisites: BIOL131, CHEM115 and (BIOL250 or sophomore statistics course).

### BIOL223
### Clinical Microbiology
**(3,0) 3**

A basic course in microbiology dealing with the study of microorganisms and pathogens in humans. A survey of viruses, molds and bacteria. Their morphology and growth characteristics will be discussed along with the physical and chemical means to control pathogenic microorganisms causing human infections. Prerequisites: CHEM105 and BIOL122. Does not apply towards a major or minor in biology.

### BIOL230
### Introduction to Soil Science
**(3,3) 4**

A course dealing with the soil ecosystem as a natural resource and as an environmental medium. Beginning with factors involved in soil formation the course will survey soil physical, chemical, and organic properties and how they respond to disturbance. Soil reactions to wastes and wetland interactions will be discussed. Laboratories will focus on description of local soils and the use of soil survey information in making soil interpretations. Prerequisites: CHEM108 and CHEM109 or above; NSCI103 or BIOL132; BIOL126.

### BIOL240
### Natural History of the Vertebrates
**(3,0) 3**

A survey course covering the taxonomy, phylogeny and ecology of vertebrates with an emphasis on North American taxa. Prerequisite: BIOL107 or 132.

### BIOL243

### Vertebrate Anatomy

**(3,3) 4**

A detailed study of the origin, phylogeny and anatomy of the vertebrates. Laboratories emphasize the thorough dissection of representatives of at least three classes of vertebrates. Prerequisite: BIOL132 and sophomore standing.

### BIOL250
### Quantitative Biology

**(3,0) 3**

This course will use quantitative methods to examine biological relationships and processes. Students will explore diverse biological topics including heat and energy balance, relative growth, photosynthesis, genetic drift, and diffusion using a variety of quantitative tools. Prerequisites: BIOL131, 132 and MATH111.

### BIOL280
### Biostatistics

**(2,2) 3**

A course in the design and analysis of biological experiments. The focus of the course is the development of a systematic method for determining an appropriate statistical technique and the interpretation of results in terms of biological science. Prerequisites: BIOL131, BIOL132, and MATH111 or Calculus.

### BIOL284
### Principles of Forest Conservation

**(2,4) 4**

An introduction to forest structure, function, and ecology. Important fundamenTals of conservation biology such as the effects of disturbance, fragmentation, and biodiversity on forest ecosystems will be emphasized. Students will master identification of tree and shrub species of the Eastern Upper Peninsula and perform commonly used techniques to evaluate the forest resource. The lab portion of the course is in the field and proper dress is required. In addition, one all-day field trip will be scheduled. Prequisites: BIOL132 or NSCI103; and EVRN126.

### BIOL285
### Principles of Epidemiology

**(3,0) 3**

Principles, purpose and methods of descriptive and analytic epidemiology with emphasis on environmental health. Prerequisite: MATH207.

### BIOL286
### Principles of Watersheds

**(3,0) 3**

Overview of the geomorphology, hydrology and biota of various watersheds, with emphasis on hydrographic methods, sampling techniques, land use and management principles. Prerequisites: MATH111.

### BIOL287

### Conservation Biology

**(3,0) 3**

This course will provide a strong background in the field of conservation biology. The course will discuss patterns in, valuation of, and threats to biodiversity. The course will also examine tools and strategies for conserving biodiversity at the population and species levels and discuss the application of conservation biology in today's society. Specific topics include: (1) Principles of and issues in conservation; (2) Threats to biodiversity; (3) Methods and approaches to evaluate and mitigate threats; (4) Application of principles in the design of conservation reserves, restorations, and sustainable development. Prerequisites: BIOL131 and 132

### BIOL289
### Aquatic Research Sampling Methods

**(2,3) 3**

A variety of sampling techniques are introduced as they relate to the various disciplines of aquatic science. These methods include sampling and preservation of biotic (plankton, fish, bethic invertebrates, DNA, pathogens) and abiotic (water quality, sediments, climate) data. Prerequisites: BIOL107, CHEM108 and 109, MATH111 and permission of instructor. Also listed as EVRN289.

### BIOL290
### Independent Study in Biology

**(1-4,0) 1-4**

Special studies and/or research in biology for individuals or small seminar groups. Course content to be arranged by student(s) and a supervising professor with approval of department and college dean. Prerequisites: Students must have an overall GPA of at least 2.5, and no "I" grades on their transcript. Independent study courses may be repeated for a maximum of eight credits. Additional information is available at the School of Natural Science.

### BIOL299
### Sophomore Seminar

**(1,0) 1**

Students meet in discipline-based, student-faculty groups in conjunction with BIOL199, 399 and 499. Weekly meetings will include discussion of literature relevant to the discipline and progress reports from upperclass students engaged in scholarly projects. Sophomores will assist with ongoing projects and will be guided by faculty and juniors enrolled in BIOL399 to conduct a comprehensive, annotated literature search in their area of interest. Prerequisite: BIOL199 and ENGL111.

### BIOL302
### Invertebrate Zoology

**(2,3) 3**

A study of the invertebrate groups with emphasis on morphology, phylogeny and life cycles. Prerequisite: BIOL132.

### BIOL303
### General Entomology

**(2,3) 3**

An introduction to the biology, ecology and systematics of the insects. This course covers fundamentals of insect taxonomy and physiology; and the varied roles insects play in the natural world and in human history and culture. Prerequisite: BIOL132.

### BIOL304
### The Human Environment
**(3,0) 3**

Designed to assist the participant in understanding how the individual can become involved with solving environmental problems. Prerequisite: Junior Status.

### BIOL306
### Medical Mycology
**(2,2) 3**

Covers fungal structure, reproduction, and classification, medically important fungi and the diseases they cause, techniques for identifying fungi in clinical specimens and for culturing fungi in the laboratory. Laboratory covers techniques for fungal culture and identification, and practice identifying fungal diseases from prepared slides and/or photographs. Prerequisite: BIOL132 and BIOL204.

### BIOL310
### Ichthyology
**(2,3) 3**

Study of the anatomy, physiology, behavior, taxonomy and natural history of fishes, with emphasis on freshwater species, particularly those in the Great Lakes region. Prerequisite: BIOL131 and BIOL132.

### BIOL311
### Mammalogy
**(2,3) 3**

An investigation of the natural history, biology and taxonomy of mammals. Techniques for measuring and monitoring mammalian populations will be presented. The laboratory will focus on field techniques and the identification by skin, skull and track of mammals of the Great Lakes region. Prerequisite: BIOL243 or BIOL330.

### BIOL312
### Ornithology
**(2,4) 3**

A study of the biology and taxonomy of birds. Labs will focus upon bird anatomy and bird recognition using video tapes and specimens. Prerequisite: BIOL132.

### BIOL315
### Plant Physiology
**(3,3) 4**

A study of the organization of plants, plant replication, photophysiology and photosynthesis, mineral nutrition, water transport in higher plants, plant growth substances, physiology of seeds, control of plant growth and plant cell tissue culture. Prerequisites: BIOL250 and CHEM115.

### BIOL330
### Animal Physiology
**(3,3) 4**

The course examines the many ways animal groups solve the problem of maintaining internal homeostasis. Neural control, endocrine systems, gas exchange, energy acquisition and temperature regulation are a few of the topics examined. The lab is closely tied to the lecture material using non-invasive live animal experiments, computer-interfaced data gathering and analysis. Prerequisites: BIOL250 and CHEM116.

### BIOL332
### Embryology
**(2,2) 3 alternate years**

A study of pattern formation and morphogenic processes in animals, with an emphasis on vertebrates. The laboratory portion of the course emphasizes descriptive ontogeny of representative vertebrates. Prerequisites: BIOL131 and BL132. (BL243 is highly recommended.)

### BIOL333
### Fish Ecology
**(3,0) 3**

A study of the relationship of fishes to their physical, chemical and biological environments in natural and perturbed aquatic ecosystems with an emphasis on response and adaptation at the organism, population and community levels. Various types of aquatic ecosystems will be examined with respect to habitat accommodations of fish and the impact of human activities. Includes ecological principles as applied to important sport, commercial and forage fish species. Prerequisite: BIOL310.

### BIOL335
### Principles of Animal Nutrition
**(3,0) 3 alternate years**

A scientific approach to the nutritional role of water, carbohydrates, proteins, lipids, minerals, and vitamins. The course will emphasize comparative aspects of gastrointestinal anatomy and physiology for livestock, wildlife, and fish. Prerequisites: BIOL250 AND CHEM116.

### BIOL337
### General Ecology
**(2,3) 3**

A survey of concepts of plant and animal autecology, population ecology and community ecology. Prerequisites: BIOL131, 132 and MATH111.

### BIOL339
### Wildlife Ecology

**(3,0) 3**

A quantitative analysis of the ecology and management of wildlife populations. Theories of population dynamics and distribution are presented. Community interactions including competition, predation, and herbivory, are explored in detail. Prerequisites: BIOL250, 280 and 337.

### BIOL345
### Limnology
**(2,4) 4**

An investigation of the principles of freshwater ecosystems with an emphasis on lakes. The physics and chemistry of natural systems are presented, as well as a survey of the dominant biota and their ecological interactions. Prerequisites: BIOL250 and CHEM115.

### BIOL372
### Freshwater Fish Culture
**(2,3) 3**

Instruction in water quality monitoring, production systems, feeding and nutrition, disease identification and management, and reproduction principles of freshwater fishes used for recreational and commercial fisheries management, bait and food products. Students will learn propagation and rearing techniques for important fishes, particularly those with recreational or commercial value. Prerequisites: BIOL280 and 310.

### BIOL380
### Clinical Hematology and Hemostasis
**(3,3) 4 alternate years**

A study of the components of blood. Discussions of the formed elements to include normal and malignant states; anemias, leukemias, lymphomas, hemostasis (coagulation) processes and disease states. Laboratories will cover routine and automated blood component measurements. Offered evennumbered spring semesters. Prerequisites: CHEM226 and BIOL330.

### BIOL389
### Internship in Biology
**3-4 3-4**

A variable credit practicum course in which the students will perform research and/or gain work experience under the direction of a faculty mentor and a qualified supervisor. Students are expected to spend a minimum of 45 hours in an approved work setting for each credit earned. The course may be repeated once for a maximum of eight credits. Student interns will be required to write weekly updates or journal entries to be submitted to their LSSU faculty mentor for evaluation of what the student has learned. Prerequisites: 2.50 GPA in major and permission of faculty mentor or department chair.

### BIOL398
### Planning an Experiential Learning Project
**(1,0) 1**

A weekly seminar class for students planning a major experiential learning

project, such as a capstone academic service learning project or internship. Students will work with the course instructor to define the project objectives, outline the tasks, plan the work with the host agency, plan the project assessment techniques and budget, and design the academic evaluation. The outcome of the class will be a proposal for the project. Prerequisites: BIOL299.

### BIOL399
### Junior Seminar
**(1,0) 1**

Students meet in discipline-based, studentfaculty groups in conjunction with BIOL199, 299 and 499. Weekly meetings will include discussion of literature relevant to the discipline and progress reports from upper class students engaged in scholarly projects. Juniors will serve as mentors to sophomores in the group and will develop and present a proposal for a scholarly project. Prerequisites: BIOL280, 299 and COMM101.

### BIOL405
### Animal Behavior
**(3,0) 3 alternate years**

A course designed to examine the proximate mechanisms and the evolutionary development of animal behavior. Important concepts are explained by reference to illustrative studies. An appreciation of the methods and theoretical significance of current research is emphasized. Prerequisites: Junior standing and BIOL330 or 337. Offered even-numbered fall semesters.

### BIOL406
### Immunohematology
**(2,3) 3**

Fundamentals of blood banking in the ABO, Rh and other blood group systems; blood component preparation and utilization; transfusion complications; quality control and problem solving. Laboratories include techniques used in immunology/serology; blood grouping; compatibility testing; and antibody identification. Prerequisites: BIOL220, CHEM226, Junior standing and permission of instructor.

### BIOL420
### Evolutionary Analysis
**(3,0) 3**

This course explores the fundamental mechanisms of evolutionary process and speciation, and illustrates the use of evolutionary analysis as a problem-solving tool. Issues of current interest in ecology, conservation, animal behavior, human medicine and a variety of other fields are addressed from the evolutionary perspective to explain biological phenomena and community interactions. Prerequisite: BIOL220 and 250.

### BIOL421
### Advanced Cell & Molecular Biology
**(3,3) 4**

This course will examine cellular structure and function with emphasis on organelle ultrastructure, cell membranes and permeability, cellular interactions, and the molecular foundations of genetic mechanisms and cell energetics.

Prerequisites: BIOL220 and CHEM251.

### BIOL422
### Parasitology
**(2,2) 3**

A study of the morphology, taxonomy, habitats, pathology and life cycles of parasites. Prerequisites: BIOL131 and 132.

### BIOL423
### Immunology
**(3,3) 4**

A study of the basic elements of the immune response system and the various ways in which the immune system can fail, leading to immunopathological reactions. Labs will include current diagnostic methodologies. Prerequisites: BIOL131, 132, 204 and CHEM226.

### BIOL425
### Virology
**(2,3) 3**

The basic concepts of virology are discussed. Lab will cover some traditional virology methods but will emphasize recent molecular approaches to viral identification. Prerequisite: BIOL204 and BIOL220.

### BIOL426
### Ecology of Animal Disease
**(3,0) 3**

The course covers the population and environmental conditions that favor disease in both terrestrial and aquatic ecosystems. Basic concepts of infection through epidemics will be discussed. Prerequisite: BIOL337.

### BIOL432
### Fisheries Management
**(2,3) 3**

A course covering the history, theory and practice of fisheries management with an emphasis on basic strategies used in effective management of fish populations in freshwater ecosystems. Students will learn methods of collection and synthesis of data regarding fish population dynamics and manipulation, habitat modification, and human management to achieve specific fisheries management goals and objectives. Prerequisites: BIOL280, 333 and 345.

### BIOL433
### Histology
**(2,3) 3 alternate years**

A systems approach is used to study the microscopic anatomy of mammalian tissues and organs. Related physiological processes are integrated with the anatomical studies. Prerequisites: BIOL330.

### BIOL434

### Histopathology

**(0,3) 1**

The course is an intensive laboratory experience where students will learn to visually identify diseased tissue. They will also learn methods of sample preparation including sectioning and staining for microscopic identification of pathogens. Prerequisite or corequisite: BIOL433.

### BIOL437
### Plant Ecology

**(2,3) 3**

A study of the autecology, population ecology and community ecology of plants, including fundamental theory, field methods and data analysis. Prerequisites: BIOL202, BIOL337 and MATH207.

### BIOL439
### Wildlife Management

**(2,3) 3**

The application of ecological principles to develop practical wildlife management strategies to preserve, enhance or create viable wildlife habitats and populations. Students will have the opportunity to observe and practice standard field and laboratory techniques. Prerequisites: BIOL311 or BIOL312 and BIOL339.

### BIOL450
### Laboratory Apprenticeship

**(0,3) per credit 1-2**

Students will assist in laboratories, learning instructional techniques, under direction of faculty. Course may be repeated for a maximum of two credits. Students must gain approval of the faculty member in charge of the specific laboratory, and the dean. Credits may be used as BIOL electives. This is a credit/no credit credit course.

### BIOL455
### Body Fluids Analysis

**(3,2) 4**

Covers molecular analytes that are measured in blood, urine, and body fluids: the physiologic and pathologic processes that affect the levels of these analytes, correlations of analyte levels with disease, methods and instruments used to measure them, and principles and practices of quality control. Prerequisites: MATH207, CHEM226, CHEM332, BIOL330.

### BIOL470
### Restoration Ecology

**(3,0) 3**

This course will provide a broad overview of restoration of both terrestrial and aquatic ecosystems, including prairies, wetlands, lakes, and streams. Through lectures, field trips, and case study discussions, students will be introduced to ecological principles and techniques used to restore and rehabilitate ecosystems. Students also will be involved in identifying, designing, and evaluating local restoration projects in conjunction with local resource agencies. Prerequisite:

BIOL337

### BIOL475
### Aquatic Entomology
**(2,3) 3**

Survey and identification of regional lake and stream insects, with additional emphasis on lifehistory strategies and community ecology. Insect physiology, ecology, behavior, importance as fish food organisms, and utility as indicators of water quality is also presented. Prerequisites: BIOL337 and junior standing.

### BIOL480
### Advanced Clinical Microbiology
**(3,3) 4 alternate years**

An advanced course in clinical microbiology concerning the role of bacteria, viruses, and fungi as the cause of various human infections. Standard modern clinical laboratory methodology will be covered. Offered oddnumbered spring semesters. Prerequisites: BL204 and CH226.

### BIOL490
### Independent Study in Biology
**(1-4,0) 1-4**

Special studies and/or research in biology for individuals or small seminar groups. Course content to be arranged by student(s) and a supervising professor with approval of department and college dean. Prerequisites: Students must have junior or senior standing, have an overall GPA of at least 2.5, and no "I" grades on their transcript. Independent study courses may be repeated for a maximum of eight credits. Additional information is available at the College of Science, Technology, Engineering and Mathematics.

### BIOL495
### Senior Project
**(0,6) 2**

A practicum under the guidance of a faculty member. The student will conduct a scholarly project based on the proposal submitted by the student in BIOL399 (or a appropriate substitute). Prerequisite: BIOL399.

### BIOL497
### Experiential Learning Project
**3 or 6**

The Internship in Conservation Biology is a full semester/summer work experience. Interns will develop work goals, responsibilities, and outcomes with their agency supervisor and faculty mentor. Students will prepare formal communication components (workshop or oral presentation and a poster). The internship experience should be 12 weeks at 40 hours per week. Pre-requisite: INTD398

### BIOL499
### Senior Seminar
**(1,0) 1**

Students meet in discipline-based, student-faculty groups in conjunction with BIOL199, BIOL299 and BIOL399. Weekly meetings will include discussion of literature relevant to the discipline and progress reports from upperclass students engaged in scholarly projects. Seniors will serve as mentors to freshmen in the group. Seniors will also produce a manuscript describing the results of their project and will be required to give poster and oral presentations to the University community. Prerequisite: BIOL495 or BIOL497.

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### BUSN121
### Introduction to Business
**(3,0) 3**

This course is intended to provide students a broad overview of the complex and dynamic contemporary world of business. The course will illustrate how human resources management, marketing, production, and finance are major functions that work together to help owners, employees and customers reach their objectives. Business must operate within economic, social, natural, technological, international, legal, and political environments.

### BUSN131
### Hospitality and Service Management
**(4,0) 4**

An overview of the hospitality industry including the operation and trends in restaurant/food service management, lodging management and travel/tourism. Introduction to destinations and the following components of travel/tourism: modes of travel, tour management, associations, agencies, marketing and sales, career preparation and opportunities and travel publications.

### BUSN211
### Business Statistics
**(3,0) 3**

An introduction to business statistics. Topics include collection and presentation of data, measures of central tendency, variation and skewness, probability, probability distributions, Bayes's Theorem, sampling, sampling distributions, estimation, hypothesis testing, simple linear regression and correlation. Prerequisite: MATH111.

### BUSN226
### Records Management
**(3,0) 3**

Study and application of records control, forms design, filing systems (manual and electronic), microforms, and the records cycle. A computer simulation is completed utilizing a program to print, sort, and select records as reports or labels.

### BUSN231
### Business Communications
**(3,0) 3**

Business and management communications problems. Direct, indirect, and

persuasive letters; memos, short reports and directives. Some assignments must be typed. Extensive writing practice. Prerequisite: ENGL111.

### BUSN261
### Business Skills
**(1,0) 1**

A series of specific, business-skill classes. Each course will provide 15 classroom hours of instruction. A student may register for one or more sections per term, for a maximum of three credits earned in this course.

### BUSN291
### Students in Free Enterprise
**(0,3) 1**

Students work in teams to develop outreach programs. They learn by means of "real-world" experiences, then teach others how market economies and businesses operate. Corporate CEOs and senior executives judge these programs annually in regional competitions, and the winners of those contests then compete at the international exposition. Outreach program development enhances students' creative and communication skills by preparation of written and oral presentations. May be repeated for credit for a total of four credits.

### BUSN299
### Internship in [Discipline]
**(4,0) 4**

This course is designed to provide students with an opportunity to earn credit while obtaining meaningful discipline-related work experience outside the classroom setting. Students are expected to spend a minimum of 180 hours in an appropriate work setting. The course may be repeated once for a maximum of eight credits. Prerequisites: 2.5 GPA, sophomore standing, employer and instructor approval, and submission to, and approval by, departmental faculty of internship plan, including method of evaluation.

### BUSN308
### Managing Cultural Differences
**(3,0) 3**

Study of differing cultural norms that impact business decisions; designed for students interested in international and cross-cultural activities.

### BUSN350
### Business Law I
**(3,0) 3**

This portion of business law covers the law applicable to contracts, sales, personal property and bailments.

### BUSN354
### Legal and Financial Issues in Health Care Administration
**(3,0) 3**

This course is intended for students preparing for careers in management in health care fields or as health care practitioners. Students will be made aware of

legal and financial issues and problems including fault liability; institutional liability; forms of organization; credentialing and appointments; staffing issues; consent and refusal of treatment; and health care financing. The student will be more aware of the need to seek professional counsel to minimize and prevent litigation. Prerequisite: Junior standing. Also listed as HLTH354.

### BUSN355
### Business Law II
**(3,0) 3**

This portion of business law covers the law applicable to commercial paper, corporations, partnerships, agency and employment.

### BUSN399
### Internship in [Discipline]
**(4,0) 4**

This course is designed to provide students with an opportunity to earn credit while obtaining meaningful discipline-related work experience outside the classroom setting. Students are expected to spend a minimum of 180 hours in an appropriate work setting. The course may be repeated once for a maximum of eight credits. Prerequisites: 2.5 GPA, junior standing, employer and instructor approval, and submission to, and approval by, departmental faculty of internship plan, including method of evaluation.

### BUSN403
### Business, Government and Society
**(3,0) 3**

This course examines the relationships of the business firm to government and to society. The course focuses on the economic, legal, political, social and ethical environment of business firms. Topics include consumer protection, environmental regulation, antitrust, constitutional and administrative law, alternative dispute resolution, and other topics of current concern. The business firm is examined in the context of market capitalism and the global economy. The course is structured to meet communication-intensive requirement of general education. Prerequisites: ECON202 and junior standing.

### BUSN405
### Business Ethics and Social Responsibility
**(3,0) 3**

Business ethics in organizations requires value-based leadership and purposeful actions that include planning and implementation of standards of appropriate conduct. This course will prepare students to be good corporate citizens through the study of business ethics, social responsibility, ethical decision making, corporate codes of ethical conduct, and how ethical behavior relates to organizational performance. Prerequisites: MGMT360 or MGMT365.

### BUSN466
### Business Policy
**(3,0) 3**

This course provides an opportunity for the student to develop an understanding of the interrelationship of the various divisions, departments and functions of a business organization from a top management perspective. Library research and

case analysis are utilized. Prerequisites: Senior status and FINC341.

### BUSN491
### Research Reading in Business and Economics
**(2-3,0) 2-3**

Independent study and seminar; individual student guidance by faculty for selected research topics in business. Prerequisite: Senior status.

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### CHEM091
### Basic Chemistry
**(2,0) 2**

Thorough exposure to elementary chemistry designed to prepare students for college-level chemistry. Emphasis on drill to enhance problem-solving skills. Prerequisite: MATH084 or equivalent. Students must receive a C (2.0) or better in this course to qualify for CHEM104, 108 or 115. Credit in this course does not apply toward graduation.

### CHEM108
### Applied Chemistry
**(3,0) 3**

An introduction to selected principles of chemistry with emphasis on technological applications. Credit in this course does not apply toward a major or minor in chemistry. Prerequisites: ENGL091 or equivalent and pre- or corequisite of MATH102.

### CHEM109
### Applied Chemistry Lab
**(0,3) 1**

Laboratory experience for CHEM108 Applied Chemistry (must complete both lecture and laboratory to qualify for general education credit). Corequisite: CHEM108.

### CHEM110
### Applied Organic & Biochemistry
**(3,2) 4**

A continuation of concepts presented in CHEM108 with an emphasis on the fundamentals of organic and biochemistry. The interrelationships between the metabolic processes of living systems are discussed along with their underlying chemical reactions. Prerequisite: CHEM108 or equivalent, with a grade of C (2.00) or better.

### CHEM115
### General Chemistry I-Intro to Fundamental Principles of Chemistry
**(4,2) 5**

Fundamental principles of chemistry with emphasis on scientific method, basic

chemical reactions and acid base equilibria, stoichiometry, periodic trends of elements, an introduction to the energy of reactions, atomic structure, simple bonding models, molecular structure, intermolecular forces, and nuclear chemistry will be presented. Pre- or corequisite of MATH111 or higher with a grade of C (2.0) or better. ENGL091 or equivalent. One year of high school chemistry is strongly recommended.

### CHEM116
### General Chemistry II-Intro to Physical Chemistry
**(4,3) 5**

Continuation of CHEM115 with emphasis on physical chemical concepts such as bonding, gas laws, solids and solutions, kinetics, thermodynamics, and equilibrium, including acid-base reactions and electron transfer processes. Prerequisite: CHEM115 with a grade of C (2.0) or better.

### CHEM225
### Organic Chemistry I
**(3,3) 4**

Fundamental principles of organic chemistry, covering the structures, reactions and properties of aliphatic and alicyclic compounds. The course will introduce the study of organic nomenclature, functional group chemistry, stereochemistry, reactive intermediates, organic synthesis, reaction mechanisms and conjugated unsaturated systems. The laboratory introduces basic organic laboratory techniques and includes experiments in organic separations, synthesis, and analysis. Prerequisite: CHEM116 with a grade of C (2.0) or better.

### CHEM226
### Organic Chemistry II
**(3,3) 4**

A continuation of CHEM225 covering the structures, properties and reactions of aromatic compounds, carbonyl compounds, carboxylic acids and their functional derivatives, phenols, amines, organometallics, carbohydrates, amino acids and proteins. The course will introduce the study of spectral methods of structure determination and expand the study of organic synthesis and mechanisms. The laboratory will include experiments in spectroscopy, organic synthesis and mechanisms, qualitative organic analysis, and instrumental analysis. Prerequisite: CHEM225 with a grade of C (2.0) or better.

### CHEM231
### Quantitative Analysis
**(3,3) 4**

Evaluation of analytical data and study of gravimetric and titrimetric methods of analysis. Prerequisites: CHEM116 with a grade of C (2.0) or better and MATH151 or MATH112.

### CHEM261
### Inorganic Chemistry
**(3,3) 4**

This course will provide a foundation in Inorganic Chemistry with a focus on understanding the properties of the elements, bonding and geometries of small molecules and their chemical reactivities. Survey of main group and transition

metal chemisty and applications to bio-inorganic chemistry. The laboratory component will provide students with opportunities to observe and measure the changes that accompany inorganic reactions and to make predictions regarding these inorganic reactions. Prerequisite: CHEM116 with a grade of C or better.

### CHEM290
### Independent Study in Chemistry
**(1-4,0) 1-4**

Special studies and/or research in chemistry for individuals or small seminar groups. Course content to be arranged by student(s) and a supervising professor with approval of school dean. Prerequisites: Students must have an overall GPA of at least 2.5, and no I grades on their transcript. Independent study courses may be repeated for a maximum of eight credits. Additional information is available at the College of Natural and Mathematical Sciences office.

### CHEM310
### Applied Spectroscopy
**(3,3) 4**

General principles of spectroscopy will be explored including underlying principles and theory, data acquisition and processing coupled with spectral interpretation. Different spectroscopic methods used for the structural determination of organic molecules and in chemical research are described including mass spectrometery (MS), ultraviolet and visible spectroscopy (UV-Vis), infra-red spectroscopy (IR), atomic spectroscopy, fluorescence spectroscopy, and both one-dimensional and two-dimensional 1H and 13C nuclear magnetic resonance (NMR) spectroscopy. Prerequisite: CHEM226 and CHEM261. (Alternate Years)

### CHEM332
### Instrumental Analysis
**(3,3) 4**

Continuation of CHEM231. An instrumental analysis course involving the theory and use of spectrochemical, electroanalytical and separation methods for the characterization and determination of selected chemical substances. Prerequisite: CHEM231, and either PHYS222 or PHYS232.

### CHEM341
### Environmental Chemistry I
**(3,3) 4 alternate years**

A study of the environmental chemistry of the hydrosphere, atmosphere, lithosphere, and biosphere, the measurement and remediation of water and air quality problems, the toxicology of water and air pollutants, and the environmental aspects of energy use. Prerequisites: CHEM225, CHEM231, and NSCI103. Also listed as EVRN341.

### CHEM351
### Introductory Biochemistry
**(3,3) 4**

Introduction to the chemistry of biological molecules, including the general properties and chemical transformation of amino acids, proteins, carbohydrates, lipids, vitamins, and nucleic acids. Emphasis will be on correlating chemical

reactions with biological function. An introduction to the intermediary metabolism of the carbohydrates, amino acids, lipids and nucleic acids will also be presented. Prerequisites: CHEM116, CHEM225.

### CHEM353
### Introductory Toxicology
**(3,0) 3 alternate years**

An introduction to toxicology, including its history, types of poisons, their mode of operation and the biochemistry of detoxification. Environmental problems caused by toxic contaminants will be discussed. Prerequisite: CHEM225.

### CHEM361
### Physical Chemistry I
**(4,0) 4 alternate years**

Chemical thermodynamics with applications to both phase and chemical equilibria. Prerequisites: CHEM116, one year of calculus and one year of physics.

### CHEM362
### Physical Chemistry II
**(3,0) 3 alternate years**

Traditional quantum chemistry topics will be discussed that help explain chemical phenomena and provide descriptions and applications for spectroscopy. Prerequisite: CHEM116 and either MATH112, EGNR140 or EGNR245; or one year of equivalent calculus and numerical methods. One year of college physics preferred.

### CHEM363
### Physical Chemistry Laboratory: Kinetics and Reaction Dynamics
**(0,3) 1**

An advanced laboratory exploring reaction kinetics and dynamics with an emphasis on modern methods of physical chemistry measurement. Prerequisite: CHEM116 and one semester of calculus.

### CHEM395
### Junior Seminar
**(1,0) 1**

Literature searching, scientific writing, and oral presentation of scientific data. Students will be expected to listen to presentation of peers enrolled in CHEM/EVRN499 and develop a topic for their senior thesis. Prerequisite: Junior standing. Note: Also listed as EVRN395.

### CHEM399
### Internship in Chemistry
**1-4 1-4**

This course is designed to provide students with an opportunity to earn credit while obtaining meaningful discipline-related work experience outside the classroom setting. Students are expected to spend a minimum of 45 hours in an approved work setting for each credit hour earned. Work hours and activities must be documented daily and approved by both the on-site supervisor and the

instructor to receive credit. The course may be repeated for a maximum of four credits. Prerequisite: 2.5 GPA in major, Junior standing and permission of chair at least one semester in advance of registering for the course.

### CHEM445
### Forensic Science
**(3,3) 4**

This is a capstone class for the forensic chemistry degree. It will focus on standard and non-standard methods in forensic science. Lecture and laboratory concentrate on quantitative and qualitative drug analyses, fingerprint visualization techniques, ballistics, DNA analyses, and chemical analyses of evidence. Gas chromatography, atomic absorption spectrometry, and infrared spectroscopy techniques will be used to differentiate evidence. In this course much time will be spent on mechanisms of the analyses facilitating critical thinking skills. Prerequisites: CHEM332 and CJUS444. Note: Also listed as CJUS445.

### CHEM450
### Laboratory Apprenticeship
**(0,3) per credit 1-2**

Students will assist in laboratories, learning instructional techniques, under direction of faculty. Course may be repeated for a maximum of two credits. Students must gain approval of the faculty member in charge of the specific laboratory, and the college dean. Credits may be used as CHEM electives.

### CHEM452
### Advanced Biochemical and Molecular Techniques
**(2,4) 4 alternate years**

A course covering advanced laboratory techniques for manipulating and analyzing bio-polymers such as proteins and nucleic acids. A brief discussion of bioinformatics will be presented. Protein expression vectors, PCR, and modern molecular techniques will be explored with potential applications for chemistry, biology, toxicology, forensic, and clinical lab science. Prerequisite: CHEM251.

### CHEM461
### Advanced Inorganic Chemistry
**(3,0) 3 alternate years**

This is an every-other-year course. This course will meet for three hours per week. Advanced concepts of inorganic chemistry will be examined, including atomic structure, ionic and covalent substances, acids and bases, main group elements, and transition metal elements. Pre- or corequisites: CHEM226, 332 and 361.

### CHEM462
### Advanced Inorganic Chemistry Laboratory
**(0,3) 1 alternate years**

This is an every-other-year course. This laboratory will meet for three hours per week. Advanced concepts of inorganic chemistry will be examined in a laboratory setting.

### CHEM490

### Independent Study in Chemistry

**(1-4,0) 1-4**

Special studies and/or research in chemistry for individuals or small seminar groups. Course content to be arranged by student(s) and a supervising professor with approval of department chair. Prerequisites: Students must have an overall GPA of at least 2.5, and no "I" grades on their transcript. Independent study courses may be repeated for a maximum of eight credits. Additional information is available at the College of Natural and Mathematical Sciences office.

### CHEM495
### Senior Project

**(0,6) 2**

This is a practicum course in which students, under the guidance of a faculty mentor, conduct a scholarly project mutually agreed upon by the student and his/her faculty mentor. This course will be required for a degree certified by the American Chemical Society. This course may not be repeated for credit. Prerequisites: CHEM395 (also listed as EVRN395), CHEM231, and CHEM225. Dual listed as EVRN495.

### CHEM499
### Senior Seminar

**(1,0) 1**

Required for seniors majoring in chemistry/environmental science. Students will present the results of their scholarly research. Students who have completed CHEM/EVRN495 will be required to give poster and oral presentations to the University community as part of this class. Pre- or corequisite: CHEM395 (also listed as EVRN395). Dual listed as EVRN499.

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### CHIN151
### First-Year Chinese I

**(4,0) 4**

An introductory course designed to develop the four basic language skills in listening, speaking, reading, and writing in the target language as well as the acquisition of basic Chinese grammar and vocabulary. A communicative approach based on real-life situations. Relevant Chinese cultural aspects discussed. English used as necessary in classroom instruction.

### CHIN152
### First-Year Chinese II

**(4,0) 4**

Further development of basic language skills in listening, speaking, reading and writing with a strong emphasis on speaking reading fluency. Relevant cultural aspects briefly discussed and the target language used progressively in instruction when it fits. Prerequisite: CHIN151 or equivalent.

### CHIN251

### Second-year Chinese I

**(4,0) 4**

An intermediate-level course aiming at expanding the learner's ability to communicate in everyday life situations in the target language. Continued focus on language proficiency in listening, speaking, reading, and writing as well as further development of vocabulary knowledge and consolidation of grammatical knowledge. Social and cultural norms and conventions discussed when appropriate. Communicative approach used in instruction. Prerequisite: CHIN151, CHIN152 or equivalent.

### CHIN252
### Second-year Chinese II

**(4,0) 4**

An intermediate-level course aiming at expanding the learner's ability to communicate in everyday life situations in the target language. Continued focus on language proficiency in listening, speaking, reading, and writing as well as further development of vocabulary knowledge and consolidation of grammatical knowledge. Social and cultural norms and conventions discussed when appropriate. Communicative approach used in instruction. Prerequisite: CHIN251 or equivalent.

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### CHLD101
### Foundations of Early Childhood Education

**(3,0) 3**

An introduction to the field of early childhood. Topics include its history, application of theories to curriculum, types of programs and issues in the field of child care. Observations of various early childhood settings will be required.

### CHLD105
### Child Guidance and Welfare

**(3,0) 3**

Through readings, discussions, observations and interactions with children, the student will learn how to develop guidance strategies when working with children in an early childhood setting. Prerequisite: PSYC155 or 265.

### CHLD110
### Curriculum Development and Teaching Practices

**(3,0) 3**

Developing curriculum and teaching practices based on the whole child's development: Cognitive, physical, social, emotional, and creative. Emphasis on planning play activities for learning centers. Observations of children in an early childhood setting will be required.

### CHLD111
### Infants and Toddlers:Developmentally Appropriate Practices

**(3,0) 3**

Includes theories of emotional, physical, social and cognitive stages of development of children ages 0 to 36 months. The knowledge of these stages will be applied to matching developmentally appropriate teaching and caregiving practices. Issues in administering infant/toddler programs will also be discussed. Prerequisite: PSYC155 or 265.

### CHLD220
### Early Childhood Literature
**(3,0) 3**

Readings in developmentally appropriate literature and related activities across the curriculum for young children, ages birth through kindergarten. Prerequisites: ENGL110 and COMM101.

### CHLD260
### Practicum I
**(1,12) 4 credit/no credit**

The student will complete 12.5 hours weekly in an early childhood laboratory setting. Attendance at a weekly seminar is also required. Prerequisites: CHLD101 and 110 and permission of instructor.

### CHLD261
### Practicum II
**(1,12) 4 credit/no credit**

The student will complete 12.5 hours weekly in an early childhood laboratory setting. Attendance at a weekly seminar is also required. Prerequisites: CHLD101 and 110 and permission of instructor.

### CHLD270
### Administration of Early Childhood Programs
**(3,0) 3**

Knowledge of financial, legal, supervisory and administrative procedures used in operating an early childhood program will be gained through lectures, discussions, readings and activities. Prerequisite: CHLD260 or 261.

### CHLD340
### Practicum III: Field Experiences
**(1,12) 4**

Students will gain hands-on experience and observational skills in a K-3 classroom. Students will attend individualized seminars, and complete 100 contact hours in the classroom with additional course requirements. Prerequisites: Permission of instructor and completion of CHLD260 and 261.

### CHLD420
### Emergent Literacy
**(3,0) 3**

A methods class which facilitates understanding of the reading, writing, oral and listening development of the child from preschool to early elementary. Prerequisite: CHLD220 or ENGL335.

## CHLD430
### Directed Studies in Early Childhood Education
**(4,0) 4**

Individual research study of a relevant topic of current trends and issues in early childhood. Topic will be defined jointly by student and instructor. Prerequisite: junior status.

## CHLD450
### Internship in Teaching: Infant-Toddler/Preprimary Education
**4 credit/no credit**

Directed and evaluated internship in an approved infant-toddler or preprimary classroom setting. Students must plan for a full-time (as determined by the program) student teaching experience for a total of 180 contact hours. Open only to elementary education students who are completing the early childhood endorsement (ZA) as required by the State of Michigan Department of Education. Prerequisites: completion of CHLD260 and/or ED261, and entrance into the Teacher Education Program. The student must meet all the require-ments as determined by the internship site. Instructor's permission is required and placement will be made with the instructor's approval.

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## CJUS101
### Introduction to Criminal Justice
**(3,0) 3**

A survey of the evolution of criminal justice with particular emphasis on the development of western models of justice. Included will be the role of law enforcement, corrections, the courts and loss control.

## CJUS102
### Police Process
**(3,0) 3**

Basic principles and techniques of administration which apply to criminal justice organizations. Emphasis on decision making, authority, human relations and communication within organizations.

## CJUS103
### Introduction to Terrorism and Homeland Security
**(3,0) 3**

This course will provide learners with historical view of terrorism, its orgins, methodology, and ideology. It will also provide the learner with knowledge of specific events of the 20th century related to terrorism that have formed modern terrorism. Finally it will discuss the worldwide effort on deterring and discovering terrorist activites.

## CJUS110
### Introduction to Corrections
**(3,0) 3**

History and philosophy of correctional policy and need for correctional reform; correctional system from arrest through sentencing; correctional personnel and clients.

### CJUS130
### Client Relations in Corrections
**(3,0) 3**

Meaning and functions of culture and discrimination, minorities in Michigan, affirmative action and attitude formation; ethics, values and professional responsiveness.

### CJUS140
### Correctional Client Growth and Development
**(3,0) 3**

Emphasis on needs, identities and development of recipients of correctional services; to assist students in gaining insights into development of sensitivity to behavior and motivations of corrections clients. Specific problems of prisoners and intervention strategies are reviewed.

### CJUS197
### Physical Fitness for Public Safety
**(0,3) 1**

This course provides physical fitness and skills necessary for the law enforcement and fire science certification students. Law enforcement students (MCOLES) take course both semesters of their senior year.

### CJUS201
### Firearms Training
**(0,2) 1**

Emphasis on safe weapon handling, the fundamentals of good marksmanship, proper methods of cleaning and weapon nomenclature. A variety of weapons will be used. Students will have to provide their own targets and ammunition. Prerequisite: Criminal justice student, sophomore standing or permission of department chair.

### CJUS202
### Canadian Criminal Law
**(3,0) 3**

Survey of Canadian substantive and procedural criminal law including search and seizure, arrest, evidence and statutory and case law.

### CJUS203
### Cyberterrorism
**(3,0) 3**

This course will examine the problem of both domestic and global Cyberterrorism/Cybercrimes. The recognition of various types of crimes committed using computers, the Internet, and other Electronic Devices. Learners will learn investigative techniques and legal issues as related to the investigation of Cybercrimes.

### CJUS204
### Domestic and International Terrorism
**(3,0) 3**

This course will examine the history and modern trends of Domestic, International and Transnational Terrorism. This will include the profile of terrorist recruits, the structure and dynamics of terrorist organizations, and government sponsored terrorism. The motivation of various organizations and their methods of terrorist violence, as well as, their justification of violent acts will be discussed. Antiterrorism and Counterterrorism measures will be analyzed.

### CJUS206
### Law Enforcement/Loss Control Internship
**(3,0) 3**

Field experience for correlation of theoretical knowledge with practice in participating law enforcement or loss control agencies. Prerequisite: Permission of the instructor or sophomore standing. Course may be elected twice for credit of six hours.

### CJUS212
### Loss Control
**(3,0) 3**

Study of security, including historical, legal and philosophical framework for various phases of security operations in our society today.

### CJUS220
### Institutional Corrections
**(3,0) 3**

A survey of the history and philosophy of correctional institutions focusing on: The use of imprisonment as a mechanism of social control, custody versus treatment, rights of prisoners, prison and jail management, institutional training programs, examination of contemporary correctional institutions, prison and jail architecture, and prisoner society.

### CJUS240
### Community-Based Corrections
**(3,0) 3**

A survey of the history, development, techniques and fundamentals of non-institutional correctional programs and services. Emphasis will be placed on the necessity of correctional programs to interact with other human service agencies within the community.

### CJUS243
### Investigation
**(3,0) 3**

Introduction to investigation and the techniques of forensic science with emphasis upon gathering and documenting information for determination of fact. Prerequisite: CJUS101.

### CJUS250
### Correctional Law
**(3,0) 3**

Survey of substantive and procedural correctional law including sentencing, probation, parole, imprisonment, fines and restitution, and prisoners rights. Case law method used, based on appellate court decisions which evolve from criminal defendant litigation and complex legal issues concerning American corrections.

### CJUS303
### Critical Infrastructure Protection
**(3,0) 3**

This course will examine the historical development of the United States modern infrastructures. The course will provide an in depth knowledge of the Critical Infrastructures and the current protection methods. The learner will then learn advanced protection techniques and vulnerability analysis skills utilized to protect the assets.

### CJUS306
### Security Systems
**(3,0) 3**

Overview of specialized areas of security in specific facilities with special attention given to management of security information. Prerequisite: CJUS212.

### CJUS313
### Crisis Intervention and Deviant Behavior
**(3,0) 3**

Survey of philosophy, theory and practice involved in the treatment of different crisis situations most commonly confronting the law enforcement officer in the performance of regular duties. Prerequisites: CJUS101 and CJUS102.

### CJUS319
### Substantive Criminal Law
**(3,0) 3**

Survey of substantive criminal law as a means of attaining socially desirable ends including protection of life and property. Deals with historical, philosophical concepts as well as case law. Prerequisite: CJUS101.

### CJUS321
### Ethical Issues in Public Safety
**(3,0) 3**

Consideration of selected issues in public safety organizations. Emphasis on the role of practitioners and relations with the various publics. Students will be given moral dilemmas and will consider their individual value system. Prerequisites: CJUS101 and CJUS102.

### CJUS325
### Homeland Security and Emergency Services
**(3,0) 3**

This course will prepare all graduates from a variety of majors to understand how homeland security impacts the US political system as a whole, but especially from the standpoint of emergency response and preparedness. Investigates the impact of the federal homeland security apparatus on emergency response organizations at the state and local level. Includes a historical review of \"homeland security\" measures beginning in WWI and through WWII and the Korean War. Especially reviews the security situation during the Cold War. The course deals with the federal agencies usually not associated with homeland security, such as DEA, ATF, the military departments, FAA, CDC, the National Guard Bureau, and the DOD. Prerequisite: Junior standing. Students from other majors are encouraged to enroll with permission from instructor. Also listed as FIRE325.

### CJUS330
### Correctional Casework
**(3,0) 3**

The history, standards and principles of correctional casework are presented; the roles, functions and goals of casework are discussed; the competencies and training required for effective casework are considered; and correctional clients - probation and parole selection and appraisal - are concentrated upon. Prerequisites: CJUS220, CJUS240, and junior or senior standing.

### CJUS341
### Fire Cause and Arson Investigation
**(3,0) 3**

Determination of fire cause and origin and explosion causes. Prevention, documentation and legal aspects examined. Prerequisite: Junior standing.

### CJUS345
### Statistics and Design for Public Safety
**(3,2) 4**

Introduction to research methodology and designs utilized in public safety. Includes sampling, descriptive statistics, inferential statistics, sources of error in presenting findings, and preparing and reading research reports. Prerequisites: Junior standing in criminal justice or fire science and MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

### CJUS355
### Juvenile Justice
**(3,0) 3**

Criminological theories of the causes of juvenile delinquency and prevention strategies. The functions of the juvenile justice system including: Police, courts, detention and legal rights. The Canadian Young Offenders Act will also be studied. Prerequisites: CJUS101 and SOCY214.

### CJUS384
### International and Comparative Criminal Justice Systems
**(3,0) 3**

A survey of selected world criminal justice systems including police, courts, and corrections. Cross-national and cross-cultural criminality from several perspectives will be examined as will the globalization of crime.

### CJUS401
### Senior Seminar
**(3,0) 3**

Seminar and independent study course with individual student guidance by faculty on selected research topics in criminal justice. Prerequisite: Senior standing.

### CJUS402
### Criminal Justice Internship
**3-9**

Criminal justice internship with an agency. Credit is based on 34 hours of field work per credit hour. Students must make application by the ninth week of the previous semester. Prerequisite: Senior standing and permission of instructor.

### CJUS406
### Advanced Canadian Jurisprudence
**(3,0) 3**

Expands upon the material covered in CJUS202, Canadian criminal law, including trial tactics and procedures, sentencing, jurors, invasion of privacy and other current topics. Prerequisite: CJUS202.

### CJUS409
### Procedural Criminal Law
**(3,0) 3**

Principles, duties and mechanics of criminal procedures as applied to important areas of arrest, search and seizure. Prerequisite: CJUS319.

### CJUS411
### Police Operations
**(5,0) 5**

A capstone course for Michigan Commission on Law Enforcement Standards (MCOLES) Criminal Justice certification students. Court functions, domestic violence law and procedures, ethical issues, civil disputes, interpersonal relations, juvenile offenders and other related topics. Prerequisite: Senior Criminal Justice MCOLES student.

### CJUS425
### Women and Criminal Justice
**(3,0) 3 alternate years**

An examination of theories of female criminality and the treatment of women in criminal justice. Various issues relating to women as professionals in criminal justice will be covered. The unique issues which arise when females are incarcerated will also be examined. Prerequisites: CJUS101, and junior or senior standing.

### CJUS444
### Criminalistics
**(3,3) 4**

Criminalistic methodology and practice including crime scene techniques for specific offenses, collection and preservation of evidence, narcotics and dangerous drugs, fingerprinting, presentations, and other related topics. Contains MLEOTC mandated hours. Prerequisite: CJUS243.

### CJUS445
### Forensic Science
**(3,3) 4**

This is a capstone class for the forensic chemistry degree. It will focus on standard and non-standard methods in forensic science. Lecture and laboratory concentrate on quantitative and qualitative drug analyses, fingerprint visualization techniques, ballistics, DNA analyses, and chemical analyses of evidence. Gas chromatography, atomic absorption spectrometry, and infrared spectroscopy techniques will be used to differentiate evidence. In this course much time will be spent on mechanisms of the analyses facilitating critical thinking skills. Prerequisites: CHEM332 and CJUS444. Also listed as CHEM445.

### CJUS484
### Futures Research: Long-Range Planning for Criminal Justice
**(3,0) 3 alternate years**

This course will explore probable and possible futures and the impact on crime, criminality and the criminal justice system. It will explore alternative methods and systems to deal with projected change. Prerequisites: CJUS101 and CJUS102.

### CJUS490
### Independent Study for Criminal Justice
**(1-4) 1-4**

This may take the form of either a research project or a directed reading on a specific subject. One to four credits over a period of one or more semesters may be granted according to the nature of the student\'s project. May be repeated up to six credits. Prerequisite: Permission of instructor.

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### COMM101
### Fundamentals of Speech Communication
**(3,0) 3**

A study of communication theory as it relates to the oral sender and receiver in interpersonal, dyadic, small group, and public speaking situations. Application will be in perceptual analysis, dyadic encounters, small group problem-solving and discussion, and public speaking situations.

### COMM201
### Small Group Communication
**(3,0) 3**

Analysis of verbal communication in small groups as related to information processing, problem solving, agenda establishment, decision making and policy formation. Prerequisite: COMM101.

### COMM210
### Business and Professional Speaking
**(3,0) 3**

An introduction to basic skills, principles and contexts of communication in business and professional settings. Application will be in presentational, team-building and interviewing skills. Prerequisite: COMM101.

### COMM211
### Advanced Public Speaking
**(3,0) 3**

A grounding in upper-level public address with an emphasis on both informative and persuasive strategies. It will be taught using a combination of lecture, discussion, video analysis and critiques, and speeches. Prerequisite: COMM101.

### COMM225
### Interpersonal Communication
**(3,0) 3**

An introduction to interpersonal communication theory, with a focus on improved understanding of relationships and an improved ability to communicate more effectively with a variety of people. Prerequisite: COMM101.

### COMM280
### Understanding the Mass Media
**(3,0) 3**

Acquaints students with the basic similarities and differences in newswriting among the mass media, particularly newspapers, radio and television. Students will practice writing in the various formats. Prerequisite: ENGL110.

### COMM302
### Argumentation and Advocacy
**(3,0) 3**

Provides a practical grounding in the methods of public debate. Students are familiarized with theoretical frameworks for testing propositions through direct clash of evidence and arguments. The emphasis is on practical experience gained through experiences in oral argument. Prerequisite: COMM101.

### COMM307
### Classical/Contemporary Rhetoric
**(3,0) 3**

A study of the development of rhetoric beginning with the Greeks and continuing to the present. An emphasis will be placed on the influences of past rhetoric to current theory. Prerequisite: COMM101.

### COMM308
### Communication Theory
**(3,0) 3**

A study of the sources, dimensions and applications of contemporary

communication theory, including the impact of mass communication in modern society. Prerequisite: COMM101.

### COMM320
### Public Relations
**(4,0) 4**

Public relations theory and practice will form the two emphases of the course. Theory will be explored and discussed as foundation for the application of public relations concepts and strategies. Students will be responsible for working with organizations in order to develop realistic PR campaigns which reflect the awareness of the significant structures and responsibilities involved in a professional approach to public relations. Prerequisite: COMM101.

### COMM325
### Organizational Communication
**(3,0) 3**

Focus on oral communication as it impacts on and permits coordination among people and thus allows for organized behavior. Focus on business and organizational contexts for interpersonal transactions. Participant involvement in simulation designed to generate insights into the elements involved in coordinated and competitive organizational communication. Selected topics for theory and practice: Interpersonal transactions, communication rules, conflict management, negotiations, trust, power and influence. Prerequisite: COMM101.

### COMM399
### Internship in Communication
**(1-4) 1-4**

This course is designed to provide students with an opportunity to earn credit while obtaining meaningful discipline-related work experience outside the classroom setting. Students are expected to spend a minimum of 45 hours in an approved work setting for each credit hour earned. The course may be repeated for a maximum of four credits. Prerequisite: 2.5 GPA in major, junior standing and permission of department head at least one semester in advance of registering for the course.

### COMM416
### Communication in Leadership
**(3,0) 3**

An advanced application of theory from the speech communication field to issues in organizational leadership. Leadership theory is surveyed from the speech communication perspective, with an eye toward building applicable skills. Particular emphasis is laid upon cultivating the ability to continue the process following the conclusion of the course. Prerequisite: COMM101.

### COMM490
### Senior Directed Study in Communication
**3-4 3-4**

This course is designed to allow communication majors the opportunity to develop and implement a project/paper using the skills and knowledge from their previous course work. Projects/papers should relate to a student's individual areas of interest within the communication discipline, and represent a synthesis

of their previous learning under the supervision of an appropriate faculty member. Prerequisites: senior status and approval of the appropriate chair(s).

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### CSCI101
### Introduction to Microcomputer Applications
**(2,2) 3**

The study of a selection of contemporary microcomputer applications, including operating systems concepts, word processing, spreadsheets, database management systems, and the Internet and World Wide Web. Brief survey of other applications, such as presentation graphics, multimedia usage and desktop publishing. Does not apply toward credit in computer science major or minor.

### CSCI103
### Survey of Computer Science
**(2,2) 3**

An introduction to the field of computer science for computer science majors. Microcomputer applications, history of computing, computer networks and the Internet, programming, hardware, theory of computation, artificial intelligence.

### CSCI105
### Introduction to Computer Programming
**(2,2) 3**

An introductory course in computer programming in a graphical development environment, intended for students with no prior computer programming experience. Arithmetic, control structures and simple data structures. Sound, graphics and animation. Prerequisite: MATH086 or equivalent/satisfactory score on the ACT or Placement Exam.

### CSCI106
### Web Page Design and Development
**(2,2) 3**

Topics include planning a web site starting with domain name registration and selection of hosting service providers, creating web page using HTML/XHTML and cascading styles sheets; validating web pages; using web authoring tools such as Dreamweaver; publishing web pages to a remote web server, introductory web site design, including best practices for inserting graphics, page layout, building the web site navigation and user interface, integration of third-party and Web 2.0 tools and software, implementing web and accessibility standards, ethical and legal issues such as copyright and trademarks.

### CSCI107
### Web Graphic Design and Development
**(2,2) 3**

Apply graphic design, typography, color theory, and image composition to enhance a web site. Create web graphics using Adobe Photoshop and Microsoft Expression Design. Insert graphics into web pages and publish web sites using Adobe Dreamweaver and Microsoft Expresssion Web.

## CSCI121

### Principles of Programming

**(3,0) 3**

A broad-based introduction to computer programming, using the C++ programming language and basic operating system features as vehicles. Basic programming principles, including built-in and programmer-defined data, operators, functions and control structures. Applications will be drawn from across the discipline of computer science. Prerequisite: CSCI105 and MATH102 (or equivalent math placement), with a grade of C or better in both classes.

## CSCI122

### Programming Tools and Techniques

**(3,0) 3**

A continuation of CSCI121, with an emphasis on software development, rather than the syntactic and semantic details of C++ language. Advanced class concepts, including operator overloading, dynamic memory allocation, and inheritance. Exception handling, binary files, data representation, and advanced pointer applications. Text management, parsing techniques, and C-style input and output. Separate compilation and third-party libraries. Prerequisite: CSCI121 with a grade of C or better.

## CSCI163

### Troubleshooting and Repair of Personal Computers

**(2,2) 3**

A basic introduction to the architecture, installation, maintenance, troubleshooting and repair of personal computers. The student will learn elementary principles of electronics, magnetism and interference as they relate to computer repair and operation. The disassembly and upgrading of a personal computer will be covered in the laboratory as well as the use of diagnostic hardware and software.

## CSCI201

### Data Structures and Algorithms

**(3,0) 3**

An introductory course in data structures and algorithms, with an emphasis on abstraction, implementation and analysis. Pointers, lists, stacks, queues, trees and binary trees, and graphs. Application of various data structures to problems selected from the spectrum of computer science topics. Prerequisite: CSCI122 with a grade of C or better and either MATH111 or 140 (or equivalent math placement) with a grade of C or better.

## CSCI207

### Developing Multimedia and Rich Interactive Web Sites

**(2,2) 3**

Transform static web pages into rich media-based interactive web applications. Apply graphic design and marketing principles to design and produce audio and video components for both consumers and commercial web applications. Using Adobe Flash and Microsoft Silverlight, build rich interactive web applications. Publish web sites to a web server. Prerequisite: CSCI107 with a grade of C or better.

## CSCI211

### Database Applications

**(3,0) 3**

An introductory course in database design and implementation, using microcomputer-based relational database software. Single and multi-table databases, forms and reports, query processing, data import and export, and database-related programming. Prerequisite: CSCI105 with a grade of C or better.

## CSCI221

### Computer Networks

**(2,2) 3**

An introduction to the basic principles of computer networks and communication, exploring both the hardware necessary to support computer networks and the software needed to utilize those networks. Basic network topologies, network protocols, and local and wide-area networks. Prerequisites: CSCI103 and 105 with a grade of C or better.

## CSCI223

### Routers and Switches I

**(2,2) 3 alternate years**

Principles of Wide Area Networks, IQs, routers, routing protocols and configurations; hands-on training with industry-standard routing and switching equipment. Prerequisite: CSCI221 with a grade of C or better.

## CSCI225

### Routers and Switches II

**(2,2) 3 alternate years**

Routing protocols, virtual LANs, network management, design of LANs and WANs. Students completing this course will be prepared to take the CCNA certification exam. Prerequisite: CSCI223 with a grade of C or better.

## CSCI248

### Network Operating Systems I

**(2,2) 3**

An introduction to using and administering network operating systems. Students will also be introduced to virtualization of machines, as well as interaction between virtualized machines. Topics include: account setup, basic security, file and device sharing, and maintenance. Course topics will be presented in the context of different network operating systems. Prerequisite: CSCI221 with a grade of C or better.

## CSCI263

### Managing Computer Security

**(3,0) 3**

This course investigates the various security protection and recovery techniques available for networks and personal computers including security policies, procedures, and requirements necessary for protecting the integrity of information stored on networks, workstations, and other computer systems.

Other topics include discussions on disaster recovery planning, emergency response teams, threat assessment, detection and remediation of a threat, standards for establishing a security framework, and operations security and production controls. Prerequisite: CSCI101 or 103 with a grade of C or better

### CSCI275
### Web Server Administration
**(2,2) 3**

Install and configure a web server; identify the web server administrator role; monitor web server performance and log files; configure file transfer and email services; secure the server. Plan and configure an e-commerce web site. Prerequisites: CSCI221 and CSCI248, both with a C or better.

### CSCI281
### Introduction to UNIX and Networking
**(2,2) 3**

An introduction to the UNIX operating system, shell scripting, and UNIX networking from the user's perspective. Topics include basic and intermediate UNIX commands and file structure, regular expressions, BASH/CSH shell scripting, basic UNIX network setup, introduction to UNIX system daemons and networking services. Prerequisite: CSCI221 or 271 with a grade of C or better.

### CSCI290
### Independent Study in Computer Science
**(1-4,0) 1-4**

Special studies and/or research in computer science for individuals or small seminar groups. Course content to be arranged with instructor and with approval of the department head. This course may be repeated for a maximum of eight credits. Prerequisites: Sophomore standing or higher.

### CSCI291
### Computer Science Project
**(4,0) 4**

This is a hands-on course where the student is assigned a project at a corporate site. The student is expected to spend at least 8-10 hours a week on the project. Topics for the project may include creating a substantial Web site, designing and implementing an application system for a user, modifying and updating an existing software system, or other related projects. The projects will vary each semester. Prerequisites: CSCI211 with a grade of C or better; CSCI201 with a grade of C or better, or current enrollment in CSCI201.

### CSCI292
### Computer Networking Project
**(4,0) 4**

This is a hands-on course where the student is assigned a project in a corporate network setting. The projects will vary each semester to allow students to implement their knowledge to create and maintain a real-world network system. Activities could include the wiring of the network, installing and maintaining users, installing and repairing workstations, maintaining a Novell or Microsoft network, monitoring an NDS tree, and other similar activities. The student is expected to spend at least 8-10 hours per week on the project including hours

on site, doing research, and writing weekly report logs. Prerequisite: CSCI106 and 107, both with a grade of C or better, or CSCI163 and CSCI221, both with a grade of C or better.

### CSCI312
### File and Database Management
**(3,0) 3 alternate years**

An introduction to files and file processing, with an emphasis on non-sequential organizations for supporting multi-file databases. Creating interfaces to database systems from common programming language platforms. Prerequisites: CSCI121 and CSCI211, each with a minimum grade of C.

### CSCI315
### Computer Organization and Architecture
**(3,0) 3 alternate years**

A hardware-oriented introduction to the structure of modern computer systems, emphasizing the role of, and interrelationships between, the various components. The evolution of modern computer systems. Memory organization, peripheral devices and their connectivity. Instruction sets, arithmetic and central processing unit structure. Control unit organization and operation. Alternative computer architectures. Prerequisite: CSCI201 with grade of C or better.

### CSCI319
### Network Programming Using Java
**(3,0) 3**

Overview of Java; applet development in Java; building graphical interfaces; threads and multi-threaded applications; and building client-server applications with Java. Prerequisite: CSCI121 with a grade of C or better.

### CSCI321
### Computer Graphics
**(3,0) 3 alternate years**

An introduction to the generation of graphical images by computer. Survey of common graphics devices. Generation of lines and curves. Representation of two-dimensional objects. Techniques for area filling. Scaling, rotation and translation in two dimensions. Rendering three-dimensional objects by projections. Scaling, rotating and translating in three dimensions. Hidden line and hidden surface detection and removal. Prerequisites: CSCI201, and either MATH112 or 151, all with a minimum grade of C.

### CSCI325
### Developing Web Applications with JavaScript and PHP
**(2,2) 3**

Transform static web sites into dynamic web sites using a combination of client and server-side web programs. Process and validate forms, build interactive web sites, manage web databases and publish web sites to a web server. Prerequisites: CSCI121, CSCI211 with a grade of C or better.

### CSCI326
### Developing Web Applications with ASP.NET

**(2,2) 3**

Create and publish web server and web database applications using the Microsoft ASP.net framework; Emphasis on improving performance, security, and isolating business logic from the user interface. Prerequisites: CSCI121, CSCI211 with a grade of C or better.

### CSCI333
### Systems Programming
**(3,0) 3**

An introduction to systems-level programming and scripting using UNIX and Perl. UNIX overview and commands; Web servers, CGI, and integration of UNIX and Perl; programming in Perl, including lists, hashes, conditionals, loops, pattern matching, process and file management, and other topics. Prerequisites: CSCI121 and 221, both with a grade of C or better.

### CSCI334
### Operating Systems Concepts
**(3,0) 3 alternate years**

Definition and historical development of operating systems. Characteristics of batch, interactive and multiprogramming systems. File systems, processor and memory management. Communication, concurrency, deadlock and protection. Prerequisite: CSCI333 with a minimum grade of C.

### CSCI341
### Discrete Structures for Computer Science
**(4,0) 4 alternate years**

Formal logic and proof techniques; recursion, recurrence relations and combinational methods; analysis of algorithms; algebraic structures; trees and graphs; Boolean algebra and computer logic; models of computation and formal languages. Emphasis will be on applications to computer science. Prerequisites: CSCI121 with a grade of C or better, and either MATH112 or 151 with a grade of C or better.

### CSCI342
### Advanced Programming Techniques
**(3,0) 3 alternate years**

Advanced data structures and programming techniques, including: divide and conquer, dynamic programming, greedy algorithms, graph algorithms, balanced trees. Emphasis will also be placed on the software development process, debugging and testing methodologies. Prerequisite: CSCI201 with a grade of C or better.

### CSCI348
### Network Operating Systems II
**(2,2) 3**

A continuation of using and administering network operating systems. Students will also be introduced to virtualization of servers, as well as interaction between virtualized machines. Topics include: file system and network service management, remote access, security, printing, and disaster recovery. Course

topics will be presented in the context of different network operating systems. Prerequisite: CSCI248 with a grade of C or better.

### CSCI412
### UNIX Network Administration
**(2,2) 3**

Network administration how to and issues for Linux. Installation of a Linux networked system, maintenance and upgrade of a Linux installation, security issues, common scripting languages, system admin tasks, NFS, and mail systems; other UNIXes. Prerequisites: CSCI221 and 281, both with a grade of C or better.

### CSCI418
### Senior Project I
**(1,4) 3**

This course is the first part of the two-part sequence CSCI418/419. The student will begin a two-semester project by designing and implementing a software system, by creating or maintaining a network system, or by working on some other related computer project. The projects will vary each year to allow students to work on a state-of-the-art real-world system. Students in CSCI418 must take CSCI419 the following semester. Prerequisite: Permission of instructor.

### CSCI419
### Senior Project II
**(1,4) 3**

The second of a two-part sequence, CSCI419 provides students with the skills necessary for completion of their project design from CSCI418. In this course, the student will implement the design of a software system created in Senior Project I (CSCI418). The projects will vary each year to allow students to implement their knowledge to create a real-world software system. In addition, the student will analyze numerous ethical considerations associated with being a computer professional. Prerequisite: CSCI418 with a grade of C or better.

### CSCI422
### Network and Computer Security
**(2,2) 3**

An advanced look at common computer and network exploitation techniques in use today. Course emphasis is on how exploits work (both the exploiter's perspective as well as the software faults that allow these exploits to exist), what can be done with the exploits, as well as mitigation and solution techniques for containing the damage to the administered systems. Prerequisites: CSCI121, 221, 333 and 412.

### CSCI428
### Computer Science Cooperative Education I
**(3,0) 3**

A practicum in which students work in a supervised capacity (one-site) with industry. The student will spend a semester in a co-op position in some field of computer science (networks, application development, database administration, etc.). The student will develop a co-op project proposal that must be submitted to and approved by the computer science faculty. The co-op experience must be of a significant nature such that it serves as capstone computer science

experience for the student. This is the first of a two-course sequence. Prerequisites: CSCI290 and permission of the computer science faculty.

### CSCI429
### Computer Science Cooperative Education II
**(3,0) 3**

A continuation of CSCI428 where students work in a supervised capacity in industry in a field of computer science. This is the second of a two-course sequence. The focus of this course is to finish the cooperative experience in industry and prepare a final report on the two-semester experience. The student will write a final report on the co-op experience and defend that report to the computer science faculty in open forum. Prerequisite: CSCI428.

### CSCI438
### Computer Science Research Project I
**(3,0) 3**

This is a senior-level course in which students are actively involved in a faculty-supervised and guided research project. Students develop a research plan for some portion of the project and implement that plan. In particular, the student will work to develop a proposal of the expected research goals and create a project timeline and budget. The student's faculty advisor and the computer science faculty must approve the plan. This is the first of a two-course sequence. Prerequisite: Senior status and permission of the computer science faculty.

### CSCI439
### Computer Science Research Project II
**(3,0) 3**

This is a continuation of CSCI438 Computer Research Project I. Prerequisite: CSCI438.

### CSCI490
### Individualized Research Topics in Computer Science
**(1-4,0) 1-4**

Special studies and/or research in computer science for individuals or small seminar groups. Course content to be arranged with instructor and with approval of the deparment head. This course may be repeated for a maximum of nine credits. Prerequisites: Junior standing or higher.

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### DANC101
### Ballet I
**(0,3) 1**

An introduction to the art of classical ballet, its traditions, history and vocabulary. Class will include barre exercises, center floor work, exercises in strength and flexibility. A final exam of performance will be given at the end of the semester. This course may be repeated twice for credit.

### DANC110

### Dance Company

**(0,2) 1**

The Dance Company class will meet each week to work on technique in a variety of dance styles, choreograph and rehearse in preparation for outreach programs and performance. The goal of this course is to produce high quality, pre-professional level performance and to serve the community, both on and off campus by providing performances that are entertaining and educational. Prerequisites: A minimum of 2 years dance training and instructor\'s permission. Course may be repeated for a maximum of 8 credits.

### DANC120
### Jazz Dance I

**(0,3) 1**

Introduction of jazz dance; its history and development as a performing art. Basic principals, steps and combinations. Prerequisite: no previous dance training necessary. This course may be repeated once for credit.

### DANC125
### Modern Dance I

**(0,3) 1**

Modern dance will introduce students to dance through the exploration of freedom of movement and self expression. Class will include warm-up exercises, dance combinations, experiments in creativity and choreography and exercises in flexibility and strength to prepare the body to move more efficiently. To familiarize students with the history and variety of modern dance. This course may be repeated once for credit.

### DANC130
### Scottish Highland Dance

**(0,3) 1**

Introduction to basic movements, steps and terminology of Highland dance. Emphasis on fundamentals of footwork and introduction to the history and cultural background of Scottish dance. Dances will include the Highland Fling and Sword Dance along with Scottish Country dances. Students will be given opportunities to perform and compete. No previous dance training is necessary. This course may be repeated once for credit.

### DANC201
### Ballet II

**(0,3) 1**

A continuation of the art of classical ballet. Steps, exercises and combinations are done at an accelerated pace. Movements are more technical and intricate. Pre-pointe and pointe work can be done. Performance will be given at the end of the semester. Prerequisites: Ballet I, or previous ballet training, and instructor permission. This course may be repeated twice for credit.

### DANC205
### Creative Movement for Elementary Educators

**(1,4) 3**

Exploration of movement as a means to improve communication, body/kinetic awareness, creative expression, self-confidence, self-esteem and perceptual motor development. Focus on teaching, creativity, and lesson planning with elementary school students. Prerequisite: Student should have an interest in working with young children. No previous dance experience is necessary.

### DANC210
### Movement for Actors
**(1,4) 3**

An active study in the principles and techniques of stage form, style, and projection necessary for actors or dancers. Helping actors/dancers to move more efficiently on stage. Emphasis on the breath, tension and relaxation, improvisation, body alignment and movement skills including the elements of dance, movement qualities, posture, and physical exercise to help the body move effectively beyond physical constraints. Prerequisite: Strong interest in theatre, or dance recommended.

### DANC220
### Musical Theatre Tap/Jazz
**(0,3) 1**

Introduction to dance appropriate for use in Musical Theatre. Dance to support musical storyline. Several styles of jazz technique along with modern concepts, basic steps, terminology, combination, turns and leaps. Beginning tap: basic steps, patterns, turns and combinations. This course may be repeated twice for credit.

### DANC225
### Modern Dance II
**(0,3) 1**

A more concentrated and vigorous study of modern dance. Exploration of freedom of movement, creative self-expression, trust and partner work. Modern dance techniques and movements will be honed. Students will be responsible for researching past works and modern dancers. Students will be expected to create individual as well as group pieces. Prerequisite: DANC125 or permission of instructor. This course may be repeated once for credit.

### DANC301
### Ballet III
**(0,3) 1**

A continuation of the art of classical ballet. Steps, exercises and combinations are done at a more accelerated pace. Movements are more technical and intricate. Pointe and pre-pointe work will be done in this class. Performance guaranteed. Prerequisite: DANCE101 and DANCE102, or permission of instructor. This course may be repeated once for credit.

### DANC305
### Dance History
**(3,0) 3**

Focus on dance chronologically throughout the world during early lineage based societies, the Middles Ages in Asia and Europe, the Renaissance, and dance in America. Theatrical dance genres, ballet, modern, tap, jazz and musical theatre

will be viewed, reviewed and discussed as well as personal views of dance in contemporary society. Prerequiste: students with a strong interest in dance along with a dance background in ballet, or modern dance is recommended.

### DANC310
### Choreography
**(1,4) 3**

Choreography is the art of making dances. As a result of a semester filled with reading, reflection, experimenting, examining and sharing dance, students will create multiple short dances and a final project. Students may be responsible for producing a student dance concert to showcase their work. Prerequiste: At least two years of previous dance training in ballet, or modern dance is highly recommended, and permission of instructor.

### DANC401
### Senior Thesis
**1-4 4**

A final project sumitted by senior students. Course credits will be determined by the magnitude of the project. Prerequisites: Student should be pursuing a dance minor, or have completed at least 3 years of dance technique, courses in Choreography, Dance History, and at least 2 semesters of Dance Company with a minimum of 4 formal performances. Permission of Instructor. This course may be repeated for a total of 4 credits.

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### DATA225
### Word Processing Techniques
**(3,0) 3**

Students will cover basics of word processing including document creating, saving, printing, and some advanced features such as table, merge, graphics and report formatting. Hands-on experience is scheduled in labs outside of classroom hours.

### DATA231
### Database
**(3,0) 3**

In this course, students will cover advanced database applications in business including creating database tables, forms, reports, mailing labels and charts; creating relationships between database tables; using database wizards; and performing queries and filtering records. A student may repeat this course covering a different database management system for a maximum of six credit hours.

### DATA235
### Spreadsheets
**(3,0) 3**

In this course, students will cover advanced spreadsheet applications in business including writing and working with formulas; creating templates; finding and

organizing information by filtering, sorting and subtotaling; working with multiple worksheets; creating charts; working with data tables and scenario management; and importing data into spreadsheet software. A student may repeat this course covering a different spreadsheet software program for a maximum of six credit hour.

### DATA250
### Desktop Publishing and Presentation Design
**(3,0) 3**

Introduction to document design and layout, use of font, color and graphics to produce newsletters, brochures and presentations. Concepts included are presentation preparation and delivery. Graphics software will be used. Prerequisites: ENGL111 and a working knowledge of word processing.

### DATA261
### Multimedia Applications
**(3,0) 3**

In this course, students will be introduced to the design and production of Web sites. Graphics, animation, and sound will be incorporated in the creation of interactive Web pages. Macromedia Studio, which includes Dreamweaver and Flash, will be used.

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### ECON201
### Principles of Macroeconomics
**(3,0) 3**

Nature and scope of economics; national income accounting; problems of unemployment and price instability; public revenues and expenditures; money and banking; fiscal and monetary policies to promote stability and economic growth. Prerequisite: Two years of high school algebra and equivalent/satisfactory score on ACT or Placement Exam or MATH102 with a grade of C or better.

### ECON202
### Principles of Microeconomics
**(3,0) 3**

Principles of economic reasoning; supply and demand analysis; theories of production; price and output determination under each of the four market structures; factor returns and income distribution theories; public policy implications. Prerequisite: Two years of high school algebra and equivalent/satisfactory score on ACT or Placement Exam or MATH102 with a grade of C or better.

### ECON208
### Honors Principles of Microeconomics
**(3,0) 3**

This course employs algebra, geometry and calculus intensively in the development of principles of microeconomics. The topics covered are nominally

the same as in ECON202; however, there is more advanced coverage of topics in which a knowledge of mathematics is required. Prerequisites: MATH151 or 112. Credit not allowed for both ECON202 and 208.

### ECON209
### Honors Principles of Macroeconomics
**(3,0) 3**

This course employs algebra, geometry and calculus intensively in the development of principles of macroeconomics. The topics covered are nominally the same as in ECON201; however, there is more advanced coverage of topics in which a knowledge of mathematics is required. Prerequisites: MATH151 or 112. Credit not allowed for both ECON201 and 209.

### ECON302
### Managerial Economics
**(4,0) 4**

A study of the application of economic analysis to managerial decisions. Topics include the firm and its environment, demand estimation, production and cost analysis, optimization and profit maximization, analysis of markets, pricing strategy and analysis of project decisions. Prerequisite: MATH112 or equivalent.

### ECON304
### Money, Banking and Monetary Policy
**(3,0) 3**

Monetary theory; study of financial institutions and central bank authorities; monetary policy and its limitations; changing structure of financial markets and industry; relationships between money, prices and national income. Prerequisite: ECON201.

### ECON305
### Public Finance
**(3,0) 3**

The economics of public finance, including taxation, public expenditures and fiscal policy. Rationale and objectives of government activity in a market system; distribution of tax burden; income redistribution effects of taxation and expenditure programs. Prerequisite: ECON201 or 202.

### ECON307
### Environmental Economics
**(3,0) 3**

This course examines the application of economic analysis to problems of air, water, forests, fisheries, energy, and soil use; economic approaches to valuing the environment; the benefits and costs of pollution control; and alternative policy approaches to environmental problems with emphasis on emissions trading. Prerequisite: ECON202.

### ECON308
### Intermediate Microeconomics
**(3,0) 3**

Theory of demand; consumer choice and utility analysis; production and cost analysis; price-output determination under the four market structures; resource allocation; public policy and managerial applications emphasized. Pre-requisite: ECON202.

### ECON309
### Intermediate Macroeconomics
**(3,0) 3**

Determinants and measurement of national income; theories of consumption and investment; aggregate economic analysis including IS-LM and aggregate demand-aggregate supply models; unemployment and inflation; stabilization policies; economic growth. Prerequisite: ECON201.

### ECON407
### Introductory Econometrics
**(3,0) 3**

This course provides an introduction to the theory and use of regression analysis to solve problems in economics. The classical regression model is developed and extended to multiple regression. Topics include data problems, model specification, multicollinearity, goodness of fit, qualitative independent variables, hetroscedasticity, serial correlation, qualitative and limited dependent variables, and forecasting. Prerequisites: BUSN211 or MATH207, ECON201, 202, MATH112 or 151.

### ECON408
### International Economics
**(3,0) 3**

Pure theory of trade and comparative advantage; free trade versus protectionism; trade problems of developing nations; balance of payment accounting; exchange rates; international monetary systems. Prerequisites: ECON201 and 202.

### ECON409
### Seminar in Economics
**(1-2,0) 1-2**

Discussion of economic issues, theories and their applications. May be repeated for credit with the approval of the instructor for a total of four credits.

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### EDSE301
### Introduction to Special Education
**(3,0) 3**

An introduction to the historical and legal bases of special education. Research based examination of the models, theories and philosophy of teaching students with disabilities. Prerequisites: admission to the School of Education. This course may NOT be repeated for credit.

### EDSE302

### Communication and Community

**(3,0) 3**

Developing effective communication between all participants in the educational community involved in the education of students with special needs. Topics include preparing and implementing IEPs and communication with parents, students and teachers. Prerequisite: EDSE301.

### EDSE320
### Introduction to Learning Disabilities

**(4,0) 4**

An examination of the educational research, characteristics, diagnostic principles and practices related to teaching students with learning disabilities. Psychological theories (e.g. developmental, behavioral, and cognitive) of teaching students with learning disabilities and associated learning strategies are reviewed. Prerequisites: EDSE301, EDSE302.

### EDSE330
### Introduction to Cognitive Impairments

**(3,0) 3**

An examination of the educational research, characteristics, diagnostic principles and practices related to teaching students with cognitive impairments. Prerequisite: EDSE301. The course may NOT be repeated for credit.

### EDSE340
### Introduction to Emotional/Behavioral Impairments

**(3,0) 3**

An examination of the educational research, characteristics, diagnostic principles and practices related to teaching students with emotional and behavioral impairments. Prerequisite: EDSE301. The course may NOT be repeated for credit.

### EDSE401
### Issues and Trends Impacting Learning Disabilities & Special Education

**(3,0) 3**

Contemporary issues in the education of students with learning disabilities and other special needs will be explored. Policies and regulations, requirements and procedures for service, curriculum adaptation and modification, delivery models relating to placement, privacy, advocacy, and family education will be discussed. Prerequisite: EDSE302.

### EDSE403
### Assessment and Diagnosis

**(3,0) 3**

An examination of the education research and best practices related to identification, assessment, instruction, accommodation, and implementation of special education programs. Legal responsibilities of the school in the areas of assessment, diagnosis, and diversity will also be addressed. Prerequisites: EDSE301, EDSE320.

### EDSE404
### Instruction and Technology: Preschool to Adult
**(4,0) 4**

An examination of the research and best practices using assistive technologies to increase, maintain or improve the capabilities of students with disabilities. Prerequisites: EDSE320, EDSE403.

### EDSE410
### Records, Regulations and Requirements
**(3,0) 3**

An examination of the regulations, requirements, policies and procedures for developing and maintaining records for students with disabilities. Legislation related to privacy and family education will be discussed. Prerequisite: EDSE301. The course may NOT be repeated for credit.

### EDSE430
### Diagnosis, Development and Delivery
**(3,0) 3**

An examination of the research and best practices for identifying and implementing accommodations and modification in the curriculum and instructional delivery in the instruction of students with disabilities. Topics include the manifestations of student disabilities with developmental stage, cognitive development and psychosocial development. Prerequisite: EDSE301. The course may NOT be repeated for credit.

### EDSE480
### Student Teaching Seminar: Special Education
**(1,0) 1**

A seminar for teacher candidates during a student teaching internship in a special education classroom. Corequisite: EDSE492. Prerequisites: EDSE320, EDSE403, and EDSE404, and admission to student teaching. The course may NOT be repeated for credit.

### EDSE492
### Internship/Supervised Student Teaching: Learning Disabilities
**(8,0) 8**

Supervised student teaching internship in a special education classroom, focus on working with students with learning disabilities. Grading will be CR/NC. Corequisite: EDSE480. Prerequisites: EDSE320, EDSE403, EDSE404 and admission to student teaching. The course may NOT be repeated for credit.

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### EDUC150
### Reflections on Learning and Teaching
**(3,0) 3**

Students will examine their experiences and assumptions about schooling in

order to understand the multiple roles of teachers, characteristics of effective teaching practice, and the roles of school in society. Human development (physical, emotional and cognitive) is studied in terms of teaching and learning. Fieldwork required. Prerequisites: successful completion with a C- grade or better or placement beyond ENGL091.

### EDUC250
### Student Diversity and Schools
**(4,0) 4**

This course will examine the impact of diversity on students and educational systems through the consideration of the historical and philosophical foundations of schooling, the impact of diversity on students\' participation in the system, and the characteristics of effective teaching practice to meet the needs of diverse learners. Field experience in an Eastern Upper Peninsula elementary or secondary school is required. Prerequisite: ENGL111.

### EDUC301
### Educational Psychology and Learning Theory
**(3,0) 3**

This course focuses on research-based theories of learning and learning processes, the role of the teacher in supporting the process, and alternatives for evaluation of learning outcomes. Field experience is required. Prerequisites: EDUC250 and admission to the teacher education program.

### EDUC330
### Reading in the Elementary Classroom
**(3,0) 3**

This course examines reading as a process of constructing meaning through dynamic interaction among reader, the text, and the context of the reading situation. Content includes objectives, content, materials, organization and methods of teaching reading in the elementary school. Fieldwork required. Prerequisite: Admission to the teacher education program. Pre- or co-rerequisite: EDUC301.

### EDUC350
### Integrating Technology into 21st Century Learning Environments
**(2,1) 3**

This course explores instructional technology tools, educational media, theory, and practice with the goal of designing consummate learning experiences with seamless technology integration for all students. Application of technology and learning theory to planning for instruction is included, with specific focus on setting outcomes for learning. Prerequisites: Admission to the teacher education program, EDUC301.

### EDUC410
### Corrective Reading in the Classroom
**(3,0) 3**

This course considers methods for the classroom diagnosis of students\' reading strengths and weaknesses. Techniques for planning and implementing corrective and remedial interventions based on diagnosis are presented and applied. Fieldwork required. Prerequiste: EDUC330.

### EDUC411
### Elementary Language Arts and Literacy Skills
**(2,0) 2**

This course studies methods of teaching language arts as literate activity and the use of a research base for the social context of children\'s learning. Emphasis is on the emergence of literacy in elementary students. Fieldwork required. Prerequisites: EDUC415, admission to teacher education program.

### EDUC415
### General Instructional Methods
**(2,0) 2**

This course provides opportunities to study and apply research-based instructional methodologies to facilitate effective learning with an emphasis on differentiation and authentic assessment. Fieldwork required. Prerequisites: Admission to the teacher education program, EDUC350.

### EDUC420
### Math Methods for Elementary Teachers
**(2,0) 2**

This course studies strategies and methodologies that facilitate effective mathematics instruction. Students develop and present mathematics lessons and units using national, state and local standards in planning instruction and assessment. Emphasis is placed on effective integration of technology in learning and assessment. Fieldwork required. Prerequisites: MATH103, MATH104, EDUC415 and admission to teacher education program.

### EDUC421
### Science Methods for Elementary Teachers
**(2,0) 2**

This course studies strategies and methodologies that facilitate effective science instruction. Students develop and present science lessons and units using national, state and local standards in planning instruction and assessment. Emphasis is placed on effective integration of technology in learning and assessment. Fieldwork required. EDUC415 and admission to teacher education program.

### EDUC422
### Social Studies Methods for Elementary Teachers
**(2,0) 2**

This course studies strategies and methodologies to facilitate effective social studies instruction. Students develop and present social studies lessons and units using national, state and local standards in planning instruction and assessment. Emphasis is placed on effective integration of technology in learning and assessment. Fieldwork required. Prerequisites: EDUC415 and admission to teacher education program.

### EDUC423
### Arts Methods for Classroom Teachers
**(2,0) 2**

Elementary teacher candidates examine the knowledge, understanding, and application of the content, functions, and achievements of dance, music, theatre, and the visual arts to promote elementary students' ability to create, perform and respond in and through the arts. Candidates demonstrate their understanding that all students can learn the knowledge and skills that make up the arts.

### EDUC424
### Health/Physical Methods for Classroom Teachers
**(2,0) 2**

Elementary teacher candidates demonstrate the knowledge, understanding, and application of research-based strategies to create opportunities for all students to develop critical knowledge, skills, and behaviors that contribute to life-long health. Candidates demonstrate knowledge and understanding through planning and appropriate implementation of effective past and current research-based human movement and physical activity strategies as central elements to foster active, life-long healthy lifestyles for all elementary students.

### EDUC430
### General Methods for Secondary Teachers
**(3,0) 3**

A study of strategies and methodologies to facilitate learning at the secondary level including classroom management and organization for productive learning communities. The multiple roles of the teacher in the secondary classroom are examined including participant, colleague, researcher, reflective practitioner, accountable professional, counselor and mentor. Integrated technology component. Fieldwork required. Prerequisites: EDUC150, 250, 301 and admission to the teacher education program.

### EDUC431
### The Secondary Learner
**(3,0) 3**

A study of the dilemmas of adolescents as they affect students in secondary schools. The course focuses on the special needs and sensitivities of adolescents and implications for instruction and classroom management. Integrated technology component. Fieldwork required. Prerequisites: EDUC150, 250, 301 and admission to the teacher education program.

### EDUC440
### Reading in the Content Area
**(3,0) 3**

A study of reading methods appropriate to use in secondary classrooms. Includes formal and informal assessment procedures for determining students' abilities and the accompanying strategies to enhance content area comprehension and concept development. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Fieldwork required. Prerequisites: EDUC150, 250, 301 and admission to the teacher education program.

### EDUC441
### Language Arts Methods for Secondary Teachers
**(3,0) 3**

Curriculum, objectives, content, materials, organization, methods and assessment of core subject matter to diverse learners. Includes integrated technology, laboratory and field experiences. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Fieldwork required. Prerequisite: EDUC150, 250, 301 and admission to the teacher education program.

### EDUC442
### Math Methods for Secondary Teachers
**(3,0) 3**

Curriculum, objectives, content, materials, organization, methods and assessment of teaching mathematics to diverse secondary learners. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Fieldwork required. Prerequisite: EDUC150, 250, 301 and admission to the teacher education program.

### EDUC443
### Science Methods for Secondary Teachers
**(3,0) 3**

Curriculum, objectives, content, materials, organization, methods and assessment of teaching science to diverse learners. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Fieldwork required. Prerequisites: EDUC150, 250, 301 and admission to teacher education program.

### EDUC444
### Social Studies Methods for Secondary Teachers
**(3,0) 3**

Curriculum, objectives, content, materials, organization, methods and assessment of teaching social studies to diverse secondary learners. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Fieldwork required. Prerequisites: EDUC150, 250, 301 and admission to teacher education program.

### EDUC445
### Teaching Computer Science in the Secondary Classroom
**(3,0) 3**

Techniques, materials and models for computer science teachers. Classroom and instructional management. Hardware and software evaluation and selection. Computer programming, including a team software development project. Web pages as an educational resource. Legal, ethical, social, economic and personal issues. Prerequisites: CSCI101 or 103, 201, EDUC150, 250, 301, and admission to the teacher education program.

### EDUC446
### Business Education Methods for Secondary Teachers
**(3,0) 3**

A study of strategies and methodologies to facilitate effective business course instruction. Students learn to plan and present office cluster, accounting, marketing and computer software lessons and units using contemporary methods. Students use national and state standards and benchmarks in

planning instruction and assessment. Integrated technology component. Field work required. Pre-requisites: EDUC150, 250, 301 and admission to the teacher education program.

### EDUC447
### Theories and Methods of Teaching Foreign Languages
**(3,0) 3**

This course focuses on the teaching and learning of foreign languages in K-12 school settings. We will be looking at second/foreign language acquisition theories and the methods/strategies underlying the teaching of the four main domains (speaking, reading, writing, listening), plus grammar, vocabulary and culture of the foreign language. We will also be studying the related areas of foreign language materials selection and use, the integration and use of standards into the curriculum and instruction, and assessment and evaluation in teaching a foreign language. The field work component of this course will act as a cohesive tie between what we explore, study and experiment with in course readings and discussions and the real world of foreign language teachings. Prerequisites: EDUC150, 250 and admission to the teacher education program. Pre- or corequisites: EDUC301 and 330.

### EDUC451
### Directed Study in Language Arts Methods
**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC441.

### EDUC452
### Directed Study in Mathematics Methods
**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC442.

### EDUC453
### Directed Study in Science Methods
**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC443.

### EDUC454
### Directed Study in Social Studies Methods
**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC444.

### EDUC455
### Directed Study in Computer Science Methods

**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC445.

### EDUC456
### Directed Study in Business/Economics Methods
**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC446.

### EDUC457
### Independent Study: Theories/Methods Teaching Foreign Languages
**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Pre-requisite: Permission of instructor. This course will substitute for EDUC447.

### EDUC460
### Classroom Management
**(2,0) 2**

This course focuses on effective classroom management techniques essential to creating a positive, democratic learning environment. Exploration of management techniques and theories leads to a development of personal classroom management system to help students become responsible for their behaviors and choices. Prerequisite: EDUC415.

### EDUC480
### Directed Teaching Seminar
**(2,0) 2**

This seminar provides a forum for students in the Directed Teaching experience to discuss issues in teacher education, classroom management, teaching of all students and professional development. Co-requisite: EDUC492.

### EDUC490
### Research Topics in Education
**(1-4) 1-4**

Individual study under supervision of teacher education faculty member. May be repeated to a maximum of four credits. Prerequisites: admission to the teacher education program, senior status and permission of instructor.

### EDUC491
### Internship/Advanced Methods: [Subject]
**8**

Directed and evaluated internship in heterogeneous classrooms. Teaching

worthwhile content to students with varied learning needs. Theoretical and field-based explorations of common teaching dilemmas. Student will spend at least 25 clock hours weekly with a teacher in a school for field teaching experience. Prerequisites: successful completion of baccalaureate degree and all previous EDUC courses and field experiences. Permission and availability of participating schools. Corequisites: EDUC601 and 602. May be repeated once.

### EDUC492
### Directed Teaching
**10**

This course is a full-time teaching practicum under the direction and mentoring of a k-12 cooperating teacher. Evolution from observation and facilitation of small group activities, to whole-class instruction of a full-time teaching load in an area school. Emphasis is placed on maintaining classroom communities that ensure equitable access to important knowledge and skills. Grading will be CR/NC. Prerequisites: Admission to student teaching internship. Corequisite: EDUC480.

### EDUC602
### Action Research I
**(3,0) 3**

Qualitative and quantitative research methods on teaching and learning. Criteria for judging validity and applicability of research-based knowledge. Framing educational problems worthy of inquiry through the research design and assessment of an Action Research proposal. Pre-requisite: Admission to MA: C&I program or permission of instructor, or Co-requisites: EDUC480 and EDUC492.

### EDUC604
### Action Research II
**(3,0) 3**

Collecting, analyzing and interpreting data on teaching, learning, and/or education policy - through Action Research in an education setting. Implementing the Action Research proposal designed in EDUC602. Dilemmas surrounding research on teaching practice. Appraising and reporting results of inquiry. Learners work independently with supervision of faculty. Pre-requisites: EDUC602 and formal admission to MA: C&I program or permission of instructor.

### EDUC605
### Integrated Approaches in Curricular Design and Implementation
**(3,0) 3**

Theoretical and practical examination of the principles of integrated curriculum, acquisition of skills and knowledge bases to facilitate the development of curriculum that is integrative, responsive to student needs, and meets recommended curricular frameworks and benchmarks. Pre-requisite: Admission to MA C&I program or permission of instructor; or co-requisites of EDUC480 and 491.

### EDUC611
### Psychological Foundations of Education
**(4,0) 4**

Advanced research and study on educational psychology and learning theory, including constructivist theory, brain based research, cognition, and their

application to instructional strategies. Pre-requisite: Admission to MA C&I program or permission of instructor.

### EDUC612
### Philosophical Foundations of Education
**(4,0) 4**

Examines the philosophical underpinnings of education through study of individuals such as John Dewey, Paulo Friere and Maxine Greene. Research on the philosophical perspectives of education, the role of teachers and learners in education, and on applying a philosophical framework to contemporary educational issues. Pre-requisite: Admission to MA C&I program or permission of instructor.

### EDUC613
### Sociological Foundations of Education
**(4,0) 4**

Advanced research and study on sociological foundations of education including the relationship of social factors to educational practices, race/gender/disabilities in the classroom, diversity in language cultures, school reform and multicultural perspectives. Focus on applications in instructional practice. Pre-requisite: Admission to MA C&I program or permission of instructor.

### EDUC621
### Educational Leadership
**(4,0) 4**

A course to assist the classroom teacher addressing improving classroom and school effectiveness. An examination of effective supervisory principles and practices which can be used to strengthen instructional effectiveness and facilitate school improvement. Pre-requisite: Admission to MA C&I program or permission of instructor.

### EDUC622
### Integrating Technology into Curriculum and Instruction
**(4,0) 4**

Understanding of the uses of technology in the presentation and construction of knowledge and the management of knowledge in educational settings. Emphasis on the use of technology as a tool in facilitating teaching effectiveness and student learning. Pre-requisite: Admission to MA C&I program or permission of instructor.

### EDUC623
### Foundations of Special Education
**(4,0) 4**

This course will provide an overview of the history, philosophy and social context of Special Education. It will also address instruction of students with special needs. This course is intended to provide the underpinning for and concepts to be explored in advanced study in Special Education. Course reflects on teaching as enabling diverse learners to inquire into and construct subject-specific meanings, on adapting subject matter to learner diversity, and on constructing curriculum to serve the needs of diverse learners. Prerequisite: admission to program or permission of instructor.

### EDUC624
### Reading: Research and Methodologies
**(3,0) 3**

Theories, research, and methods focused on enabling students to become self-regulated readers who effectively use multiple strategies in their reading. Strategic processes in comprehension, word identification, critical thinking, and analysis will be examine as will the role of the teacher as a model and mediator of such processes in a variety of reading contexts. Pre-requisite: Admission to MA C&I program or permission of instructor.

### EDUC625
### Multimedia Production in Instruction and Assessment
**(3,0) 3**

The use of multimedia to enhance instructional and assessment strategies in education. Developing production skills in the construction of professional multimedia projects through the editing of digital images, video, and audio files. Focus on the use of multimedia as authentic assessment in an educational setting. Digital narrative as an instructional and assessment tool. Prerequisite: admission to MA C&I program or permission of instructor.

### EDUC626
### Educational Assessment and Measurement
**(3,0) 3**

Principles and practices of evaluation and measurement, reliability, validity; informal and formal strategies; performance assessment. Innovations in educational assessment and accountability as well as teacher-made tests will be examined. Prerequisite: Admission to MA C&I program or permission of instructor.

### EDUC627
### Models of Teaching
**(3,0) 3**

Models of teaching are designs for instruction developed to support particular types of learning. In this course, students will examine the theoretical and research bases of various models of teaching in terms of the instructional issues in their roles and educational setting. Prerequisite: Admission to MA C&I program or permission of instructor.

### EDUC628
### Supervision of Instruction
**(2,0) 2**

This course is designed to develop an understanding of the principles and processes of supervising instruction within the framework of teacher growth. Students will explore the rationales, assumptions, processes, and implications related to a variety of instructional supervision practices, contexts, and role as well as discuss issues associated with the supervision of instruction and teacher growth. Prerequisite: Admission to MA C&I program or permission of instructor.

### EDUC629
### Issues in Special Education
**(3,0) 3**

Contemporary issues in the education of students with special needs; assessment and identification; service delivery models; instruction and social/emotional considerations; parent/professional relationships; research priorities; and transition to employment. Prerequisite: Admission to MA C&I program or permission of instructor.

### EDUC631

### Teaching Language Arts: [Topic]

**1-4**

A directed study course in English, speech and language to meet the individual's professional development goals through study to increase content knowledge and skills. The student will develop three research-based teaching units based on language arts content appropriate to the grade level of his/her teaching certificate/endorsements (K-12), and/or a research project or paper as determined by the instructor and approved by the School of Education. Prerequisite: Admission to the MA C&I program or approval of instructor; approved plan of study; and corequisite of concurrent enrollment in approved 300/400-level course.

### EDUC632

### Teaching Mathematics: [Topic]

**1-4**

A directed study course in mathematics and computer science to meet the individual's professional development goals through study to increase content knowledge and skills. The student will develop three research-based teaching units based on math/cs content appropriate to the grade level of his/her teaching certificate/endorsements (K-12), and/or a research project or paper as determined by the instructor and approved by the School of Education. Prerequisite: Admission to the MA C&I program or approval of instructor; approved plan of study; and corequisite of concurrent enrollment in approved 300/400-level course.

### EDUC633

### Teaching Science: [Topic]

**1-4**

A directed study course in life, physical and Earth/space sciences to meet the individual's professional development goals through study to increase content knowledge and skills. The student will develop three research-based teaching units based on science content appropriate to the grade level of his/her teaching certificate/endorsements (K-12), and/or a research project or paper as determined by the instructor and approved by the School of Education. Prerequisite: Admission to the MA C&I program or approval of instructor; approved plan of study; and corequisite of concurrent enrollment in approved 300/400-level course.

### EDUC634

### Teaching Social Studies: [Topic]

**1-4**

A directed study course in history, geography, political science or economics to meet the individual's professional development goals through study to increase content knowledge and skills. The student will develop three research-based teaching units based on social studies content appropriate to the grade level of his/her teaching certificate/endorsements (K-12), and/or a research project or

paper as determined by the instructor and approved by the School of Education. Prerequisite: Admission to the MA C&I program or approval of instructor; approved plan of study; and corequisite of concurrent enrollment in approved 300/400-level course.

### EDUC635

### Applying: [specify course title by section]

**1**

A directed study course applying the content knowledge developed through approved EDUC 900-level sections within the context of curriculum and instruction. The student will develop three research based teaching units based on content appropriate to the grade level of their teaching certificate/endorsements (K-12), and/or a research project or paper as determined by the instructor and approved by the LSSU Department of Education. Prerequisite: admission to the MA-C&I program or approved plan of study, permission of instructor. Co- or Prerequisite: concurrent enrollment or successful completion (B or higher) of an approved 900-level section. Course may be repeated up to three times for credit with permission of the graduate coordinator or Dean, up to once per section number or course title.

### EDUC690

### Special Topics

**1-3**

Courses and workshops designed to meet the special needs of K-12 teachers, e.g. workshops approved by the School of Education for graduate credit. The transcript will specify the specific content, e.g. Special Topics (K-4 Mathematics), etc. Approval of the School of Education is required to apply credits earned through special topics courses in the MA C&I program. May be repeated for credit when content varies. Prerequisite: Admission to the MA C&I program or approval of instructor.

### EDUC695

### Capstone Research I

**(2,0) 2**

A practicum course for the development of a capstone curricular project that is integrated, responsive to student needs, incorporates appropriate instructional technology, and is aligned with recommended curriculum frameworks. Learners work independently with supervision of School of Education Graduate Faculty to complete a curricular portfolio developed from the duration of the program. Evaluation includes public presentation and oral defense before the School of Education Graduate Faculty. Prerequisites: EDUC602, 604 and 605; and admission to the MA C&I program or approval of instructor

### EDUC696

### Capstone Research II

**(1,0) 1**

Formal presentation of the capstone research project in the Master of Arts and Curriculum and Instruction; completion and presentation of the candidate's Professional Teaching and Learning E-Portfolio aligned to the National Board of Professional Teaching Standards (NBPTS). Documentation of learning outcomes of K-16 and adult learners required. Offered during spring semester only. Directed study. Prerequisite: EDUC695. Course may not be repeated for additional credit.

## EDUC910

### Special Topics: [specify course title by section]

**1-3**

Topical courses in education based on independent or directed study, workshops or other professional development activities. Courses addressing the continuing education requirements of educational professionals (e.g. regular or special educators, instructional assistants, school psychologist, counselors). *Successful completion of this course will award non-matriculated graduate credit which may apply to the renewal of professional certificates/credentials but which does not apply to an LSSU graduate degree. Course number may be repeated when content and course title vary, once per section Grading: S=satisfactory, equivalent to a B or higher in graduate courses or NC=no credit. Tuition for non-matriculated graduate credit will be established by the Board of Trustees.

## EDUC920

### Special Topics: [specify course title by section]

**2**

Topical independent study courses in education delivered in partnership with Virtual Education Software. Courses addressing the continuing education requirements of educational professionals (e.g., regular or special educators, instructional assistants, school psychologist, counselors). This course requires DSL-level or higher internet and access to a computer for course assignments and to participation in online sessions and discussion boards. Sections of this course are based on curriculum developed by Virtual Education Software (VESi) and include additional assignments and group interaction including synchronous and asynchronous communication supervised by LSSU faculty. *Successful completion of this course will award non-matriculated graduate credit which may apply to the renewal of professional certificates/credentials but which does not apply to an LSSU graduate degree except at noted in EDUC635. Specific course titles under this number will be listed on the LSSU education web site, and are available through a cooperative contractual agreement with VESi. Course number may be repeated when and course title vary, once per section Grading: S=satisfactory, equivalent to a B or higher in graduate courses or NC=no credit. Tuition for non-matriculated graduate credit will be established by the Board of Trustees.

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## EGEE105

### Fabrication Fundamentals

**(0,2) 1**

This course introduces students to the process of the layout and construction of electronic circuits. Students will develop basic skills in the use of electrical CAD software, soldering, construction techniques and circuit board construction. Prerequisite: EGNR101 or 103.

## EGEE125

### Digital Fundamentals

**(3,2) 4**

This course provides a study of numbering systems, Boolean algebra, optimization and reduction techniques, combinational logic, sequential digital

logic, digital arithmetic, counters, multiplexers, demultiplexers, and microcomputer memory devices. Emphasis is placed on digital circuit design and contemporary programmable logic concepts. Prerequisite: EGNR101 or EGNR103. Pre or Corequisite: MATH111 and MATH131.

### EGEE210
### Circuit Analysis
**(3,2) or (3,2,1) 4**

This course is an introduction to the analysis of linear circuits. Topics include: basic circuit elements and their terminal relations, Kirchoff's laws, nodal analysis, mesh analysis, superposition theorem, Thevenin and Norton equivalent circuits, DC transient analysis of RC and RL circuits, phasors, sinusoidal steady-state response of RLC circuits and single-phase and three-phase AC power analysis. Prerequisites: MATH152, EGNR140 and one of the following: EGNR101 or 103.

### EGEE250
### Micro-Controller Fundamentals
**(3,3) 4**

An introduction to micro-controller architecture, machine and assembly language program development, and computer system hardware and interfacing techniques. Prerequisite: EGEE125 with a grade of C or better.

### EGEE280
### Introduction to Signal Processing
**(4,0,0) or (4,0,1) 4**

The course introduces mathematical techniques used in the design and analysis of analog and digital signal processing systems. Topics include complex numbers, phasor representation of sinusoids, spectral representations, convolution, frequency response, sampling and reconstruction, Fourier series and Fourier transform, and the use of MATLAB as a signal processing tool. Prerequisites: MATH152 and EGNR140.

### EGEE305
### Analog and Digital Electronics
**(2,3) 3**

A study of digital electronics, electronic devices, and circuits for non-electrical engineering majors. Topics include discrete logic device, diodes, and amplifiers. Prerequisite: EGEE210 and PHYS232.

### EGEE310
### Network Analysis
**(4,0) 4**

A continuation of EGEE210 with an emphasis on the systems approach to circuit analysis and design. Topics include the Laplace transform, transfer functions, frequency response, Fourier series, filter design, and op-amps. Prerequisites: EGEE210, EGEE280. Pre- or corequisite: MATH310.

### EGEE320
### Digital Design
**(3,3) 4**

A study of logical and electronic circuit design techniques including combinational and sequential circuits, programmable logic devices, MSI and LSI devices. Synchronous state machine design using computer-based tools is emphasized for control applications. Prerequisite: EGEE125 with a grade of C or better, and either EGNR265 or CSCI121.

### EGEE330
### Electro-Mechanical Systems
**(3,3) 4 or (3,3,1) 4**

A study of three-phase circuits, electro-mechanical energy conversion, transformers, AC and DC machines, motor drives, and controlled converters. The laboratory activities include planning and conducting tests of electrical machines, and simulation with physical modeling software. Prerequisite: EGEE210 with a grade of C or better, EGNR140, and MATH152.

### EGEE345
### Fundamentals of Engineering Electromagnetics
**(3,0) 3**

This course provides an in-depth knowledge of the fundamentals of electromagnetic theory. Topics include vector analysis, electrostatic fields and magnetostatic fields, while familiarizing students with the applications of such fields, Maxwell\'s equations, and an introduction to wave propagation and radiation. Prerequisites: EGEE210 with a grade of C or better, MATH251 and PHYS232. Pre- or corequisite: MATH310.

### EGEE355
### Microcontroller Systems
**(3,3) 4**

A study of microcontroller systems design based on the 8/16/32-bit microcontrollers. Assembly and C languages are used for program development in the design of embedded systems. Interfacing techniques, real-time control, and microcontroller emulator use are emphasized. Prerequisites: EGEE250 and one of the following: EGNR265 or CSCI121.

### EGEE365
### Vehicle Instrumentation
**(3,3) 4**

The course introduces instrumentation hardware and software that support the development, operation, and testing of vehicle systems. Topics include vehicle networks, data acquisition and control systems, modeling and simulation, and hardware adn sensors interfacing. Prerequisites: ENGEE210 and (EGNR265 or CSCI122)

### EGEE370
### Electronic Devices
**(3,3) (3,3,1) 4**

This course provides an in-depth study of the basic electronic devises. Topics include diodes, MOS field effect transistors, bipolar junction transistors as well as amplifier concepts such as gain, bandwidth, biasing and frequency response. Diode rectifiers, common amplifier configurations, digital CMOS logic circuits, latches, flip-flops and RAM cells are studied as applications of electronic devices.

Prerequisites: EGEE125 with a C or better grade, EGEE210 with a C or better grade, and MATH152.

### EGEE425
### Digital Signal Processing
**(2,2) 3**

A study of the application of real-time digital signal processing in analog and digital control system design. The course emphasizes discrete Fourier transforms, design of digital filters, sampling theory, and process control using data acquisition equipment and computer simulation techniques. Additional emphasis is placed on communication theory in relation to its utilization of DSP technology. Prerequisites: EGEE250, and EGEE 280 with a grade of C or better, EGNR140, and either EGNR265 or CSCI121.

### EGEE475
### Power Electronics
**(3,3) 4**

This course provides an introduction to electrical power processing. The general topics include various electronic power switching circuits including: AC-DC rectifiers, DC-DC converters and DC-AC inverters. Additional topics include applications of power switching circuits as well as characterisics of power semiconductor devices. Prerequisites: EGEE280, EGEE370, and MATH251.

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### EGEM220
### Statics
**(3,0) or (3,0,1) 3**

A study of theory and application of engineering mechanics principles with emphasis on vector analysis, free body diagrams, properties of areas, and problem solving. This emphasis includes applying principles of equilibrium to particles and rigid bodies. Prerequisite: EGNR140. Pre, or Corequisites: MATH152 and PHYS231.

### EGEM320
### Dynamics
**(3,0) or (3,0,1) 3**

A study of theory and applications of dynamics and problem-solving techniques. Topics include position, velocity, and acceleration analysis of particles and rigid bodies. Newton\'s second law, work and energy and impulse and momentum are covered. Prerequisites: MATH152 and EGEM220.

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### EGET110
### Applied Electricity
**(3,2) 4**

This course covers basic principles of DC and AC electricity. Topics include resistance, inductance, capacitance, series and parallel circuits, magnetic circuits, transformers and electrical motors. Laboratory exercises will reinforce the lecture material. Prerequisite: MATH111 and MATH131 each with a C or better.

### EGET175
### Applied Electronics
**(3,2) 4**

An introduction to the operation of basic electronic devices including diodes, transistors and operational amplifiers. Topics include: Power supplies, amplifiers, frequency response and filter circuits. Laboratory exercises will reinforce the lecture material and introduce computer circuit analysis. Prerequisite: EGET110.

### EGET310
### Electronic Manufacturing Processes
**(3,3) 4**

This course will cover traditional and modern techniques for the design, fabrication, and testing of electronic circuit boards. Traditional techniques include wire cutting and stripping and manual and wave soldering. Modern techniques include the routing of multilayer surface mount boards, solder paste stenciling and dispensing, pick-an-place assembly and programming, reflow oven soldering, and rework techniques. Additional topics may include mechanical mounting, assembly line coordination, cell manufacturing, and potting and sealing materials. Prerequisites: either (EGET110 and EGET175) or EGEE210.

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### EGME110
### Manufacturing Processes
**(2,3) 3**

An introduction to basic manufacturing processes. Both theory and applications of various processes are covered in lecture and laboratory. Topics include: machining processes, welding and related processes, metal forming processes, and plastic forming processes. Included in machining processes is a limited scope computer aided design and computer numerical control project. The topics of measuring instruments and laboratory safety will also be addressed in the lecture and laboratory. Completion of a high school trigonometry course is expected for enrollment. Co-requisite or Prerequisite: EGME141 and MATH111 (or equivalent/satisfactory score on ACT/SAT, or Placement Exam) or Permission of Instructor.

### EGME141
### Solid Modeling
**(2,2) 3**

An application of standard solid modeling software to draw, dimension, and design mechanical parts and assemblies. Topics covered include: standard drafting techniques, orthographic projections, wireframe and solid methods, dimensioning, assemblies, and constraining. An introduction to animation of assemblies is also included. Pre- or Corequisite: MATH102.

### EGME225

### Mechanics of Materials I

**(3,0) 3**

A study of stress analysis and measurements. Topics include axial, shear, torsion, bending stresses, axial strains, shear strains, Poisson's ratio, Hooke's law and the transformation of stresses and strains. Deflection of beams and buckling of columns are also treated. Prerequisite: EGEM220 with a grade of C or better. Pre- or corequisite: MATH152.

### EGME240
### Assembly Modeling and GD&T

**(2,3) 3**

The course is a continuation of EGME141. Parametric modeling and design of assemblies by the use of solid models. Emphasis will be placed on animation of assemblies to display the functionality of assemblies. Prerequisites: EGME110, 141, and sophomore standing.

### EGME275
### Engineering Materials

**(3,0) 3**

A study of the physical structure of engineering materials, including metals, ceramics, polymers, and composites, as well as their properties and applications. Failure modes of materials, such as corrosion, fatigue, plastic deformation, and brittle failure, are also covered. For metal alloys, there is an emphasis on the interpretation of phase diagrams and time-temperature-transformation diagrams. Prerequisite: CHEM115 or (CHEM108 and CHEM109). Pre- or corequisite: EGME225 or EGMT225.

### EGME276
### Strength of Materials Lab

**(0,3) 1**

Laboratory experiments covering topics in mechanics of materials and engineering materials. Theory from mechanics of materials and engineering materials will be covered through hands-on experiments. Pre- or corequisites: EGME225 or EGMT225 and EGME275.

### EGME310
### Vehicle Development & Testing

**(1,2) 2**

A course providing a systematic overview of topics within the areas of automotive vehicle dynamics, component design, and testing. An introduction to gross vehicle dynamics is followed by a detailed study of specific vehicle subsystems, including both their design and their role in the overall vehicle behavior. Dynamic behaviors covered include acceleration, braking, cornering, ride, and load transfer. Subsystems considered include the brakes, steering system, suspension, tires, and drive train. Vehicle testing and benchmarking is also covered. Laboratory content includes an introduction to a commercial vehicle dynamics software package. Prerequisites: PHYS221 or PHYS231. Pre- or corequisites: EGEM220 or EGMT225.

### EGME312

### CAM with CNC Applications

**(1,5) 3**

Writing CNC programs in machine codes, and the setup and trial runs to produce parts from these programs. Simulation of CNC machining processes to predict tool paths and cycle times. Computer-aided manufacturing (CAM) topics and applications of CAM software will also be covered. Prerequisites: EGME110, EGME141.

### EGME337
### Thermodynamics

**(4,0) or (4,0,1) 4**

A study of the theory and applications of thermodynamics. Topics covered include: thermodynamic properties, heat, work, first and second Laws of thermodynamics, entropy, power and refrigeration cycles, gas mixtures, and an introduction to transport theory. Prerequisite: MATH152 or MATH112 and EGMT332.

### EGME338
### Fluid Mechanics

**(2,0) 2**

A study of theory and applications of fluid statics and fluid dynamics. Topics covered include: Hydrostatic forces, buoyancy forces and stability, Bernoulli equations, dimensional analysis, flow in pipes, integral analysis of fluids, and introduction to pumps. Prerequisites: MATH151 or 112.

### EGME339
### Fundamentals of Fluid Mechanics

**(1,0) 1**

A study of the theory and fundamentals of fluid mechanics. Topics covered include: differential analysis of fluids, potential flow, open-channel flow, introduction to gas dynamics, and introduction to computational fluid dynamics (CFD). Prerequisites: EGME338. Pre- or corequisites: MATH310 and MATH251.

### EGME350
### Machine Design

**(3,3) 4**

Design and selection of machine components and power transmission units. Selected topics in load, stress, and deflection analysis in more depth than EGME225, notably (but not exclusively) torsion of thin-walled sections, thick-walled pressure vessels, interference fits, buckling problems by eigenvalue analysis, and Castigliano\'s theorems. Deterministic and stochastic theories of static failure, dynamic loading, and fatigue. Performance analyses of machine components, such as shafts, bearings, gears, worms, fasteners, and belt/chain drives. Laboratory covers finite element analysis using commercial software, and involves a major group design project. Prerequisites: EGME141, 225, 275, and 276. Pre-or Corequisite: MATH310.

### EGME415
### Vehicle Dynamics

**(2,0) 2**

A study of vehicle dynamics, treating selected topics in automobile dynamics with more theoretical depth than EGME410, but also surveying heavy trucks, tracked and off-road vehicles (including terrain interaction), railway vehicles, and water-borne vessels. Dynamic modeling, as well as a thorough understanding of underlying physical phenomena, are emphasized. Prerequisites: EGEM320, EGNR340 and EGME310.

### EGME425
### Vibrations and Noise Control
**(3,2) 4 or (3,2,1) 4**

An introductory course on vibrations analysis, noise control, and acoustics. The vibrations portion includes the theory of discrete and continuous vibrating systems, and such applications as vibration mitigation, machinery vibrations, and rotor dynamics. The noise control/acoustics portion includes the theory of airborne sound, sound fields in bounded spaces, an overview of human hearing, and noise mitigation. Measurement techniques and signal analysis are covered in the laboratory segment. Prerequisites: EGME225, EGEM320, EGNR340, MATH251 and 310.

### EGME431
### Heat Transfer
**(3,0) 3 or (3,0,1) 3**

Theory and applications of heat transfer, Steady-state and transient conduction, forced convection, natural convection, radiation. Analysis of heat exchangers, boiling and condensation, introduction to numerical methods in heat transfer. Prerequisites: EGME337, 339 and EGNR265 or EGNR140.

### EGME432
### Thermal and Fluids Lab
**(0,3) 1**

Practical applications of thermodynamics, fluid mechanics, and heat transfer. Hands-on training in the operation of thermodynamic components, power generation systems, and fluid mechanical devices. Experimentation in heat transfer. Includes a major project in the area of power generation and dissipation. Prerequisites: EGME337 and 338. Pre- or corequisite: EGME431.

### EGME442
### Finite Element Analysis
**(3,3) 4**

This course will cover the fundamentals of finite element analysis. Topics include: Modeling elements, boundary conditions, loading, convergence and an introduction to modal analysis. Commercial software will be used in the laboratory along with 3-D mesh generation. Prerequisites: EGME350 and MATH310.

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### EGMF110
### EGMF110 Introduction to Machining I
**(2,6) 4**

Students will receive instructions on shop safety, blueprint reading, measuring instruments, layout principles, and basic bench work. They will also receive instructions on grinding, lathes, drill presses, saws, and basic milling. Some metallurgical concepts are introduced. The course will make use of the Machinery's Handbook and apply the principles, concepts, and data in the handbook to industrially related projects. Information from the handbook will be used to ensure proper set-up and operation of the machinery. Students will spend several hours each week setting up, working, and familiarizing themselves with the machines.

### EGMF130

### EGMF130 Introduction to Machining II

**(2,6) 4**

This course builds up upon the material presented in EGMF110. Students will receive additional instruction on shop safety and measuring techniques relative to the machinery introduced in this course. Additional topics on vertical and horizontal milling machines, surface grinders, metallurgy, and blueprint reading are covered. The Machinery's Handbook will continue to be used in conjunction with the machines utilized in this course. Students will spend several hours each week setting up, working, and familiarizing themselves with the machines. Prerequisite: EGMF110.

### EGMF210

### EGMF210 Advanced Machining

**(2,6) 4**

In this course, students will write CNC programs in machine codes, and then setup and run CNC machines to produce parts from these programs. Computer software interfacing between programming languages and various industrial machines will be stressed. Computer-aided manufacturing (CAM) topics and applications of CAM software will also be covered. Students will be able to describe the sequence and operations for a part program, determine the tools required for machining, calculate speeds and feeds, set-up tooling on CNC machines, develop CNC programs using standardized formats, and use CAM software to produce three dimensional parts. Prerequisites: EGMF110 or EGME110, and MATH102. Pre- or corequisite: EGMF130.

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### EGMT142

### EGMT142 An Overview of Solid Modeling Techniques

**(1,2) 2**

This course will cover an application of solid modeling software techniques to create parts and assemblies. Topics covered include creating sketches; creating parts with extrude, revolve, blend, and sweep; creating part features with round, chamfer, pattern, mirror; use of the part history tree; dimensioning of parts; building of assemblies; creation of parts from 2D drawings; creating 2D drawings from solid models of parts and assemblies; and an introduction to animation of assemblies. Prerequisites: Previous CAD course and permission or instructor.

### EGMT225

### EGMT225 Statics and Strength of Materials

**(4,0) 4**

Fundamental concepts of statics and strength of materials. Solutions of problems introducing forces, moments, normal stress, shear stress, bending stress and torsional stress. Theory and application of strain gages. Prerequisites: MATH111 and MATH131 each with a C or better and PHYS221.

### EGMT332

### EGMT332 Thermodynamics and Heat Transfer for Technologists

**(4,0) 4**

This course provides an algebra-based coverage of topics in thermodynamics and heat transfer relevant to technologists in manufacturing and fire science. Thermodynamics topics include properties of substances, energy balances, combustion and thermochemistry, and heating and ventilation systems. Basic principles of conduction, convection, and radiation, and their application to practical problems are covered in the heat transfer portion of the course. Prerequisite: MATH111 or 140.

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### EGNR101

### Introduction to Engineering

**(1,2) 2**

An introduction to the different areas of study within the fields of electrical and mechanical engineering. Lecture topics and laboratory activities will introduce computer programming, computer simulation exercises, data-acquisition systems, microcontroller systems, communications, robotic and manufacturing applications, material science and dynamics. Prerequisite or corequisite: MATH102.

### EGNR102

### Concepts and History of Engineering

**(2,0) 2**

This course provides instruction on problem-solving techniques using engineering tools and concepts as students work on an engineering design project. Topics in engineering ethics and the engineering work experience are discussed. A history of engineering and the development of the specific engineering fields are presented. Pre- or corequisite: MATH102.

### EGNR103

### Engineering Orientation

**(0.5,1) 1**

This course provides an orientation to the engineering and engineering technology fields at Lake Superior State University, including robotics. Students are introduced to the engineering professional organizations and are encouraged to participate in professional activities. Laboratory exercises focus on introducing students to the engineering facilities and programmatic options within the engineering and engineering technology disciplines. Academic success strategies are also presented. Pre- or co-requisite: MATH102.

### EGNR140

### Linear Algebra and Numerical Methods for Engineers

**(1,3) 2**

This course covers the engineering application of concepts from applied mathematics, iterative programming and numerical methods. Applications of linear algebra and complex numbers are introduced. Iterative programming emphasizes loops, conditional statements and user input-output. Numerical methods topics include root searching methods, numerical integration, and other algorithms involving iterative computations. The lab also includes instruction on commercially-available software used to implement the numerical methods studied. Prerequisite: MATH131. Pre- or Co-requisites: MATH112 or MATH151.

### EGNR245
### Calculus Applications for Technology
**(2,2) 3**

This course covers engineering applications of differential and integral calculus, including areas, volumes of solids, vector analysis, matrix algebra, polar and cylindrical coordinate systems, partial differentiation, and multiple integrals for typical engineering technology problems. Application and solutions to engineering problems will emphasize and require the use of commercial software packages such as MathCAD and MATLAB. Prerequisite: EGNR140.

### EGNR250
### Cooperative Education
**(2) 2**

A practicum in which students work in a supervised engineering capacity (on site) with industry. The student is expected to work at least 6 hours per week in an industrial setting. The student\'s experience must be related to his/her academic studies and thus this experience contributes significantly to his/her professional development. May be repeated for a maximum of 4 credits. Prerequisite: Permission of Instructor.

### EGNR260
### Engineering Research Methods
**(1,3) 2**

This is an introductory course covering research methods in engineering and engineering-related fields. The student will be involved in faculty-supervised and guided research activities such as assisting with developing experiments, gathering data and analyzing results. Much time will be spent learning about the research project, past experiments and future directions. Can be repeated for credit. Prerequisite: permission of instructor.

### EGNR265
### C Programming
**(3,0) or (3,0,1) 3**

An introductory course in \"C\" programming with an emphasis on structured programming techniques and on utilizing \"C\" to solve engineering-related problems. Topics include looping techniques, input and output to files, conditional flow of control, writing and utilizing functions, pointers, 1D and 2D arrays, and data storage. Prerequisites: MATH111 and MATH131 and sophomore standing.

### EGNR310
### Advanced Quality Engineering
**(3,0) 3**

Provides an in-depth coverage of classical and modern methods of quality control and quality engineering. Topics include quality control principles and terminology, classical qualitative and quantitative quality control methods, including statistical process control procedures, and robust design methods as applied to product design and design of experiments, and an overview of quality management systems used in industry. Prerequisite: MATH207 or 308.

### EGNR340
### Advanced Numerical Methods for Engineers
**(0,2) 1**

This is the second course covering numerical methods in engineering. Topics will include numerical methods for the solution of differential equations used to model and solve engineering problems, as well as numerical algorithms for linear algebra problems, Taylor's series, Fourier analysis and other selected applications. Prerequisites: EGNR140. Pre- or Corequisite: MA310 and CSCI121 or EGNR265.

### EGNR346
### Probability and Statistics Laboratory for Engineers
**(0,2) 1**

This laboratory accompanies MATH308, a calculus-based introduction to the basic theory of probability and statistics. Topics include methods of data collection, experimental design, interpretation of data and use of a statistical software tool. Pre- or corequisite: MATH308.

### EGNR450
### Cooperative Education Project I
**(4) 4**

A practicum in which students work in a supervised engineering capacity (on site) with industry. This is the first of a two-part sequence that can replace the senior year Engineering Design Project II (EGNR495). The focus of this course is the development of the co-op project proposal and the initiation work on the co-op project. The expectation is that at least 60% of a forty hour work week is devoted to completing the project. Prerequisite: EGNR250 Cooperative Education.

### EGNR451
### Cooperative Education Project II
**(3) 3**

A practicum in which students work in a supervised engineering capacity (on site) with industry. This is the second of a two-part sequence that can replace the senior year Engineering Design Project II (EGNR495). The focus of this course is the completion of the co-op project. The documentation at the completion of the project includes an update presentation and a final report/final presentation. The expectation is that at least 60% of a forty hour work week is devoted to completing the project. Prerequisite: EGNR450 Cooperative Education.

### EGNR460
### Engineering Research Project I
**(2,6) 4**

This is a senior-level course in which students are actively involved in a faculty-

supervised and guided research project. Students will acquire the skills listed under EGNR491 and develop a research plan for some portion of a project. The plan will be implemented in EGNR461. Specifically, the students will work to develop a proposal of the expected research goals and create a project timeline and budget. The student's faculty advisor and the director of the Lab for Undergraduate Research in Engineering (LURE) must approve the plan. Prerequisites: EG260, permission of instructor on the basis of senior status and expected graduation on or before December of the following calendar year. Students who plan to take EGNR461 must complete both EGNR460 and 461 in the same academic year.

### EGNR461
### Engineering Research Project II
**(1,3) 2**

This is a senior-level course in which students are actively involved in a faculty-supervised and guided research project. Students implement their research plan developed in EGNR460 and lead research efforts. Results and finding must be reported in oral and/or written forms to appropriate constituencies outside the LSSU audience. Prerequisites: EGNR460 and permission of instructor. The dropping or failing of EGNR461 will result in the student having to repeat both EGNR460 and 461.

### EGNR490
### Research Topics in Engineering
**(1-4,0) 1-4**

Special studies and/or research in engineering for individuals for small seminar groups. Course content to be arranged with instructor and with approval of the department head. This course may be repeated for a maximum of eight credits.

### EGNR491
### Engineering Design Project I
**(2,3) 3**

This course provides students with the skills necessary for successful completion of their design project. Topics include group dynamics, ethics, timelines, resource allocation, project management and performance evaluations. Skills in oral and written communications, problem conceptualization, creative problem solving and technical presentations are developed. Prerequisites: Permission of instructor on the basis of senior status and expected graduation on or before December of the following calendar year, and one of the following: EGEE320, 370, EGME350 or (EGRS365 and EGMT310). Students who plan to take EGNR495 must complete both EGNR491 and EGNR495 in the same academic year. Coop students must complete EGNR451 prior to enrolling in EGNR491.

### EGNR495
### Engineering Design Project II
**(1,6) 3**

A continuation of EGNR491. This course provides students with the skills necessary for successful completion of their design project. Topics include group dynamics, engineering economics, timelines, resource allocation, project management and performance evaluations. Skills in oral and written communications, problem conceptualization, creative problem solving, and technical presentations are developed. Prerequisite: EGNR491. The dropping or failing of EGNR495 will result in the student having to repeat both EGNR491 and

495.

### EGNR496
### Senior Directed Project
**(1,6) 3**

This course is designed to allow industrial technology majors the opportunity to implement a project while working collaboratively with engineering and engineering technology students. Students will be expected to use the skills and knowledge from previous course work. Project outcomes should relate to the student's individual areas of study and represent a synthesis of the previous learning under the supervision of a faculty member. Prerequisites: Approval of the department chair, senior status, and expected graduation on or before December of the following calendar year.

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### EGRS215
### Introduction to Robotics
**(1,2) 2**

An introduction and orientation to the field of robotics. Challenges in robotics manufacturing, design and structure of robotic systems, classification of robots, robot geometry, power sources, robotic control systems are covered in this course. The lab part of the course will provide an overview of robotics applications in industry through videos and hands-on experiences. Applied laboratory topics will cover basic programming concepts, structures, and applications using industrial robots. Prerequisites: MATH102 or equivalent.

### EGRS365
### Programmable Logic Controllers
**(2,3) 3**

An introduction to programmable logic controllers (PLC) with an emphasis on programming of the controller and operator interface. Standard PLC devices (bits, timers, counters etc.) and controller functions dealing with math, compare, moves, program flow, analog input, and high-speed counters will be covered in the course. Written and oral business communications are an integral part of the course. Co or prequisites: EGNR265 or EGEE125 or CSCI121 and sophomore status.

### EGRS366
### Programmable Logic Controllers
**(2,2) 3**

An introduction to the use of programmable logic controllers (PLC). Basic components of the PLC along with the interface to hydraulic/pneumatic systems and sensors will be discussed. Some higher-level functions such as zone control, master control and sequencers will also be covered. This course will only be offered at the regional sites. It is not a communication-intensive course. Prerequisite: electrical fundamentals course.

### EGRS380
### Robotics Technology

**(2,0) 2**

This course will cover topics relative to robotics and robotics systems. Two- and three-dimensional kinematics, end effectors, active and passive collision systems, sensors, feedback devices, robotic safety, and principles of operation of applicable hardware will be studied. Prerequisites: MATH111 and MATH131 with grade of C or better, and PHYS221.

### EGRS381
### Robotics Technology Lab
**(0,3) 1**

Laboratory exercises will provide hands-on examples in the use of industrial robots. Focus will be on learning a structured robotics programming language. Applications and projects will simulate industrial situations as well as emphasize system integration. Prerequisites: EGNR265. Corequisite: EGRS380.

### EGRS382
### Introduction to Robotics Programming
**(0,3) 1**

The laboratory work will provide an introduction to the use and application of an industrial robot. Programming concepts and structures in the V+ programming language as used in Adept and Staubi robots will be studied. Industry-like applications and system integration projects will be assigned. Prerequisite: EGRS380.

### EGRS385
### Robotics Engineering
**(3,3) 4**

An introduction to the field of robotics engineering. Topics include classification of robotic manipulators, accuracy and repeatability, wrists and end-effectors, actuators and sensors, homogeneous transformations, Denavit-Hartenberg convention, forward kinematics, inverse kinematics, trajectory planning and an introduction to velocity kinematics. Laboratory exercises will focus on the operation and programming of industrial robots and robotics simulation using industry standard software. Prerequisites: EGNR265 or CSCI105, and MATH251

### EGRS430
### Systems Integration and Machine Vision
**(3,3) 4**

A study of the theory and application of sensors and machine vision in modern manufacturing systems. Topics will include position sensors, encoders, interface electronics, force and torque sensors, LAN, PLC, electrical noise, machine vision, lighting techniques, control software, feature extraction techniques and robot guidance. Prerequisites: MATH152 or EGNR245, EGNR140, EGRS381 or EGRS385, and EGNR265 or CSCI121.

### EGRS435
### Automated Manufacturing Systems
**(2,3) 3**

A study and analysis of the components of an automated manufacturing system.

Topics include analysis of flow lines, automated assembly systems, MRP, materials requirement planning, production economics and CIM. Course work will include applications of manufacturing systems software including factory simulation. Laboratory work will focus on systems integration, advanced programming of industrial robots, and flow line automation. Prerequisites: EGRS385.

### EGRS460
### Control Systems
**(3,3) 4**

An introduction to the analysis and design of linear feedback control systems. The course will include a study of system modeling, block diagrams, system response, stability, steady state error, bode plots and root locus. Laboratory exercises will develop a student\'s ability to design feedback systems and quantify system performance. Prerequisites: MATH310, EGEM220 and EGEE210. Pre- or co-requisite: EGNR340.

### EGRS461
### Design of Control Systems
**(3,3) 4**

This course builds upon the fundamental control system theory covered in EGRS460 and introduces various control system design techniques. General topics include Bode and root locus design techniques, controllability and observability, optimal control, state space design. Several classical design techniques such as phase-lead, phase-lag, deadbeat, pole placement and PID design are covered. Prerequisite: EGRS460.

### EGRS480
### Manufacturing Automation
**(3,0) 3**

Study of the mathematical modeling of production concepts, analysis of automated flow lines, automated assembly systems, production economics, automated guided vehicles and materials requirement planning. Prerequisites: EGRS380, EGRS381 or EGRS382, and MATH112 or MATH151 with a grade of C or better.

### EGRS481
### Manufacturing Automation Lab
**(0,3) 1**

The first part of the laboratory work will focus on programming Fanuc robots using the Karel programming language. Industry-like applications and system integration projects will be assigned. The second part of the lab work will include the application of WITNESS discrete-event simulation software package to study and analyze manufacturing systems. Prerequistes: EGNR265 or CSCI121 either with a grade of C or better. Pre or co-requisite: EGRS480.

### EGRS482
### Automation and Simulation Lab
**(0,3) 1**

Laboratory work in automation will focus on programming Fanuc robots using the Karel programming language. Industry-like applications and system integration

projects will be assigned. Lab work in simulation will include the introduction to a discrete-event manufacturing simulation software package. Several manufacturing systems will be modeled, verified, validated and optimized using the simulation software package. Prerequisite: EGRS480.

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### EMED181
### First Aid
**(0.5,1.5) 1**

Basic course in first aid. Theoretical and practical experience in university laboratory.

### EMED189
### Medical First Responder
**(2,3) 3**

This course is designed to teach students the principles of basic life support and emergency care. Topics include patient assessment and handling, airway maintenance, cardiopulmonary resuscitation, bandaging, splinting and spinal immobilization. Management of common environmental and medical emergencies will also be addressed. Upon successful completion of the course, students will be eligible to apply for a Michigan Medical First Responder license.

### EMED190
### Prehospital Emergency Care and Crisis Intervention I
**(3,3) 4**

Techniques of emergency medical care needed by the emergency medical technician-ambulance attendant. Theoretical and practical experience in administering preliminary emergency care and transportation of sick and injured victims to medical care centers.

### EMED191
### Prehospital Emergency Care and Crisis Intervention II
**(2,6) 4**

Simulated practice with some in-hospital observation. Emphasis on laboratory practice of skills needed for functions of an EMT-A. Prerequisite: EMED190.

### EMED211
### Emergency Pharmacology I
**(2,0) 2**

Introduction to emergency pharmacology including sources of drugs, drug laws and regulation, routes of administration, pharmacokinetics and pharmaco-dynamics, dosage calculations and the metric system. Emphasis will be placed on drugs used in the management of cardiovascular emergencies. Prerequisite: math competency or MATH103, and corequisite EMED251.

### EMED212
### Emergency Pharmacology II

**(2,0) 2**

Continuation of HLTH211 with an overview of emergency drugs frequently used in the prehospital management of respiratory, endocrine, toxicological, obstetrical and other prehospital emergencies. Administration procedures and dosages for adult and pediatric patients will be covered. Prerequisite: EMED211 with a B- or above.

### EMED251
### Advanced Emergency Care I
**(4,0) 4**

Study of prehospital emergencies geared toward rapid intervention and patient stabilization. Introduction to the pre-hospital environment and preparatory information will be covered including medical-legal issues, airway management, parenteral therapy and comprehensive patient assessment. Management of traumatic injury and multiple casualty incidents will be addressed. Prerequisite: admission to Paramedic Technology Program.

### EMED252
### Advanced Emergency Care II
**(4,0) 4**

Continuation of EMED251 addressing treatment modalities for environmental, medical, obstetrical and behavioral emergencies in the adult and pediatric patient. Prerequisite: EMED251 with a B- or above.

### EMED261
### Emergency Cardiology I
**(2,0) 2**

Introduction to basic cardiac monitoring and dysrhythmia recognition. Review of the anatomy and physiology of the cardiovascular system, principles of electrophysiology, EKG interpretation and dysrhythmia management will be covered. Sinoatrial, juncitonal and atrial dysrhythmias will be addressed. Corequisite: EMED251.

### EMED262
### Emergency Cardiology II
**(2,0) 2**

Continuation of EMED261 with emphasis directed at identification and management of life-threatening dysrhythmias including ventricular dysrhythmias and heart blocks. Coronary artery disease, myocardial infarction and other cardiovascular emergencies will be addressed, and the course will conclude with ACLS certification. Prerequisite: EMED261 with a B- or above.

### EMED271
### Prehospital Emergency Pediatrics
**(2,0) 2**

This course will prepare the Emergency Paramedic to effectively assess and manage the pediatric patient in the emergency setting. Program material will include differentiation between adult and pediatric anatomy and physiology, assessment of the neonatal and pediatric patient, and management of common

medical and traumatic conditions experienced by the pediatric patient. Special emphasis will be placed on topic areas including resuscitation skills, pediatric pharmacology, and the special needs of the patient.

### EMED284
### Advanced Skills and Situations I
**(1,6) 3**

Advanced skills and procedures discussed in Advanced Emergency Care will be demonstrated and practiced in a laboratory setting. Skills covered will include advanced airway management, parenteral therapy, cardiac monitoring and advanced patient assessment. Simulated patient scenarios will be designed to allow the student to practice these advanced skills in a realistic patient setting. Emphasis will be placed upon strengthening new skills and providing critical thinking opportunities which allow for the integration of theory with practical applications. Prerequisite: admission to the Paramedic Technology Program and corequisite EMED251.

### EMED285
### Advanced Skills and Situations II
**(1,6) 3**

Continuation of HLTH284 with an emphasis placed on ACLS and PALS procedures and algorithms. Instructor and peer evaluation will enhance learning, and working in groups will promote the concepts of teamwork and individual leadership. Prerequisite: EMED284 with a B- or above. Corequisite: EMED252.

### EMED286
### Paramedic Operations
**(1,3) 2**

This course will prepare the Emergency Paramedic to effectively handle unique situations which may be encountered in the prehospital setting that require highly specialized training. Program material will include managing multiple casualty situations, Medical Incident Command, hazardous materials incidents, rescue awareness and operations and crime scene awareness. Special emphasis will be placed on rescuer safety. Practical skills will include vehicular entry and disentanglement, and basic rescue operations.

### EMED297
### Paramedic Clinical I
**(0,12) 2**

Clinical rotations in the hospital emergency department, surgical suite, outpatient surgery and with local EMS agencies designed to provide the student with hands-on practical experience of patient care. Corequisite: EMED251 and permission of the instructor.

### EMED298
### Paramedic Clinical II
**(0,12) 2**

Clinical rotations in the hospital emergency department, intensive care unit, obstetrical unit, pediatrics unit and local EMS agencies will provide the student with a continuation of clinical exposure. Additional clinical experience in other areas may be included as the opportunity permits. Prerequisite: EMED297 with a

B- or above and concurrent with EMED252.

### EMED299
### Paramedic Field Internship
**(0,21) 4**

This course is a field internship designed to prepare the student to function confidently in the role of the Emergency Paramedic in the prehospital setting, upon completion of the didactic, practical and clinical components of the Paramedic Technology Program. It will also provide the student with an opportunity to develop team leadership skills, and improve existing knowledge and practical skills. Emphasis will be placed on developing critical thinking skills and independent leadership ability.

### EMED301
### National Registry Certification Preparation
**(2,0) 2**

This course is designed to prepare the Paramedic Student to challenge the National Registry Paramedic Certification Examination upon completion of the didactic, practical and clinical components of the Paramedic Technology Program. It will provide the student with an opportunity to thoroughly review key information in the 8 modules of the National Standard Paramedic Curriculum. Emphasis will also be placed on improving the student's test-taking skills.

### EMED490
### Independent Study for Emergency Medicine
**(1-3,0) 1-3**

The students may take the form of either a research project of a program of directed reding on a specific subject. One to three credits over a period of one or two semesters may be granted according to the nature of the student's project. May be repeated up to six credits. Prerequisites: permission of instructor.

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### ENGL091
### Prep College Writing
**(3,0) 3**

This course is designed to give students who have limited experience with writing an opportunity to increase their confidence as writers, and to improve their command of the written language. The course is appropriate for students who find writing to be difficult or confusing. Students write weekly, with much of the instruction taking place as students learn to revise and edit their own work. Students completing the course will be able to write successful essays that represent complex approaches to different topics. A grade of C or higher is required to pass the course. Credit in this course does not apply toward graduation. All students whose ACT/SAT scores do not place them in ENGL110 must receive credit for ENGL091 before taking ENGL110.

### ENGL110
### First-Year Composition I
**(3,0) 3**

ENGL110 provides students with an introduction to the discipline of writing through an exploration of their own writing processes and products. Emphasis is placed on students learning to think critically about their own writing in order to address issues of coherence, grammar, mechanics, organization, clarity and content. Other material covered includes the role of literacy in society, the ways in which readers engage text, and the role of writing at the college level. Prerequisites: English ACT score of 18 or a C or higher in ENGL091.

### ENGL111
### First-Year Composition II
**(3,0) 3**

First-Year Composition II prepares students for the complex demands of academic literacy and research. These require students to be able to critically observe personal and public knowledge; ask questions of reading and research; formulate hypotheses; design and conduct research projects, both in the library and in the field; and identify further avenues of inquiry. To help students develop these abilities, the course also teaches students the basic skills of analysis, interpretation, critical thinking and documentation. Required course work includes completion of an extended research project. Prerequisite: a grade of C or higher in ENGL110.

### ENGL180
### Introduction to Literary Studies
**(3,0) 3**

This course introduces students to the theory and methodology of literary study, focusing on three questions: What is a literary text? How do we read a literary text? How do we write about a literary text? Addressing these questions requires students to examine the social and cultural contexts of literature and its aesthetic, rhetorical and ideological aspects. These considerations will help students judge literary value and examine their own literary assumptions. Requires one research project and critical essays using MLA style. Prerequisite: ENGL110.

### ENGL221
### Introduction to Creative Writing
**(3,0) 3**

Writing and discussion of art forms such as poetry, fiction and drama consistent with the student\'s individual interests. Prerequisite: ENGL110.

### ENGL222
### English Grammar
**(3,0) 3**

Introduction to the basic Standard English grammar, its vocabulary and its principles as these rules apply to the structure of the sentence and the production of the meaning.

### ENGL223
### Creative Writing II
**(3,0) 3**

Through writing and discussion, students will study and practice more advanced elements of poetry, prose, and drama. Prerequisite: ENGL221.

### ENGL231
### American Literature I
**(3,0) 3**

This course is a chronological study of American literature from the colonial writers through the Romantic period, ending with the Civil War. Prerequisite: ENGL180.

### ENGL232
### American Literature II
**(3,0) 3**

This course is a chronological study of American literature from the Civil War through the present, covering the Age of Realism and the development of twentieth century literature. Prerequisite: ENGL180.

### ENGL233
### English Literature I
**(3,0) 3**

Students will read and discuss selected works from the Old English period to the beginning of the eighteenth century. Emphasis will be placed on major writers and works, evaluated in their historical context. Prerequisite: ENGL180.

### ENGL234
### English Literature II
**(3,0) 3**

Students will read and discuss selected works from the eighteenth century to the twentieth century. Emphasis will be placed on major writers and works, evaluated in their historical context. Prerequisite: ENGL180.

### ENGL235
### Survey of Native Literature of North America
**(3,0) 3**

Students will examine various types of Native American literatures, including traditional stories, non-fiction, fiction and poetry from authors of numerous different nations. A variety of themes, including Native American identity and the role of culture in literature, will be covered. Corequisite: ENGL111 (also listed as NATV235).

### ENGL236
### Literature and Culture
**(3,0) 3**

Students will examine English-language texts from a variety of cultures, including American minorities and other underrepresented cultures. Students will observe the way in which culture is presented in the texts and how culture can help to shape the texts. Corequisite ENGL111.

### ENGL301
### Creative Prose Writing
**(3,0) 3**

This course is a workshop for the study and practice of prose fiction, creative non-fiction, and other prose forms, and requires the completion of a final portfolio. Prerequisite: ENGL221.

### ENGL302
### Poetry Writing
**(3,0) 3**

This course is a workshop for the study and practice of poetry, and requires the completion of a final portfolio. Prerequisite: ENGL221.

### ENGL303
### Performance Writing
**(3,0) 3**

This course is a workshop for the study and practice of writing for performance, including plays, film scripts, and other performance genres, and requires the completion of a final portfolio. Prerequisite: ENGL221.

### ENGL306
### Technical Writing
**(3,0) 3**

Technical writing is designed to introduce students to the theory and practice of technical communication. This course incorporates a broad approach, addressing the issues of critical thinking, collaboration, ethics, and the persuasive presentation of technical information in both written documents and oral presentations. The specific documents that will be covered include memos, formal business letters, technical descriptions, short and analytic reports, proposals and formal oral presentations. The central focus of the course will be the completion of a discipline-specific final project, in which the technical communication skills learned during the course will be enhanced. A major goal of this project, and the class, is to introduce students to the demands of their chosen professions, and thereby prepare them for the kinds of disciplined intellectual and practical work they will be required to complete. Prerequisite: ENGL111.

### ENGL310
### Advanced Writing
**(3,0) 3**

An exploration of the theory and practice of writing as it relates to the production of text, ENGL310 places emphasis on developing a conscious approach to writing. The course is designed to assist students in gaining control over the choices that create a coherent, precise, cohesive and professional text. This course may be taught on a tutorial basis. Prerequisites: a grade of C or higher in ENGL111 and junior standing.

### ENGL320
### Responding to Writing
**(3,0) 3**

A course in the theory and practice of effective writing with emphasis on evaluating and responding to writing across the disciplines. Recommended for writing ombudsmen, tutors, education students and other interested students. Course includes rhetorical and linguistic theory, current research on writing as process, theory and practice of responding to student writing, computer-assisted

writing and revision, tutorial strategies and characteristics of writing in various disciplines. A strong theoretical framework with student paper examples from interdisciplinary fields.

### ENGL321
### Rhetoric and Composition Theory
**(3,0) 3**

A course in the theory of rhetoric and composition. The course takes an historical approach, tracing the growth, uses and transformations of rhetoric from the classical period to the present day, highlighting the major underlying cultural forces which fostered change in rhetoric and fueled the development of composition theory. Emphasis is upon modern rhetoric and composition theory. Prerequisite: ENGL110.

### ENGL335
### Children&#65533;s Literature
**(3,0) 3**

This course focuses on understanding the historical, cultural, and generic dimensions of children's literature, with emphasis on critical reading, literary analysis, and the selection and evaluation of texts for children and young adults. Pre- corequisites: ENGL111 or COMM101.

### ENGL340
### Genre Studies
**(3,0) 3**

This course focuses on an understanding of the formal characteristics, critical interpretation, and the history and development of a single literary genre, including but not limited to the novel, the short story, drama or poetry. Pre-/corequisites: ENGL231/2 or ENGL233/4. Variable topics: may be repeated twice for credit.

### ENGL399
### Publishing Internship
**1-2 1-2**

This course is designed to provide students with an opportunity to earn credit while obtaining meaningful work experience in English or publishing outside the classroom setting. Students are expected to spend a minimum of 45 hours in an approved work setting for each credit hour earned. The course may be repeated up to four times at 1-2 credit hours for a maximum of 3 credit hours with each LSSU publication, up to 6 credits total. Prerequisite: 2.5 GPA in major and permission of the instructor.

### ENGL404
### Literature Before 1800 (Topic)
**(3,0) 3**

This course examines a period, movement, theme, or issue in English or American literature before 1800. Emphasis is on ciritical analysis of works of literature, and an understanding of the role of history, society, and culture including, as relevant, cross-cultural affects, on literary production. Course may be repeated for a maximum of nine credits, when topic varies. Prerequisites: ENGL231 or ENGL233.

### ENGL408
### Literature After 1800 (Topic)
**(3,0) 3**

This course examines a period, movement, theme, or issue in English and/or American literature after 1800. Emphasis is on critical analysis of works of literature, and an understanding of the role of history, society, and culture including, as relevant, cross-cultural affects, on literary production. Course may be repeated for a maximum of nine credits, when topic varies. Prerequisites: ENGL232 or ENGL234.

### ENGL409
### Advanced Writing Workshop
**(3,0) 3**

This course is a workshop for advanced level writing in a variety of genres, with emphasis on students doing sustained work in a chosen genre, and requires the completion of a final portfolio. Prerequisites: Two courses from ENGL301, 302, or 303.

### ENGL420
### History of the English Language
**(3,0) 3**

Origin and development of the English language, including its relationship to other Indo-European languages, the history and structure of Old and Middle English, and the rise of modern English. Prerequisites: ENGL222, 233, 234.

### ENGL421
### History of Literary Criticism
**(3,0) 3**

An investigation of the history of critical theory to include classicism, neoclassicism, romanticism, the New Critics and contemporary critical trends. Prerequisite: Either ENGL233 and ENGL234 or ENGL231 and ENGL232.

### ENGL433
### Topics in Literature and Composition
**(3,0) 3**

Study of various specialized topics in literature and composition not offered as part of the core classes. Topics may include studies of specific authors, theorists, and movements in literature and composition. Prerequisite: junior/senior standing. May be taken twice for credit (total of six credits).

### ENGL450
### Directed Individual Study
**(3,0) 3**

Individual study of an author, period, genre or other related topic relevant to literary scholarship. Each student will do extensive research and prepare a paper. Prerequisite: Permission of instructor.

### ENGL480

### Creative Writing Portfolio

**(3,0) 3**

This is a senior-level capstone class requiring students to complete a book-length, unified collection of creative workin chosen genres, working with the instructor on an independent study basis. Prerequisite: ENGL409.

### ENGL490
### Senior Thesis

**(3,0) 3**

Senior thesis is a sustained exploration of a literary composition or language topic. Students will undertake an independent research project under the direction of a chosen instructor and develop it into a major paper. Prerequisites: English major and senior standing.

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### EVRN131
### Introduction to GIS and GPS

**(2,2) 3**

This course provides a foundation in geographic information systems (GIS) such as data types, cartography, queries, classification, geoprocessing, basic editing, basic raster analysis and map overlay. The theory and operation of GPS receivers and data integration with GIS is covered in multi-week student initiated projects. Prerequisites: None.

### EVRN231
### Intermediate GIS

**(1,3) 2**

This course will survey the rapidly growing GIS industry, consider many important principles guiding GIS use and development, and provide the student with hands-on experience. Emphasis will be on geospartial analysis techniques, geodatabase, system design, remote sensing, and provide an introduction to advanced topics. After successfully completing this course, students should come away with a clear understanding of GIS analyses, the issues affecting how a GIS is used (and misused), how to review GIS research, how GIS research is written, and an appreciation for how GIS can contribute to a wide variety of disciplines and research interests. Prerequisites: EVRN131 or equivalent.

### EVRN289
### Aquatic Research Sampling Methods

**(2,3) 3**

A variety of sampling techniques are introduced as they relate to the various disciplines of aquatic science. These methods include sampling and preservation of biotic (plankton, fish, bethic invertebrates, DNA, pathogens) and abiotic (water quality, sediments, climate) data. Prerequisites: BIOL107, CHEM108 and 109, MATH111, and permission of instructor. Also listed as BIOL289.

### EVRN290
### Independent Study in Environmental Science

**(1-4,0) 1-4**

Special studies and/or research in environmental science for individuals or small seminar groups. Course content to be arranged by student(s) and a supervising professor with approval of school dean. Prerequisites: Students must have an overall GPA of at least 2.5, and no "I" (incomplete) grades on their transcript. Independent study courses may be repeated for a maximum of eight credits. Additional information is available at the School of Science and Natural Resources.

### EVRN311
### Environmental Law
**(3,0) 3 alternate years**

Study of the fundamental concepts of environmental law and ethics. Course includes a survey of the field of environmental ethics and a discussion of ethical issues, a review of the basic legal systems and research techniques, state and federal environmental statutes and codes of conduct for environmental professionals. Extensive use of case studies related to application of environmental law are used to illustrate ethical dilemmas and the approaches for resolving them. Prerequisite: junior standing.

### EVRN313
### Solid and Hazardous Waste
**(3,0) 3 alternate years**

Identification and classification of solid and hazardous wastes, including discussion of storage and processing, collection and transportation, resource recovery and recycling and ultimate disposal. Topics on radiation, decay, health effects and sources of hazardous materials will also be covered. Prerequisite: MATH112 or equivalent.

### EVRN317
### Environmental Health Applications
**(3,3) 4**

A systems approach addressing the factors that contribute to illness, injury, or death, and that affect the health status of individuals and populations. Topics include: environments within buildings, food sanitation, reacreation facilities, personal services, and community noise and control. The laboratory emphasizes methods of measuring and evaluating environmental health risks as well as field experience. Prerequisite: One semester of chemistry and NSCI103 or permission of instructor.

### EVRN325
### Geospatial Analysis
**(2,3) 3 alternate years**

A project-centered course incorporating advanced GIS tools, GPS field work, and data sources for geospatial analysis. This class focuses on a wide range os issues relating to the raster data model, and Digital Elevation Data (DEM) and satellite imagery. The majority of the classwill be devoted to 1) surface derivatives, including slope, aspect, and drainage; 2) modeling; and 3) error and uncertainty. This is a hands-on course, and the student will use a variety of software tools to experience model development, analysis, and visualization. There will be a semester project and a number of mini-projects. Prerequisites:

EVRN131 and a 200 level or higher course in statistics.

### EVRN341
### Environmental Chemistry I
**(3,3) 4 alternate years**

A study of the environmental chemistry of the hydrosphere, atmosphere, lithosphere, and biosphere, the measurement and remediation of water and air quality problems, the toxicology of water and air pollutants, and the environmental aspects of energy use. Prerequisites: CHEM225, CHEM231 and NSCI103. Also listed as CHEM341.

### EVRN345
### Advanced Spatial Analysis and Statistics
**(3,3) 4**

Spatial statistics differ from traditional statistics in that space and spatial relationships are an integral and implicit component of analysis. The emphasis in this course is analyzing patterns, mapping clusters and identifying geographics distributions. Specific topics include point pattern analysis, spatial autocorrelation, spatial regression and kriging. Special emphasis will be placed on using the spatial analyst and 3-D analyst extensions tools for ArcGIS. Prerequisites: EVRN131 and a course in statistics.

### EVRN355
### GIS Programming and Applications
**(3,3) 4**

This course expands the students' skills regarding object oriented programming and customization of GIS software to extend functionality and automative repetitive tasks. Emphasis will be placed on ArcObjects and object model diagrams. Prerequisites: CSCI105 and EVRN131.

### EVRN395
### Junior Seminar
**(1,0) 1**

Literature searching, scientific writing, and oral presentation of scientific data. Students will be expected to listen to presentation of peers enrolled in EVRN/CHEM499 and develop a topic for their senior thesis. Prerequisite: Junior standing. Note: Also listed as CHEM395.

### EVRN399
### Internship in the Environmental Sciences
**1-4 1-4**

This course is designed to provide students with an opportunity to earn credit while obtaining meaningful discipline-related work experience outside the classroom setting. Students are expected to spend a minimum of 45 hours in an approved work setting for each credit hour earned. Work hours and activities must be documented daily and approved by both the on-site supervisor and the instructor to receive credit. The course may be repeated for a maximum of four credits. Prerequisite: 2.5 GPA in major, Junior standing and permission of chair at least one semester in advance of registering for the course.

## EVRN425

### Environmental Systems Analysis

**(3,3) 4 alternate years**

The basic approach and statistical concerns associated with conducting an environmental analysis, as required for an environmental impact analysis will be integrated with interpretation of data from actual situations. Students will learn how analysis of soil, water, air, plant communities, animal communities and organic tissue analysis can be combined to evaluate the environmental health of a specific site. Discussion of solid, liquid, and hazardous wastes from a macro- and microscopic approach will be included. Prerequisite: CHEM341. Pre- or corequisite: EVRN313.

## EVRN450

### Laboratory Apprentice

**(0,3) per credit 1-2**

Students will assist in laboratories, learning instructional techniques, under direction of faculty. Course may be repeated for a maximum of two credits. Students must gain approval of the faculty member in charge of the specific laboratory, and the department chair. Credits may be used as EVRN electives.

## EVRN465

### Geographic Databases and Web-based GIS

**(3,3) 4**

This course introduces database creation and management systems for GIS and the implementation of interactive map services on the Web. Projects are used to develop the student's skills in Web page design, programming, security and Web page management. Topics include database design, SQL, ArcIMS, mobile GIS, and Map Objects. Emphasis is placed on serving maps using ArcIMS software. Prerequisites: EVRN131 and either EVRN231 or CSCI211.

## EVRN490

### Independent Study in Environmental Science

**(1-4,0) 1-4**

Special studies and/or research in environmental science for individuals or small seminar groups. Course content to be arranged by student(s) and a supervising professor with approval of school dean. Prerequisites: Students must have junior or senior standing, have an overall GPA of at least 2.5, and no "I"(incomplete) grades on their transcript. Independent study courses may be repeated for a maximum of eight credits. Additional information is available at the College of Natural and Mathematical Sciences office.

## EVRN495

### Senior Project

**(0,6) 2**

This is a practicum course in which students, under the guidance of a faculty mentor, conduct a scholarly project mutually agreed upon by the student and his/her faculty mentor. This course will be required for a degree certified by the American Chemical Society. This course may not be repeated for credit. Prerequisites: EVRN395 (also listed as CHEM395), CHEM231, and CHEM225. Dual listed as CHEM495.

## EVRN499
### Senior Seminar
**(1,0) 1**

Required for seniors majoring in chemistry/environmental science. Students will present the results of their scholarly research. Students who have completed EVRN495/CHEM495 will be required to give poster and oral presentations to the Unviersity community as part of this class. Pre- or corequisite: EVRN395 (dual listed as CHEM495). Dual listed as CHEM499.

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## EXER105
### Program Development and Leadership
**(3,0) 3**

Principles of leadership skills and styles are applied to various recreation settings with emphasis on group interaction and face-to-face leading. Programming fundamentals for effective leisure services delivery are explored and implemented. Also listed as RECS105.

## EXER140
### Health and Fitness
**(3,0) 3**

Introductory course: Theoretical basics of exercise, diet and nutrition and the wellness lifestyle. Topics include aerobic and musculoskeletal fitness, weight control, stress reduction, alcohol and tobacco abuse and presents principles for promoting a wellness lifestyle.

## EXER141
### Introduction to Movement
**(3,0) 3**

This course reviews and applies the pertinent aspects of the prerequisite disciplines of anatomy and physiology. Specific attention will be placed on muscles, bones, joint structures, and functions as well as the fundamentals of leverage, balance, and "the feel of the movement". A detailed understanding of movement description is the most critical element in the student's mastery of the subject matter.

## EXER230
### Athletic Injury and Illness Prevention
**(3,0) 3**

This is an introductory class to the field of athletic training. It will provide an overview for the student as to what an athletic trainer does. Topics be included will be a history of athletic training, developing conditioning programs, nutrition, protective equipment in sports, the healing process, emergency plans, injury assessment, psychology of injury, environmental conditions and the use of drugs in sports.

## EXER232

### Athletic Injury and Illness Recognition and Evaluation

**(3,0) 3**

This class will be a continuation of EXER230. After a general knowledge base is established in EXER230, EXER232 will elaborate on those concepts and extend them to the various extremities of the body as well as the spine and head. Prerequisites: EXER230 and BIOL122.

### EXER234

### Preventative Taping Techniques

**(0,2) 1**

To present current and comprehensive taping and wrapping techniques used in athletic training. Prerequisite: EXER232.

### EXER248

### Psychology of Sport and Performance and Coaching

**(3,0) 3**

A review of the psychological aspects related to success in sport and athletics. Emphasis will be placed on presenting techniques for improving individual and team athletic performance, as well as consideration of the psychological aspects of coaching. Specific topics will include personality and sport, attention/anxiety/arousal regulation, motivational techniques, the aggression-performance relationship, and the development of team cohesion and leadership.

### EXER262

### Exercise Physiology I

**(3,0) 3**

Introduction to biological energy systems and support systems involved in physical activity and exercise. Emphasis on energy system recruitment dynamics, acute and chronic adaptations to training, and applications to programs employing physically based activities. Prerequisites: BIOL121 and CHEM104 or 115.

### EXER265

### Essentials of Strength Training and Conditioning

**(3,0) 3**

This course will enable the student to develop knowledge and expertise in the components of sport-related fitness. Specifically, strength training, cardiovascular endurance, flexibility, reaction time, speed and agility will be explored in both traditional and non-traditional sports. Emphasis will be placed on the implementation and measurement of the above sport-related fitness components and the design of a strength training and conditioning program for the purpose of enhancing athletic performance.

### EXER268

### Fitness Evaluation I: Field Tests

**(1,2) 2**

Provides theoretical background and measurement concepts specific to field tests employed in exercise science settings. Emphasis on skill, development and interpretation of results relative to normative data. Prerequisites: BIOL121 and

EXER140.

### EXER275
### Nutrition for Sport and Exercise Performance
**(2,0) 2**

Extends the basic principles of nutrition presented in EXER262 and explicitly details the role of the major nutrients in their application to wellness and fitness settings, as well as athletic performance. Specifically addresses the interaction of diet and exercise in modifying the condition of the individuals with metabolic dysfunction (diabetes, obesity) or compromised cardiovascular health (hypertension, coronary heart disease). Also examines the special nutritional needs of athletes and the effectiveness of ergogenic aids in enhancing sport performance. Prerequisites: BIOL121 and EXER262.

### EXER295
### Practicum
**(1-2,0) 1-2**

Practical experiences that explore various types of work setting in exercise science, working under specialist in the various chosen areas of interest. May be repeated for a total of four credits. Prerequisite: Permission of instructor.

### EXER301
### Athletic Training Clinical Experience I
**(0,4) 2**

This course requires athletic training students to acquire, practice and demonstrate competency in basic clinical skills necessary to provide healthcare to a physically active population in a variety of clinical settings. Prerequisites: junior status and admission to the Athletic Training Education Program.

### EXER302
### Athletic Training Clinical Experience II
**(0,4) 2**

In this course, athletic training students are required to continue acquiring, practicing and demonstrating competency of the basic clinical skills necessary to provide healthcare to a physically active population in a variety of clinical settings. Prerequisites: EXER301 with a grade of C or better.

### EXER340
### Therapeutic Modalities in Athletic Training
**(2,2) 3**

This course will introduce the student to the theory and application of physical medicine devices commonly used in athletic training and sports medicine settings. Specific attention will be placed on the use of cryotherapy, thermotherapy, electrotherapy, ultrasound, traction, intermittent compression, and therapeutic massage in caring for physical injuries and illness. This course will focus on determining the most effective therapeutic modality for a given situation and the correct application of the selected therapeutic modality. This course is designed to present the knowledge, skills and values an entry-level certified athletic trainer must possess to plan, implement, document and assess the efficacy of therapeutic modalities in the care of physical injuries and illnesses. Prerequisites: EXER232 and BIOL122.

### EXER344
### Kinesiology
**(3,0) 3**

Science of movement applied to muscle, joint structure and function and application of physical laws of gravity, leverage, motion and balance to human performance. Video tape motion analysis is used to apply these theories into practical experience. Prerequisite: EXER141.

### EXER346
### Therapeutic Exercise in Athletic Training
**(2,2) 3**

EXER346 will introduce the student to the theory and application of commonly used rehabilitative exercises in the field of athletic training. Students will be introduced to the \"10 Goals of Rehabilitation,\" and will then study the relationship that therapeutic exercise plays in the attainment of each goal. Students will then develop a comprehensive rehabilitation plan that will enable a physically active person to return to activity as safely as possible. Students will be exposed to current surgical techniques and the rehabilitation that is involved. Prerequisite: EXER262.

### EXER348
### Fitness Evaluation II Laboratory Procedures
**(2,2) 3**

Provides theoretical background and technical aspects specific to laboratory procedures employed in clinical exercise science settings. Emphasis on developing skills with instrumentation for assessing cardiac activity, respiratory functioning, metabolic dynamics, anthropometer, and administering exercise protocols for diseased populations. Prerequisites: EXER268 and 262.

### EXER349
### Orthopedic Assessment in Sports Medicine
**(3,0) 3**

Provides a clear, concise process of physical examination of the spine and extremities which would direct the student in a logical, efficient and thorough search of anatomy relevant to the field of sports medicine. This course will allow the student to continue to build a solid foundation in anatomy specific to orthopedic education. Prerequisites: EXER230 and 232.

### EXER358
### Research Methods in Exercise Science
**(3,0) 3**

Introduction to research methods and related statistical procedures for constructing and analyzing research activities. Presentation of statistical concepts including correlation, t-tests and analysis of variance and their use in exercise science. Introduction to measurement concepts of validity and reliability and the facets of writing a research report. Prerequisites: MATH207 and EXER262.

### EXER362
### Exercise Physiology II

**(3,0,) 3**

Extends the study of the physiological aspects of exercise by examining advanced topic areas. Specific topics covered are the endocrine system and exercise, effects of exercise on the immune system, exercise and altitude, exercise and thermal stress, as well as exercise physiology concerns of various clinical populations. Prerequisites: BIOL122, CHEM115 and EXER262.

### EXER390
### Recreation Leader Apprenticeship
**(1,0) 1**

Practical experience in learning to teach and lead various recreation experiences. Students serve with qualified instructors. Prerequisite: Basic skills and knowledge of activity and instructor permission. May be repeated for a total of three credits.

### EXER401
### Athletic Training Clinical Experience III
**(0,4) 2**

In this course, athletic training students continue to demonstrate an integration of risk management skills, assessment skills, and therapeutic rehabilitation skills into the health care of a physically active population in a variety of clinical settings. Prerequisite: EXER302 with a grade of C or better.

### EXER402
### Athletic Training Clinical Experience IV
**(0,4) 2**

In this course, athletic training students continue to demonstrate an integration of risk management skills, assessment skills, therapeutic rehabilitation skills and administrative skills into the healthcare of a physically active population in a variety of clinical settings. Prerequisite: EXER401 with a grade of C or better.

### EXER428
### Psychological Aspects of Exercise and Athletic Rehabilitation
**(3,0) 3**

The acute and chronic psychological consequences that occur as a result of involvement in physically based activities will be examined as they apply to recreational exercisers and sport enthusiasts, as well as individuals with health problems. Emphasis will be placed on developing an understanding of the theoretical background for specific topic areas and investigating the support for these theories by examining original research reports on the effects of exercise and rehabilitation on adherence, chronic pain, anxiety, depression and sport injury. Prerequisites: EXER262 and 358.

### EXER434
### Neurological Basics of Motor Learning
**(3,0) 3**

An overview of how the neurological system integrates external stimuli and internal processes in the effective control of movement. Introduced are control systems, attention processes, memory, and the role of feedback and practice on motor learning. Prerequisites: BIOL122, EXER344 and 362.

### EXER440
### Exercise Physiology Seminar
**(2,0) 2**

Examines current issues in the field and students will prepare and present advanced physiological concepts related to special topics.

### EXER442
### Electrocardiography in Exercise Science
**(2,0) 2**

Examines electrophysiological basis of ECG, cardiac anatomy and metabolism responses to rest and exercise. Prerequisite: EXER262 with a C grade or better.

### EXER444
### Exercise Prescription
**(2,0) 2**

Provides experience in writing and developing advanced training and conditioning programs for a variety of populations. Process oriented; considers needs analysis and cyclic training.

### EXER446
### Exercise Prescription and Testing for Special Populations
**(3,0) 3**

This course provides a framework for developing exercise programs for individuals with disease, disabilities, or special health issues. The course will focus on exercise prescription through management of problems created by disease of the cardiovascular, pulmonary, metabolic, musculoskeletal, neuromuscular, and immunological systems. It includes a review of the basic principles of exercise testing and exercise prescription and builds on that foundation. Also covered are methods for assessment of functional capacity of individuals with the most common health conditions presented to exercise scientists. This course fits with the new Registry for Clinical Exercise Physiologists and the American College of Sports Medicine guidelines and will provide students with the necessary skills and knowledge for employment in a clinical setting. Prerequisites: EXER358 and 444.

### EXER450
### Philosophy of Human Performance and Leisure
**(3,0) 3**

A study of the origins and development of leisure behavior, sport, athletics and personal fitness across cultures. Ethical issues such as violence, opportunity, exploitation, role models and equity will be examined. Prerequisites: EXER262 or RECS101 and junior status.

### EXER452
### Allied Health Administration
**(3,0) 3**

This course is intended to enhance the administra-tive ability of allied health professionals. Students will learn to apply current management theories to administrative problems they may face. This will allow entry level allied health

professionals the ability to craft creative solutions to administrative problems. Content in this course includes management strategies for the following: Program offerings, finances, human resources, facilities, information, insurance, and legal considerations. Prerequisites: EXER230 and junior standing.

### EXER481
### Professional Development Seminar
**(1,0) 1**

Opportunities for students to refine personal and professional goals and initiate preparation of resumes and interviewing skills. Career planning and placement will be emphasized as well as internship evaluation. Seminar format. Prerequisite: Senior status required.

### EXER492
### Internship
**6**

Comprehensive practical application of students formal academic preparation. Prerequisite: Junior status and instructor permission.

### EXER496
### Selected Research Topics
**(1-3,0) 1-3**

Student carries out approved project(s) of his/her own initiative. Prerequisites: Junior standing and instructor permission.

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### FINC242
### Personal Finance
**(3,0) 3**

An introduction to the principles of personal financial planning. Topics include the financial planning process, credit and borrowing fundamentals, analysis of savings, investments and taxes, individual insurance, retirement and estate planning. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

### FINC245
### Principles of Finance
**(3,0) 3**

An introduction to the principles of business finance. Topics include math of finance, working capital management, financial planning and forecasting, debt and leasing, common and preferred stock, leverage and capital structure, capital budgeting, cost of capital. Students with credit in FINC341 may not enroll in this course. Prerequisites: ACTG132, 230, or OFFC119, and MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

### FINC248
### Real Estate

**(3,0) 3**

A study of the basic principles of real estate practice. Coverage includes broker-agent relationships, real estate marketing, real estate law, financing, appraising, taxation and math. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

### FINC341
### Managerial Finance
**(4,0) 4**

The nature and scope of financial management including math of finance, financing instruments, leverage and capital structure, financial planning and forecasting, risk and return analysis, capital budgeting. Prerequisites: ACTG133 and BUSN211.

### FINC443
### Insurance
**(4,0) 4**

A study of the financial, legal and social aspects of the insurance industry with emphasis on risk and actuarial analysis, insurance institutions and operations, insurance contracts and policies including life, annuity, health, property, liability, group, business and governmental coverages. Financial planning worksheets are utilized to appropriate policy selection. Prerequisites: BUSN350 and MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

### FINC446
### Financial Analysis and Policy
**(4,0) 4**

An analytical study of long- and short-term financial policy and strategy through case problems. Selected readings in financial theory supplement the case studies. Prerequisite: FINC341.

### FINC448
### Investment Strategy
**(4,0) 4**

A study of investment media and securities markets, risk and return analysis, valuation theory, portfolio construction and investment mechanics. Prerequisite: FINC341.

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### FINE405
### Independent Project
**(3,0) 3**

Under the direction of an appropriate supervisor, the fine arts studies student will prepare and create a project within the scope of the student's principal continuations. The project will normally integrate or synthesize aspects of the fine arts; however, its precise nature will be a matter for discussion and approval by the faculty supervisor. The project will be concluded by an appropriate

presentation and written report. Prerequisites: fine arts studies major and senior standing. Must be taken both fall and spring semesters for a total of six credits.

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### FIRE101
### Introduction to Fire Science
**(3,0) 3**

Survey of the history and philosophy of fire protection. Examines present fire protection problems and future challenges, public fire protection agencies, firefighting equipment and extinguishing agents. Special emphasis is placed on emergency responders' safety and hazardous material recognition.

### FIRE102
### Wildland and Rural Fire Control
**(3,0) 3**

Class will provide the theory and practical instruction necessary to manage and control wildland fires. Prevention, back burns, grid references, fuels, firefighting methods and tactics are covered in the course. Select students may earn their "red card" which provides United States Forest Service certification.

### FIRE111
### Hazardous Materials
**(3,0) 3**

Principles of combustion; examination of theoretical and practical aspects of combustion. Investigation of physical and chemical properties of substances which may harm responders, the general public and the environment.

### FIRE197
### Physical Fitness for Public Safety
**(0,3) 1**

This course provides physical fitness and skills necessary for the law enforcement and fire science certification students. Fire science students take the course semester before FIRE220.

### FIRE201
### Fire Protection Construction Concepts
**(3,0) 3**

Impact of building construction concepts and methods on firefighting tactics and strategy, decision making and safety. Presentation of the ramifications of hostile fire on construction and building materials.

### FIRE204
### Fire Protection Hydraulics and Pumps
**(3,0) 3**

The application of mathematics and physics laws to properties of water, force, pressure and flow velocities. Emphasis: Applying principles of hydraulics to fire

protection problems, use of water supply sources and needs; examines fire department apparatus testing, inspection and maintenance; deals with apparatus specifications and requirements. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or placement exam and FIRE101 or 102, or BIOL102, 140 or 286 as a pre- or corequisite.

### FIRE206
### Fire Protection Systems, Equipment and Industrial Fire Protection
**(3,0) 3**

Use and water supply needs of sprinkler and stand pipe systems and devices, fixed detection and control systems and devices, fire department testing, inspection and maintenance. Alarm centers, warning devices and safety considerations are covered along with fire flow calculations and risk assessment. Examination of fire and lifestyle hazards in business and industry. Emphasis on managing fire prevention and training private fire brigades. Prerequisites: FIRE101, 111, 204 and MATH086 or equivalent/satisfactory score on ACT or placement exam.

### FIRE211
### Tactics and Strategy
**(3,0) 3**

Utilization of manpower, equipment and apparatus on the fireground. Emphasis: Pre-fire planning, fire ground decision making. Implementing tactics and disaster planning. Students will use fire simulation programs and interactive technology to apply and implement the principles covered in didactic instruction. Prerequisite: Either FIRE101 or 102 and 204 as a pre- or corequisite.

### FIRE219
### Firefighter Essentials
**(3,0) 3**

This course is the first part of a two class sequence; the second part of the sequence is FIRE220. This course will cover the principles of firefighting attack skills through the practical instruction and exercises as outlined by the Michigan Firefighters Training Council (MFFTC). This course introduces the student to the application of the principles of fire attack and strategy for Firefighter I certificate and portions of Firefighter II through the use of exercises and computer-generated simulations. Hazmat incident analysis and other major disaster case studies are used in this class. Prerequisites: FIRE101 and 111. Corequisites: FIRE197, 204, and 206. Completion of special medical examination.

### FIRE220
### Fire Science Certification
**(3,3) 4**

An application of the principles of fire attack and strategy through the use of exercises and computer-generated simulations. Hazmat incident analysis and other major disaster case studies are used in this class. Prerequisites: FIRE101, FIRE111, FIRE197 and FIRE204. Corequisites: FIRE206 and FIRE211. Completion of specialized medical examination.

### FIRE301
### Code Enforcement Inspection and Fire Prevention
**(3,0) 3**

An introduction to fire inspection procedures and inspection techniques as related to building construction, fire load, fire protection systems, plans and the storage of hazardous materials. A study of safety code enactment, formulations and its relation to fire prevention and public education efforts and responsibilities of the fire service. Prerequisites FIRE111, FIRE206 and junior standing.

### FIRE309
### Fire-Related Human Behavior
**(3,0) 3**

This course will provide students the knowledge to understand how humans behave in fire and emergency situations, and how that behavior is integrated into life safety systems development and design. Students will study past and present research on human behavior, life safety models, building design, and life safety education. Students will develop an understanding how to analyze possible outcomes as it relates to human survivability in fire and emergency situations. Pre- or Co-requisites: FIRE101, FIRE206, and FIRE301, or permission of instructor.

### FIRE312
### Hazardous Materials Management
**(3,3) 4**

Covers requirements of federal law dealing with hazardous incidents, waste management with reference to OSHA, NIOSH, NFPA, and ACGIH standards. This class can certify select students at the level of general hazard awareness, emergency response operations, and hazardous waste worker. Prerequisites: FIRE111 or CHEM116 and junior standing.

### FIRE315
### Company Level Supervision and Management
**(3,0) 3**

This course is intended to provide a comprehensive overview of supervision and administration skills necessary to function as a company officer, which would include but not be limited to planning, budgeting, time management, training, emergency incident command, and facility maintenance and care. Pre- or corequisites: FIRE101, FIRE111, FIRE204, FIRE206 and FIRE211.

### FIRE325
### Homeland Security and Emergency Services
**(3,0) 3**

This course will prepare all graduates from a variety of majors to understand how homeland security impacts the US political system as a whole, but especially from the standpoint of emergency response and preparedness. Investigates the impact of the federal, homeland security apparatus on emergency response organizations at the state and local level. Includes a historical review of \"homeland security\" measures beginning in WWI and through WWII and the Korean War. Especially reviews the security situation during the Cold War. The course deals with the federal agencies usually not associated with homeland security, such as DEA, ATF, the military departments, FAA, CDC, the National Guard Bureau, and the DOD. Prerequisite: Junior standing. Students from other majors are encouraged to enroll with permission of instructor. Also listed as CJUS325.

### FIRE401
### Senior Seminar
**(3,0) 3**

Seminar and independent study course with individual student guidance by faculty on selected research topics in fire science. Prerequisites: Senior standing.

### FIRE402
### Fire Service and the Law
**(3,0) 3**

Capstone course. Introduces the judicial system in which the fire service operates. Covers civil action, liability, labor, prevention, safety (OSHA), and environmental law. Prerequisite: Senior level standing.

### FIRE403
### Fire Science Internship
**3-9**

Fire science internship with an agency. Credit is based on 34 hours of field work per credit hour. Students must make application by the ninth week of the previous semester. Prerequisites: FIRE220 and senior standing.

### FIRE490
### Independent Study for Fire Science
**(1-4) 4**

This may take the form of either a research project or a program of directed reading on a specific subject. One to four credits over a period of one or two semesters may be granted according to the nature of the student\'s project. May be repeated up to six credits. Prerequisite: Permission of instructor.

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### FREN151
### First Year French I
**(4,0) 4**

An introductory course designed to develop the four basic language skills of understanding, reading, speaking and writing, as well as the fundamentals of grammar. A conversational and cultural approach based on everyday life situations from the Francophone world. Basic information in English with progressive emphasis put on the use of French in class.

### FREN152
### First Year French II
**(4,0) 4**

Continuation of FREN151 with further acquisition of syntax, grammar and culture with increased emphasis on speaking, reading and writing. As course progresses and the use of French becomes almost dominant in class, basic conversation and composition practice based on increased cultural awareness becomes more elaborate and refined. Prerequisite: FREN151 or equivalent.

### FREN251
### Second Year French I
**(4,0) 4**

A course designed to help students further and complete their mastery of basic spoken and written French. Review and completion of grammar information. Systemic conversation practice based on more-advanced readings dealing with current social issues within a broad historical and cultural context, as well as a more-elaborate practice of composition writing. Course largely taught in French. Prerequisite: FREN152 or equivalent.

### FREN252
### Second Year French II
**(4,0) 4**

Continuation of FREN251 with further emphasis on oral presentations, general conversation practice and writing of compositions, essays, reports and letters. Development of a more mature use of syntax, grammar and idioms within a broader cultural context which includes a first approach to French literature. Initiation to the basic principles of translation and interpretation. Course almost completely taught in French. Prerequisite: FREN251 or equivalent.

### FREN351
### Advanced Conversation and Composition I
**(3,0) 3**

Extensive reading, debating and writing related to contemporary issues within the Francophone world as they are expressed in books, films, newspapers and television. Further practice of translation and interpretation. Preparation to the examination for the DELF (Dilome Elementaire de Langue Francaise) of the French Ministry of Education. Prerequisite: FREN252 or equivalent.

### FREN352
### Advanced Conversation and Composition II
**(3,0) 3**

Continuation of FREN351 and systemic practice to the examination for the DELF. Prerequisite: FREN351 or equivalent.

### FREN353
### Business French I
**(3,0) 3**

An initiation into the language skills for use in business situations in a French-speaking environ-ment. A conversational approach is used with systematic oral and written practice from authentic documents. Preparation to the examination leading to the Certificat Pratique from the Chamber of Commerce of Paris. May be taken concurrently with FREN351. Prerequisite: FREN252 or equivalent.

### FREN354
### Business French II
**(3,0) 3**

Continuation of FREN353. Aims to bring students to a level of proficiency in French business communication that would enable them to function in an

internship situation. Visits to French-speaking companies. Further preparation to the examination leading to the Certificat Pratique from the Chamber of Commerce of Paris. May be taken concurrently with FREN352. Prerequisite: FREN353 or equivalent.

### FREN355
### Survey of French Literature I
**(3,0) 3**

A chronological study of French literature from its origins to the 18th century. Emphasis on the development and continuity of ideas and their evaluation within the political, social and religious framework of the time, their influence on evolution of language and literature. Text analysis and discussion. May be taken concurrently with FREN351. Prerequisite: FREN252 or equivalent.

### FREN356
### Survey of French Literature II
**(3,0) 3**

Continuation of FREN355. Study of major works of French literature of the 19th and 20th centuries. Text analysis and discussion. May be taken concurrently with FREN352. Prerequisite: FREN252 or equivalent.

### FREN360
### French Cultural Perspectives
**(4,0) 4**

This course takes place in France as students participate in a study tour with their instructor. They discover Paris, its monuments, art galleries, museums and libraries; visit ancient Roman vestiges, cathedrals of the Middle Ages and chateaux of the Renaissance, as well as actively participate in French everyday life. However, alternate on-campus version of this course on contemporary French society and culture is offered to students who do not wish to travel to France. Extensive literary, historical and audio-visual documentation provide material for stimulation analysis and discussion of typical French value orientations, family structures, educational, and cultural institutions. Assignments in French or English. Offered summers only. No prerequisite.

### FREN370
### The Francophone World I
**(4,0) 4**

This course conducted in English is designed to provide information and help understand the people of French-speaking Africa, French West Indies, South-East Asia and Polynesian Islands. It consists in a study of colonial and post-colonial history, culture and society in these different parts of the world. Participation of native guest speakers with extensive use of audio-visual materials will richly enhance participation and discussion. Prerequisite: junior standing.

### FREN460
### Directed Academic and Cultural Immersion
**(6,1) 6**

This multi-faceted course, which takes place in a French-speaking environment, allows students to reach oral and written fluency in language as well as advanced knowledge in a broad variety of areas directly related to French life

and civilization. Upon completion of a specific number of courses chosen in consultation with their advisor, students will be granted upper division credits towards completion of their major requirements. Prerequisite: completion of two 300-level French courses at LSSU.

### FREN490
### Independent Study in French
**(1-4)**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of eight credits. Prerequisite: permission of instructor.

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### GEOG106
### Physical Geography: Landforms
**(3,2) 4**

Introduction to the description and distribution of landforms with emphasis on lithospheric, hydrospheric and atmospheric relationships. Natural (physical) science credit given. Prerequisite: Completion of mathematics competency graduation requirement. Credit for both GEOG106 and NSCI107 not permitted.

### GEOG108
### Physical Geography: Meteorology & Climatology
**(3,2) 4**

Introduction to earth-sun relationships, maps and elementary principles of atmospheric science. Natural (physical) science credit given. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam. Credit for both GEOG108 and NSCI105 not permitted.

### GEOG201
### World Regional Geography
**(4,0) 4 alternate years**

A study of the physical environment, resources, past and present economic development, population distribution and historical development of Europe, Asia, the Islamic Middle East and North Africa, Sub-Saharan Africa, Latin America and North America.

### GEOG302
### Economic Geography
**(4,0) 4 alternate years**

A study of the internal and external inter-relationships of the various economic groupings of the world; i.e. North America, Europe and the emerging third world.

### GEOG306
### Cultural Geography
**(3,0) 3**

A study of the relationship of environment, culture and adaptive patterns; i.e., socio-economic development. A special emphasis will be placed upon the current problems associated with food supplies, shortages and third world development.

### GEOG321

### Geography of Europe and Great Britain

**(4,0) 4 alternate years**

A study of the physical, cultural and economic interdependence of the western European community. Special emphasis will be placed upon the role of the EEC in world economic development. Prerequisite: Junior standing.

### GEOG322

### Geography of South America, Central America and the Caribbean Region

**(4,0) 4 alternate years**

The study of the geographical features and cultural history of the major regions in South America, Central America and the Caribbean with special concern for their 20th century development. Prerequisite: Junior standing.

### GEOG323

### Geography of East and Southeast Asia

**(4,0) 4 alternate years**

The study of the geography of Japan, China, Korea, Southeast Asia and India with special emphasis on the impact of the major religions, regional rivalries and 20th century development. Prerequisite: Junior standing.

### GEOG325

### Regional Geography of North America

**(4,0) 4 alternate years**

The study of the physical, cultural and economic development of various regions of Canada and the United States with special emphasis on the development of regional characteristics and cultural traditions. Prerequisite: Junior standing.

### GEOG360

### Historical Geography of Eastern North America

**(4,0) 4 alternate years**

A study of the impact of the physical features upon the historical development of eastern Canada and the eastern regions of the United States. Special attention will be given to the western migration patterns. Prerequisite: Junior standing.

### GEOG490

### Independent Study in Geography

**(1-4) 1-4**

Special topics such as regional, historical, economic, urban, cultural or physical geography. Prerequisites: Junior standing and permission of instructor. May be repeated up to a total of 12 credits.

### GEOG492

### Individualized Studies in Geography

**(2-4,0) 2-4**

This is designed to provide an opportunity for specialized study of issues, problems and selected topics in geography. Prerequisite: Junior standing and permission of instructor.

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### GEOL115
### Field Excursions in Earth Science

**(2,4) 4**

A field- and project-based educational experience in which aspects of geology, including environmental geology, earth resources, tectonic processes and the interrelationships among geology and other natural sciences, will be addressed. Travel destinations will include regions with unique natural history. Credit can be earned for only one of NSCI102, GEOL115 and 121.

### GEOL121
### Physical and Historical Geology I

**(3,2) 4**

The study of processes and features of the rocks and surficial materials that form the Earth's crust. Emphasis will be placed on the dynamic earth including volcanoes, plate tectonics, geologic time, catastrophic events such as earthquakes, and natural resources and their impact on society. The class requires student projects and emphasizes active problem-solving. Laboratory exercises involve minerals, rocks, topographic and geologic maps. Credit can be earned for only one of NSCI102, GEOL115 and 121.

### GEOL122
### Physical and Historical Geology II

**(3,2) 4**

The study of surficial processes and landforms in the context of their historical perspective. Emphasis will be placed on evolution of the earth; stratigraphic principles, tectonic framework of North America; landforms and depositional environments; climate, weathering, surficial processes, and sea level changes; and significant events in the history of plants and animals. Laboratory exercises involve geologic maps, invertebrate paleontology, and surficial processes including envrionmental applications. Pre- or corequisites: GEOL121 or NSCI102 or GEOL115.

### GEOL218
### Structural Geology and Tectonics

**(3,6) 5**

A study of the deformation of the Earth through a project-centered approach that focuses on actual tectonic problems. Emphasis will be placed on descriptive, kinematic and dynamic analysis of geologic structures, deformation mechanisms and the evolution of each in the context of the regional and global geology. Prerequisite: GEOL122.

## GEOL223

### Mineralogy and Petrology

**(3,6) 5**

A laboratory course emphasizing hand-sample techniques for identification of minerals and rocks. Major topics include: physical properties, crystalline structure, and chemical composition of minerals, classificiation of minerals and rocks; origins of igneous, sedimentary and metamorphic rocks; plate tectonic occurrence of minerals and rock assemblages; and societal and economic significance of minerals and rocks. Prerequisite: GEOL121 or NSCI102. Pre- or corequisites: GEOL122 and CHEM115.

## GEOL290

### Independent Study in Geology

**(1-4,0) 1-4**

Special studies and/or research in geology for individuals or small seminar groups. Course content to be arranged with instructor and with approval of the school chair. This course may be repeated for a maximum of eight credits. Prerequisite: Sophomore standing or higher.

## GEOL315

### Geoenvironmental Systems

**(3,6) 5 alternate years**

The study of environmental issues in a geological context through local and regional field projects. Projects will examine issues such as flooding, shoreline erosion, slope stability, groundwater resources and contamination, and the environmental impact of mineral and energy resource extraction. Emphasis will be placed on the evaluation of environmental issues through the application of geological and geophysical field data such as collecting and analyzing sediments, bedrock and sediment mapping, and well log analysis. Prerequisites: GEOL218 and GEOL223.

## GEOL318

### Tectonic Systems

**(3,6) 5 alternate years**

Study of tectonic process and how these processes affect the earth and its evolution with time. A variety of modern and ancient tectonic settings will be studied through projects and case studies. The deformational, geochemical, sedimentological and geophysical characteristics of individual tectonic settings will be evaluated and their evolution with time will be analyzed. Weekend field trips may be required. Prerequisites: GEOL218 and 223.

## GEOL323

### Geochemical Systems

**(2,6) 4 alternate years**

The study of high-temperature igneous, metamorphic, and hydrothermal processes in the context of their global tectonic settings. Topics include the origin and evolution of magmas, igneous crystallization and emplacement processes, hydrothermal reactions and ore deposits, the thermodynamics of metamorphic reactions, and tectonic environments in which these processes occur. A pre-semester one-week field trip and weekend field trips may be required. Prerequisites: GEOL218 and GEOL223.

## GEOL325
## Clastic Systems
**(2,6) 4 alternate years**

The study and interpretation of siliciclastic sediments and environments based on stratigraphic principles. Topics include clastic transport and fluid flow, sedimentary structures, lithostratigraphy, facies recognition and relationships, depositional models, diagenesis, stratigraphic diagrams and maps, and tectonics and sedimentation. A pre-semester one-week field trip and weekend field trips may be required. Prerequisites: GEOL218 and GEOL223.

## GEOL380
## Introduction to Field Geology
**(0,9) 3**

Introduction to field methods in geology including measurement of sections, mapping techniques, and field interpretation of outcrops. A variety of geologic provinces and environments will be examined. A supply and travel fee will be charged. Prerequisites: GEOL218 and GEOL223.

## GEOL410
## Engineering Geology
**(3,2) 4**

This course examines rock types and stratigraphy, geological structures, surface processes, earth materials and methods of geological investigation in the context of behavior of soils and rocks as related to planning and construction. The course includes coverage of in-situ investigations including shallow geophysical methods and emphasizes environmental applications and concerns. Prerequisites: MATH112 or 151, CSCI101 or 111, PHYS221 or 231.

## GEOL411
## Hydrologic Systems: Surface and Groundwater
**(3,3) 4 alternate years**

The study of hydrologic systems with an emphasis on land surface and groundwater hydrology. Topics include global climate and the hydrologic cycle, precipitation, snow processes, soil water flow, evapotranspiration, groundwater flow, groundwater-surface interactions, and steam hydraulics. Laboratory components will provide experience in hydrologic field techniques, numerical modeling, and independent research. Prerequisites: PHYS221 or 231.

## GEOL431
## Geophysical Systems
**(3,6) 5 alternate years**

The study of geologic, geophysical, and environmental problems using magnetic, electromagnetic, resistivity, gravity, and seismic geophysical techniques. Projects will involve geophysical and geologic survey design, data collection, data processing, and data interpretation and will require the integration of geophysical and geological data to solve problems. A pre-semester one-week field trip and weekend field trips may be required. Prerequisite: GEOL218. Pre- or corequisites: MATH112 or MATH151 and PHYS221 or PHYS231.

## GEOL445

### Carbonate Systems

**(3,6) 5 alternate years**

The study and interpretation of carbonate sediments and environments based on stratigraphic principles. Topics include biostratigraphy, facies characteristics and relationships, depositional models, diagenesis, stratigraphic diagrams and maps, and invertebrate paleontology. Weekend field trips may be required. Prerequisites: GEOL122, GEOL218 and one GEOL course at the 300 level or above.

### GEOL450
### Geology Seminar I

**(1,3) 2 alternate years**

Study, discussion, and laboratory experience in specialized topics in geology. Students will collect and compile information, write papers, make presentations, and lead discussions. Prerequisite: Two GEOL courses at the 300 level or above.

### GEOL451
### Geology Seminar II

**(1,3) 2 alternate years**

Study, discussion, and laboratory experience in specialized topics in geology. Students will collect and compile information, write papers, make presentations, and lead discussions. Prerequisite: Two GEOL courses at the 300 level or above.

### GEOL480
### Advanced Field Geology

**(0,9) 3 alternate years**

Three weeks of advanced field methods in geology including field mapping of deformed rocks, construction of cross sections, and interpretation of depositional and deformational histories. A variety of geologic provinces and environments will be examined. A supply and travel fee will be charged. Prerequisites: GEOL380 and one additional GEOL course at the 300 level or above.

### GEOL490
### Research Topics in Geology

**(1-4,0) 1-4**

Special studies and/or research in geology for individuals or small seminar groups. Course content to be arranged with instructor and with approval of the school chair. This course may be repeated for a maximum of eight credits. Prerequisites: Junior standing or higher.

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### HIST101
### History of World Civilization I

**(4,0) 4 fall**

A study of world civilization from earliest time through the baroque.

### HIST102
### History of World Civilization II
**(4,0) 4 spring**

A study of world civilization from the baroque to the present.

### HIST131
### United States History I
**(4,0) 4 fall**

A study of United States history from the colonial settlement to the end of the American Civil War in 1865.

### HIST132
### United States History II
**(4,0) 4 spring**

A study of United States history from the end of the Civil War to the present.

### HIST201
### Classical World and Medieval Europe
**(4,0) 4 on demand**

A survey of Mediterranean civilization from the Bronze Age to the eve of the Renaissance.

### HIST202
### Renaissance, Reformation and Baroque Europe
**(4,0) 4 on demand**

A study of the political, institutional, religious, social, economic and cultural developments from 1400 to 1700.

### HIST203
### Chinese Cultural Diversity
**(3,0) 3 summer**

Designed for students interested in the diversity of Chinese culture and study abroad. Taught in English and offered at a partner university in China during the first summer session. This four-week course explores, but is not limited to, the traditional social values, classes, divergences, ethnicity, religion, and gender issues characteristic of Chinese culture. The course is conducted in a lecture format with class discussions and guided field trips.

### HIST230
### Survey of Native History of North America
**(4,0) 4 on demand**

A study of American Indian history from earliest times to the present, with emphasis placed on the historical development of Indian tribes located in the Great Lakes region. Also listed as NATV230.

### HIST235

### History of Applied Science and Technology

**(4,0) 4 on demand**

An introductory study of the origins and development of the applied sciences and technology from 1790 to the present. This survey will focus on the scientists, engineers and inventors responsible for the rapid rise of modern technology, industry, and business with particular emphasis on the developments in chemistry, metallurgy, electromagnetism, thermodynamics and cybernetics. The impact of these developments on the marketplace and society in general will be a major concern.

### HIST301
### History of England: 1000 to 1714

**(4,0) 4 on demand**

These 700 years witness the formation and maturing of most of the important political and social institutions that have come to be the Anglo-Saxon civilization and tradition. This period is critical to understanding present-day American culture and civilization.

### HIST302
### England in the Modern World

**(4,0) 4 spring, even-numbered years**

A history of England from 1715 to the present, emphasizing the struggle for parliamentary government, the Anglo-French conflict for commercial and colonial empire, the Industrial Revolution, the evolution of democracy and the recession of the British Empire.

### HIST310
### Russia: From Under-developed State to Superpower

**(4,0) 4 fall, odd-numbered years**

A study of Russian history from Peter the Great to the present.

### HIST315
### Europe From Napoleon to World War I

**(4,0) 4 fall, even-numbered years**

A study in the political and economic history of Europe in the period 1789-1914.

### HIST316
### Europe in the 20th Century

**(4,0) 4 spring, odd-numbered years**

A study of Europe in the age of Nazism, Communism, World War I and II, and the Common Market.

### HIST321
### History of Michigan

**(2,0) 2**

The History of Michigan is a survey course that will include an examination of the geology, geography, and history of the state. This course will also study the role

of citizens, events, issues, and their impact on the development of Michigan as well as the larger developments in the United States during the Jacksonian Period, the Civil War Period, the Period of Rapid Industrialization and Urbanization, the Period of 1914 to 1945, the Period 1950 to the Present, the Period of Industrial Expansion and Decline, and the Post-Vietnam War Period of Globalization. The major political, economic, social, and cultural movements and developments of these historic periods will be examined.

### HIST331
### American Intellectual and Cultural History I
**(4,0) 4 fall, even-numbered years**

A study of American cultural and intellectual institutions as they developed from their Elizabethan and European origins to the mid-19th century. The emphasis will be placed upon the emergence of the unique and variant adaptations that arose in the first 250 years of English settlement in America.

### HIST332
### American Intellectual and Cultural History II
**(4,0) 4 spring, odd-numbered years**

A study of American culture from the mid-19th century until the present. Often considered our finest century, the 19th century witnesses many of America's most unique, fascinating and important contributions. The physical and philosophical aspects of these years will be surveyed. Particular attention will be given to areas where America comes to exercise important influences overseas.

### HIST333
### American Military History
**(4,0) 4 on demand**

A general survey of American military history with a specific emphasis on the Midwest and Great Lakes regions. To utilize the unique geographic location of LSSU, field trips to the Straits of Mackinac and St. Joseph's Island are a part of the course.

### HIST335
### American Political Parties
**(4,0) 4 on demand**

A study of the rise and development of the American party system and the large number of major and minor parties that have participated in this system in the years prior to 1945. These parties will be treated in an historical fashion rather than structurally. May be taken for political science credit.

### HIST346
### Canadian History
**(4,0) 4 On Demand**

A survey of Canadian history including the moving frontier, relations with United States, British-French rivalry, the establishment of democratic government and the changing relationship to Great Britain.

### HIST361
### Latin America

**(4,0) 4 Fall, even-numbered years**

A study and analysis of Latin American history from the end of the Colonial Period to the present. This course will examine the basic political, social and religious institutions of Latin America and their evolution and the role in the change of problems of U.S.-Latin American relations will be an important focus of this study. Prerequisite: GEOG322 geography of South America.

### HIST371
### Far East Civilization: 1850 to Present
**(4,0) 4 Odd numbered years**

A study of the history of China, Japan, India and adjoining areas of Asia from 1850 to present.

### HIST420
### Field Methods of Archaeology
**(4,4) 8 Summer**

Field course in archaeological survey and excavation methods and techniques, at various sites in area including 1822 Fort Brady. Course held on-site M-R for eight weeks. Only four credit hours may count toward 300- and 400-level courses for history majors. No prerequisites.

### HIST425
### Politics of US Labor History
**(3,0) 3**

This course examines the role of organized labor in the U.S. history, from colonial times to contemporary times. Attention will be given to the development of policies affecting unions. Prerequisite: upper-division student status.

### HIST440
### The Declaration of Independence and the Constitution
**(4,0) 4 Spring**

The events between 1763 and 1791 which produce these documents are the United States in the historical sense. Using original documents and contemporary comments, this critical era will be studied in depth to determine whence we came. Prerequisite: U.S. history sequence desired.

### HIST441
### Diplomatic History of the United States I
**(4,0) 4 Fall, odd numbered years**

American diplomacy from 1775 through the 19th century to U.S. entry into World War I in 1917. May be used as political science credit.

### HIST442
### Diplomatic History of the United States II
**(4,0) 4 Spring, even numbered year**

American diplomacy from the entry of the U.S. into World War I in 1917 up through present day. May be used as political science credit.

### HIST490
### Individual Historical Research
**(0,1-4) 1-4 On Demand**

Independent study under supervision of history faculty. May be repeated up to a total of six credits. Does not apply toward 300- or 400-level requirements in history. Prerequisite: Permission of the supervising faculty.

### HIST496
### Historical Methods
**(2,0) 2 Fall**

Survey emphasizing research aids and techniques and historical analysis. Readings, discussions and written exercises introduce students to problems, methods and techniques of historical research. Discussion of and practice in main techniques of historical method, including bibliography and documentation. Prerequisites: Senior standing and pursuit of a major or minor in history.

### HIST497
### Senior Seminar in History
**(0-6) 2 Spring**

Students will complete a historical research project under the supervision of a faculty member; at end of term participants make oral presentation at seminar for other students and invited guests, and submit the final paper. Prerequisite: HIST496 and instructor permission.

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### HLTH101
### Introduction to Medical Terminology
**(2,0) 2**

This course introduces the beginning student to basic medical terminology related to all areas of health care. The focus of this course is on understanding and proper usage of medical language.

### HLTH104
### Nutrition for Early Childhood
**(3,0) 3 alternate years**

Introduction to the function and metabolism of nutrients with special emphasis on the relationship between nutrition and childhood growth and development between 0-8. Lectures, discussion and community-based assignments will relate the body systems to the child's nutritional status, review recent developments in nutrition as they relate to childhood development, and provide basic nutrition education principles for adaptation in community settings.

### HLTH185
### Basic Pre-Nursing Competency Skills
**(0,3) 1**

The purpose of this course is to introduce the beginning student to basic pre-

nursing skills. The student will learn hand washing, putting on and removing gloves, linen changes, dependent positioning, independent positioning, transfers, total hygiene, ambulation, body mechanics and patient safety.

### HLTH208
### Principles of Human Nutrition
**(3,0) 3**

Fundamentals of human nutrition and nutrition therapy are presented in relation to human body function in wellness and illness. With a special focus across the lifespan, content from this course begins to build a foundation for the interpretation of diet regimes and diet formulations for patients with nutritional needs. This course is required for all nursing students. Prerequisites: BIOL122 or BIOL105 with a grade of C or better.

### HLTH209
### Pharmacology
**(3,0) 3**

Study of basic concepts of pharmacology and their relationships to health care. Drug metabolic processes are described providing foundation for clinical judgments about drug actions, reactions and interactions. Prerequisites: BIOL122 or 105 and CHEM105.

### HLTH210
### Introduction to Health Care Concepts and Issues
**(3,0) 3**

This course is an introduction to the health care system with analysis of the issues and trends affecting the provision of health care services. Health care topics reviewed will include both local and global issues. Required course for environ-mental health and healthcare and administration; may also be used as an elective course. Material supports accreditation criteria for enviromental health. Prerequisite: Sophomore standing.

### HLTH232
### Pathophysiology
**(3,0) 3**

Study of physiological alterations in the body which disrupt homeostasis. Integrates anatomy, physiology and biochemistry into framework for studying disease. Core content provides understanding of mechanism and principles of disruptions of health. Emphasis on clinical correlations and physiological basis for common disorders. Prerequisite: BIOL122.

### HLTH235
### Healthcare Informatics
**(2,0) 2**

The purpose of this course is to gain a basic understanding of nursing informatics and its application to education, research and practice in health care professions. Topics include computer literacy skills, information literacy, and overall informatics competencies. Competencies taught will meet the American Nurses Association Scope and Standards of Nursing Informatics Practice (ANA, 2001) for beginning nurses. Prerequisites: Admission into Nursing program and basic computer skills.

### HLTH328
### Multicultural Approaches to Health Care
**(3,0) 3**

This course explores values, beliefs and practices related to health behaviors in a variety of culturally diverse groups. Methods for fostering culturally sensitive care are explored. Content includes communication, biological and nutritional considerations, assessment techniques and alternative/complementary health practices. Prerequisite: SOCY101. Also listed as NURS328.

### HLTH329
### Women's Health Issues
**(2,0) 2**

This course explores the diverse health needs of women across the life span. Students are encouragedto take an active participation in identifying topics of interest. Social, cultural, political, economic, legal and ethical issues are analyzed for their influences on women's health and the health care women receive. Prerequisite: SOCY101.

### HLTH330
### Applied Nutrition
**(2,0) 2 alternate years**

Application of nutrition principles in health care; obesity, anorexia nervosa and bulimia; emphasis on gathering information and relevant objective measurements (anthropometric, biochemical) for use in developing nutritional care plans. Prerequisite: HLTH208.

### HLTH352
### Health Issues of Aging Populations
**(3,0) 3**

This course is designed to assist students from a variety of disciplines to gain a greater understanding of health-related issues that are associated with advancing age. In addition to exploring physiological and psychological changes experienced by our elderly clients, students will learn how they can adapt their work strategies to work more effectively for the elderly clients that they serve. Prerequisite: PSYC155 and junior level status. Also listed as NURS352.

### HLTH354
### Legal and Financial Issues in Health Care Administration
**(3,0) 3**

This course is intended for students preparing for careers in management in health care fields or as health care practitioners. Students will be made aware of legal and financial issues and problems including fault liability; institutional liability; forms of organization; credentialing and appointments; staffing issues; consent and refusal of treatment; and health care financing. The student will be more aware of the need to seek professional counsel to minimize and prevent litigation. Prerequisite: Junior standing. Also listed as BUSN354.

### HLTH452
### Contemporary Issues in Nutrition
**(3,0) 3 alternate years**

Utilizing an epidemiological frame, students will learn how to research current issues and topics in nutrition for closer examination and discussion. Nutritional trends and topics such as nutraceuticals, nutrigenomics, functional foods, supplements, herbs, and advertised dietary approaches aimed at promoting wellness and health will be explored in-depth and analyzed. Prerequisites: BIOL122, CHEM105, HLTH104, 108, 208 and EXER275.

### HLTH490
### Independent Study in Health
**(1-4,0) 1-4**

Individual investigation of topics tailored to student interest and need. Prerequisites: Junior or senior standing and instructor permission.

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### HONR101
### Honors First-Year Seminar (variable topics)
**(1-2,0) 1-2**

An intensive reading/discussion seminar of selected topics from any discipline of special interest to first-years honors students. An interdisciplinary focus is encouraged as well as the inclusion of active learning strategies that promote self-directed learning. Class size is limited to 15 to promote student and faculty interaction around the world of ideas. Prerequisites: status as an Honors candidate (freshman) or fully admitted University Honors Program student, and/or permission of the Honors coordinator. May be repeated for a maximum of four credits.

### HONR202
### Honors Contemporary Issues
**(3,0) 3**

An interdisciplinary sophomore-level seminar for University Honors Programs students. The course is designed to accommodate a range of specific topics; the particular topics, however, will investigate some aspect of the history of intellectual ideas, the nature of intellectual inquiry, and/or the construction of knowledge. The instructor serves as a facilitator in the seminar format which is intended to encourage student-directed learning. Prerequisites: formal admission to the University Honors Program and/or permission of the Honors Program coordinator. May be repeated for a maximum of 9 credits.

### HONR302
### Honors Ideas Seminar
**(3,0) 3**

A junior-level seminar for University Honors Program students. The course is designed to accommodate a range of special topics to be submitted by LSSU faculty under the general provision for Special Topics; the topics may evolve out of an interdisciplinary focus on some aspect of traditional disciplinary subject matter, or may be a reconfiguration of a regular course, redesigned to meet the particular needs of Honors Program students. The role of the instructor, however, would be as a facilitator, working within the seminar format to encourage student-directed learning around a topic requiring intellectual rigor. As this is a core requirement for all junior Honors students, it is expected that a given course

proposal would not require prerequisites beyond those for general education. Prerequisites: formal admission to the University Honors Program, junior status, and/or permission of the Honors Program coordinator. HONR201 recommended. May be repeated for a maximum of nine credits.

### HONR401
### Honors Thesis
**(1-4,0) 1-4**

A major written work based on independent research or creative effort to be carried out under the supervision of a full-time faculty member. Research in intended to be widely interpreted and may include, but is not limited to, experiments, analysis of existing data, and a summary and integration of already completed but dispersed research. Students will make a formal presentation of their findings to the Honors Council, the thesis supervisor, junior/senior Honors students, and others in the spring of their senior year. Prerequisites: 3.5 GPA, 15 Honors credits, HONR201 and 301. Students must present a fully developed proposal to the Honors Council for approval before enrolling in HONR401 or its equivalent in their major.

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### HUMN203
### Survey of Chinese Culture
**(3,0) 3 summer**

Designed for students interested in Chinese culture and study abroad. Taught in English and offered at a partner university in China during the first summer session. This four-week course introduces the major cultural and artistic aspects of Chinese society. Lecture topics include Chinese history, geography, language, ethos, philosophy, literature, religion, historical relics, education, medicine, architecture, etiquette, and social and economic aspects of Chinese culture. Field trips to museums, art galleries, historic sites, and places of interest are scheduled throughout the trip.

### HUMN240
### Native Art and Culture
**(3,0) 3**

An overview of traditional and contemporary Native arts including visual art, music, literature, storytelling, architecture, theater and dance within their cultural context. Relationships between historical and contemporary forms and expression of Native identity and philosophy through artistic mediums will be examined. Also listed as NATV240.

### HUMN251
### Humanities I
**(4,0) 4 fall, spring,**

The humanities in the life of mankind from prehistoryto the Medieval epoch. Emphasizes significant values evolved in the Hebrew, Greek, Roman and early Christian cultures. Includes consideration of the origins of the arts, language, religion, mythology, philosophy, and ancient Chinese and Indian systems of religious thought. Prerequisite: ENGL110.

### HUMN252
### Humanities II
**(4,0) 4 fall, spring,**

Continuation of HUMN251, the humanities in the age of science, from the early Renaissance to the present. Prerequisite: ENGL110.

### HUMN255
### World Mythology
**(4,0) 4**

A survey of world mythology from "Gilgamesh" to "Finnegan's Wake". Prerequisite: ENGL110.

### HUMN256
### Introduction to Film: Images of Our Culture
**(2,2) 3**

An exploration of film as an image of our culture in both its technical sense and in its role as a contemporary art form which conveys and delimits our aesthetic and social values. Focus on the visual elements of film, historical development of the medium, and its narrative modes through screening of significant films. Prerequisite: ENGL110.

### HUMN261
### World Literature I
**(3,0) 3 on demand**

The Ancient World to the Renaissance. Readings in translation of significant, primarily Western texts. Selection can include the Bible and works by such authors as Homer, Virgil, Thucydides, Tacitus, Boccaccio, Montaigne, Rabelais, and others. Prerequisite: ENGL110.

### HUMN262
### World Literature II
**(3,0) 3 on demand**

The Renaissance to modern times. Readings in translation of significant, primarily Western, texts. Selections can include works by Galileo, Voltaire, Racine, Goethe, Ibsen, Dostoevksy, Brecht, Kafka, Sartre and others. Prerequisite: ENGL110.

### HUMN490
### Directed Studies in Humanities
**(1,0) 1 on demand**

To provide students who need one credit of general humanities with an opportunity to read or explore material related to the content of that term. Papers and tutorial session required. Prerequisites: Seven hours of humanities credit; evidence that students are capable of carrying out independent study; approval of department chair or dean.

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## INTB375

### International Business Law

**(3,0) 3**

The course provides an introduction to the environment of international business and law. It will focus on the foundations and principles of the international legal environment and international legal systems. The course covers the law on international trade. It allows the student to understand government foreign trade policies, the law concerning international business transactions, importing, exporting, transportation and logistics. This course covers a range of legal issues involved in conducting international business, surveying some of the many issues encountered in intellectual property and licensing, and the taxation of international business transactions.

## INTB389

### Competing in the Global Market Place

**(3,0) 3**

This course presents a systematic overview of international business and provides an introduction to important issues, including international trade policy, the global monetary system, and strategies of international business. Additionally, the course will look at management practices of international business, including: organizational structure of multinational organizations, production and logistics, human resource management, and financial management.

## INTB420

### International Comparative Management

**(3,0) 3**

This course in international comparative management will examine important trends impacting international business as well as the major and developing players in the international economy. The course will examine the stage on which international management is conducted, which includes political, legal and socio-cultural systems as a backdrop. The course will cover how firms develop and execute their international strategies and how they stay ahead of their competitions, once they do. An important aspect for the success of international companies is HR (Human Resources). The course will explore how firms can build an outstanding international workforce through selecting and motivating employees as well as dealing with a host of related human resource management issues, such as compensation, performance appraisal, training and development and labor relations from an international perspective. Prerequisites: MGMT360 or special permission of instructor.

## INTB486

### International Marketing

**(3,0) 3**

The International Marketing course examines the scope, challenge and dynamic environment of international marketing. This course will provide an understanding of the cultural environment of global markets, global opportunities and the development and implementation of global marketing strategies. Challenging decisions must be made in international marketing objectives-strategies-policies, regional & country market selection, products that fit regions-countries, multiple distribution channels, communications to fit each global region, management models & organizations per region-country, knowledge-information-data management, exploration of cultural issues, competition, economies, and

customers. Prerequisites: MRKT281 or permission of instructor.

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### INTD301
### TRECS Planning Semester
**(1,0) 1**

This course will function as a planning and organizational course for students who intend to be involved in the travel semester course which will be offered the following fall semester. Prerequisites: The student must be at least a second semester sophomore and be planning to enroll in the fall travel semester (TRECS).

### INTD310
### Foreign Study
**1-16 graded**

Individual extension added based on student's program.

### INTD320
### Foreign Study
**3-16 credit/no credit**

Individual extension added based on student's program.

### INTD333
### The Origins of Human Nature
**(4,0) 4**

An integrated, interdisciplinary examination of the origins of human nature from the perspective of contemporary evolutionary theory, ethology and biological anthropology. The course examines the origins of - among other phenomena - sexual behavior, marriage and family life, crime, social stratification, leadership, government, politics, patriotism, nationalism, racism, ethnocentrism, aggression, genocide, war, ideology and morality. Prerequisites: a college biology course or PSYC101, one college course from each of two social science disciplines (anthropology, economics, political science, psychology, sociology), and junior standing.

### INTD380
### TRECS Semester Seminar
**(3,0) 3**

This course will focus upon the educational opportunities which will be available through the specific sites that are visited during the travel semester. These sites include but are no limited to Washington D.C., New York City, St. Louis, MO, San Francisco, CA, various national parks, national monuments, national battlegrounds, national museums, and other regions and cities throughout the United States.

### INTD399
### Internship in (Department)

**(1-4,0) 1-4**

This course is designed to provide students with an opportunity to earn credit while obtaining meaningful discipline-related work experience outside the classroom setting. Students are expected to spend a minimum of 45 hours in an approved work setting for each credit hour earned. The course may be repeated once for a maximum of four credits. Prerequisite: 2.5 GPA in major, junior standing and permission of department head at least one semester in advance of registering for the course.

### INTD410
### Foreign Study
**3-16 3-16**

Individual extension added based on student\'s program. (Graded)

### INTD420
### Foreign Study
**3-16 3-16**

Individual extension added based on student's program. 3-16 credit/no credit

### INTD490
### Senior Directed Study
**(3-4,0) 3-4**

This course is designed to allow liberal studies majors the opportunity to develop and implement a project/paper using the skills and knowledge from their previous course work. Projects/papers should relate to the student's individual areas of study, and represent a synthesis of their previous learning under the supervision of an appropriate faculty member. Prerequisites: senior status and approval of the appropriate chair(s).

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### JAPN105
### Intensive Introductory Japanese Language I
**(10,2) 10**

This course is designed as an intensive introductory study of Japanese. The class meets five hours per week and the laboratory/recitation/practice sessions meet five hours each week. The "New Jordan method" of Japanese language studies for English speakers is used in both class and lab sessions.

### JAPN106
### Intensive Introductory Japanese Language II
**(10,2) 10**

This course is designed as a continuation of JAPN105. It will stress uses of written Japanese and a research project in which communication with Japanese in the community will be vital. The "New Jordan Method" will be the basis of the instruction.

### JAPN201

### Culture and Society of Japan I

**(3,0) 3**

This is a very broad overview course which examines the social and political development of Japan from prehistoric times to 1300 A.D. It combines written text materials with field work. An emphasis will be placed on the social organization of Japan and its relationships with traditional religious values, economic structures, socialization of children and political institutions.

### JAPN202
### Culture and Society in Japan II

**(3,0) 3**

This is an overview of Japanese history which examines the political and social developments of Japan from 1300 A.D. to the present. Special emphasis will be placed on the Shogunate Tradition, the Meiji Restoration and 20th century political, economic and social developments.

### JAPN301
### Japanese Art and Culture I

**(4,0) 4**

This course is a broad overview of the development of the painting, sculpturing, architecture and literary traditions of Japan from earliest times to 1300 A.D. Special emphasis will be placed on the historic collections available in Nara and Kyoto. Biweekly field trips to examine and study local sites will be a regular portion of the instruction.

### JAPN302
### Japanese Art and Culture II: 1300 to Present

**(4,0) 4**

This course is designed as a study of the development of Japanese art, architecture and literature from the Ashikaga Shogunate to the present. Special attention will be given to the influences from Western civilization and its impact on Japanese culture.

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### JOUR211
### Newswriting

**(3,0) 3**

Gathering, processing and writing news and opinions on current matters using professional standards and formats in print and broadcast news and public relations. Prerequisite: COMM280.

### JOUR220
### Photojournalism

**(3,0) 3**

Fundamentals of 35mm camera operations with emphasis on creative and professional applications. Weekly assignments and critique. Student required to

have a camera with manual controls (shutter speed and aperture setting). Assignments in color negative film (color prints) processed commercially. No prerequisites.

### JOUR310
### Editing and Production
**(3,0) 3**

Focuses on news editing, headline writing, newspaper design and layout as well as newsroom management. Prerequisite: JOUR211.

### JOUR311
### Supervising School Publications
**(3,0) 3**

Teaches the elements of supervising high school publications including the high school newspaper or yearbook; methods of production; problems of production; the elements of libel; and good taste. Prerequisite: JOUR211.

### JOUR410
### Broadcast Newswriting
**(2,3) 3**

Designed to improve students' broadcast newswriting skills from the fundamental level of those developed in COMM280. Upon completion of this course, the student will be familiar with the process by which broadcast news is reported, written and performed on the air. Prerequisite: COMM280.

### JOUR411
### Broadcast Editing and Production
**(2,3) 3**

Designed to build upon the broadcast reporting, writing and performing skills developed in JOUR410. Students will become familiar with production of newscasts, public affairs documentaries, the role of the producer in modern radio, the function and operation of the console, tape recording and playback units, microphones and sound, splicing and dubbing, achieving effects and news-oriented talk shows. Prerequisite: JOUR410.

### JOUR413
### Directed Individual Studies
**(2,0) 2**

Shine Sundstrom journalism internship at Sault Ste. Marie Evening News: Experience in newsroom and on assignment; writing, rewriting; use of word processor. Prerequisites: Junior status; COMM280 and JOUR211. File application with the chair of the Department of English and Communication by fifth week of previous semester.

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### LAWS102
### Legal Research and Case Analysis

**(3,0) 3**

Introduction to the law library and its use. Students will develop research techniques and skills in using encyclopedias, treatises, digests, case reporters, looseleaf services, annotated reports, legal periodicals, legislation, legislative history, administrative materials, shepardization and citation of legal authorities. Students will also develop skills in analyzing, evaluating and synthesizing court opinions and statutory law.

### LAWS202
### Legal Writing and Analysis
**(3,0) 3**

Introduction to legal writing styles and skills. Through review and preparation of legal documents, students will become acquainted with basic principles, style, organization and structure of certain legal documents which shall include letter writing, preparation of memorandum of law and an appellate brief. Research skills and analysis of court opinions will be further refined. Prerequisites: LAWS102 and 125.

### LAWS490
### Independent Study in Legal Studies
**(1-4) 1-4**

This may take the form of either a research project or a program of directed reading on a specific topic. One to four credits over a period of one or two semesters may be granted according to the nature of the student's project. May be repeated up to a total of eight credits.

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### LIBR101
### Information and Information Technology Literacy
**(1,0) 1**

Introduces students to information tools and their uses, including reference books, indexes, periodicals, microforms, computer products and the Internet. Students will learn to effectively search information tools so they can more efficiently meet their information needs.

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### LING403
### Language Acquisition and Foreign Language Teaching
**(3,0) 3**

Introduction to theories of language and language acquisition as applied to current language teaching methods and classroom practices. This course is a requirement for both the Spanish teaching major and the Spanish teaching minor. The class will be taught in English, but students will use a foreign language of their choice in teaching presentations. Prerequisites: SPAN361 and SPAN362 or FREN351 and FREN352.

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### MATH081
### Pre-Algebra I
**(1,0) 1**

The first in the series of six modules addresses basic operations and problem solving using whole numbers and fractions. Credit in this course does not apply toward graduation. Prerequisite: None.

### MATH082
### Pre-Algebra II
**(1,0) 1**

The second in the series of six modules addresses basic operations and problem solving using decimals, percents, and ratio & proportion. Credit in this course does not apply toward graduation. Prerequisite: MATH081 or placement by examination.

### MATH083
### Pre-Algebra III
**(1,0) 1**

The third in the series of six modules addresses solving problems related to measurement, geometry and statistics. Credit in this course does not apply toward graduation. Prerequisite: MATH082 or placement by examination.

### MATH084
### Introductory Algebra I
**(1,0) 1**

The fourth in the series of six modules addresses the introduction to algebra, real numbers, algebraic expressions and solving of elementary equations. Credit in this course does not apply toward graduation. Prerequisite: MATH083 or placement by examination.

### MATH085
### Introductory Algebra II
**(1,0) 1**

The fifth in the series of six modules addresses manipulation and graphing of equations in two variables as well as solving systems of equations in two variables. Credit in this course does not apply toward graduation. Prerequisite: MATH084 or placement by examination.

### MATH086
### Introductory Algebra III
**(1,0) 1**

The sixth in the series of six modules addresses multiplying, factoring and manipulating polynomial expressions and simplifying radical expressions. Credit in this course does not apply toward graduation. Prerequisite: MATH085 or placement by examination.

### MATH102
### Intermediate Algebra
**(4,0) 4**

Algebra for students who have not had second-level high school algebra or who need a refresher course in that level of algebra. Real numbers and operations, solving and graphing first degree equations and inequalities, solving systems of equations and quadratic equations, algebra of polynomials, radical and rational expressions and equations, exponential and logarithmic functions. Prerequisites: One year of high school algebra and MATH086 or equivalent/satisfactory score on ACT or Placement Exam. This course will not count toward a major or minor in mathematics.

### MATH103
### Number Systems and Problem Solving for Elementary Teachers
**(3,2) 4**

General notions of problem solving and number theory for elementary teachers including sets; funcitons; numeration systems and properties and operations of whole numbers, integers, fractions and decimals; and proportional reasoning. Prerequisite: Equivalent/satisfactory score on ACT, or Placement Exam, or MATH102 with a grade of C (2.00) or better.

### MATH104
### Geometry and Measurement for Elementary Teachers
**(3,2) 4**

Basic notions of geometry for elementary teachers including constructions, congruence and similarity, motion geometry, symmetry and tessellations. Concepts of measurement, coordinate geometry, probability and data analysis. Prerequisite: Equivalent/satisfactory score on ACT, or Placement Exam, or MATH102 with a grade of C (2.00) or better.

### MATH108
### Trigonometry and Vectors for Physics
**(1,0) 1**

Trigonometric functions, basic identities, inverse trigonometric functions and vectors. Prerequisite: equivalent/satisfactory score on ACT or Placement Exam or MATH102 with a grade of C or better.

### MATH110
### Explorations in Mathematics
**(3,0) 3**

A discovery course in mathematics which explores the varied relationships of mathematics to society and the natural world through application and enrichment. A statistics component is included, and a term project is required. This course satisfies the general education mathematics requirement. It will not count toward a major or minor in mathematics. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

### MATH111
### College Algebra
**(3,0) 3**

This course is a study of families of functions through formulas, tables, graphs and words, emphasizing applications in business, life and social science. The function families include linear, polynomial, rational, exponential, logarithmic and power functions. Within these families, topics include problem solving, model creation, solving equations, systems of equations and inequalities, rates of change, graphing, analysis, and interpretation. Prerequisites: Two years of high school algebra and satisfactory achievement on the mathematics placement exam or MATH102 with a grade of C or better. High school plane geometry also recommended. This course will not count toward a major or minor in mathematics.

### MATH112
### Calculus for Business and Life Sciences
**(4,0) 4**

Limits, differentiation, applications of the derivative, integration, application of the definite integral, techniques of integration. Calculus of exponential and logarithmic functions, elementary differential equations, functions of several variables. Prerequisite: MATH111 with a grade of C or better. This course will not count toward a major or minor in mathematics.

### MATH131
### College Trigonometry
**(3,0) 3**

Basic theory of trigonometric functions and inverse trigonometric functions. Applications include trigonometric equations, plane trigonometry, vectors and complex numbers. Introduction to conic sections. Study of exponential functions and their connection to trigonometry functions, logarithmic functions and applications. Prerequisites: (1) Two years of high school algebra and equivalent/satisfactory score on ACT, COMPASS test or Placement Exam, or MATH102 with a grade of C or better. (2) One half-year of high school trigonometry with a grade of C or better is strongly recommended.

### MATH151
### Calculus I
**(4,0) 4**

Limits, continuity and inverse functions. Logarithmic and exponential functions. Differentiation and applications of the derivative. L'Hopital's rule. Inverse trigonometric functions. Integration and the definite integral. Prerequisites: high school mathematics that includes two years of algebra, one year of plane geometry and one-half year of trigonometry and equivalent/satisfactory score on ACT or Placement Exam, or MATH140 with a grade of C or better, or both MATH111 and 131 with a grade of C or better.

### MATH152
### Calculus II
**(4,0) 4**

Applications of the definite integral. Techniques of integration and improper integrals. Infinite series. Conic sections, polar coordinates and parametric equations. Prerequisite: MATH151 with a grade of C or better.

### MATH207
### Principles of Statistical Methods

**(3,0) 3**

Descriptive statistics, probability distributions (including normal, binomial and chi-square), techniques of statistical inference including tests of hypotheses and selected nonparametric tests. (This course is a survey of elementary statistical concepts.) Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam. This course will not count toward a major in mathematics.

### MATH215
### Fundamental Concepts of Mathematics
**(3,0) 3**

Elements of set theory, set algebra, cardinality, logic, mathematical induction, methods of proof, functions, relations, equivalence relations. Prerequisite: MATH151 or 112 with a grade of C or better.

### MATH216
### Discrete Mathematics and Problem Solving
**(3,0) 3**

Selected topics from discrete mathematics including fundamental counting principles, recurrence relations and an introduction to graph theory. A strong emphasis is placed on fundamental problem-solving techniques. Prerequisite: MATH215 with a grade of C or better.

### MATH251
### Calculus III
**(4,0) 4**

Three-dimensional space, vectors, vector-valued functions, partial differentiation, multiple integration, topics in vector calculus. Prerequisite: MATH152 with a grade of C or better.

### MATH261
### Introduction to Numerical Methods
**(3,0) 3 alternate years**

Floating point representation of numbers and floating point arithmetic. Survey of numerical methods for solving a wide variety of common mathematical problems, including solution of a single non-linear equation, solution of a system of linear equations, matrix inversion, numerical integration, function approximation, interpolation. Emphasis will be on the actual computer implementation of common algorithms for solving these problems. Prerequisites: CSCI105 or 121 with a grade of C or better and MATH152 with a grade of C or better.

### MATH290
### Independent Study in Mathematics
**(1-4,0) 1-4**

Special studies and/or research in mathematics for individuals or small seminar groups. Course content to be arranged with instructor and with approval of the department head. This course may be repeated for a maximum of eight credits. Prerequisites: Sophomore standing or higher and permission of instructor.

### MATH305

### Linear Algebra

**(3,0) 3 alternate years**

An introduction to matrix algebra, vector spaces and linear transformation, including applications to the natural and social sciences. Prerequisites: MATH112 or 151 with a grade of C or better.

### MATH308
### Probability and Mathematical Statistics

**(3,0) 3**

An introductory course in probability and mathematical statistics. Probability, probability distributions, mathematical expectation, moment generating functions and the Central Limit Theorem. Prerequisite: MATH152 with a grade of C or better.

### MATH309
### Applied Statistics

**(4,0) 4 alternate years**

A continuation of MATH308 including estimation of parameters, testing hypotheses, nonparametric methods, analysis of variance, multiple regression and an introduction to statistical software packages. Prerequisite: MATH308 with a grade of C or better.

### MATH310
### Differential Equations

**(3,0) 3**

Differential equations of first order, linear differential equations of second and higher orders, including LaPlace transformation. Introduction to power series methods, applications. Prerequisite: MATH152 with a grade of C or better.

### MATH321
### History of Mathematics

**(3,0) 3**

Selected topics in the development of mathematics from the time of the ancient Babylonians and Egyptians to the 20th century. Prerequisites: MATH112 or 151 with a grade of C or better, and MATH215 with a grade of C or better.

### MATH325
### College Geometry

**(2,2) 3 alternate years**

Selected topics in geometry, including some or all of the following: Modern elementary geometry, transformations, Euclidean constructions, dissection theory, projective geometry, introduction to non-Euclidean geometry, and problems in foundations of geometry. Prerequisites: MATH152 and 215 with a grade of C or better.

### MATH341
### Abstract Algebra I

**(3,0) 3 alternate years**

An introduction to congruencies, groups, subgroups, quotient groups, fundamental homomorphism theorems, Sylow theorems. Prerequisite: MATH215 with a grade of C or better.

### MATH342
### Abstract Algebra II
**(3,0) 3 on demand**

A continuation of MATH341 including rings, integral domains, ideals, quotient rings, the natural homomorphism, fields and polynomial rings. Prerequisite: MATH341.

### MATH351
### Graph Theory
**(3,0) 3 alternate years**

Selected topics in graph theory, including connectivity, matchings, edge and vertex colorings, networks and tournaments. Prerequisite: MATH216 with a grade of C or better.

### MATH401
### Mathematical Modeling
**(3,0) 3 alternate years**

Selected applications of mathematics in such areas as biology, economics, social science and engineering are discussed. The construction of a mathematical model used to study a real situation will be stressed, as well as interpretation of mathematical results in that context. Prerequisites: junior/senior standing, a course in computer programming, and mathematical maturity at the level of MATH305, 308 or 310 with a minimum grade of C.

### MATH411
### Advanced Topics in Calculus
**(3,0) 3 alternate years**

An extension of the calculus in one, two, and three dimensions leading to the formulation and solution (in simple cases) of the partial differential equations of mathematical physics. Differential and integral calculus of vectors, divergence, curl, line, surface and volume integrals, Green\'s divergence and Stokes\' theorems, heat and wave equations, Fourier series, orthogonal sets, boundary value problems, separation of variables. Prerequisite: MATH251 and 310 with a grade of C or better.

### MATH413
### Introduction to Complex Analysis
**(3,0) 3 on demand**

The calculus of functions of a complex variable, algebra and geometry of complex numbers, elementary functions, limits, derivatives, Cauchy-Rieman equations, integrals, Cauchy integral theorem, series, singularities, residue theorem. Prerequisite: MATH251.

### MATH421
### Real Analysis I
**(3,0) 3 on demand**

An examination of some of the foundations of the calculus, including basic topology of the real line, limits, continuity, metric spaces, function spaces, some uniformity concepts. Prerequisites: MATH215 and 251 with a minimum grade of C.

### MATH422
### Real Analysis II
**(3,0) 3 on demand**

Continuation of MATH421 with emphasis on measure and integration. Prerequisite: MATH421.

### MATH490
### Individualized Research Topics in Mathematics
**(1-4,0) 1-4**

Special studies and/or research in mathematics for individuals or small seminar groups. Course content to be arranged with instructor and with approval of the department head. This course may be repeated for a maximum of nine credits. Prerequisite: Junior standing or higher and Permission of Instructor.

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### MGMT280
### Introduction to Management Information Systems
**(3,0) 3**

This course will introduce students to MIS theories including (1) Information Systems in Business and Society (information management in global society; security, privacy and ethical issues); (2) Information Technology Concepts (hardware technology, software technology, database management systems, network and internet technology); (3) Business Information Systems (automation and support systems, transaction processing systems, management information systems, decision support and expert systems, enterprise systems such as ERP); (4) Systems Development (systems investigation and analysis, systems planning development and implementation). Students will gain hands-on computer skills in advanced spreadsheet, database, and web technologies. Prerequisites: BUSN121 and ACTG132 with a grade of C or higher, and computer competency.

### MGMT360
### Management Concepts and Applications
**(3,0) 3**

Principles and techniques applicable to the functions of management: Planning, organizing, directing (staffing and leading) and controlling; development of management thought and decision-making; current issues and future concerns in management. Foundation course for study and understanding of management theory and practice. Prerequisite: Junior standing.

### MGMT365
### Human Resource Management
**(3,0) 3**

An examination of current practices and recommended techniques by which management procures, develops, utilizes and maintains an effective work force.

The major areas studied are: recruitment and selection, equal employment opportunity and affirmative action programs, training and development, career planning and performance appraisal, compensation and benefits, safety and health issues, employee and labor relations, including grievance handling, contract negotiation and remaining union-free as an organization. Prerequisite: Junior standing.

### MGMT371
### Operations and Business Analytics
**(3,0) 3**

This course introduces students to (1) Operations Management (operations strategy, operations design, operations planning & control, operations execution), (2) Supply Chain Management, and (3) Quantitative Business Analysis (linear programming, project scheduling including PERT and CPM, inventory modeling, statistical process control, queuing theory, simulation, decision analysis, time-series forecasting, advanced statistical analysis). Prerequisite: BUSN211 or equivalent.

### MGMT375
### Introduction to Supply Chain Management
**(3,0) 3**

This course provides an overview of the supply chain function for an organization. The supply chain for any company is described as the continuous sequence of events and operations that add value to the firm. Topics will include purchasing and procurement, inbound and outbound logistics and transportation, operations and manufacturing planning and control, forecasting, quality control, enterprise resource planning and overall information system design for the firm. Prerequisite: BUSN211 or statistics equivalent.

### MGMT380
### Principles of Leadership
**(3,0) 3**

This course provides the student with an understanding of the principles and behaviors situationally appropriate to inspire and influence others. Whether people work individually, in small teams, task forces, or other units at all organizational levels; effective leadership sustains profitability, productivity, and excellent service. Studying research findings, leadership practices, and skills helps the student understand how this knowledge can be applied to effectively lead others. Prerequisite: MGMT360.

### MGMT451
### Labor Law
**(4,0) 4**

An analysis of labor laws pertaining to union-management relations; emphasis on the private sector as well as on laws relating to health care institutions; legal aspects of relationships between unions and their members; federal wage and hour laws, including administration of the statutes and their relationship; applicable remedies for violations of federal labor laws. Prerequisite: Junior standing.

### MGMT461
### Management Simulation

**(1,4) 3**

Realistic simulations of business operations with an opportunity to practice the functions of management by means of computerized models and cases. Prerequisite: Pre- or corequisite: FINC341.

### MGMT464
### Organizational Behavior
**(3,0) 3**

An analysis of problems and cases relating to management and organizational behavior typically requiring decisions by an administrator. Topics include leadership, motivation, communication, negotiation, problem solving, decision making, conflict resolution, group dynamics, stress management, job design and organization structure. Prerequisite: MGMT360.

### MGMT469
### Collective Bargaining
**(3,0) 3**

An analysis of the process of collective bargaining, the major subjects of negotiation, including arbitration of grievances; process of dispute settlements; and influence of larger environment. The discussion includes theories of bargaining, strategies and weapons available to both parties. Also examines collective employee-employer relationships in the public sector and tactics of public employee groups and agencies. Prerequisite: Junior standing.

### MGMT471
### Production/Operations Management
**(3,0) 3**

An introduction to the design and analysis of operational systems in manufacturing and service industries. Topics include manufacturing strategy, planning and control, forecasting, just in time systems, inventory models, product/process design, scheduling and simulation. Some mathematical models will be used. Emphasis will be on the role of operations within an organization and the formulation and solution of operational problems. Prerequisites: BUSN211 and MGMT360 or equivalents.

### MGMT476
### Employee Training and Development
**(4,0) 4**

This course provides the student with an understanding of how to prepare and deliver effective employee training. The course is in five parts: training and development needs analysis, program design, development, delivery, and evaluation. The principles and concepts learned are applied by preparing, delivering, and evaluating a three-hour training program. Prerequisite: Senior standing.

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### MRKT281
### Marketing Principles and Strategy

**(3,0) 3**

A study of the marketing principles, variables, institutions, target markets, marketing mix and the development of marketing strategy. Prerequisite: ENGL110

### MRKT283
### Principles of Selling
**(3,0) 3**

The study of personal selling and its requirements. Topics included are buyer behavior, sales presentations from prospecting to closing the sale, and overcoming objections. Sales interviews by students are an integral part of the course.

### MRKT379
### Sports and Events Marketing
**(3,0) 3**

A study of the theories, concepts, impacts, and contemporary issues unique to sports and events marketing, including the marketing athletes, teams, leagues, celebrities, entertainment, and special events. Prerequisite: MRKT281 or special permission of instructor.

### MRKT381
### Consumer Behavior
**(3,0) 3**

A study of behavioral concepts related to consumer behavior. Attention is directed toward understanding consumer needs, perceptions, attitudes, intentions and behavior within a strategic and managerial framework. Topics include the differences of complex decision making and habit and between high and low involvement decision making. Emphasis is on predicting and understanding purchase behavior for best firm/consumer needs\' match. Prerequisite: MRKT281.

### MRKT383
### E-Marketing
**(3,0) 3**

A study of the impact the Internet and other digital technologies have on the marketing of goods, services and ideas. The course will examine current e-marketing environment, strategy and management issues including consumer behavior, segmentation and targeting, differentiation and positioning, product, price, distribution, communication and customer relationship management. Ethical and legal issues will also be addressed. Prerequisite: MRKT281.

### MRKT385
### Services Marketing
**(3,0) 3**

A study of the principles and practices unique to service providers. The focus of this course is to examine how the marketing of services differs from traditional marketing principles/concepts applied to goods and the alternative strategies for service providers to improve service marketing effectiveness and customer

interactions. Prerequisite: MRKT281.

### MRKT387
### Advertising Theory and Practice
**(3,0) 3**

A study of the principles and practices in various advertising media such as newspaper, radio, television, outdoor and direct mail; consideration of creative methods, consumer behavior, measurement of effectiveness and coordination with other aspects of the promotional program. Prerequisite: MRKT281.

### MRKT388
### Retail Management
**(3,0) 3**

A study of the field of retailing. A survey of retail institutions; store location and organization; buying and merchandising techniques; retail advertising, sales promotion and image; human resource policies; and store protection. Prerequisite: MRKT281.

### MRKT389
### Entrepreneurship
**(3,0) 3**

A study of individual small firms: start-up, on-going management, challenges, and requirements for success. Students will apply both strategic planning and the knowledge acquired from other business courses to (a) demonstrate understanding and competence in using S.A.P. in small business decision-making and operations, (b) develop a viable business plan for a new small business, and (c) utilize problem-solving for other local small businesses, where required, in an advisory capacity. Prerequisites: ACTG132 or 230, BUSN121 and MRKT281.

### MRKT480
### Marketing Research
**(3,0) 3**

Application of research methods to the field of marketing. Methods of gathering and presenting data, market analysis, consumer surveys and sales forecasting. Students will participate in a research project. Prerequisites: BUSN211, MRKT281 and 381.

### MRKT481
### Marketing Management
**(3,0) 3**

A study of the essential tasks of marketing managers: (1) identifying marketing opportunities, (2) developing marketing plans, and (3) implementing these plans by introducing marketing strategies. Prerequisites: MRKT281, 381, 480, and senior status.

### MRKT483
### Sales Force Management
**(3,0) 3**

Principles and policies of sales organization; career opportunities; recruiting,

selecting and training sales people; motivation, supervision and evaluation of sales performance; compensation plans, quotes and expense accounts. Prerequisites: MRKT281 and 283.

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### MUSC110
### Orchestra
**(0,3) 1**

Perform regular series of concerts as a member of the Sault Symphony Orchestra.

### MUSC111
### Orchestra
**(0,3) 1**

Perform regular series of concerts as a member of the Sault Symphony Orchestra.

### MUSC112
### Band
**(0,3) 1**

Open to all University students. The concert band performs representative band and wind ensemble literature and provides a challenging musical experience.

### MUSC113
### Band
**(0,3) 1**

Open to all University students. The concert band performs representative band and wind ensemble literature and provides a challenging musical experience.

### MUSC120
### Introduction to Music I
**(3,0) 3**

An introduction to the basic vocabulary of music and to basic musicianship skills. Topics include notation, meter, rhythm, intervals, scales, chords, etc. No prerequisite.

### MUSC121
### Introduction to Music II
**(3,0) 3**

The course expands upon the musical vocabulary and skills developed in MUSC120. Topics include C-clefs, seventh chord, non-harmonic tones, cadences, etc. Prerequisite: MUSC120.

### MUSC140
### Choir
**(0,3) 1**

Rehearsal and performance of representative literature for mixed choir in both classical and contemporary styles of choral music. May be repeated for a total of eight credits.

### MUSC160
### Jazz Ensemble
**(0,3) 1**

Regular rehearsals and performances during school year.

### MUSC161
### Jazz Ensemble
**(0,3) 1**

Regular rehearsals and performances during the school year.

### MUSC170
### Class Piano I
**(0,2) 1**

Beginning piano techniques. Music reading ability helpful but not required.

### MUSC171
### Class Piano II
**(0,2) 1**

To improve proficiency and techniques gained in MUSC170. Prerequisite: MUSC170.

### MUSC180
### Class Guitar I
**(0,2) 1**

Introduction to guitar playing including knowledge of musical rudiments, left and right hand techniques and ensemble performance.

### MUSC181
### Class Guitar II
**(0,2) 1**

Course emphasizes increasing technical achievement, musicianship and the development of individual musicality.

### MUSC210
### Applied Music I
**(0,3) 1**

Individual applied music instruction. For skilled musicians with admission at the discretion of the instructor. May be repeated to a maximum of eight credits per instrument or for voice.

### MUSC220
### History and Appreciation of Music I

**(4,0) 4**

A survey of music from the Middle Ages to the early 19th century with emphasis on the music of Bach, Handel, Haydn, Mozart and Beethoven. Counts as humanities credit for general education requirements.

### MUSC221
### History and Appreciation of Music II
**(4,0) 4**

A survey of music of the 19th and 20th centuries. Counts as humanities credit for general education requirements.

### MUSC235
### Music for Elementary Teachers
**(3,0) 3**

This course is designed to provide an understanding of the philosophy, theories and contemporary issues in music education in the kindergarten through sixth grade classrooms. The student will develop a practical knowledge of music skills and instructional techniques when planning a music curriculum for the elementary classroom.

### MUSC250
### Chamber Music I
**(0,2) 1**

For advanced students interested in solo and ensemble performance in a supervised program.

### MUSC251
### Chamber Music II
**(0,2) 1**

For advanced students interested in solo and ensemble performance in a supervised program.

### MUSC260
### History and Appreciation of Jazz
**(4,0) 4**

The course explores the historical and stylistic development of jazz and explains how to listen to this type of music.

### MUSC403
### Senior Recital
**(0,3) 1**

Public recital at conclusion of music major program. Prerequisites: music major and senior standing.

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### NATV141
### Ojibwe I, Anishnaabemowin
**(4,1) 4**

Introduction to the Ojibwe language's vocabulary, phonics and grammar. This course is designed to acquaint the student with the minimum essentials of oral and written Ojibwe. This course serves as the foundation for further study in the Ojibwe language and culture. Students will begin to learn to read Ojibwe text. Students will learn to express themselves orally and gain the necessary knowledge and skill that will prepare the student for Ojibwe conversation.

### NATV142
### Ojibwe II, Anishnaabemowin
**(4,1) 4**

Further study on Ojibwe language vocabulary, phonics, grammar and elementary conversation. This course is designed to further acquaint students with the minimum essentials of oral and written Ojibwe. This course rounds out the foundation for further study in Ojibwe language and culture. Students will continue to learn to read Ojibwe text, express themselves orally; and gain the necessary knowledge, skill and practice which will prepare the student for Ojibwe conversation and elementary writing. Prerequisite: NATV141.

### NATV201
### Second-Year Ojibwe Conversation I, Anishnaabemowin
**(4,1) 4**

Further study in Ojibwe language with particular focus on Ojibwe conversation. This course will equip students with the essentials of oral and written Ojibwe. This course rounds out the foundation for further study in the Ojibwe language and culture. Students will continue to learn to read Ojibwe text, express themselves orally and gain the necessary knowledge, skill and practice which will prepare the student for Ojibwe conversation and elementary writing. Prerequisites: NATV141 and 142.

### NATV202
### Second-Year Ojibwe Conversation II
**(4,0) 4**

This course is designed for those who wish to further their understanding of the Anishinaabe (Ojibwe) language. More attention will be given to the written form, and conversation practice will be more intensive. Students will learn about the customs and culture of the Anishinaabe people as they learn about the language. Prerequisite: NATV201.

### NATV210
### Indigenous Peoples of Central and South America
**(3,0) 3**

Course is an introduction to the native peoples of the South and Central (Meso) Americas based on archaeological and traditional information. The course content will focus on the history of cultural groups prior to the arrival of the Spanish. No prerequisites.

### NATV225

### Native Cultures of North America

**(3,0) 3**

A study of the Native American Indian and Inuit cultures of North America from earliest times to the present, with emphasis on contrasting patterns of cultures. Also listed as SOWK225.

### NATV230
### Survey of Native History of North America

**(4,0) 4**

A study of American Indian history from earliest times to the present, with emphasis placed on the historical development of Indian tribes located in the Great Lakes region. Also listed as HIST230.

### NATV235
### Survey of Native Literature of North America

**(3,0) 3**

Students will examine various types of Native American literatures, including traditional stories, non-fiction, fiction and poetry, from authors of numerous different nations. A variety of themes, including Native American identity and the role of culture in literature, will be covered. Corequisite ENGL111 (also listed an ENGL235).

### NATV240
### Native Art and Culture

**(3,0) 3**

An overview of traditional and contemporary Native arts including visual art, music, literature, storytelling, architecture, theater and dance within their cultural context. Relationships between historical and contemporary forms and expression of Native identity and philosophy through artistic mediums will be examined. Also listed as HUMN240.

### NATV301
### Anishinabe Oral and Recorded Literature I

**(3,0) 3**

Investigation of problems of reading and writing associated with Anishnaabemowin. Regional differences will be explored, compared and analyzed. Several dictionaries will be used as illustration of some of the problems associated with writing. Students will review recorded literature, write short stories/legends, record oral literature using a writing system assigned by the instructor. Oration in Anishnaabemowin required. Prerequisite: NATV202 with a grade of C or better.

### NATV302
### Anishinabe Oral and Recorded Literature II

**(3,0) 3**

Advanced investigation of problems of reading and writing associated with Anishnaabemowin. Regional differences will be explored, compared and analyzed in depth. Several dictionaries will be used as illustration of some of the problems associated with writing. Students will review recorded literature, write short

stories/legends, record oral literature using a writing system assigned by the instructor. Translation, interpretation and oration in Anishnaabemowin required. Prerequisite: NATV301 with a grade of C or better.

### NATV305
### Tribal Law and Government
**(3,0) 3**

A study of tribal law which will explore such areas as the structure of tribal government; tribal sovereignty; treaties; civil and criminal court jurisdiction in Indian country; tribal resources; tribal economic development; taxation and regulation; rights of individual Indians; and various federal laws and court cases concerning and affecting tribes and their members. Prerequisites: NATV230 and HIST230. Also listed as LAWS305/SOWK305.

### NATV310
### Seminar in Native Studies of the Americas
**(3,0) 3**

A seminar dealing with selected topics in Native American studies. The content of this course may vary each time the course is offered. Prerequisites: NATV225, 230, 235, 305 and SOCY226.

### NATV320
### Contemporary Native Issues of North America
**(3,0) 3**

A study of current Native American issues, problems and concerns. Prerequisites: NATV225, 230, 235, 305 and SOCY226.

### NATV401
### Seminar in Advanced Language Studies I
**(3,0) 3**

Advanced study in grammar of Anishnaabemowin language. Oral histories, humorous stories, general stories, legends and narrative stories will be used to demonstrate the complexities of the language. As verbs make up 80 percent of the language, the verb structure will be further analyzed. Learners will compare and contrast selected linguistic articles for their accuracy and inaccuracy in representing how the language works. Written and oral assignments of various degrees of difficulty will enhance the students' command of the language. Prerequisite: NATV302 with a grade of C or better.

### NATV402
### Seminar in Advanced Language Studies II
**(3,0) 3**

Advanced study in grammar and conversation of Anishnaabemowin language. Oral histories, humorous stories, general stories, legends and narrative stories will be used to demonstrate the complexities of the language. As verbs make up 80 percent of the language, the verb structure will be further analyzed. Learners will compare and contrast selected linguistic articles for their accuracy and inaccuracy in representing how the language works. Written and oral assignments of various degrees of difficulty will enhance the students' command of the language. Practical application of language outside the campus classroom. Prerequisite: NATV401 with a grade of C or better.

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### NSCI101
### Conceptual Physics
**(3,2) 4**

A survey of basic physical science principles emphasizing their applications in daily life. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

### NSCI102
### Introduction to Geology
**(3,2) 4**

A survey course to acquaint students with the major concepts and phenomena inherent in a study of geology. It will also provide sufficient background for a better understanding of human relationships to the physical environment. Credit can be earned for only one of NSCI102, GEOL115 and 121. Prerequisite: None.

### NSCI103
### Environmental Science
**(3,0) 3**

An introduction to environmental concepts and a brief survey of environmental issues facing society. Emphasis is placed on solutions and the responsibility of the individual towards these solutions.

### NSCI104
### Environmental Science Laboratory
**(0,2) 1**

Laboratory component of environmental science. Corequisite: NSCI103.

### NSCI105
### Physical Geography: Earth, Sun and Weather
**(3,1) 3**

Study of the physical properties of the earth's surface as they relate to weather and climate. Credit for both GEOG108 and NSCI105 not permitted.

### NSCI107
### Physical Geography: Landforms and Soils
**(3,1) 3**

Study of the physical properties of the earth's surface as they relate to landforms and soils. Credit for both GEOG106 and NSCI107 not permitted.

### NSCI110
### Investigations in Chemistry and Forensics
**(3,2) 4**

An applied introductory chemistry course introduces the world of forensics

focusing on the aspects of chemistry used during an investigation. This unique general education class will incorporate a criminal justice and fire science perspective while providing an introduction to chemical principles. Attention will be given to developing critical thinking skills, understanding the scientific process and to making scientifically informed decisions about every day events. Pre- or co-requisite of MATH102 (or higher) or equivalent/satisfactory score on ACT, SAT or Placement Exam.

### NSCI116
### Introduction to Oceanography
**(3,2) 4**

A survey of the features, processes and evolution of Earth's ocean basins. The course will examine geological, physical, chemical and ecological aspects of oceanography with an emphasis on their interrelationships and their impact on humanity.

### NSCI119
### Descriptive Astronomy
**(3,2) 4**

Introductory course with a balanced, comprehensive account of contemporary astronomy with emphasis placed on the broad principles of astronomy rather than on a chronological or historical framework. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

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### NURS211
### Introduction to Professional Nursing
**(3,0) 3**

This course introduces the student to a theoretical foundation for professional nursing practice. It focuses on nursing's historical origin, and its development throughout the years to present. Concepts discussed include nursing and related theories, the nursing process, legal/ethical issues and other topics relevant to the practice of professional nursing. Prerequisite: permission of dean or instructor only.

### NURS212
### Health Appraisal
**(2,6) 4**

This course serves as an introduction to the nursing assessment and analysis component of the nursing process as a method of determining a well individual's health potential and status across the lifespan. Emphasis is on obtaining and documenting a health history, performing a nursing assessment and beginning to formulate a nursing diagnosis. Prerequisite: permission of dean or instructor only.

### NURS213
### Fundamentals of Nursing
**(3,9) 6**

This course provides a theoretical and clinical foundation upon which science is

applied to clients experiencing common health stressors. Emphasis is placed upon collecting relevant data, formulating nursing diagnosis based on the data, implementation of both appropriate nursing interventions and related psychomotor nursing skills. Responsibilities as a health team member who displays caring behaviors and as a self-directed learner are also considered. Prerequisites: NURS211, 212, and HLTH208. Pre- or corequisites: HLTH232, 209 and BIOL223.

### NURS222
### Transition Course: Nursing Concepts
**(3,0) 3**

This course assists articulating students from Sault College's two-year Practical Nursing diploma program (or equivalent) who are enrolling in the pre-licensure BSN program to assimilate/integrate philosophical concepts, knowledge, skills, issues and values inherent within professional nursing and the nursing program at Lake Superior State University.

### NURS290
### Directed Study in Nursing
**(1-2,0) 1-2**

Special study of nursing topic tailored to student interest and need. Prerequisite: minimal sophomore status. May be repeated for maximum of four credits.

### NURS325
### Nursing of Childbearing Families
**(3,6) 5**

Theoretical and clinical foundation for application of the nursing process in caring for childbearing families. Focus on: norms and complications of the childbirth experience with application of strategies to promote health and prevent complications related to pregnancy and childbirth. Prerequisites: HLTH352 and NURS327. Corequisite: NURS326. Pre-or Corequisite: NURS/HLTH328.

### NURS326
### Nursing of Children and Families
**(3,6) 5**

Theoretical and clinical foundation for application of nursing process in caring for children and their families. Emphasis: health promotion, maintenance and restoration with application of principles and concepts related to growth and development, family theory, environmental influences on health and the nursing process. Prerequisites: HLTH352, NURS327; Corequisite: NURS325. Pre- or Corequisite: NURS/HLTH328.

### NURS327
### Adult Nursing I
**(4,12) 8**

Combined class and clinical experiences that apply the concepts of nursing and related theories to the care of the adult client with common health alterations in each of the basic human need areas. Nursing clinical experiences are in primary, secondary and tertiary care settings for adult clients. Prerequisites of NURS213 (or 222), HLTH209, BIOL223. Corequisite of HLTH/NURS352.

### NURS328
### Multicultural Approaches to Health Care
**(3,0) 3**

This course explores values, beliefs and practices related to health behaviors in a variety of culturally diverse groups. Methods for fostering culturally sensitive care are explored. Content includes communication, biological and nutritional considerations, assessment techniques and alternative/complementary health practices. Prerequisite: SOCY101. Also listed as HLTH328.

### NURS352
### Health Issues of Aging Populations
**(3,0) 3**

This course is designed to assist students from a variety of disciplines to gain a greater understanding of health-related issues that are associated with advancing age. In addition to exploring physiological and psychological changes experienced by our elderly clients, students will learn how they can adapt their work strategies to work more effectively for the elderly clients that they serve. Prerequisites: PSYC155 and junior level status. Also listed as HLTH352.

### NURS360
### Professional Nursing Concepts
**(4,0) 4**

This four-credit course is the transitional course into professional nursing for the practicing registered nurse. Course emphasis: concepts of professional nursing, nursing and other related theories, health promotion, using research in nursing practice, impact of technology on profession, and economics related to nursing care. Includes: the history of nursing, ethics, culture, and critical thinking are interwoven in the exploration of concepts. Prerequisite: Permission of dean or instructor only. For Post Licensure majors (RN-BSN) only.

### NURS363
### Comprehensive Health Appraisal
**(2,3) 3**

Application of theories from nursing and related fields to appraise health of the individual throughout the lifespan. Emphasis is on comprehensive history taking, physical assessment skills and assessment of findings. For Post Licensure majors (RN-BSN) only. Pre- or corequisite: NURS360.

### NURS365
### Family Nursing Theory
**(3,0) 3**

Theoretical concepts of family development, structure and dynamics are presented. Factors influencing family health care are examined. Strategies are developed to enhance healthy family functioning. For Post Licensure majors (RN-BSN) only. Pre- or corequisites: SOCY101 and NURS360.

### NURS431
### Adult Nursing II
**(4,12) 8**

This is a theory and clinical laboratory course focusing on application of the nursing process in care of the adult client with multiple health stressors. Basic human needs theory and concepts of stress/adaptation, health promotion, health maintenance, health restoration and teaching-learning are applied. The student collaborates with the health team and applies theory and principles of leadership and management in providing care in secondary and tertiary care settings. Prerequisites: HLTH328, 352, and NURS325, 327 and 326. Corequisite: NURS435.

### NURS432
### Nursing of Populations
**(3,6) 5**

This is a theory and clinical course applying the nursing process to populations. Content includes application of public health nursing principles, levels of prevention, epidemiology and health education. Expands the role of the nurse as a teacher, collaborator and advocate. Examines the effect of health care delivery trends and issues on the health of populations. For Pre Licensure BSN majors, prerequisites: HLTH328, 352, and NURS325, 327 & 326. For Post Licensure majors, prerequisites are: NURS363 and 365.

### NURS433
### Community Mental Health Nursing
**(3,6) 5**

Theoretical and clinical foundation in mental health nursing. Emphasis is on the use of the therapeutic relationship and communication skills to help clients cope with stressors of life experiences. Nursing, human needs theory and stress adaptation theory are used to help the client achieve optimum level of mental health. Clinical experiences are provided in both the community and in the acute care settings. Prerequisites: HLTH328, 352 and NURS325, 326, 327.

### NURS434
### Nursing Research
**(3,0) 3**

This course develops appraisal skills of nursing and related research. It will enable students to think critically and ethically about providing the best possible care to clients based on evidence. Assignments and class discussion emphasize application of current research to a variety of dimensions including human beings, health, nursing and environment. Prerequisites: HLTH328, 352, and NURS325, 327 and 326, MATH207 or PSYC210.

### NURS435
### Management in Nursing
**(4,0) 4**

Analysis of the leadership and management roles in professional nursing; focus is leadership/management theories basic to the planning, organizing, directing and controlling of nursing services in health care settings. Includes concepts of nursing model integration in management, communications, decision making and conflict resolution, resource management, legal and ethical responsibilities, employee relations, health care system design, systems appraisal, and case management. Students will formulate a personal nursing management/leadership philosophy. For Pre Licensure BSN majors, prerequisites are: HLTH328, 352 and NURS325, 327, 326. Co-requisite: NURS431.

### NURS436
### Contemporary Issues in Nursing
**(2,0) 2**

Course analyzes contemporary and future issues involving the professional nurse. The course further explores role socialization from nursing student to BSN-prepared nurse. Course reviews the legal responsibilities and professional regulation of nursing practice. Selected social, ethical, political, economic and legal issues will be examined. For Pre Licensure BSN majors, prerequisites are: HLTH328, 352 and NURS325, 327, 326. For Post Licensure majors (RN-BSN), prerequisite is NURS360.

### NURS437
### Professional Nursing Leadership
**(1,3) 2**

This is a seminar and clinical course where the student is expected to synthesize the roles of professional nursing in a variety of settings. Collaborative and leadership aspects of professional nursing are emphasized by the students planning their experience with the faculty member and preceptor. Integration of ethics, research, change, caring, advocacy, and approaches to ensure quality care in nursing practice are expected. For Post Licensure majors (RN-BSN) only. Prerequisites: NURS432, 434, 435.

### NURS451
### Critical Care Nursing
**(3,0) 3**

Assists student in developing nursing knowledge essential to care of critically ill client/family. Health promotion maintenance and restoration interventions are stressed in care of clients with severe alterations in basic human needs. Prerequisite: NURS431 or graduate nurse.

### NURS490
### Independent Study
**(1-4,0) 1-4**

Individual investigation of topics tailored to student interest and need. Prerequisites: Junior or senior standing and instructor permission.

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### OFFC112
### Keyboard Skillbuilding
**(0,2) 1**

Improvement of keyboarding speed and accuracy (both alphabetic and numeric), using developmental programs and keyboarding drills. May be repeated once.

### OFFC119
### Computerized Accounting Procedures
**(4,0) 4**

Accounting experiences common to small business or professional offices; development of basic principles underlying accounting procedures; techniques and records used in analyzing, classifying, recording and summarizing transactions; accounting procedures applied to a computer simulation for small businesses. May not be taken for credit following successful completion of ACTG132.

### OFFC235
### Automated Office Systems
**(3,0) 3**

Lectures and discussions about effects of new technology on the workplace and the role students are expected to play in the office. Such topics as technology, communications, human relations and customer service techniques will be covered. A practice simulation in either medical office or legal office will also be covered. Prerequisites: Word processing and a grade of C or higher in ENGL111.

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### PHIL204
### Introduction to Philosophy
**(3,0) 3**

A study of selected philosophical problems and of methods and ways to answer them. Prerequisite: ENGL111.

### PHIL205
### Logic
**(3,0) 3**

An introductory course in logic; study of the role of logical methods of the rational approach to knowledge; consideration of such concepts as definition, implication, inference, syllogism, deduction. Prerequisite: ENGL111.

### PHIL210
### Existentialism
**(3,0) 3**

Survey of existentialist literature from a variety of authors, periods and genres: Dostoevsky, Kierkegaard, Nietzsche, Heidegger, Jaspers, Sartre, Camus, de Beavoir, Rilke, and others. Texts include philosophical prose, biblical exegesis, fiction, drama and poetry, containing many of the definitive expressions of such current literary, philosophical and artistic themes as the varieties and sources of alienation, the creation and definition of the self, the nature and rationality of religious faith, moral responses to insoluble dilemmas, and potential individual responses to an absurd and inhuman world. Prerequisite: ENGL111.

### PHIL215
### Ethical Theory and Practice
**(3,0) 3**

Certain actions seem to be demanded by morality and certain actions seem to be prohibited by morality. In addition, there are many actions in which we have difficulty extending praise or blame. The study of Ethical Theory constitutes the

study of philosophers' evaluations of behavior, character, and even the terms of such evaluation (e.g., 'goodness,' 'value,' 'right,' and 'obligation'). This course will examine the ethical theories of philosophers such as Plato, Aristotle, Kant, Bentham, and Mill as well as contemporary applications of ethical theories. Topics such as terrorism, ethics in the professions, the environment, and religiously motivated behavior art timely and appropriate topics for evaluating the connections between moral reasoning and our modes of living. Prerequisite: ENGL111.

### PHIL220
### Biomedical Ethics
**(3,0) 3**

Survey of contemporary issues in medical and research ethics. Topics could include abortion, euthanasia, genetic testing, reproductive technologies, doctor-patient relationships, conflicting imperatives on confidentiality and disclosure, social consequences or drug development and widespread use, concepts of health and disease, gender and medical practice, the distribution of medical resources, and the medicalization of various forms of social deviance. Prerequisite: ENGL111.

### PHIL250
### Philosophy of Religion
**(3,0) 3**

This course examines the rational foundations for believing in a worshiping a Diety. In particular we will focus our inquiry on the God of Judaism, Christianity, and Islam who is thought to possess the qualities of omniscience, omnipotence, and beneficence. (We will, however, exposit the deities Hinduism and Buddhism to put our study in context.) Can we prove that God exists? What might we owe God? How can we explain the existence of evil even though God is thought to be wholly good? What place does religion have in a pluralistic society? The history of Western Philosophy is in large part unified by the common pursuit of such questions. Not only are the questions themselves fascinating and perplexing, but also, they have been answered in inventive ways by many extraordinary thinkers. The Philosophy of Religion is, therefore, a continuing search that has as much to do with human ingenuity as it does about God. Prerequisite: ENGL111.

### PHIL302
### Ancient Western Philosophy
**(3,0) 3**

A study of the origins and the development of Greek and Roman philosophy from the pre-Socratics to the early Christians. Counts as humanities credit for general education requirement. Prerequisite: ENGL111.

### PHIL305
### Modern and Contemporary Philosophy
**(3,0) 3**

Students will become familiar with the arguments and ideas that have sought to describe and, in many cases, to shape the consciousness of the modern and postmodern epochs. From Descartes to Kant, modern philosophy experimented with new ways to understand existence, identity, causality, and God. From Russell to Williams, contemporary philosophers grappled with new ways to understand logic, ethics, gender, and subjective experience. Students will learn to make connections between their own ways of experiencing the world and the

sometimes subtle ways that philosophers since Descartes have influenced their understanding of their experiences. Prerequisite: ENGL111.

### PHIL490
### Directed Study in Philosophy
**(1-4) 1-4**

A study of philosophically engaging topic, chosen by instructor and student. Essays and tutorial session required. Prerequisites: At least six credits of philosophy courses, evidence that the student is capable of carrying out independent study, and approval of instructor. This course may be repeated for up to six credits, or three times, whichever occurs first.

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### PHYS221
### Principles of Physics I
**(3,2) 4**

General principles of rigid body mechanics (kinematics, forces, laws of motion, energy, momentum, rotation) and fluid mechanics. Prerequisites: Two years of high school algebra and one-half year of high school trigonometry with a math ACT score of 27 or better; or MATH108 and 111; or 140.

### PHYS222
### Principles of Physics II
**(3,2) 4**

Thermodynamics, vibrations and waves, electricity and magnetism, light, optics, relativity and modern physics. Prerequisite: PHYS221 with a grade of C or better.

### PHYS224
### Topics in Physics for Electrical Technology
**(3,2) 4**

Vibrations and waves, optics, relativity and modern physics (identical to PHYS222). Electricity and magnetism topics of particular relevance to electronic engineering technology. Prerequisites: PHYS221 with a grade of C or better, and sophomore standing in EET course work. Pre- or co-requisite MATH140.

### PHYS231
### Applied Physics for Engineers and Scientists I
**(3,2) 4**

An introductory course in rigid body mechanics and fluid mechanics using calculus with emphasis on practical applications. Intended primarily for students of engineering, physical science and mathematics. Prerequisite: MATH151.

### PHYS232
### Applied Physics for Engineers and Scientists II
**(3,2) 4**

Continuation of PHYS231. Introduction to thermal physics, electricity, magnetism,

electromagnetic waves, and optics. Prerequisite: PHYS231 with a grade of C or better.

### PHYS290
### Independent Study in Physics
**(1-4,0) 1-4**

Special studies and/or research in physics for individuals or small seminar groups. Course content to be arranged with instructor and with approval of the school chair. This course may be repeated for a maximum of eight credits. Prerequisites: Sophomore standing or higher and permission of instructor.

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### PNUR101
### Introduction to Practical Nursing I
**(2,0) 2**

This course provides introductory information required for successful college study. Additionally, the course provides the foundational information for the practical nursing program. Concepts include practical nursing philosophy and conceptual framework, history of nursing, nursing's Code of Ethics, and the role of nursing in the health care system with emphasis on the practical nurse. Prerequisite: Permission of dean or instructor only.

### PNUR102
### Drugs and Dosages
**(2,3) 3**

This course introduces the practical nursing student to dosage calculations and medication administration. Calculations for conversion between systems of measurement is covered. The seven rights of medication administration are emphasized. Categories of drugs, their actions, side effects and nursing implications are covered. Prerequisite: MATH086 or equivalent placement score.

### PNUR104
### Introduction to Practical Nursing II
**(2,0) 2**

Introduction to Practical Nursing II provides a theoretical foundation for practicing nursing care of adults within a variety of health care settings. Concepts such as nursing process, therapeutic communication, culture, and critical thinking are emphasized. This course builds on PNUR101. Prerequisites: Permission of dean or instructor only, BIOL105 or BIOL122, PNUR101 all with a grade of C or better.

### PNUR107
### Understanding Clinical Nutrition Lab for Practical Nurses
**(0,3) 1**

This lab course is focused on the knowledge and skill practical nurses need to support the nutritional needs of people across the lifespan with a special emphasis on individuals with limited ability to meet their own nutritional needs. Strategies of providing nutrition associated with self care deficits are covered, including effective oral feeding techniques, use of thickeners or texture to

enhance swallowing, tube feeding, and the principles of enceric feeding, elemental diets, IV therapy and hyper alimentation are presented. Prerequisites: BIOL105 or BIOL122 passed with a C or better; HLTH208 passed with a C or better or corequisite of HLTH208.

### PNUR113
### Fundamentals of Practical Nursing
**(4,9) 7**

Students will learn the basic skills necessary to provide safe, competent care of the acute and chronically ill residents in Long Term Care/Nursing Home settings. Focus will be on the care of the elderly. Through lecture, lab simulations, and actual clinical experiences the student will learn basic nursing skills, infection control, safety/emergency procedures, nursing interventions and apply communication/interpersonal skills to promote resident's independence, to respect residents' rights, and to recognize abnormal changes in the resident. Prerequisites: MATH083 or equivalent, BIOL105 or 122, PNUR101, all with a grade of C or better.

### PNUR201
### Medical Surgical Practical Nursing
**(6,12) 10**

This course focuses on nursing care of the adult client experiencing common stressors affecting health. Emphasis is placed on the administration of medications, collection and communication of relevant data, and implementation of basic nursing interventions. Prerequisites: PNUR113, 104, 102 and PSYC155, all with a grade of C or better. Corequisite: HLTH208.

### PNUR202
### Legal/Ethical Issues in Practical Nursing
**(2,0) 2**

This course focuses on the ethical and legal responsibilities and issues related to the safe practice of practical nursing. The role of the practical nurse and within the health care community is emphasized. Licensure responsibilities, career advancement and lifelong learning needs are incorporated. Prerequisite: PNUR201 with a grade of C or better.

### PNUR203
### OB Practical Nursing
**(3,6) 5**

This course explores the cycles of life, beginning with the reproductive cycle, conception, fetal development, labor, birth, the postpartum woman, and needs and care of the newborn. At risk pregnancies and complications are identified. Emphasis is placed on the family as the client. Prerequisite: PNUR201 with a grade of C or better.

### PNUR204
### Pediatric Practical Nursing
**(3,6) 5**

In this course, the nursing process is used to address well-defined health problems common to children. Normal child growth and development, immunization needs and health risk factors for children are emphasized.

Children's responses to illness and methods of evaluating children's needs are covered. Prerequisite: PNUR201 with a grade of C or better.

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### POLI110
### Introduction to American Government and Politics
**(4,0) 4**

An introductory survey of American national government and politics.

### POLI120
### Introduction to Legal Processes
**(3,0) 3**

An introduction to the nature and characteristics of law as it operates in the United States: structure and function of the judiciary, process of litigation, influences on law, and impact and enforcement of judicial decisions.

### POLI130
### Introduction to State and Local Government
**(4,0) 4**

A study of the politics and organization of state and local governments, with an emphasis on specific policy issues such as education, criminal justice and economic development.

### POLI160
### Introduction to Canadian Government and Politics
**(3,0) 3**

An introductory survey of Canadian government and politics.

### POLI201
### Introduction to Public Administration
**(3,0) 3**

This course provides an overview of the field of public administration. It examines the types of organizations, the relation of administration to politics and public management.

### POLI211
### Political Science Research and Statistics
**(4,0) 4**

An introduction to research methods and statistical applications in political science and public administration. Among other research methods, the course examines survey research, content analysis, experimental design and analysis of existing data. Introduces students to the basics of descriptive and inferential statistics, up through correlation and regression. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

### POLI222

### Introduction to the Legal Profession

**(3,0) 3**

Students will become familiar with how the law functions, how the legal profession has evolved, how to prepare for and apply to law school, how law schools differ from college (including development of various methods and techniques to study the law). In addition, students will become aware of the legal profession and its demands, opportunities, options and trends. Prerequisites: POLI110, sophomore standing and/or permission of instructor. Also listed as LAWS222.

### POLI234

### Women and Politics Around the World

**(4,0) 4**

This course will examine a broad range of issues involving gender and politics: the political participation of women, the history of women\'s movements, voting differences, political divisions among women, and the present political status of women in the United States and globally.

### POLI241

### Introduction to International Relations

**(4,0) 4**

An introductory study of the factors that influence the conduct of international relations and of the various methods by which those relations are conducted. This material will then be applied to an examination of some appropriate current international controversies.

### POLI247

### Model United Nations

**(2,0) 2**

This course includes required participation in the model United Nations program, in which students represent specific countries and become familiar with their background and politics. The goal is an understanding of how the United Nations functions. May be repeated for up to a total of four credits, but no more than two credits may be counted toward a political science major or minor. Prerequisite: Permission of instructor.

### POLI290

### Research Topics in Political Science

**(1-4,0) 1-4**

This may take the form of either a research project or a program of directed reading on a specific topic. One to four credits over a period of one or two semesters may be granted according to the nature of the student's project. Prerequisite: Permission of instructor.

### POLI301

### Policy Analysis and Evaluation

**(4,0) 4**

Examines how public issues and problems are analyzed to assist in the development of public policies. Considers the process of evaluating public

programs to determine whether they are to be expanded, cut back or continued at the current level. Prerequisite: Permission of Instructor.

### POLI325
### Politics and Media
**(3,0) 3**

Examines the impact of electronic and print media on contemporary American politics. Evaluates proposals for changing the method and role of media coverage of government and politics. Prerequisites: POLI110 and junior standing.

### POLI331
### Comparative Politics of Western Europe and Russia
**(4,0) 4**

Institutions and functioning of government in major European states, such as Great Britain, France, Germany and Russia. Prerequisite: POLI110.

### POLI334
### Middle East Politics
**(3,0) 3**

An examination of government and politics in the Middle East, with special emphasis on the influences of Islam and nationalism on both international and domestic politics of the area. Prerequisite: Junior or senior standing.

### POLI335
### European Union Politics
**(4,0) 4**

The primary aim of this course is to provide in-depth knowledge of the institutions and politics of the European Union. The course provides a general overview of the "State of the Union" from an empirical (rather than theoretical) perspective. We shall use articles from the comparative and international politics literature, along with some legal materials to make sense of the institutional and policy issues facing the European Union. It should be emphasized that no knowledge of international legal processes is needed for the course. Prerequisite: POLI110.

### POLI340
### Politics in Multicultural Societies
**(3,0) 3**

An examination of nationalism and other forms of political conflict arising from ethnic, racial, linguistic and religious differences in comparative perspective. Prerequisites: POLI110 or 160 and junior standing.

### POLI342
### International Environmental Policy
**(3,0) 3**

This course is intended to familiarize students with the efforts of the international community to establish policy guidelines designed to begin the regulation of the global environment. The course covers basic concepts to international relations necessary to understand the general workings of the nation-state system. It

then begins an exploration of significant historical international environmental issues and the ways in which these have been dealt with by the international community. The course further challenges students by investigating various alternative solutions for solving the myriad of global environmental problems faced by all of humankind in the new century.

### POLI351
### Political Philosophy I
**(4,0) 4**

An examination of political philosophy from the ancient Greeks through the Reformation, concentrating on Plato, Aristotle, Augustine, Aquinas and Machiavelli. Prerequisites: POLI110 and junior or senior standing.

### POLI352
### Political Philosophy II
**(4,0) 4**

An examination of political philosophy from the seventeenth century to the twentieth century, concentrating on Hobbes, Locke, Rousseau, Hume, Burke, Bentham, Mill, Hegel, and Marx. The course includes analysis of the period's main ideologies: Conservatism, liberalism, socialism, communism, anarchism, fascism and national socialism. Prerequisites: POLI110 and junior or senior standing.

### POLI357
### Politics of Violence
**(3,0) 3**

An interdisciplinary examination of the origin, nature and consequences of political violence, including war, revolution and terrorism. Prerequisite: Junior or senior standing. May also be used for sociology credit.

### POLI364
### Political Parties, Interest Groups and Public Opinion
**(3,0) 3**

Examines the roles of political parties and interest groups in the American political system, especially in elections and lobbying activities. The formation and uses of public opinion are also analyzed. Prerequisite: POLI110.

### POLI367
### Congress and the Presidency
**(4,0) 4**

Examines the legislative and executive branches of government as parts of the policy-making process. Prerequisite: POLI110.

### POLI401
### Principles of Public Administration
**(3,0) 3**

Examines major issues and methods in public administration. Analysis of specific public policy issues. Prerequisite: Advanced standing.

### POLI411
### U.S. Foreign Policy
**(3,0) 3**

A study of the formulation and conduct of American foreign policy. Analysis of relevant factors, institutions which influence the formulation and conduct of policy; and an examination of selected foreign policies. Prerequisite: POLI110.

### POLI413
### The International Legal Order
**(4,0) 4**

The primary objective of this course is to explore the reasons for the emergence of the international legal order as a crucial constraint on the freedom of action of national governments; that is, to understand the impact of the international legal order on contemporary international relations. It also seeks to introduce the substance of international law in selected issue-areas, and to provide an overview of the nature of international legal reasoning. Throughout the course, we shall emphasize the interaction of law and politics, and of national and transnational legal processes. Prerequisite: POLI110.

### POLI420
### Politics of the World Economy
**(4,0) 4**

Power conflict at the international economic level and its impact on the politics of various nations, states, regions and interests. Prerequisites: POLI110 or 160, and junior standing, as well as either ECON201 or 202. POLI241 recommended but not required.

### POLI463
### Seminar in Political Science
**(1-3,0) 1-3**

A reading and discussion seminar dealing with selected topics in political science. Course may be repeated with permission of instructor. Prerequisite: Junior or senior standing.

### POLI467
### Constitutional Law and Civil Liberties
**(4,0) 4**

Principles of the American Constitution: separation of powers, federalism, the powers of the national and state governments, and limitations on the exercise of these powers as well as principles of the American Constitution respecting civil rights and liberties, The Bill of Rights, equal protection of the laws, citizenship and suffrage, and limitations on the exercise of those rights. Prerequisite: POLI120 or its equivalent.

### POLI490
### Independent Study in Political Science
**(1-3) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of

instructor.

### POLI491
### Senior Seminar I
**(4,0) 4**

The first course in a capstone sequence required of all political science majors. The course examines the history of political science and public administration and reviews contemporary approaches and recent research. Students prepare a research proposal to be carried out in POLI492. Prerequisites: Political science major and senior standing.

### POLI492
### Senior Seminar II
**(4,0) 4**

Completion of the research project begun in POLI491. Students will make oral presentations of their project results at the end of the course to other students, faculty and invited guests. Prerequisite: POLI491.

### POLI499
### Political Science/Public Administration Internship
**(1,9 - 27) 3-9**

Students arrange, with the assistance and approval of the instructor, a supervised work experience in a governmental, community or nonprofit organization. Students perform professional tasks under the supervision of agency personnel. The students' review and evaluation of the work experience is under the direction of the instructor. Permission of the instructor required by the seventh week of the preceding semester. Course may be repeated to a maximum of nine credits.

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### PSYC101
### Introduction to Psychology
**(4,0) 4**

A general introduction to the systematic study of behavior and mental processes in humans and animals.

### PSYC155
### Lifespan Development
**(3,0) 3**

Human psychological development from birth to death. This course covers social, emotional and intellectual development across the lifespan.

### PSYC201
### Communication Skills in Counseling
**(2,1) 3**

This course covers the essential elements of establishing a therapeutic

relationship, including active listening skills, empathy and confrontation. Students both explore their potential to be congruent and authentic as counselors and demonstrate counseling skills with voluntary, involuntary and crisis counselors. No prerequisite.

### PSYC210
### Statistics
**(3,0) 3**

Introduction to basic statistical methods of analyzing psychological data. Emphasis is placed on statistical inference, e.g., t-tests, F-tests and selected non-parametric tests. This course provides students with basic statistical concepts and skills necessary for laboratory and survey work, and for understanding psychological literature, and introduces them to statistical analysis on the computer. MATH207 may be used in place of PSYC210 to meet the psychology major and minor requirements. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

### PSYC212
### Experimental Psychology
**(3,2) 4**

An examination of the basic research methods employed in the social sciences with emphasis on the experiment. Topics: Epistemology, laboratory experiments, field experiments, survey construction, correlational research. Students will each participate as a subject and an experimenter, collect data, analyze data, and write a laboratory report according to the editorial style of the American Psychological Association. Laboratory assignments require use of computer applications for experimental purposes, including running experiments and collecting data, analyzing results, creation of appropriate figures, and communication of results in text and oral presentations with slides. Prerequisites: PSYC101 and either PSYC210 or MATH207.

### PSYC217
### Social Psychology
**(3,0) 3**

Topics include attitude formation and change, interpersonal attraction, aggression, altruism, conformity and environmental psychology.

### PSYC228
### Organizational Behavior
**(3,0) 3**

An introduction to the theories, principles and practices of organizational behavior within the workplace. May be used for sociology credit.

### PSYC240
### Behavior Management
**(3,0) 3**

Systematic introduction to behavioral concepts and techniques. Self-management applications and behavioral assessments in applied settings serve as practical lab experiences.

### PSYC259
### Abnormal Psychology
**(3,0) 3**

This course is a systematic investigation of the identification, dynamics and treatment of deviant and maladaptive behavior.

### PSYC265
### Child and Adolescent Development
**(3,0) 3**

Psychological development of the child through adolescence. Social, emotional and intellectual development are covered, with consideration of genetic, prenatal and postnatal influences. Prerequisite: PSYC101, 155 or EDUC150.

### PSYC291
### Group Counseling
**(3,0) 3**

This course examines the theory, techniques and practice of group counseling. Students will become familiar with basic group process, theoretical perspectives and their application to group counseling. Prerequisite: PSYC201.

### PSYC301
### Exceptional Child and Adolescent
**(3,0) 3**

The study of physically, intellectually and socially exceptional children and adolescents, including their characteristics and unique educational needs. Prerequisite: PSYC155 or 265.

### PSYC311
### Learning and Motivation
**(3,0) 3**

An introduction to the theory and research of learning. Factors are examined that influence the acquisition and performance of behaviors in classical and instrumental learning paradigms. Prerequisite: PSYC212.

### PSYC357
### Personality Theory
**(3,0) 3**

This course surveys the major psychological theories used to conceptualize, treat and research personality issues. Prerequisite: 12 hours of psychology.

### PSYC383
### Industrial Psychology
**(3,0) 3**

The principles of human behavior in the industrial situation are studied with particular emphasis given to scientific methods of selecting, utilizing, and evaluating a work force in ways consistent with the well-being of the individual worker. Prerequisites: PSYC101 and 210.

### PSYC385
### Health Psychology
**(3,0) 3**

This course covers psychoneuroimmunology and stress as they impact on human health and disease as well as psychological interventions which promote physical well being and healing. Prerequisite: Junior standing.

### PSYC391
### Family Therapy
**(3,0) 3**

This course applies a systems framework to the understanding of family dynamics and introduces structural perspectives and modalities for family intervention. Prerequisites: PSYC101 and junior standing.

### PSYC396
### Tests and Measurements
**(3,0) 3**

This course has two parts. Part one covers measurement theory, the properties of the normal curve, reliability, validity and measurement statistics. Part two reviews major tests used by researchers, educators, clinicians, counselors, addictions counselors and industrial psychologists. Prerequisite: SOCY302 or PSYC210 or MATH207 or equivalent.

### PSYC456
### History and Systems of Psychology
**(3,0) 3**

An examination of persons, events, theories, schools and systems that influenced and define contemporary psychology. Prerequisite: PSYC311.

### PSYC457
### Cognition
**(3,0) 3**

A survey of recent findings on cognition in humans. Topics include learning, memory, problem solving, language and complex perceptual processes. Prerequisite: PSYC311.

### PSYC459
### Physiological Psychology
**(3,0) 3**

This course is an introduction to the neurophysiological structures of the brain and their functions as regulators of animal and human behavior. Prerequisite: PSYC311.

### PSYC490
### Research Topics in Psychology
**(1-4) 1-4**

This may take the form of either a research project or a program of directed

reading on a specific topic. One to four credits over a period of one or two semesters may be granted according to the nature of the student's project. May be repeated up to a total of six credits. Prerequisite: Permission of instructor.

### PSYC495
### Senior Research Practicum
**(0,3) 3**

A practicum under the guidance of a faculty mentor. The student will conduct an empirical research project based on the proposal submitted by the student in PSYC498. Prerequisite: PSYC498. Corequisite: PSYC499.

### PSYC498
### Senior Research I
**(3,0) 3**

The study of methods employed in gathering data for research purposes including direct observational techniques and self-report measures. Students will also learn to use the computer to gather data, analyze data and present data graphically; and will develop a research prospectus. Prerequisites: PSYC210, 212 and 311.

### PSYC499
### Senior Research II
**(1,0) 1**

Issues in the development and implementation of an empirical research project, including design, statistical analyses, ethical review, and modes of presentation. Prerequisite: PSYC498. Corequisite: PSCY495.

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### READ091
### Preparation for College Reading
**(3,0) 3**

Introduces reading strategies and study skills necessary for college success. Through integration of acquired knowledge and reading practice, students will develop strategies for vocabulary expansion, comprehension, critical thinking, and increase reading rate. Students must earn a minimum grade of C to pass the course. Credit received in this course does not count toward graduation. Prerequisites: none.

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### RECA103
### Badminton and Racquetball
**(0,2) 1**

This course will serve to introduce the student to two racquet sports: Racquetball and badminton. The course will offer each sport for 7.5 weeks and then the student will rotate to the other racquet sport.

### RECA105
### Bowling
**(0,2) 1**

This course will emphasize delivery, scoring etiquette, strategies for converting spares, spot vs. pin bowling, and learning about handicapping. The course will involve theory as well as practical experience.

### RECA106
### Backpacking
**(0,2) 1**

Introduction to equipment, safety precautions, environmental concerns and skills needed to successfully backpack. Class will experience a weekend backpacking trip.

### RECA107
### Canoe Techniques
**(0,2) 1**

This course will introduce the student to the basic strokes and canoe safety associated with flat water canoeing.

### RECA109
### Rock Climbing and Rappelling
**(0,2) 1**

This course will introduce the student to the components associated with top rope climbing and rappelling. The student will become familiar with equipment, knots, setting up a safe site, terminology and technique.

### RECA110
### Golf
**(0,2) 1**

This course is designed to provide the beginning golfer with the fundamentals of the activity and to further play as a lifetime recreational activity.

### RECA114
### Self Defense
**(0,2) 1**

This course is designed to introduce the student to the philosophy, concepts and various strategies associated with the martial arts. Physical and mental conditioning and physical techniques associated with the art of self defense will be presented and practiced.

### RECA119
### Cross Country Skiing
**(0,2) 1**

This course will introduce the student to the sport of cross country skiing. Emphasis will be placed on basic skill development, equipment selection, maintenance of equipment and the enjoyment of winter and the beauty it has to

offer. The majority of class time will be spent skiing; class instruction will occur during the ski, usually on a one-to-one basis to meet the needs of the student.

### RECA120
### Downhill Skiing and Snowboarding
**(0,2) 1**

The students will be provided with an opportunity to learn the basic fundamentals of downhill skiing and snowboarding and to gain sufficient knowledge of the sport so they may continue to enjoy and improve for the rest of their lives.

### RECA125
### Tennis
**(0,2) 1**

This course is intended to develop each student's present knowledge and skills in order that they will be able to pursue tennis as a lifetime leisure activity.

### RECA127
### Volleyball
**(0,2) 1**

This course is designed to develop basic skills and progression in power volleyball. Conditioning, drill, game tactics and rules will be practically applied.

### RECA129
### Basketball
**(0,2) 1**

This course is designed to expand each student's present knowledge and skill specific to skill execution, game play, game strategy and rules. May not be repeated for credit. Not available for credit to any student/athlete playing intercollegiate basketball.

### RECA130
### Intercollegiate Sports Skills
**(0,2) 1**

Will meet as directed by instructor. The course is designed for student-athletes involved in intercollegiate athletics. It provides the opportunity to develop advanced skills in their respective sports. The course may be taken two times for a total of two credits. It may be taken only once per academic year and only during the term in which the student-athlete is participating in an intercollegiate sport.

### RECA150
### Individualized Physical Fitness
**(0,2) 1**

This class is designed to enable the student to discover his or her own level of fitness and develop and implement an exercise program that will address personal fitness concerns. Central to this process is introducing the student to various aspects of a balanced fitness program and providing personal assistance to the student in selecting beginning fitness goals and appropriate progression

of those goals.

### RECA151
### Jogging and Walking for Fitness
**(0,2) 1**

Introduction to jogging and walking as means of developing physical and mental fitness. Development of an activity ideal for lifetime leisure involvement.

### RECA153
### Weight Training
**(0,2) 1**

This class is designed to familiarize each student with basic weight training knowledge. The student will become familiar with muscular systems, functions, and safe and effective ways to organize and implement a weight training routine.

### RECA154
### Yoga
**(0,2) 1**

This course will cover the history, theory principles and benefits contraindications and methods of yoga as well as the application of yoga asanas, breathing techniques and relaxation method.

### RECA173
### Social Dance
**(0,2) 1**

This course is designed to provide participants with a broad range of dancing patterns and rhythmic skills. Through social interaction, the following social dances will be learned: Mixers, round dance, square dance and ballroom dance.

### RECA174
### Aerobic Dance
**(0,2) 1**

This course will provide the student with an opportunity to become involved in a structured aerobic dance program. The purpose of this type of programming is to improve an individual's physical fitness through rhythmic and dance activities.

### RECA175
### Step Aerobics
**(0,2) 1**

A step workout is a high-intensity, low-impact aerobic workout for all fitness levels. The principle is to step up and down on a platform while simultaneously performing upper-body exercises. The program will work every major muscle group in the lower body, while training the upper body.

### RECA180
### Beginning Skating
**(0,2) 1**

The students will be provided with an opportunity to learn the basic fundamentals of skating and to gain sufficient knowledge of the sport so that they may continue to enjoy and improve for the rest of their lives.

### RECA190
### Aquatic Fitness
**(0,2) 1**

This course will introduce students to developing cardiovascular fitness, muscular strength and muscular endurance through aquatic activities as an alternative to weight bearing forms of exercise. Water related exercises and activities will be utilized to improve physical fitness. Individuals of all fitness levels will enjoy getting fit in the water.

### RECA194
### Scuba
**(0,2) 1**

This course is designed to introduce the student to the appropriate and safe use of self-contained underwater breathing apparatus.

### RECA195
### Beginning and Advanced Beginning Swimming
**(0,2) 1**

Course meets in pool two hours a week. Mostly lab work but some lecture. Students cover material in Red Cross beginner and advanced beginner courses and receive certification in one or both depending on skill level attained.

### RECA210
### Lifeguarding
**(0,4) 2**

Course meets in pool four hours a week. Mostly lab work, some lecture. Students cover material in Red Cross Basic and Emergency Water Safety course and Red Cross Lifeguarding course. Students receive certification in one or both depending on skill level attained. Either certificate qualifies students to take water safety and lifeguarding Instructor course, RECA211. Prerequisite: Red Cross intermediate swimming certificate or equivalent skills.

### RECA211
### Water Safety and Lifeguard Instructor
**(0,4) 2**

Course meets four hours a week, 70 percent of the time in the pool and 30 percent of the time in the classroom. All students cover material in Red Cross water safety instructor course and do a teaching practicum at the Lake Superior State University pool. Those students entering with a current lifeguarding card may also cover lifeguarding instructor material. Prerequisites: Current Emergency Water Safety or Lifeguarding certificate.

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### RECS101

### Introduction to Recreation and Leisure Services

**(3,0) 3**

Overview of philosophy, history, theory, programs, professional leadership and organizations, economics and leisure service delivery systems.

### RECS105
### Program Development and Leadership

**(3,0) 3**

Principles of leadership skills and styles are applied to various recreation settings with emphasis on group interaction and face-to-face leading. Programming fundamentals for effective leisure services delivery are explored and implemented. Also listed as EXER105.

### RECS212
### Instructional Methods in Adapted Aquatics

**(1,2) 2 alternate years**

Based on American Red Cross adapted aquatics guidelines, the course is designed to help students develop skills used when planning, implementing, instructing, and evaluating water activity programs for those with a disability. Current water safety instructors (WSI) may become American Red Cross certified as adapted aquatics instructors. People who do not have a WSI may become American Red Cross certified adapted aquatics aides.

### RECS220
### Methods in Arts and Crafts

**(3,0) 3 alternate years**

A variety of arts and crafts media are studied and applied to specific recreation settings with concentration on leading and programming. Prerequisites: RECS101 and 105.

### RECS262
### Outdoor Recreation

**(3,0) 3**

This course will introduce the student to a variety of topics and content areas related to outdoor recreation. These topics will include outdoor education, organized camping and adventure education. Also included will be an opportunity to become familiar with outdoor living skills. Prerequisite: RECS105.

### RECS270
### Sports Management

**(3,0) 3 alternate years**

This course will provide philosophies, organization techniques and administration principles for youth sports, officiating, intramurals, organized athletics and recreational sports. Issues on assessment, design, implementation, and evaluation for sports programs in today\'s society will be explored. Investigation of appropriate resources, professional organization\'s impact, training methods, certification processes and gender issues will be highlighted.

### RECS280

### Readiness in Games, Activities and Sports

**(3,0) 3 alternate years**

This course will focus on the selection and implementation of games, activities and sports which are age-appropriate for the clientele being served. Psychological, sociological, emotional and physiological readiness will be studied as it relates to implementation, modification and presentation of games, activities, and sports to various age groups. Both positive and negative outcomes will be identified.

### RECS295
### Practicum

**(1-2,0) 1-2**

Practical experiences designed to provide the student with various types of recreation programs. The student will work under a site supervisor specialized in that particular area of the student's interest. One credit hour for every 45 hours of practical experience. May be repeated for up to four credits. Prerequisite: Instructor permission

### RECS320
### Dance and Rhythmic Activities for Recreation

**(3,0) 3 alternate years**

Study of dance in social and therapeutic settings; developing skills to lead programs and adapt a variety of rhythmic activities for individuals and groups: Creative movement, improvisation, variety of social dance, historical significance to actual implementation. Prerequisites: RECS101 and 105.

### RECS344
### Adapted Sports and Recreation

**(3,0) 3**

A study of specialized recreational and athletic opportunities available to individuals with illnesses and disabilities. Related associations, equipment, rules and classifications, resources and research will be encountered for a wide range of activities and conditions. When available, practical opportunities will be included as part of the learning process. Prerequisite: junior standing.

### RECS360
### Facilitation and Interpretation Techniques

**(2,2) 3**

This course is designed to serve recreation students who are interested in facilitating outdoor or adventure based programs, and/or become interpreters in and outdoor or parks environment. The course will expose the student to a wide variety of facilitation/interpretation methodologies. The student will be involved in both learning and practicing these techniques. Examples of these techniques would include such things as: utilization of the metaphor, and Haiku. This class will also travel to different outdoor facilities, such as outdoor education centers and state historical sites. This will enable the students to facilitate experiences in an environment unavailable to LSSU (example, a High Ropes Course) and to interface with individuals who provide facilitation and interpretation as a part of their professional responsibilities. Prerequisites; RESC105, RECS262.

### RECS362

### Land Management for Recreation Purposes

**(3,0) 3**

This course is designed to meet the needs of the student pursuing a parks and recreation degree. Provides insight and understanding for problems inherent to managing recreation lands for optimum use and minimum impact. Also, for recreation majors in outdoor recreation option. Prerequisites: RECS101 and 262, or NSC I103 and EVRN131.

### RECS365
### Expedition Management

**(2,2) 3**

Intensive study of performance, programming, leadership and management skills involved in conducting wilderness and back country recreation programming. The student will become aware of various theoretical support structures and paradigms associated with adventure education and the values associated with the use of outdoor programming as a therapeutic intervention modality. Course content includes: Initiating and programming wilderness/back country experiences, group dynamics and outdoor living skills. A ten-day outing is required immediately upon completion of the semester. Prerequisite: RECS262.

### RECS367
### National Parks, National Monuments and National Culture

**(3,0) 3 alternate years**

This course will focus on the historical development of national parks and the affiliated National Land Ethic. Included in the presentation will be a study of the social, cultural, aesthetic and economic history which fostered the development of a national attitude that favored the "national park" concept. The course will also emphasize the emergence of national parks in this country as a representative of our national cultural history. The course will trace the historical development of a land ethic. It will also trace an emerging aesthetic awareness of land among people who arrived to this continent from Central Europe during the 1600s. This Central European land ethic will be compared to the land ethic of Native Americans. Both of these will be traced through this country's history and will serve as a basis for anticipating future land management trends and issues.

### RECS370
### Recreation for the Elderly

**(3,0) 3 alternate years**

Geared to individuals who will be working with senior citizens in recreation programs, hospitals, nursing homes and family members. The aging process will be studied from the perspective that sound principles will be applied to leading and programming for this growing segment of our population. Prerequisites: RECS101, 105 and 200-level recreation electives; or NURS290 and HLTH352.

### RECS375
### Commercial Recreation

**(3,0) 3 alternate years**

An introduction to the scope, characteristics and management aspects of the commercial recreation industry. Substantial coverage of entrepreneurial strategies, economic concepts applied to commercial recreation, steps for creating feasibility studies, and operation management. An in-depth study of

specific commercial recreation programs including travel, tourism, hospitality, club, and the entertainment industry will be included with emphasis on present and future trends and career opportunities. Prerequisites: RECS105 or BUSN121, ACTG230, ECON202 and FINC245.

### RECS390
### Recreation Leader Apprenticeship
**(1,0) 1**

Practical experience in learning to teach and lead various recreation experiences. Students serve with qualified instructors. Prerequisite: Basic skills and knowledge of activity and instructor permission. May be repeated for a total of three credits.

### RECS397
### Recreation Studies Junior Research Seminar
**(1,0) 1**

Introduces the concepts, purpose, methods and function of scholarly research and scientific inquiry. Prerequisites: junior standing, and majoring in recreation management or parks and recreation.

### RECS435
### Research in Recreation and Leisure Sciences
**(3,0) 3**

This course will serve as a culminating educational component for the student majoring in therapeutic recreation and recreation management. The course will focus in part on current problems and issues in therapeutic recreation and will also have a major emphasis on developing an original research project. Prerequisites: RECS397 and MATH207, or PSYC210 or comparable statistics course.

### RECS437
### Recreation Studies Senior Research Seminar
**(1,0) 1**

The focus of this course is to provide instruction and experience relative to data analysis and presentation methodologies affiliated with conducting research. The students will apply the procedures and methodologies discussed in class directly to their research projects. Prerequisite: RECS435.

### RECS450
### Philosophy of Human Performance and Leisure
**(3,0) 3**

A study of the origins and development of leisure behavior, sport, athletics and personal fitness across cultures. Ethical issues such as violence, opportunity, exploitation, role models and equity will be examined. Prerequisites: EXER262 or RECS101 and junior status. Also listed as EXER450.

### RECS481
### Professional Development Seminar
**(1,0) 1**

Opportunities for students to refine personal and professional goals and initiate

preparation of resumes and interviewing skills. Career planning and placement will be emphasized as well as internship evaluation. Seminar format. Prerequisite: Senior status required.

### RECS482
### Administration of Recreation and Leisure Services
**(4,0) 4**

This course will emphasize organizational patterns and administration problems encountered in operating various types of recreation departments and agencies. Additional content will include budgeting, fund raising, grant writing, personnel management and public relations. Prerequisites: RECS105 and junior standing.

### RECS492
### Internship
**2-6**

This is a comprehensive practical application of the student's formal academic preparation. Prerequisites: Completion of 20 of the 25 hours of departmental core requirements and junior or senior standing and instructor permission.

### RECS496
### Selected Research Topics
**(1-3,0) 1-3**

Student carries out approved project(s) of his/her own initiative. Prerequisite: junior standing and instructor permission.

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### SERV100
### University Success Strategies
**(1,0) 1**

Based on assessment of student inventories, students are provided the opportunity to improve their study skills, methods of time management, modes of memorization, note-taking techniques, and university examination preparation. Emphasis is placed on making the transition to university life by focusing on various academic strategies and exposing students to basic information on LSSU programs, policies and procedures.

### SERV125
### Career Planning and Decision Making
**(1,1) 1**

Expanding awareness of personal strength and career options, this course will help students make realistic decisions relating to planning and implementation of academic and life career goals. Follows a student self-directed framework utilizing video-tapes and career/self-exploration to complete assignments. Prerequisites: student must be fully admitted for enrollment at LSSU and currently enrolled in six (6) credits.

### SERV150

### Personal Growth Seminar

**(0,1.5) 1**

A seminar to help students make the transition to university life, communicate effectively on an interpersonal level, strengthen self-concept and build positive relationships. Course content addresses the personal, social, educational and vocational aspects of individual development.

### SERV205

### Group Interactions

**(3,0) 3**

This course is designed for the first-year resident advisors to develop a better understanding of self and others, particularly in regard to group responsibilities. There will be a three-day pre-fall orientation program. Group activities will be aimed at developing cohesiveness. Curriculum will increase awareness of group processes and interaction skills including: Leadership, referral, conflict resolution, assertiveness, crisis intervention, programming, empathy and active listening. Prerequisite: For first-year resident advisors only.

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### SOCY101

### Introduction to Sociology

**(4,0) 4**

This course introduces students to core sociological theorists and perspectives, including functionalism, conflict and symbolic interactionism, and familiarizes them with basic research designs, terminology and findings within the context of collective behavior and social movements.

### SOCY102

### Social Problems

**(4,0) 4**

An introductory to descriptions, theories, proposed solutions, and research methods for a variety of social problems including inequality, poverty, unemployment, environmental issues, family problems, and violence.

### SOCY103

### Cultural Diversity

**(3,0) 3**

This course introduces the student to racial, ethnic, gender and social class variation within the United States and the global community to enable the student to better understand, live with, and appreciate diversity.

### SOCY113

### Sociology of the American Family

**(3,0) 3**

A study of the development and change of the American family since 1890. This study will explore the impact of urbanization, industrialization, increased mobility,

extended education and the changing status of women on the American family.

### SOCY213
### Introduction to Anthropology
**(3,0) 3**

A study of the evolution of humankind and the evolution and development of culture and society. Prerequisite: One introductory sociology course.

### SOCY214
### Criminology
**(3,0) 3**

A study of the nature and causes of crime and the results of various attempts to reduce crime.

### SOCY225
### Native Cultures of North America
**(3,0) 3**

A study of the Native American Indian and Inuit cultures of North America from earliest times to the present with emphasis on contrasting patterns of cultures. Also listed as NATV225.

### SOCY226
### Races and Minorities
**(3,0) 3**

Study of various social and ethnic minorities in the United States with an emphasis on Black/White relations. Competition, conflict and prejudice as they influence social and ethnic minority group relations. Social movements and their effects on majority, minority relations. Prerequisite: Sophomore standing.

### SOCY227
### Population and Ecology
**(3,0) 3**

Study of the basic issue of the world's population increase and distribution in relation to natural resources, standards of living, political systems, changes in physical and cultural environments.

### SOCY238
### Social Psychology
**(3,2) 4**

This course examines the social nature of humans, exploring both the influence of social structures upon behavior and the process by which people create social structures; explains symbolic interactionist theory; and introduces qualitative research methods which are applied in a field study conducted by the student. Prerequisite: SOCY101 with a grade of C or better, ENGL110, with a grade of C or better.

### SOCY242
### Sociology of Sex

**(3,0) 3**

Socio-psychological study of the impact of human sexuality upon human behavior.

### SOCY299
### Inuit Art and Culture
**(3,0) 3**

An examination of Inuit art and culture in the prehistoric, historic and contemporary periods.

### SOCY301
### Social Research Methods
**(3,0) 3**

Identification of research problems, concepts and theoretically derived hypothesis; Review of principle methods of experimental design, survey and field research and unobtrusive analysis. Prerequisite: Junior Status or Permission of Instructor.

### SOCY302
### Statistics for Social Science
**(4,0) 4**

The social foundation of statistical inference is discussed and elementary statistical concepts are introduced through numerical problems: Z scores, t-test, chi square, correlation, ANOVA, etc. Prerequisite: MA086 or equivalent/satisfactory score on ACT or Placement Exam.

### SOCY310
### Development of Sociological Theory
**(3,0) 3**

A critical analysis of the contributions to sociological theory by Comte, Spencer, Marx, Durkheim, Pareto, Weber and others. Prerequisite: SOCY238.

### SOCY311
### Contemporary Sociological Theory
**(3,0) 3**

Critical analysis of major sociological theories of the 20th and 21st centuries. Prerequisite: SOCY238.

### SOCY313
### Work and Organization
**(3,0) 3**

Development and structure of the workplace; includes contemporary trends in formal organization and management styles, changing career patterns, sources of conflict and some cross-cultural comparisons. Prerequisite: Junior standing or three hours of sociology.

### SOCY314
### Social Change

**(3,0) 3**

Study of trends in industrial societies, theories explaining these changes, and the role of social movements in social change; focusing primarily on industrialized societies with some discussion of developing countries. Prerequisite: Junior standing or three hours of sociology.

### SOCY321
### Sociology of Women
**(3,0) 3**

This analysis of the roles and status of women in contemporary American society covers social structure, social psychology and social movements; also includes some cross-cultural comparisons.

### SOCY325
### Social Stratification
**(3,0) 3**

Class, caste, status, power, general concept of stratification and consequences of stratification will be related to social institutions.

### SOCY326
### The Sociology of Aging and the Aged
**(3,0) 3**

Examines aging and the aged in American society from the sociological perspective.

### SOCY327
### The Sociology of Dying and Death
**(3,0) 3**

Sociological examination of dying and death.

### SOCY338
### Deviance
**(3,0) 3**

Analysis of causes and consequences of deviant behavior and the development of deviant subcultures; examination of various societal responses to control deviance and their effectiveness. Prerequisite: Junior standing or three hours of sociology and/or human services.

### SOCY339
### Culture and Personality
**(3,0) 3**

Analysis of the role of culture in shaping personality using both contemporary industrial society and also cross-culture material. Prerequisite: Three hours of sociology or junior standing.

### SOCY399
### Sociology Junior Seminar

**(1,0) 1**

Students will develop a proposal for their senior project through lecture and discussion, mentoring by seniors, and collaboration with colleagues. Prerequisites: SOCY238, 304, 302, and SOCY/SOWK202.

### SOCY401
### Sociology Seminar I
**(1,0) 1**

Meetings provide instruction for the senior project covering locating sources, moving from theory to research, constructing a review of literature and designing methods. Prerequisite: SOCY399.

### SOCY402
### Sociology Seminar II
**(1,0) 1**

Class meetings provide instruction for the senior project, focusing upon designing and conducting research, analyzing data, completing final report, preparing poster and formal presentation. Prerequisites: SOCY401 and 495.

### SOCY405
### Seminar: Current Sociological Issues
**(3,0) 3**

Contemporary issues in sociology, to vary from year to year. Extensive reading, writing, and discussion expected. Prerequisites: Junior standing and 12 hours in sociology. This course may be repeated when content varies.

### SOCY490
### Independent Research Topics in Sociology
**(1-4) 1-4**

This may take the form of either a research project or a program of directed reading on a specific topic. One to four credits over a period of one or two semesters may be granted according to the nature of the student's project. May be repeated to a total of six credits. Prerequisite: Permission of instructor.

### SOCY495
### Senior Project I
**(0,6) 2**

In this practicum, under the guidance of a Sociology faculty member, the student prepares a review of literature and research plan for an independent research project in Sociology. Prerequisite: SOCY399.

### SOCY496
### Senior Project II
**(0,6) 2**

In this practicum, under the guidance of a Sociology faculty member, the student refines the research plan prepared in SOCY495, gathers data, completes an analysis, writes up the findings, presents the study in a public forum and

prepares a poster. Prerequisites: SOCY401 and 495.

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### SOWK110
### Introduction to Social Work
**(3,0) 3**

A general introduction and overview of the social work profession including its philosophy, values, professional roles, current trends and models in different practice settings (i.e. public welfare, child and family services, mental health, medical settings, etc.).

### SOWK204
### Fundamentals of Drug Abuse
**(3,0) 3**

Examines the pharmacology of commonly abused psychoactive and high-use drugs. Emphasizes the physiological effects of drug use and abuse. Topics include stimulants, depressants, opiates, hallucinogens, inhalants, cannabis, over-the-counter drugs, alcohol and drug testing. Prerequisite or Corequisite: BIOL105 or equivalent.

### SOWK250
### Social Work Practicum
**(1,9-27) 3-9**

This course provides a field placement opportunity for students to practice skills and use knowledge gained from courses in skill minors. Prerequisite: Permission of instructor. Credit/No credit grade.

### SOWK292
### Substance Abuse: Prevention and Treatment
**(3,0) 3**

This course examines current prevention, detection and treatment approaches for substance abuse and addiction.

### SOWK301
### Alternative Dispute Resolution and Conflict Management
**(3,0) 3**

This course explores non-judicial avenues of dispute or conflict resolution such as negotiation, mediation, arbitration, as well as court-annexed alternative dispute resolution mechanisms. The procedural aspects, key elements, ethical considerations and practical applications of alternative dispute resolution are discussed as part of the dispute resolution landscape. The course will also include dispute resolution and conflict management simulations and case studies. Prerequisite: LAWS202 or junior standing. Also listed as LAWS301.

### SOWK305
### Tribal Law and Government
**(3,0) 3**

A study of tribal law which will explore such areas as the structure of tribal government; tribal sovereignty; treaties; civil and criminal court jurisdiction in Indian country; tribal resources; tribal economic development; taxation and regulation; rights of individual Indians; and various federal laws and court cases concerning and affecting tribes and their members. Prerequisites: HIST230 and NATV230. Also listed as LAWS305/NATV305.

### SOWK310
### Clinical Practice and Diagnosis
**(3,0) 3**

Student will learn skills in developing psychosocial history, treatment plans, becoming familiar with diagnostic criteria and categories, and appreciating the uses and limitations of various diagnostic schemes. Prerequisite: PSYC201.

### SOWK341
### Addiction
**(3,0) 3**

Study of the nature of drug dependency with emphasis on social and cultural variations in patterns and consequences of use. Prerequisites: either junior standing or sophomore standing together with HMSV204.

### SOWK344
### Social Welfare Systems
**(3,0) 3**

Analysis of social welfare systems in the U.S. including history, philosophy, cross-cultural comparisons, and current issues. Prerequisites: Junior standing or completion of SOWK110 or completion of HMSV204

### SOWK480
### Grantwriting
**(3,0) 3**

This course gives advanced students experience in the research, writing and planning skills involved in preparing grant proposals for human service problems.

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### SPAN161
### First-Year Spanish I
**(4,1) 4 fall**

Introduction to basic Spanish grammar and vocabulary, designed to acquaint the student with the essentials of oral and written Spanish.

### SPAN162
### First-Year Spanish II
**(4,1) 4 spring**

Further study of Spanish grammar and vocabulary; emphasis on oral communication; reading of various materials in Spanish with the aim of

understanding the meaning, enlarging the vocabulary and using Spanish for communication. Prerequisite: SPAN161 or equivalent.

### SPAN165
### Spanish for Public Safety
**(4,1) 4 on demand**

A continuation of SPAN161, with emphasis on vocabulary relevant to work in criminal justice. Prerequisite: SPAN161 or equivalent.

### SPAN261
### Second-Year Spanish I
**(3,1) 3 fall**

Intensive review of grammar and further vocabulary development. Emphasis on composition and conversation based on the reading of Spanish texts and newspapers. Prerequisite: SPAN162 or equivalent.

### SPAN262
### Second-Year Spanish II
**(3,1) 3 spring**

Conducted as much as possible in Spanish with the primary aim of dealing fluently with basic conversation situations. Prerequisite: SPAN261 or equivalent.

### SPAN301
### Study Abroad
**(8,0) 8 summer**

Students admitted by the faculty of the Spanish Department will take a variety of classes at an accredited institution in a Spanish-speaking country. Students will spend a minimum of 30 hours per week in class. They will also be required to visit sites for archaeological, historical and cultural importance. The students' work and progress will be monitored and evaluated by the LSSU Spanish Department in cooperation with the foreign institution. Prerequisite: Students must have completed a minimum of two courses of Spanish at LSSU and obtain the professor's permission. *Credit for this course may be applied to fulfill the requirements for a Spanish major or a Spanish minor. This course cannot be repeated.

### SPAN361
### Advanced Spanish Grammar
**(3,0) 3**

Acquisition of advanced skills in composition, grammar, reading and conversation, using media and readings related to the Hispanic world. Corequisite: SPAN262 or equivalent.

### SPAN362
### Advanced Spanish Composition
**(3,0) 3**

This course is designed to improve writing skills in Spanish through extensive and intensive reading of Spanish and Spanish-American fiction. Prerequisite: SPAN262. Corequisite: SPAN361.

### SPAN368
### Selected Topics in Conversation
**(2,0) 2**

Class assignments and readings provide the basis for in-class discussion at post-intermediate level. Students will be given the opportunity to practice vocabulary and grammar structures in life-like situations and contexts. Prerequisites: SPAN361 and 362.

### SPAN380
### Survey of Spanish-American Literature I
**(3,0) 3**

Class is a survey course of Spanish-American literature from the Spanish Conquest to 1880. It will cover readings from diverse genres and periods, beginning with an examination of precolumbian indigenous texts and ending with an overview of the development of modernismo. Prerequisites: SPAN361 and 362.

### SPAN381
### Survey of Spanish-American Literature II
**(3,0) 3**

Elective survey course of Spanish-American literature from 1880 to present day. It will cover readings from diverse genres and periods, beginning with an examination of modernismo, and culminating with selections from prominent recent literary works. Prerequisites: SPAN361 and 362.

### SPAN401
### The Spanish Novel
**(3,0) 3**

The class will focus on the study of selected 19th and 20th Century Spanish peninsular novels. Theme and content of course may vary from semester to semester. With the instructor's permission, this course may be repeated, and students may acquire up to six hours of credit for SPAN401. Prerequisites: SPAN361 and 362.

### SPAN402
### The Spanish-American Novel
**(3,0) 3**

This class will focus on the study of selected Spanish-American novels. Theme and content of course may vary from semester to semester. With the instructor's permission, this course may be repeated, and students may acquire up to six hours of credit for SPAN402. Prerequisites: SPAN361 and 362.

### SPAN410
### Spanish-American Civilization
**(3,0) 3**

This course will focus on the study of the history and culture of Spanish-America. The textbook will be supplemented with additional collateral readings; students will prepare both oral and written reports in Spanish on various assigned topics throughout the semester. Prerequisites: SPAN361 and 362.

### SPAN411
### Spanish Civilization
**(3,0) 3**

This course will focus on the study of the history and culture of Spain. The textbook will be supplemented with additional collateral readings; students will prepare both oral and written reports in Spanish on various assigned topics throughout the semester. Prerequisites: SPAN361 and 362.

### SPAN412
### Hispanic Literature of the Southwest
**(3,0) 3**

This course will examine the post-WWII development of Chicano culture in the southwestern United States as reflected through literature and the fine arts. Students will read a broad spectrum of popular Mexican-American literary works from 1945 to present day. Prerequisites: SPAN361 and 362.

### SPAN490
### Topics in Hispanic Literature
**(1-4,0) 1-4**

The content of this elective course will vary from semester to semester. Students may repeat SPAN490 once, and in so doing, acquire up to six hours credit for their degree plan with this class. Areas of study will include, but not be limited to, specific genres, periods, authors and literary movements. Prerequisites: SPAN361 and 362.

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### THEA101
### Acting I
**(3,0) 3**

This course is designed to provide an introduction into the basics of stage acting. The students will gain basic skills in acting, character development, improvisation, projection, pacing, movement, and breathing, as well as a working vocabulary of theatre terms.

### THEA161
### Theatre Practicum
**(1-6,0) 1-6**

Provides practical experience in the production of a theatrical performance. Requires participation in acting, publicity, costuming, stage crew or set construction. May be repeated for a total of six credits. Prerequisite: Permission of Instructor.

### THEA201
### Acting II
**(3,0) 3**

This course builds upon the skills of Acting I, with emphasis on script analysis,

scene work, and character development. Students will become familiar with basic approaches to realistic acting and will become more familiar with Stanislavski\'s method and the Meisner system. Prerequisite: THEA101.

### THEA251
### History of Drama and Theatre I
**(3,0) 3**

The study of the historical and esthetic drama and theatre from the Greek period to the European Renaissance. Prerequisite: ENGL110.

### THEA252
### History of Drama and Theatre II
**(3,0) 3**

The study of the historical and esthetic drama and theatre from the Renaissance to current theatre and drama. Prerequisite: ENGL110.

### THEA309
### Theatre Studies: (Topic)
**(3,0) 3**

Practical problems in the development and production of theatre, tournaments and festivals. Course may be repeated one time (for a total of six credits) with a change in focus. Prerequisite: Permission of Instructor.

### THEA333
### Studies in the Drama: The Genre and Theater in Context (Topic)
**(3,0) 3**

Students will examine theatre of a specific genre or genres in its social, cultural, political, and personal contexts. Course may be repeated one time (for a total of six credits) with a change of focus. Prerequisite: Junior or Senior standing or Permission of Instructor.

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### USEM101
### University Seminar I: Foundations for Success
**(1,0) 1**

This course focuses on academic skills and critical thinking, on knowledge of the institution and the role of higher education, and on personal skills for living, which together are requisite for student success and lifelong learning. Seminar I - Foundations for Success places emphasis on incorporation into university culture, time management, use of campus resources, written and oral presentations, development of critical thinking skills, and strengthening study skills for academic success.

### USEM102
### University Seminar II: Developing Critical Thinking
**(1,0) 1**

Seminar II: Developing Critical Thinking continues the goals of Seminar I while placing emphasis on the application of critical thinking skills to the academic setting. A reading anthology is used as the basis for regular written, and oral communication and a term research paper. While continuing to apply skills and techniques used in Seminar I, students additionally develop cultural literacy and incorporate greater computer usage, and explore campus organizations, community events and community service.

### USEM103

### University Seminar III: Thinking About the Discipline

**(1,0) 1**

Seminar III: Thinking about the Discipline begins a more focused examination of the applications of critical thinking to the student's discipline. Each school selects a reading anthology suitable for analysis and discussion by its majors in order to examine such as current critical issues, social responsibility, ethics and cultural diversity from the perspective of the student's discipline. Continuing the activities of earlier seminars this course promotes ongoing participation in community events, application of academic success skills and writing in the discipline.

### USEM104

### University Seminar IV: Professional Seminar

**(1,0) 1**

Seminar IV: Professional Seminar serves as the fourth and final in the series and focuses on introducing the student to their discipline with special emphasis on interviews with professional, examinations of career options, and overviews of the literature and research of their discipline. This course focuses attention on the skills and knowledge base of the profession, features of the work environment, development of resume and career developing activities. Activities of earlier seminars continue as students apply critical thinking skills to the examination of the current literature of their field, participate in written and oral presentations, and hear presentations from working professionals.

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# Glossary of Terms

## Terms & Phrases

**Academic Credit:** (or credit hours or credit): One academic credit is generally earned for every 14 hours in lecture during a semester.

**Academic Probation:** The result of a grade point average falling below an acceptable level.

**Academic Year:** Two 15-week semesters.

**Accredited:** Quality of academic programs has been approved by an outside rating agency.

**Admission:** Your acceptance for enrollment.

**Advisor:** Faculty member who offers you academic advice, explains requirements and assists in scheduling.

**Anchor Access:** Accessed from the My.LSSU Portal. Anchor Access is the most important online tool you will use at LSSU. Access to Registration, financial aid, tuition & billing information, all academic information, parking, employee information, addresses, etc.

**Associate Degree:** Awarded for a "two-year" program.

**Bachelor Degree:** or Baccalaureate — awarded for a "four-year" program.

**Calendar:** Important dates of the academic year.

**Certificate:** Normally requires one year of study.

**College:** Academic unit administered by a dean, comprising two or more departments or schools.

**Corequisite:** Course you must take during the same semester as another course.

**Cognate:** A specified course, generally in field other than your major, which you must take for your program.

**Courses:** Descriptions in this catalog generally show a course number, followed by the course name, and the number of academic credits shown at the right of the column.

*ENGL110 First-Year*
*Composition I.....3*

**Credit:** *See academic credit.*

**Curriculum:** (major, program) Courses required for specific degree or certificate.

**Departments:** Academic units, each administered by a "chair" or "dean" and offering courses in one or more related disciplines.

**Discipline:** Group of related courses, such as mathematics.

**Elective:** Course distinguished from required course, selected it from a number of specified courses.

**Field Placement:** *See practicum.*

**Financial Aid:** Includes grants, loans, scholarships or work-study.

**Full-Time Student:** Enrollment of 12 or more credits in a semester (nine credits for graduate students).

**General Education Core Requirements:** Courses you must take in addition to your major to earn a bachelor's (or an associate's degree in liberal arts). Provides a broadly based education.

**GED Examinations:** (General Education Development examination): A test for students who did not finish high school. Can be used in place of high school graduation.

If you didn't finish high school, but believe you learned enough in other ways to qualify for university, this is the test for you.

**Grade Point Average (GPA):** Number of points divided by the hours of credit attempted. It calculates your average grade for all classes. Cumulative grade point average is the average for all your classes numbered 100 and above.

**Internship:** (practicum, field placement or clinical): working in a 'real life' setting for academic credit.

**Major *(curriculum)*:** A concentration of courses in your specific area of study.

**Minor:** A lesser concentration (20 credits or more).

**My.LSSU:** Web portal to Anchor Access, your email service, school announcements, etc.

**Part-Time Student:** Enrollment of fewer than 12 credits in a semester (fewer than nine for graduate students).

**Practicum:** Another word for internship.

**Prerequisite:** Certain courses you must successfully complete before enrolling in a specific course. You must satisfy prerequisites, and other stated conditions, before enrolling in a course, or have permission from an instructor to waive the prerequisites. It is your responsibility to be certain you have the approved prerequisites.

**Program *(also curriculum)*:** A group of courses you must take in order to earn a degree or certificate.

**Registration:** Each semester you register for specific courses for the next semester, pay tuition, etc.

**Required Courses:** You must take these to earn your degree. Failed courses must be repeated.

**School:** *See Departments.*

**Semester:** Sometimes called "term": *See academic year.*

**Term:** Sometimes called "semester": *See academic year.*

**Transcript:** Official record of your coursework maintained by the LSSU Registrar's Office.

**Transcript, Official:** Mailed directly from principal's or registrar's office of issuing institution to LSSU Registrar's Office. It must bear the seal of the institution and signature or stamp of school official.

**Withdrawal:** Procedure when you drop a course or from school.

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# Code of Ethics

- We value a personal approach to education which provides the student access to faculty and staff — education provided in a small collegial atmosphere.
- We value our high quality academic programs which provide practical, technical education with the liberal arts tradition.
- We value a supportive, caring environment exemplified by mutual trust and respect and where each individual has worth through a holistic, student-centered focus. We respect not only the rights but the feelings of others.
- We value the exploration of new paradigms and the creative energy needed to stay at the forefront of knowledge.
- We value systematic assessment of all aspects of the University's operation and constructive improvements based on these evaluations.
- We value our public service role. "Enter to learn, go forth to serve" is a traditional motto at Lake Superior State University.
- We value our collaborative partnerships characterized by high ethical standards with international colleagues, businesses, other educational institutions, community organizations, regional contacts and governmental entities.
- We value our unique geographical setting with its natural beauty and its international focus.
- We value the educational opportunities which are provided in a safer environment.
- We value the University's physical plant with its historical buildings which are both state and national treasures.
- We value a work ethic which emphasizes productive time-on-task, diligence, ethical behavior and responsibility in the student's personal development.
- We value our extracurricular, co-curricular programs and activities which contribute to the students' personal and professional growth.
- We value an environment which celebrates diversity and focuses on the value of each individual's contribution to the general welfare.
- We value the alumni and friends of the University who provide inspiration, loyalty and support.
- We value decisions which are in the best interests of the University and its students.

## Expectations for Student Learning

Lake Superior State University utilizes a Student Academic Achievement Plan developed by the faculty to enhance continuous quality improvement and to meet the Assessment Initiative of the Higher Learning Commission of the North Central Association of Colleges and Schools. The intent of this plan is to document student learning at Lake Superior State University both in the major program and across the general education requirements. This continuous evaluation process works to assure high quality teaching and effective student learning. The faculty at Lake Superior State University have collectively agreed

upon the characteristics of the educated person the institution hopes to graduate and have identified outcomes that can be used to document these attributes. The following are areas that the faculty have deemed essential to a liberal education and have value for the students in their lives as responsible citizens: communication skills, mathematics, cultural diversity, humanities, and social and natural science. Students who complete the general education courses at Lake Superior State University will be able to demonstrate attributes of the general education outcomes.

Students attending Lake Superior State University can expect commitment by the University to document and enhance student learning. Through the assessment process, the University demonstrates its commitment to improving student learning and ensures that when students graduate they have attained specific attributes and abilities.

Lake Superior State University expects a commitment on the part of its students to actively participate in the learning process.

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# Accreditation

Lake Superior State University is accredited by the following agencies:

- The Higher Learning Commission and a member of the North Central Association, 230 S. LaSalle Street, Suite 7-500, Chicago, IL 60604-1413. Phone: 312-263-0456; 800-621-7440. Fax: 312-263-7462. www.ncahigherlearningcommission.org
- The Athletic Training Education Program is accredited by the Commission on Accreditation of Athletic Training Education (CAATE), 2201 Double Creek Drive, Suite 5006, Round Rock, TX 78864. Phone: 512-733-9700. Fax: 512-733-9701. www.caate.net
- The Bachelor of Science in Chemistry is approved by The American Chemical Society Committee on Professional Training, 1155 Sixteenth Street, N.W., Washington, DC 20036. Phone: 202-872-4589. Fax: 202-872-6066. Email: cpt@acs.org www.acs.org/cpt
- The Bachelor of Science in Environmental Health is accredited by the National Environmental Health Science and Protection Accreditation Council (EHAC), 8620 Roosevelt Way NE Suite A, Seattle, WA 98115. Phone: 206-522-5272. Email: ehacinfo@aehap.org www.ehacoffice.org
- The Bachelor of Science in Fire Science is approved by the International Fire Service Accreditation Congress, 1700 West Tyler, Oklahoma State University, Stillwater, OK 74078. Phone: 405-744-8303. www.ifsac.org
- The Bachelor of Science in Nursing is approved by the Michigan Board of Nursing and is accredited by the Accreditation Commission for Evaluation in Nursing (ACEN), 3343 Peachtree Road NE, Suite 500, Atlanta, GA 30326.Phone: 404-975-5000. Fax: 404-975-5020. http://www.acenursing.org
- The bachelor's program in Manufacturing Engineering Technology is accredited by the Engineering Technology Accreditation Commission (ETAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Phone: 410-347-7700. www.abet.org
- The computer, electrical and mechanical engineering bachelor's programs are accredited by the Engineering Accreditation Commission (EAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Phone: 410-347-7700. www.abet.org
- The Elementary and Secondary Education Programs are approved by the Michigan Department of Education, 608 W Allegan Street, PO Box 30008, Lansing, MI 48909. Phone: 517-373-3324. www.michigan.gov/mde

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# Consumer Information

**Student Consumer Information**

As an applicant and recipient of federal financial student aid, you have certain rights and responsibilities. Knowing your rights and responsibilities puts you in a better position to make decisions about your goals and how to best achieve them.

## Student Rights

**You have the right to know:**

1. The available financial aid programs. They are listed in the Financial Aid section of this Catalog and on the Web at www.lssu.edu/finaid.
2. Deadlines for submitting applications for each available financial aid program.
3. How financial aid will be distributed, how decisions on that distribution are made and the basis for these decisions.
4. How your financial need was determined. This includes how costs for tuition and fees, room and board, travel, books and supplies, personal and miscellaneous expenses, etc., are considered in your budget. (See Official Offer of Award letter.)
5. What resources (such as parental contribution, other financial aid, your assets, etc.) were considered in the calculation of your need. (Contact the Financial Aid Office.)
6. How much of your financial need has been met, as determined by the institution. (See Official Offer of Award letter.)
7. Request an explanation of the various programs in your student aid package. If you believe you have been treated unfairly, you may request reconsideration of your award. (Contact the Financial Aid Office.)
8. The school's refund policy.
9. What portion of the financial aid received must be repaid and what portion is grant aid. If the aid is a loan, you have the right to know the interest rate, the total amount that must be repaid, the payback procedure, the length of time you have to repay the loan, when repayment begins, the terms, and schedules for the repayment of student loans.(Contact the Financial Aid Office or see Promissory Note.)
10. How the school determines satisfactory progress, what happens if you are not meeting the requirements, and how to re-establish eligibility for financial aid.
11. That LSSU programs are accessible to the handicapped. Further information is available from Disability Services, Lake Superior State University, 650 W. Easterday Ave., Sault Ste. Marie, MI 49783. Disability Services is located in room 149 of the Library.
12. How and when financial aid will be disbursed.
13. That you are entitled by law to examine records maintained in the Financial

Aid Office that relate to your financial aid file.

14. The school's completion and graduation rates and crime statistics.
15. And finally, you have the right to request: the names of associations, agencies or governmental bodies that approve, accredit or license the University programs. Copies of the accreditation documents are available upon request. (See Accreditation.)

## Student Responsibilities

1. You are responsible for obtaining all the forms required to apply for the type of assistance you wish to receive. You must complete all application forms accurately and submit them on time to the right place.
2. You must provide correct information. In most instances, misreporting information on financial aid application forms is a violation of law and may be considered a criminal offense that could result in indictment under the United States criminal code.
3. You must return all additional documentation, verification, corrections, and/or new information requested by either the Financial Aid Office or the agency to which you submitted your application on a timely basis.
4. You are responsible for reading and understanding all forms you are asked to sign and for keeping copies of them.
5. You must accept responsibility for all agreements you sign.
6. You must do the work agreed upon in accepting a workstudy award.
7. You must be aware of and comply with deadlines for application or reapplication for aid.
8. You are responsible for reporting changes that might affect your eligibility for financial aid including:
    1. change in address (completed in Anchor Access) or type of residency (e.g., dorm to commuter)
    2. changes in enrollment status (e.g., dropping classes or withdrawing)
    3. changes in marital status
    4. all non-LSSU aid received.
9. If you have a loan, you are required to repay it and notify your lender of changes in name or address. You should also know the name and address of your lender.
10. Be aware of your school's refund procedures.
11. All schools must provide information to prospective students about the school's programs and performance. You should consider this information carefully before deciding to attend.

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# Campus History

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Our beautiful 115-acre campus overlooks the Michigan and Ontario twin cities of Sault Ste. Marie, the St. Mary's River, and the world famous Soo Locks. The school is located at the beginning of Interstate 75 which ends in the Florida Keys.

The campus served as Ft. Brady starting in 1894 after the fort was relocated from the banks of the St. Mary's. The fort was deactivated in 1944 and, thanks to the efforts of local volunteers and leadership at Michigan College of Mining & Technology in Houghton, opened in the fall of that year as the Sault Ste. Marie Residence Center of MCMT.

The Sault Branch was rechristened Lake Superior State College of Michigan Technical University in 1966. Autonomy arrived for LSSC in 1970. University status was granted in 1987 to the state's smallest public institution of higher learning. Enrollment has grown from the original class of 272 to more than 2,900 students.

There are 14 buildings on the National Historic Register contributing to the University's sense of tradition. This unique architectural blend is a reminder of the "weapons to plowshares" history of the setting.

Community: Sault Ste. Marie (pop. 14,000) is one of the oldest cities in North America, having begun as a fur trading center in the early 17th century. A Jesuit mission was established here in 1641, and Father Marquette founded the first permanent settlement 27 years later, within the boundaries of what was to become Michigan. The Sault celebrated its 300th birthday in 1968.

Our sister city, Sault Ste. Marie, Ontario, is a cultural, recreational, social and entertainment center. The combined population of the Twin Saults (80,000) allows for an international flavor abounding with the opportunities of a city, and the safety and comfort of a small town.

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# Equal Opportunity

*Notice of Lake Superior State University's policy of compliance with federal and state law*

## Policy

The University is an equal opportunity employer and educator and prohibits discrimination, including harassment, on the basis of race, color, national origin or ancestry, gender, age, disability, religion, height, weight, sexual preference, marital status, or veteran status.

In carrying out this policy, the University complies with all federal and state laws and regulations prohibiting discrimination including:

Executive Order 11246, the Elliott-Larsen Civil Rights Act of 1976, Title VI of the Civil Rights Act of 1964, The Equal Pay Act of 1963, Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972, and the Pregnancy Discrimination Act of 1978, Title IX of the Education Amendments of 1972, Titles VII and VIII of the Public Health Service Act, Age Discrimination in Employment Act of 1967, Sections 503 and 504 of the Rehabilitation Act of 1973, Veteran's Assistance Act of 1972, and Title II of the Americans with Disabilities Act of 1990.

## Sexual Harassment

The University is committed to a policy of nondiscrimination on the basis of gender. Discrimination because of gender includes sexual harassment, which means unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct or communication of a sexual nature when:

1. Submission to such conduct or communication is made a term or condition either explicitly or implicitly to obtain employment, public accommodations or public services, education, or housing;
2. Submission to or rejection of such conduct or communication by an individual is used as a factor in decisions affecting such individual's employment, public accommodations or public services, education, or housing; or
3. Such conduct or communication has the purpose or effect of substantially interfering with an individual's employment, public accommodations or public services, education, or housing environment.

The University is committed to the protection of the rights of all individuals and to the elimination of barriers that would prevent individuals from realizing their highest potential of human excellence. Sexual harassment is a particularly noxious form of discrimination that interferes with these goals and commitments, and is difficult to combat due to the intimidation and destruction of self esteem of its victims.

## Grievance Officer

The Equal Employment Opportunity Officer/Affirmative Action Officer (EEO Officer) is the designated grievance officer for discrimination complaints. If any person believes that he or she has been subjected to discrimination, including harassment by unlawful and unacceptable expressions, acts, attitudes and/or behaviors based on race, color, national origin or ancestry, gender, age, disability, religion, height, weight, sexual preference, marital status, or veteran status, he or she should contact the Director of Human Resources/EEO Officer, Lake Superior State University Administration Building, Sault Ste. Marie, Michigan 49783 (906-635-2697) within sixty (60) working days of the action of which the person complains.

## Process

1. The University encourages all individuals to promptly report instances of discrimination and discriminatory harassment. Once the University has been informed of such behavior, it will take timely and appropriate steps to investigate the problem. At any step of the grievance process, time schedules as outlined in the process may be extended by mutual agreement in writing.
2. With the Grievance Officer, individuals may discuss concerns they may have regarding possible discrimination or harassment to learn what options are available.
3. Nonretaliation: The University not only prohibits discrimination, including harassment, but also strictly prohibits any retaliation against any individual, who, in good faith, has registered a complaint under this procedure. Any supervisor, agent, or employee of the University who, after investigation, has been determined to have retaliated against any individual for using the complaint procedure in this policy, will be subject to appropriate discipline up to and including immediate discharge. If an individual believes he or she has been retaliated against for exercising his or her rights under this policy, the individual should use this complaint procedure.
4. All matters discussed in this process will be kept as confidential as possible.
5. If an individual is dissatisfied with the University's investigation process or resolution, he or she may file complaints of illegal discrimination on the basis of gender (Title IX and Title VI) or disability (Section 504 and Title II of the ADA) with the Office for Civil Rights, U.S. Department of Education, Chicago, IL 60605. A Title IX, Title VI, Section 504, or Title II ADA complaint must be filed in writing with the Office for Civil Rights no later than 180 days after the occurrence of the possible discrimination.
6. Individuals have the right under the law to seek remedies from the Michigan Department of Civil Rights, the Equal Employment Opportunity Commission, the Office for Civil Rights, U.S. Department of Education or by court action at the same time a grievance is filed under the University's procedure, during or after the use of the grievance process, or without using the grievance process at all.

**STEP 1: Informal Complaint**

Any individual (complainant) with a discrimination or harassment complaint, may contact the Grievance Officer in person.

The Grievance Officer will speak with the complainant and try to resolve the matter on an informal basis. At Step 1, all information will be kept confidential to the extent possible.

**STEP 2: Formal Complaint**

If the problem cannot be resolved at Step 1 within five (5) working days from the date of first contact with the Grievance Officer, the complainant may submit a written complaint on a form provided by the Grievance Officer. The Grievance Officer will help the complainant complete the form if the complainant requests.

Within five (5) working days of the receipt of the written complaint, the Grievance Officer will send a Notice of Complaint, a copy of the complaint form, a response form and a copy of this procedure to the respondent. The respondent will submit the completed response form within five (5) working days from the date the complaint is received by the respondent.

The Grievance Officer will conduct an investigation. The investigation should be completed within twenty (20) working days after receipt of the response. If the complaint is against the University as the Employer, the Grievance Officer will have thirty (30) days from the receipt of the written complaint to investigate the matter.

Within ten (10) working days of completion of the investigation, the Grievance Officer will issue to the complainant and to the respondent a written Determination stating whether the allegations of the complaint are true and any remedial action recommended.

At Step 2, information will be kept confidential to the extent possible.

**STEP 3: Hearing**

If either the complainant or the respondent is dissatisfied with the Grievance Officer's determination, he or she may request that the matter be referred to a Hearing Panel for a hearing by submitting the form obtained from the Grievance Officer. The request for hearing must be submitted in writing to the Grievance Officer within five (5) working days after receipt of the Determination.

The President will appoint a permanent Hearing Panel composed of three members including, if possible, at least one female and one minority member. The vice president for business and financial operations will be the chairperson and will conduct the hearing.

The Grievance Officer will send a Notice of Hearing and a copy of the Request for Hearing to the complainant, respondent (if any), and Hearing Panel, scheduling the hearing within fifteen (15) working days, unless the Panel Chairperson provides otherwise and so notifies those involved.

At the hearing, the complainant and respondent will be allowed to give their own testimony, present the testimony of witnesses, documentary evidence or other evidence relevant to the proceedings and cross-examine the other party's witnesses. The complainant and respondent may have an attorney or other advisor present. The Grievance Officer will present the findings of the investigation conducted at Step 2 and may present witnesses, if appropriate. To ensure the privacy of those involved, witnesses (other than the complainant and respondent) will be allowed in the hearing room only during their testimony. At the Chairperson's discretion, the hearing may be recorded.

Within fifteen (15) working days after completion of the hearing, the Chairperson will issue the Decision and recommended order of the Hearing Panel. The Decision will be mailed to the complainant and respondent with a copy to the Grievance Officer. The Chairperson will implement any action recommended by the Panel.

**STEP 4: Appeal**

The decision of the Hearing Panel will be final and binding. If grievants wish to pursue the matter further, they may file with the outside agencies listed in Policy section, No. 5. and 6.

Section 5.02 of the by-laws of the Board of Trustees, approved July 24, 1989, will not be invoked for grievances submitted for settlement under this procedure.

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# Regional Centers

Lake Superior State University offers bachelor degree-completion programs at our regional centers that build on your education from your community college. This approach allows you to complete your degree at a reasonable cost and close to home.

All degrees require completion of general education core requirements. For students transferring from a Michigan community college who have the "MACRAO stamp" on their transcripts, the general education core requirements are considered met by LSSU. Generally, MACRAO certification requires six credits of English, eight credits of social science, eight credits of humanities and eight credits of natural science and mathematics. We encourage students to earn MACRAO certification from their community college for ease of transfer.

We are proud of the high-quality instruction and the personal attention LSSU offers. Our small class sizes, experienced faculty and the ability to pursue your educational dreams close to home are what the LSSU regional centers are all about.

Stop by one of our regional centers for assistance in planning your educational goals. We can help answer your questions in areas of admissions requirements, scholarship/financial aid, academics, course rotations, registration and more.

## Dearborn University Consortium Center

Amy McCarthy
Institutional Advancement Program Coordinator
Advanced Technology Academy
4800 Oakman Boulevard
Dearborn, MI 48124
Phone: 313-625-4712
Fax: 313-584-9407
E-mail: amccarthy@atafordpas.org

Completion programs are available for the following degrees:

- Business Administration- Entrepreneurship
- Business Administration - International Business
- Business Administration – Management
- Business Administration – Marketing
- Criminal Justice - Corrections
- Criminal Justice - Law Enforcement
- Criminal Justice - Generalist

## Escanaba Regional Center

Kristen Kendrick, Director
Escanaba Regional Center

Bay College
2001 N Lincoln Road - Heirman Center #924
Escanaba, MI 49829
Phone: 906-217-4123
E-mail: kkendrick@lssu.edu
Website: http://www.lssu.edu/admissions/regional/escanaba.php

Completion Programs are available for the following degrees:

- Accounting
- Business Administration – (Also offered at Bay College's West Campus in Iron Mountain)
- Business Administration - International Business
- Business Administration – Management
- Business Administration with a Marketing Minor
- Criminal Justice – Corrections with Law Enforcement Minor
- Criminal Justice – Generalist
- Criminal Justice – Law Enforcement
- Early Childhood Education
- Early Childhood Education - Teaching Minor (ZA Endorsement)
- Engineering Management
- Individualized Studies
- Liberal Studies
- Nursing – Completion Program

## Gaylord Regional Center

Joe Balinski, Director
Gaylord Regional Center
Lake Superior State University
80 Livingston Blvd
Gaylord, MI 49735
Phone: 989-705-3791
E-mail: jbalinski@lssu.edu
Website: http://www.lssu.edu/admissions/regional/gaylord.php

Completion Programs are available for the following degrees:

- Business Administration - Management
- Criminal Justice - Generalist
- Criminal Justice – Law Enforcement

## Petoskey Regional Center

Joe Balinski, Director
Petoskey Regional Center
North Central Michigan College
Administration Building, Room 48
Petoskey, MI 49770
Phone: 231-348-6623
E-mail: jbalinski@lssu.edu
Website: http://www.lssu.edu/admissions/regional/petoskey.php

Completion Programs are available for the following degrees:

- Accounting
- Business Administration - Management

- Business Administration - Marketing
- Business Administration - Entrepreneurship
- Criminal Justice – Generalist
- Criminal Justice – Law Enforcement
- Early Childhood Education
- Nursing Completion
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# Code of Ethics

- We value a personal approach to education which provides the student access to faculty and staff — education provided in a small collegial atmosphere.
- We value our high quality academic programs which provide practical, technical education with the liberal arts tradition.
- We value a supportive, caring environment exemplified by mutual trust and respect and where each individual has worth through a holistic, student-centered focus. We respect not only the rights but the feelings of others.
- We value the exploration of new paradigms and the creative energy needed to stay at the forefront of knowledge.
- We value systematic assessment of all aspects of the University's operation and constructive improvements based on these evaluations.
- We value our public service role. "Enter to learn, go forth to serve" is a traditional motto at Lake Superior State University.
- We value our collaborative partnerships characterized by high ethical standards with international colleagues, businesses, other educational institutions, community organizations, regional contacts and governmental entities.
- We value our unique geographical setting with its natural beauty and its international focus.
- We value the educational opportunities which are provided in a safer environment.
- We value the University's physical plant with its historical buildings which are both state and national treasures.
- We value a work ethic which emphasizes productive time-on-task, diligence, ethical behavior and responsibility in the student's personal development.
- We value our extracurricular, co-curricular programs and activities which contribute to the students' personal and professional growth.
- We value an environment which celebrates diversity and focuses on the value of each individual's contribution to the general welfare.
- We value the alumni and friends of the University who provide inspiration, loyalty and support.
- We value decisions which are in the best interests of the University and its students.

## Expectations for Student Learning

Lake Superior State University utilizes a Student Academic Achievement Plan developed by the faculty to enhance continuous quality improvement and to meet the Assessment Initiative of the Higher Learning Commission of the North Central Association of Colleges and Schools. The intent of this plan is to document student learning at Lake Superior State University both in the major program and across the general education requirements. This continuous evaluation process works to assure high quality teaching and effective student learning. The faculty at Lake Superior State University have collectively agreed

upon the characteristics of the educated person the institution hopes to graduate and have identified outcomes that can be used to document these attributes. The following are areas that the faculty have deemed essential to a liberal education and have value for the students in their lives as responsible citizens: communication skills, mathematics, cultural diversity, humanities, and social and natural science. Students who complete the general education courses at Lake Superior State University will be able to demonstrate attributes of the general education outcomes.

Students attending Lake Superior State University can expect commitment by the University to document and enhance student learning. Through the assessment process, the University demonstrates its commitment to improving student learning and ensures that when students graduate they have attained specific attributes and abilities.

Lake Superior State University expects a commitment on the part of its students to actively participate in the learning process.

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1. The University encourages all individuals to promptly report instances of discrimination and discriminatory harassment. Once the University has been informed of such behavior, it will take timely and appropriate steps to investigate the problem. At any step of the grievance process, time schedules as outlined in the process may be extended by mutual agreement in writing.
2. With the Grievance Officer, individuals may discuss concerns they may have regarding possible discrimination or harassment to learn what options are available.
3. Nonretaliation: The University not only prohibits discrimination, including harassment, but also strictly prohibits any retaliation against any individual, who, in good faith, has registered a complaint under this procedure. Any supervisor, agent, or employee of the University who, after investigation, has been determined to have retaliated against any individual for using the complaint procedure in this policy, will be subject to appropriate discipline up to and including immediate discharge. If an individual believes he or she has been retaliated against for exercising his or her rights under this policy, the individual should use this complaint procedure.
4. All matters discussed in this process will be kept as confidential as possible.
5. If an individual is dissatisfied with the University's investigation process or resolution, he or she may file complaints of illegal discrimination on the basis of gender (Title IX and Title VI) or disability (Section 504 and Title II of the ADA) with the Office for Civil Rights, U.S. Department of Education, Chicago, IL 60605. A Title IX, Title VI, Section 504, or Title II ADA complaint must be filed in writing with the Office for Civil Rights no later than 180 days after the occurrence of the possible discrimination.
6. Individuals have the right under the law to seek remedies from the Michigan Department of Civil Rights, the Equal Employment Opportunity Commission, the Office for Civil Rights, U.S. Department of Education or by court action at the same time a grievance is filed under the University's procedure, during or after the use of the grievance process, or without using the grievance process at all.

**STEP 1: Informal Complaint**

Any individual (complainant) with a discrimination or harassment complaint, may contact the Grievance Officer in person.

The Grievance Officer will speak with the complainant and try to resolve the matter on an informal basis. At Step 1, all information will be kept confidential to the extent possible.

**STEP 2: Formal Complaint**

If the problem cannot be resolved at Step 1 within five (5) working days from the date of first contact with the Grievance Officer, the complainant may submit a written complaint on a form provided by the Grievance Officer. The Grievance Officer will help the complainant complete the form if the complainant requests.

Within five (5) working days of the receipt of the written complaint, the Grievance Officer will send a Notice of Complaint, a copy of the complaint form, a response form and a copy of this procedure to the respondent. The respondent will submit the completed response form within five (5) working days from the date the complaint is received by the respondent.

The Grievance Officer will conduct an investigation. The investigation should be completed within twenty (20) working days after receipt of the response. If the complaint is against the University as the Employer, the Grievance Officer will have thirty (30) days from the receipt of the written complaint to investigate the matter.

Within ten (10) working days of completion of the investigation, the Grievance Officer will issue to the complainant and to the respondent a written Determination stating whether the allegations of the complaint are true and any remedial action recommended.

At Step 2, information will be kept confidential to the extent possible.

**STEP 3: Hearing**

If either the complainant or the respondent is dissatisfied with the Grievance Officer's determination, he or she may request that the matter be referred to a Hearing Panel for a hearing by submitting the form obtained from the Grievance Officer. The request for hearing must be submitted in writing to the Grievance Officer within five (5) working days after receipt of the Determination.

The President will appoint a permanent Hearing Panel composed of three members including, if possible, at least one female and one minority member. The vice president for business and financial operations will be the chairperson and will conduct the hearing.

The Grievance Officer will send a Notice of Hearing and a copy of the Request for Hearing to the complainant, respondent (if any), and Hearing Panel, scheduling the hearing within fifteen (15) working days, unless the Panel Chairperson provides otherwise and so notifies those involved.

At the hearing, the complainant and respondent will be allowed to give their own testimony, present the testimony of witnesses, documentary evidence or other evidence relevant to the proceedings and cross-examine the other party's witnesses. The complainant and respondent may have an attorney or other advisor present. The Grievance Officer will present the findings of the investigation conducted at Step 2 and may present witnesses, if appropriate. To ensure the privacy of those involved, witnesses (other than the complainant and respondent) will be allowed in the hearing room only during their testimony. At the Chairperson's discretion, the hearing may be recorded.

Within fifteen (15) working days after completion of the hearing, the Chairperson will issue the Decision and recommended order of the Hearing Panel. The Decision will be mailed to the complainant and respondent with a copy to the Grievance Officer. The Chairperson will implement any action recommended by the Panel.

**STEP 4: Appeal**

The decision of the Hearing Panel will be final and binding. If grievants wish to pursue the matter further, they may file with the outside agencies listed in Policy section, No. 5. and 6.

Section 5.02 of the by-laws of the Board of Trustees, approved July 24, 1989, will not be invoked for grievances submitted for settlement under this procedure.

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# Regional Centers

Lake Superior State University offers bachelor degree-completion programs at our regional centers that build on your education from your community college. This approach allows you to complete your degree at a reasonable cost and close to home.

All degrees require completion of general education core requirements. For students transferring from a Michigan community college who have the "MACRAO stamp" on their transcripts, the general education core requirements are considered met by LSSU. Generally, MACRAO certification requires six credits of English, eight credits of social science, eight credits of humanities and eight credits of natural science and mathematics. We encourage students to earn MACRAO certification from their community college for ease of transfer.

We are proud of the high-quality instruction and the personal attention LSSU offers. Our small class sizes, experienced faculty and the ability to pursue your educational dreams close to home are what the LSSU regional centers are all about.

Stop by one of our regional centers for assistance in planning your educational goals. We can help answer your questions in areas of admissions requirements, scholarship/financial aid, academics, course rotations, registration and more.

## Dearborn University Consortium Center

Amy McCarthy
Institutional Advancement Program Coordinator
Advanced Technology Academy
4800 Oakman Boulevard
Dearborn, MI 48124
Phone: 313-625-4712
Fax: 313-584-9407
E-mail: amccarthy@atafordpas.org

Completion programs are available for the following degrees:

- Business Administration- Entrepreneurship
- Business Administration - International Business
- Business Administration – Management
- Business Administration – Marketing
- Criminal Justice - Corrections
- Criminal Justice - Law Enforcement
- Criminal Justice - Generalist

## Escanaba Regional Center

Kristen Kendrick, Director
Escanaba Regional Center

Bay College
2001 N Lincoln Road - Heirman Center #924
Escanaba, MI 49829
Phone: 906-217-4123
E-mail: kkendrick@lssu.edu
Website: http://www.lssu.edu/admissions/regional/escanaba.php

Completion Programs are available for the following degrees:

- Accounting
- Business Administration – (Also offered at Bay College's West Campus in Iron Mountain)
- Business Administration - International Business
- Business Administration – Management
- Business Administration with a Marketing Minor
- Criminal Justice – Corrections with Law Enforcement Minor
- Criminal Justice – Generalist
- Criminal Justice – Law Enforcement
- Early Childhood Education
- Early Childhood Education - Teaching Minor (ZA Endorsement)
- Engineering Management
- Individualized Studies
- Liberal Studies
- Nursing – Completion Program

## Gaylord Regional Center

Joe Balinski, Director
Gaylord Regional Center
Lake Superior State University
80 Livingston Blvd
Gaylord, MI 49735
Phone: 989-705-3791
E-mail: jbalinski@lssu.edu
Website: http://www.lssu.edu/admissions/regional/gaylord.php

Completion Programs are available for the following degrees:

- Business Administration - Management
- Criminal Justice - Generalist
- Criminal Justice – Law Enforcement

## Petoskey Regional Center

Joe Balinski, Director
Petoskey Regional Center
North Central Michigan College
Administration Building, Room 48
Petoskey, MI 49770
Phone: 231-348-6623
E-mail: jbalinski@lssu.edu
Website: http://www.lssu.edu/admissions/regional/petoskey.php

Completion Programs are available for the following degrees:

- Accounting
- Business Administration - Management

- Business Administration - Marketing
- Business Administration - Entrepreneurship
- Criminal Justice – Generalist
- Criminal Justice – Law Enforcement
- Early Childhood Education
- Nursing Completion
- Individualized Studies
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# Grant Programs

## The Lake Superior State Board of Trustees' Grant Program

This program provides assistance to incoming and currently enrolled students based on financial need. The grant is considered a form of "priority aid", requiring the on-time filing of the FAFSA each year by March 1st. Recipients must be Michigan residents and enrolled full time in Lake Superior State University classes.

## Federal Pell Grant

All students filing the FAFSA are automatically reviewed for Pell Grant eligibility. Pell Grants provide assistance to which other forms of aid may be added.

Pell Grant amounts vary according to the year ($605-$5645 for 2013-14) and number of credits enrolled in each semester.

To be eligible for a Pell Grant, students must:

1. be determined to have financial need.
2. be undergraduates accepted for admission and enrolled in eligible programs and meet satisfactory academic progress standards.
3. be U.S. citizens or permanent residents or qualified Jay Treaty students.
4. not be in default on a Federal Direct Stafford or Perkins Loan, and not owe a refund for a Pell Grant or other federal aid.
5. not be disqualified due to prior drug offense convictions.

There is a limit to the total amount of Federal Pell Grant that a student may receive in their lifetime, which is the equivalent to 6 school years.

Although awards are made through the University, the U.S. Department of Education determines eligibility. The University Financial Aid Office uses a standard procedure established by the Department of Education to calculate the award.

To apply, complete the Free Application for Federal Student Aid (FAFSA). Forms are available at high schools, colleges and financial aid offices or online at www.fafsa.gov.

## Federal Supplemental Educational Opportunity Grant (FSEOG)

The Higher Education Act of 1965 created this program of financial assistance to help college students with the greatest financial need. Supplemental Educational Opportunity Grants may be used to meet all or part of student financial need (up to $1000 in any one year).

Financial need is the primary consideration in the selection of grant recipients. Priority is given to the neediest Pell Grant recipients. Recipients are selected from those applying for all forms of financial aid by using the FAFSA.

FSEOG is a priority fund that is distributed first to students who file their FAFSA by March 1st.
Recipients of this award must reapply each year and maintain the regular satisfactory academic progress standards to be considered for a renewal award.

## Federal Occupational Education Program (OCED)

The Perkins Grant Program provides OCED funding for students with demonstrated financial need, as determined by filing the Free Application for Federal Student Aid (FAFSA), and who are enrolled in certain associate's degree programs. Students who qualify for the Federal Pell Grant and have earned less than 72 credits will automatically be considered if enrolled in one of the following associate's degrees:

- Criminal Justice - Corrections
- Criminal Justice - Law Enforcement
- Early Childhood Education
- Fire Science
- Health Care Provider
- Manufacturing Engineering Technology
- Natural Resource Technology
- Small Business Administration
- Substance Abuse Prevention and Treatment
- Technical Accounting

This grant provides supplemental funding for qualified students and may be pro-rated for less than full-time attendance.

## Michigan Tuition Incentive Program (TIP)

The Tuition Incentive Program (TIP) is an incentive program that encourages eligible students to complete high school by providing tuition assistance for the first two years of college and beyond. To meet the financial eligibility requirement, a student must have (or have had) Medicaid coverage for 24 months within a 36-consecutive-month period as identified by the Michigan Department of Human Services (DHS). TIP provides assistance in two phases:

*Phase I* covers tuition and mandatory fee charges for eligible students enrolled in a credit-based associate degree or certificate program at participating Michigan community college, public university, degree-granting independent college, federal tribally-controlled college, or Focus: HOPE.

*Phase II* provides a maximum of $2,000 total tuition assistance for credits earned in a four-year program at an in-state, degree-granting college or university.

Awards are subject to legislative changes.

## Vocational Rehabilitation

The Michigan Jobs Commission Rehabilitation Services provides services and financial assistance to persons with any disability that has interfered with, or may interfere with, the individual's job performance. Students must apply for financial aid and have need.

Further information may be obtained by contacting your nearest Michigan

Rehabilitation Services Office of Michigan Jobs Commission.

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# Loans

## Federal Perkins Loan

The Federal Carl Perkins Loan program is for students enrolled at least half time in an eligible program who need a loan to meet educational expenses.

Students may borrow up to $5,500 for each year of undergraduate study. The lifetime loan limit for undergraduates is $27,500. The amount awarded by the University is generally less due to limited funds.

Repayment begins nine months after students graduate or drop below half-time enrollment. There is a 10-year pay back period, at five percent interest on the unpaid balance of the loan principal.

The amount of the repayment depends on the size of the debt and ability to pay. In most cases, students must pay at least $40 a month. Any agreement for a lesser amount must be attributable to extraordinary circumstances such as prolonged unemployment.

Default: If a student defaults on a Perkins Loan and the school is unable to collect, the federal government will take action to recover the loan. In cases of bankruptcy, total or permanent disability or death, loan obligations are canceled.

Deferment of payment is available if:

1. you are enrolled and attending as at least a half-time student at an institution of higher education.
2. for any period not to exceed three (3) years you :
    1. are unable to find full-time employment.
    2. are experiencing economic hardship.
    3. are active in certain military service.

Cancellation: Loans may be canceled for:

1. certain types of teaching,
2. full-time qualified provider of early intervention services for the disabled,
3. full-time nurse or medical technician,
4. full-time law enforcement or corrections officer, firefighters,
5. death or disability of the student,
6. full-time staff of Head Start Educational Program,
7. full-time provider of services to high-risk children at a child or family service agency,
8. certain military service,
9. public defenders,
10. certain speech pathologists,
11. certain librarians,

12. faculty member at a tribal college,
13. volunteer service.

## Federal Direct Stafford Loan (Student)

Qualified applicants must be a United States citizen or eligible alien. Students may borrow up to $5,500 the first year of undergraduate study, $6,500 as a sophomore and $7,500 as a junior or senior. The lifetime maximum amount is $31,000 for dependent students and $57,500 for independent undergraduate students.

The student loan program is administered through the Financial Aid Office under the Direct Loan Program. A loan fee is charged on all loans, under federal law. Loans are disbursed in two equal disbursements (one-half in the fall semester; one-half in the spring semester).

Subsidized loans are eligible for federal interest benefits. For subsidized loans, the federal government does not charge interest while attending school at least half-time, during the six-month grace period, and during deferments (postponements of repayments). Financial need must be shown to receive this type of loan.

For students without financial need, the Direct Loan Program offers Direct Unsubsidized Loans. The federal government charges interest on these loans while attending school, in the grace period, and in deferment.

Once enrolled at Lake Superior State University, students must meet the satisfactory progress standards to be eligible for additional loans. Students must file a Free Application for Federal Student Aid (FAFSA) each year to qualify for a student loan.

Repayment begins six months after graduation or the date the student attends school less than half-time. Interest rates are set each June for the following academic year.

## Federal Direct PLUS Loan (Parent)

Parents may borrow up to the difference between the cost of education and other financial aid for which the student is eligible. The interest rate is adjusted annually for new loans; the 2013/14 fixed interest rate is 7.9%.

Students must meet the satisfactory progress standards to be eligible and must file a Free Application for Federal Student Aid (FAFSA) each year to obtain a Federal Direct PLUS loan.
An origination fee is deducted from each of two disbursements made in a school year. Repayment begins within 60 days of disbursements, or may be deferred until six months after student graduates or drops below half time. Interest rates are set each June for the following academic year.

## Federal Nursing Student Loan

The Nursing Education Loan Program provides loans of up to $5200 a year for bachelor’s degree or completion nursing programs. Payment assistance is available by annual application to the Department of Health and Human Services at hrsa.gov/loanscholarships/repayment. Eligibility requirements include United States citizenship, enrollment of at least half-time and demonstrated financial need.

## Federal TEACH Loan Forgiveness Program

The TEACH Grant is a Loan Forgiveness Program for students who plan to become teachers in certain fields and for teachers who are seeking a graduate degree.

Qualified students may borrow up to $4,000 per year if full time, prorated for part time.
Maximum of $16,000 for undergraduate student.

Maximum of $8,000 for Masters with lifetime limit of $24,000.

Award becomes an unsubsidized federal student loan with interest accruing from initial point of disbursement if student does not meet forgiveness criteria within eight years.

Qualifications:

1. Student must be admitted into an approved major- see list on website @ www.lssu.edu/finaid/teachlist.php.
2. Student must have scored above 75th percentile on admissions test or Graduate Records Exam (GRE). Submit a copy of your original ACT results clearly showing your score above the 75th percentile.
3. Student who did not meet the test criteria must have a cumulative GPA of 3.25 or higher.
4. If qualified by GPA, must meet that minimum each semester.
5. Student must complete Entrance Counseling, Interim and Exit Counseling.
6. Student must complete Agreement to Serve each year.

Criteria for forgiveness of loan for students:

1. Must complete four years of teaching within eight years of finishing program.
2. Must perform teach service as a highly-qualified teacher.
3. Must teach in a high-need subject area for at least four years at a school serving low-income students.
4. Must be a full-time teacher with majority of time spent teaching one of the high need subjects:
    1. Bilingual Education and English Language Acquisition
    2. Foreign Language
    3. Mathematics
    4. Reading Specialist
    5. Science
    6. Special Education
    7. Other teacher shortage areas documented as high need by Federal, State or local education agency and listed in Department of Education Annual Teacher Shortage Area Nationwide at the time the student begins teaching.

## Canada Student Loan

Canadian students who need financial help to earn a degree at Lake Superior State University may apply for aid through the Ontario Student Assistance Program (OSAP).

To qualify for a loan, the student must:

1. be a Canadian citizen or have landed immigrant status;
2. be a resident of a province that participates in the plan;

3. have attained a satisfactory scholastic standard;
4. be enrolled, or qualified to enroll in a post-secondary course of studies;
5. be taking at least 60 percent course load (eight credits);
6. complete an application for OSAP at osap.gov.on.ca;
7. bring Program Information Form to the LSSU Registrar's Office to be completed and mailed by LSSU.

The loans are interest free for full-time students and until six months after graduation or termination of full-time studies. After the interest-free period has expired, students are responsible for the repayment of principal and the interest on the outstanding balance at a loan rate in effect when repayment begins.

Application forms are available on-line at www.osap.gov.on.ca.

## Short-Term Educational Loan

Several short-term loan funds are available. These funds provide cash with a small loan to meet immediate, temporary financial problems.

Generally, loans up to $300 are allowed for no longer than 30 days during the school year when classes are in session. These loans are signature loans and do not bear interest if repaid when due. A minimum service charge is assessed on all loans.

## Student Emergency Fund

Established in 2000 through the Bud Mansfield Endowment, this fund is used to assist students in crisis. Application for funds is made at the Financial Aid Office. Students with insufficient resources to meet textbook needs or other obligations may apply for one-time assistance through this fund.

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# Campus Employment

## Federal Work-Study

If you have demonstrated financial need, you may be eligible for employment by Lake Superior State University under the federally supported Work-Study Program. You must file a FAFSA to be considered for this program and have financial need.

Students may work up to 19 hours weekly while attending classes at least half-time. During the summer or other vacation periods when you do not have classes, you may work full-time (40 hours per week) under this program.

The basic starting rate tends to be commensurate with the current minimum wage. Higher rates are paid for highly specialized work.

America Reads Program at Lake Superior State University is another work study opportunity for students. Students work as reading tutors in the local elementary schools and are paid through the Federal Work-Study Program. Interested students should request this unique employment experience when submitting their applications for employment.

## Campus Job Opportunity

If you are interested in working on campus, but do not qualify for work study, you may be employed under the Campus Job Opportunity Program. Students must be enrolled full-time, and may work up to 19 hours per week. During the summer and other vacation periods, students may work up to 40 hours per week.

Every effort is made to employ students in areas of study providing a "learn while you earn" situation. On-campus jobs include work in laboratories, libraries, maintenance, offices, switchboard and food service areas. You can earn approximately $2,000 during the school year and up to $4,600 in the summer with an on-campus job.

It is recommended that students on academic probation do not continue or seek employment until probationary status has been corrected.

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# Programs for Native Americans

**Bureau of Indian Affairs Scholarship Grant**

Members or those eligible for membership in a federally recognized tribe showing need, may apply for Bureau of Indian Affairs Scholarship Grants by contacting their tribal education office for an application. It is possible to receive up to full university expenses per year in scholarship grants if financial need is demonstrated.

All applicants must complete a Free Application for Federal Student Aid (FAFSA).

**Bureau of Indian Affairs Vocational Training Assistance**

Native students enrolled in certificate or associate degree programs are eligible for assistance to pay for tuition, books and living expenses. You must be a member or eligible for membership in a federally recognized tribe.

Awards are based on financial need. Applicants must complete a Free Application for Federal Student Aid (FAFSA). Applications may be obtained by contacting the Tribal Education Office.

**Michigan Indian Tuition Waiver**

As of July 1, 2010, Michigan Indian Tuition Waiver applications are processed by the Department of Civil Rights. To be eligible for the MITW, you must meet the following criteria:

- You must be admitted to LSSU AND
- You must be 1/4 or more Native American blood quantum as certified by your Tribal Enrollment Department AND
- You must be a legal resident of the state of Michigan for not less than 12 consecutive months and provide proof of Michigan residency upon request of the Financial aid Office.

  Waiver requests must be received and complete prior to the census date each semester. Applications are submitted to your Tribal Education Department.

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# Veterans Educational Benefits

Lake Superior State University's VA Certifying Official acts as a liaison between the Department of Veteran Affairs and eligible students. Student eligibility for veterans educational benefits is determined by the United States Department of Veterans Affairs. Students who believe they are eligible for veterans educational benefits are encouraged to contact the U.S. Department of Veterans Affairs and the Michigan Department of Military and Veterans Affairs for educational assistance programs. Additional information is available at LSSU's Veterans Benefits website.

A Veterans Educational Benefits recipient must be admitted into a degree program or as a guest student. The student is required to provide the University's VA Certifying Officical with a degree audit form from their department. All transfer credit is evaluated and recorded as "credit for previous training". Classes may not be repeated if passing grades were received. Each semester the student must provide a completed certification form of scheduled classes within their declared major to the University's VA Certifying Official. The student must also notify the University's VA Certifying Official of any change to their scheduled classes, academic program, or withdrawal from the University. These activities along with attendance are monitored and reported to the U.S. Department of Veterans Affairs.

Standards of Progress requirements for recipients of Veterans educational benefits follow the University's "Academic Probation and Dismissal Policy" as stated. If a student fails to meet these standards, the University's VA Certifying Official must notify the U.S. Department of Veterans Affairs and the student's benefits will be terminated for unsatisfactory progress.

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# Financial Aid Home

*It is the mission of the Financial Aid Office to provide accurate and timely financial aid information to students to meet their educational expenses. Our goal is to offer all students a balanced financial aid package that is competitive and attractive, and best utilizes the resources available. We strive to assist and educate our students by providing the best service possible so that they can focus on their educational experience.*

## *Meet the Staff*

---

*Anne Van*
*Director Financial Aid*
*Email: avan1@lssu.edu*
*Phone: 906-635-2146*

*Barbra Marsh*
*Assistant Director Financial Aid*
*Email: bmarsh@lssu.edu*
*Phone: 906-635-2677*

*Brook Strawn*
*Financial Aid Officer*
*Email: bstrawn@lssu.edu*
*Phone: 906-635-2899*

---

*If you would like to schedule an appointment with the Financial Aid office, please schedule here: https://lssufinancialaid.setmore.com*

***Mailing address:***

*Financial Aid Office*
*Fletcher Center*
*650 W. Easterday Ave.*
*Sault Ste. Marie, MI 49783*

***Phone**:*

*906-635-2678*

***Fax**:*
*906-635-6669*

***E-mail**:*
*finaid@lssu.edu*

***Text:***

*906-379-9557*

***Hours:***
*Monday – Friday*
*Regular: 8:00 am – 5:00 pm*
*Summer: 8:00 am – 4:30 pm*

*NOTE: Please allow one to two business days for a response when contacting us via e-mail, text, or when leaving a voice message.*

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**Web Accessibility Policy**

*Director of Library/Academic Services and Web Accessibility Coordinator*
*Marc Boucher*
*906-635-2404*
*Library 208*

**Accessibility Statement**

*Lake Superior State University is committed to making reasonable accommodations related to its facilities, programs, or services for qualifying students, staff, faculty, and campus guests with disabilities as required by applicable laws. If any programming or activity is scheduled in an inaccessible space, requests for relocation shall be made to the Human Resources office at 906-635-2213, if possible, 48 hrs prior to the event. View Accessibility Statement Details*

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To be eligible for a Pell Grant, students must:

1. be determined to have financial need.
2. be undergraduates accepted for admission and enrolled in eligible programs and meet satisfactory academic progress standards.
3. be U.S. citizens or permanent residents or qualified Jay Treaty students.
4. not be in default on a Federal Direct Stafford or Perkins Loan, and not owe a refund for a Pell Grant or other federal aid.
5. not be disqualified due to prior drug offense convictions.

There is a limit to the total amount of Federal Pell Grant that a student may receive in their lifetime, which is the equivalent to 6 school years.

Although awards are made through the University, the U.S. Department of Education determines eligibility. The University Financial Aid Office uses a standard procedure established by the Department of Education to calculate the award.

To apply, complete the Free Application for Federal Student Aid (FAFSA). Forms are available at high schools, colleges and financial aid offices or online at www.fafsa.gov.

## Federal Supplemental Educational Opportunity Grant (FSEOG)

The Higher Education Act of 1965 created this program of financial assistance to help college students with the greatest financial need. Supplemental Educational Opportunity Grants may be used to meet all or part of student financial need (up to $1000 in any one year).

Financial need is the primary consideration in the selection of grant recipients. Priority is given to the neediest Pell Grant recipients. Recipients are selected from those applying for all forms of financial aid by using the FAFSA.

FSEOG is a priority fund that is distributed first to students who file their FAFSA by March 1st.
Recipients of this award must reapply each year and maintain the regular satisfactory academic progress standards to be considered for a renewal award.

## Federal Occupational Education Program (OCED)

The Perkins Grant Program provides OCED funding for students with demonstrated financial need, as determined by filing the Free Application for Federal Student Aid (FAFSA), and who are enrolled in certain associate's degree programs. Students who qualify for the Federal Pell Grant and have earned less than 72 credits will automatically be considered if enrolled in one of the following associate's degrees:

- Criminal Justice - Corrections
- Criminal Justice - Law Enforcement
- Early Childhood Education
- Fire Science
- Health Care Provider
- Manufacturing Engineering Technology
- Natural Resource Technology
- Small Business Administration
- Substance Abuse Prevention and Treatment
- Technical Accounting

This grant provides supplemental funding for qualified students and may be pro-rated for less than full-time attendance.

## Michigan Tuition Incentive Program (TIP)

The Tuition Incentive Program (TIP) is an incentive program that encourages eligible students to complete high school by providing tuition assistance for the first two years of college and beyond. To meet the financial eligibility requirement, a student must have (or have had) Medicaid coverage for 24 months within a 36-consecutive-month period as identified by the Michigan Department of Human Services (DHS). TIP provides assistance in two phases:

*Phase I* covers tuition and mandatory fee charges for eligible students enrolled in a credit-based associate degree or certificate program at participating Michigan community college, public university, degree-granting independent college, federal tribally-controlled college, or Focus: HOPE.

*Phase II* provides a maximum of $2,000 total tuition assistance for credits earned in a four-year program at an in-state, degree-granting college or university.

Awards are subject to legislative changes.

## Vocational Rehabilitation

The Michigan Jobs Commission Rehabilitation Services provides services and financial assistance to persons with any disability that has interfered with, or may interfere with, the individual's job performance. Students must apply for financial aid and have need.

Further information may be obtained by contacting your nearest Michigan

Rehabilitation Services Office of Michigan Jobs Commission.

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# Loans

## Federal Perkins Loan

The Federal Carl Perkins Loan program is for students enrolled at least half time in an eligible program who need a loan to meet educational expenses.

Students may borrow up to $5,500 for each year of undergraduate study. The lifetime loan limit for undergraduates is $27,500. The amount awarded by the University is generally less due to limited funds.

Repayment begins nine months after students graduate or drop below half-time enrollment. There is a 10-year pay back period, at five percent interest on the unpaid balance of the loan principal.

The amount of the repayment depends on the size of the debt and ability to pay. In most cases, students must pay at least $40 a month. Any agreement for a lesser amount must be attributable to extraordinary circumstances such as prolonged unemployment.

Default: If a student defaults on a Perkins Loan and the school is unable to collect, the federal government will take action to recover the loan. In cases of bankruptcy, total or permanent disability or death, loan obligations are canceled.

Deferment of payment is available if:

1. you are enrolled and attending as at least a half-time student at an institution of higher education.
2. for any period not to exceed three (3) years you :
    1. are unable to find full-time employment.
    2. are experiencing economic hardship.
    3. are active in certain military service.

Cancellation: Loans may be canceled for:

1. certain types of teaching,
2. full-time qualified provider of early intervention services for the disabled,
3. full-time nurse or medical technician,
4. full-time law enforcement or corrections officer, firefighters,
5. death or disability of the student,
6. full-time staff of Head Start Educational Program,
7. full-time provider of services to high-risk children at a child or family service agency,
8. certain military service,
9. public defenders,
10. certain speech pathologists,
11. certain librarians,

12. faculty member at a tribal college,
13. volunteer service.

## Federal Direct Stafford Loan (Student)

Qualified applicants must be a United States citizen or eligible alien. Students may borrow up to $5,500 the first year of undergraduate study, $6,500 as a sophomore and $7,500 as a junior or senior. The lifetime maximum amount is $31,000 for dependent students and $57,500 for independent undergraduate students.

The student loan program is administered through the Financial Aid Office under the Direct Loan Program. A loan fee is charged on all loans, under federal law. Loans are disbursed in two equal disbursements (one-half in the fall semester; one-half in the spring semester).

Subsidized loans are eligible for federal interest benefits. For subsidized loans, the federal government does not charge interest while attending school at least half-time, during the six-month grace period, and during deferments (postponements of repayments). Financial need must be shown to receive this type of loan.

For students without financial need, the Direct Loan Program offers Direct Unsubsidized Loans. The federal government charges interest on these loans while attending school, in the grace period, and in deferment.

Once enrolled at Lake Superior State University, students must meet the satisfactory progress standards to be eligible for additional loans. Students must file a Free Application for Federal Student Aid (FAFSA) each year to qualify for a student loan.

Repayment begins six months after graduation or the date the student attends school less than half-time. Interest rates are set each June for the following academic year.

## Federal Direct PLUS Loan (Parent)

Parents may borrow up to the difference between the cost of education and other financial aid for which the student is eligible. The interest rate is adjusted annually for new loans; the 2013/14 fixed interest rate is 7.9%.

Students must meet the satisfactory progress standards to be eligible and must file a Free Application for Federal Student Aid (FAFSA) each year to obtain a Federal Direct PLUS loan.
An origination fee is deducted from each of two disbursements made in a school year. Repayment begins within 60 days of disbursements, or may be deferred until six months after student graduates or drops below half time. Interest rates are set each June for the following academic year.

## Federal Nursing Student Loan

The Nursing Education Loan Program provides loans of up to $5200 a year for bachelor’s degree or completion nursing programs. Payment assistance is available by annual application to the Department of Health and Human Services at hrsa.gov/loanscholarships/repayment. Eligibility requirements include United States citizenship, enrollment of at least half-time and demonstrated financial need.

## Federal TEACH Loan Forgiveness Program

The TEACH Grant is a Loan Forgiveness Program for students who plan to become teachers in certain fields and for teachers who are seeking a graduate degree.

Qualified students may borrow up to $4,000 per year if full time, prorated for part time.
Maximum of $16,000 for undergraduate student.

Maximum of $8,000 for Masters with lifetime limit of $24,000.

Award becomes an unsubsidized federal student loan with interest accruing from initial point of disbursement if student does not meet forgiveness criteria within eight years.

Qualifications:

1. Student must be admitted into an approved major- see list on website @ www.lssu.edu/finaid/teachlist.php.
2. Student must have scored above 75th percentile on admissions test or Graduate Records Exam (GRE). Submit a copy of your original ACT results clearly showing your score above the 75th percentile.
3. Student who did not meet the test criteria must have a cumulative GPA of 3.25 or higher.
4. If qualified by GPA, must meet that minimum each semester.
5. Student must complete Entrance Counseling, Interim and Exit Counseling.
6. Student must complete Agreement to Serve each year.

Criteria for forgiveness of loan for students:

1. Must complete four years of teaching within eight years of finishing program.
2. Must perform teach service as a highly-qualified teacher.
3. Must teach in a high-need subject area for at least four years at a school serving low-income students.
4. Must be a full-time teacher with majority of time spent teaching one of the high need subjects:
    1. Bilingual Education and English Language Acquisition
    2. Foreign Language
    3. Mathematics
    4. Reading Specialist
    5. Science
    6. Special Education
    7. Other teacher shortage areas documented as high need by Federal, State or local education agency and listed in Department of Education Annual Teacher Shortage Area Nationwide at the time the student begins teaching.

## Canada Student Loan

Canadian students who need financial help to earn a degree at Lake Superior State University may apply for aid through the Ontario Student Assistance Program (OSAP).

To qualify for a loan, the student must:

1. be a Canadian citizen or have landed immigrant status;
2. be a resident of a province that participates in the plan;

3. have attained a satisfactory scholastic standard;
4. be enrolled, or qualified to enroll in a post-secondary course of studies;
5. be taking at least 60 percent course load (eight credits);
6. complete an application for OSAP at osap.gov.on.ca;
7. bring Program Information Form to the LSSU Registrar's Office to be completed and mailed by LSSU.

The loans are interest free for full-time students and until six months after graduation or termination of full-time studies. After the interest-free period has expired, students are responsible for the repayment of principal and the interest on the outstanding balance at a loan rate in effect when repayment begins.

Application forms are available on-line at www.osap.gov.on.ca.

## Short-Term Educational Loan

Several short-term loan funds are available. These funds provide cash with a small loan to meet immediate, temporary financial problems.

Generally, loans up to $300 are allowed for no longer than 30 days during the school year when classes are in session. These loans are signature loans and do not bear interest if repaid when due. A minimum service charge is assessed on all loans.

## Student Emergency Fund

Established in 2000 through the Bud Mansfield Endowment, this fund is used to assist students in crisis. Application for funds is made at the Financial Aid Office. Students with insufficient resources to meet textbook needs or other obligations may apply for one-time assistance through this fund.

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# Campus Employment

## Federal Work-Study

If you have demonstrated financial need, you may be eligible for employment by Lake Superior State University under the federally supported Work-Study Program. You must file a FAFSA to be considered for this program and have financial need.

Students may work up to 19 hours weekly while attending classes at least half-time. During the summer or other vacation periods when you do not have classes, you may work full-time (40 hours per week) under this program.

The basic starting rate tends to be commensurate with the current minimum wage. Higher rates are paid for highly specialized work.

America Reads Program at Lake Superior State University is another work study opportunity for students. Students work as reading tutors in the local elementary schools and are paid through the Federal Work-Study Program. Interested students should request this unique employment experience when submitting their applications for employment.

## Campus Job Opportunity

If you are interested in working on campus, but do not qualify for work study, you may be employed under the Campus Job Opportunity Program. Students must be enrolled full-time, and may work up to 19 hours per week. During the summer and other vacation periods, students may work up to 40 hours per week.

Every effort is made to employ students in areas of study providing a "learn while you earn" situation. On-campus jobs include work in laboratories, libraries, maintenance, offices, switchboard and food service areas. You can earn approximately $2,000 during the school year and up to $4,600 in the summer with an on-campus job.

It is recommended that students on academic probation do not continue or seek employment until probationary status has been corrected.

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# Programs for Native Americans

**Bureau of Indian Affairs Scholarship Grant**

Members or those eligible for membership in a federally recognized tribe showing need, may apply for Bureau of Indian Affairs Scholarship Grants by contacting their tribal education office for an application. It is possible to receive up to full university expenses per year in scholarship grants if financial need is demonstrated.

All applicants must complete a Free Application for Federal Student Aid (FAFSA).

**Bureau of Indian Affairs Vocational Training Assistance**

Native students enrolled in certificate or associate degree programs are eligible for assistance to pay for tuition, books and living expenses. You must be a member or eligible for membership in a federally recognized tribe.

Awards are based on financial need. Applicants must complete a Free Application for Federal Student Aid (FAFSA). Applications may be obtained by contacting the Tribal Education Office.

**Michigan Indian Tuition Waiver**

As of July 1, 2010, Michigan Indian Tuition Waiver applications are processed by the Department of Civil Rights. To be eligible for the MITW, you must meet the following criteria:

- You must be admitted to LSSU AND
- You must be 1/4 or more Native American blood quantum as certified by your Tribal Enrollment Department AND
- You must be a legal resident of the state of Michigan for not less than 12 consecutive months and provide proof of Michigan residency upon request of the Financial aid Office.

  Waiver requests must be received and complete prior to the census date each semester. Applications are submitted to your Tribal Education Department.

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# Veterans Educational Benefits

Lake Superior State University's VA Certifying Official acts as a liaison between the Department of Veteran Affairs and eligible students. Student eligibility for veterans educational benefits is determined by the United States Department of Veterans Affairs. Students who believe they are eligible for veterans educational benefits are encouraged to contact the U.S. Department of Veterans Affairs and the Michigan Department of Military and Veterans Affairs for educational assistance programs. Additional information is available at LSSU's Veterans Benefits website.

A Veterans Educational Benefits recipient must be admitted into a degree program or as a guest student. The student is required to provide the University's VA Certifying Officical with a degree audit form from their department. All transfer credit is evaluated and recorded as "credit for previous training". Classes may not be repeated if passing grades were received. Each semester the student must provide a completed certification form of scheduled classes within their declared major to the University's VA Certifying Official. The student must also notify the University's VA Certifying Official of any change to their scheduled classes, academic program, or withdrawal from the University. These activities along with attendance are monitored and reported to the U.S. Department of Veterans Affairs.

Standards of Progress requirements for recipients of Veterans educational benefits follow the University's "Academic Probation and Dismissal Policy" as stated. If a student fails to meet these standards, the University's VA Certifying Official must notify the U.S. Department of Veterans Affairs and the student's benefits will be terminated for unsatisfactory progress.

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# Advising, Retention & Orientation

## Links

- Advising Website
- Orientation Website

## Overview

The Office of Advising, Retention and Orientation works with faculty, staff and students to provide programs, initiatives, and resources that enhance student success, such as:

- Academic advising resources
- Map-Works
- New student academic orientation

## Advising Resources

The office maintains an advisor's handbook, an advising website, and assists with the coordination of advisor development programs for faculty and staff. Visit our website at: www.lssu.edu/advising for additional information.

The purpose of academic advising at LSSU — Academic advising helps all students:

- identify and clarify their academic, career and life goals;
- assess the role that higher education can play in achieving those goals;
- develop educational plans consistent with those goals and with their interests and abilities;
- select appropriate courses and other educational experiences;
- evaluate their progress toward earning a degree and reaching their goals;
- adapt to the demands of college life and become active members of the university community;
- identify and utilize university and community support services;
- interpret institutional rules, policies, and procedures; and
- develop the skills necessary for independent decision-making.

The roles and responsibilities of the student in academic advising at LSSU — The student should:

- explain to the advisor his or her personal values, abilities, interests, and goals;
- maintain frequent contact with his or her advisor in order to keep abreast of current academic information;
- be prepared with accurate information and relevant materials when contacting and meeting with the advisor;

- be honest and ethical in interactions with the advisor;
- become knowledgeable about, and adhere to, the relevant policies, procedures, and rules of the university, college, and academic program;
- seek relevant information about career options and how they are related to the educational program;
- follow through on action plans identified during each advising session;
- acquire the information needed to assume final responsibility for course registration, program planning, and the successful completion of all graduation requirements;
- consult with his or her advisor at least once a semester to decide on courses, review progress toward degree requirements, and discuss the suitability of other educational opportunities provided by the university.

All admitted students at LSSU are assigned to an academic advisor within their disciplines. The advisor assignment is listed in the student's Anchor Access account. If no advisor is listed, the student should contact the academic department secretary for his/her major or the Office of Advising, Retention and Orientation at 906-635-2874 (or ext. 2874 on campus).

## Map-Works

Map-Works is an advising resource and communication tool for faculty and staff. Map-Works enhances a student's ability to be more successful in College.

## Orientation

All new students (including transfer students) attending main campus are required to attend and participate in orientation. Orientation is when students learn important information on academic policies and procedures that students are expected to follow while attending LSSU. Students will also learn about the wide range of services available to assist them in having a successful university experience. Visit www.lssu.edu/orientation for additional information.

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## Computer Services

### Links

- Website

### Overview

LSSU Information Technology offers a variety of services and programs for students. Classroom laboratories provide for instruction that involves computers and/or software. During non-class hours, general access labs provide copies of the software used in classes, open Internet access to students, as well as word processing software. Help for students utilizing software in the classroom or labs is available in the Learning Center. PCs enhance the research ability of the KJS Library with access to the Internet and many databases. The University maintains a student-to-computer ratio of 10-1 whenever possible.

Upon enrollment, a student will receive an e-mail account which can be used to access the university messaging system as well as communicating with friends and family. This account is free to any enrolled student. Instructions and help for using the e-mail account are available at the Information Technology HelpDesk in the Administration Building. Internet access is also available in student residences and many locations across campus.

The Information Technology HelpDesk is located in the Administration Building, room 107. The HelpDesk assists students with general computing problems related to any of the above services.

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# Placement Chart

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# ENGL110

**First-Year Composition I**

**(3,0) 3**

ENGL110 provides students with an introduction to the discipline of writing through an exploration of their own writing processes and products. Emphasis is placed on students learning to think critically about their own writing in order to address issues of coherence, grammar, mechanics, organization, clarity and content. Other material covered includes the role of literacy in society, the ways in which readers engage text, and the role of writing at the college level. Prerequisites: English ACT score of 18 or a C or higher in ENGL091.

*Source: Academic Catalog 2013-14*

# ENGL111

**First-Year Composition II**

**(3,0) 3**

First-Year Composition II prepares students for the complex demands of academic literacy and research. These require students to be able to critically observe personal and public knowledge; ask questions of reading and research; formulate hypotheses; design and conduct research projects, both in the library and in the field; and identify further avenues of inquiry. To help students develop these abilities, the course also teaches students the basic skills of analysis, interpretation, critical thinking and documentation. Required course work includes completion of an extended research project. Prerequisite: a grade of C or higher in ENGL110.

*Source: Academic Catalog 2013-14*

# COMM101

**Fundamentals of Speech Communication**

**(3,0) 3**

A study of communication theory as it relates to the oral sender and receiver in interpersonal, dyadic, small group, and public speaking situations. Application will be in perceptual analysis, dyadic encounters, small group problem-solving and discussion, and public speaking situations.

*Source: Academic Catalog 2013-14*

# HUMN251

**Humanities I**

**(4,0) 4 fall, spring,**

The humanities in the life of mankind from prehistoryto the Medieval epoch. Emphasizes significant values evolved in the Hebrew, Greek, Roman and early Christian cultures. Includes consideration of the origins of the arts, language, religion, mythology, philosophy, and ancient Chinese and Indian systems of religious thought. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# ARTS250

**Art History and Appreciation I**

**(4,0) 4**

Study of arts exemplified in prehistoric and primitive cultures, and in the Mesopotamian, Egyptian, Aegean, Greek, Roman, early Christian, Byzantine, Moslem, Roman and Gothic eras. The course presents a development of historic, social and aesthetic principles, including a study of signs and symbols for students of art education, science, letters, business and engineering. Art history is taught in terms of visual experience and knowledge with art films, slides and demonstrations with art materials in addition to class lectures. Universal standards that can be applied to any work of art are studied. Counts as humanities credit for general education requirements.

*Source: Academic Catalog 2013-14*

# ARTS251

**Art History and Appreciation II**

**(4,0) 4**

A study of European and American art from the Renaissance to the 20th century, including Renaissance, baroque, rococo, neoclassic, romantic, realist and contemporary. The history of art is presented from a technical, social and aesthetic standpoint, along with a study of rhythm, motion, and proportion. Works of art are considered on their own merits and development rather than on the basis of preconceptions. Art films, color slide presentations and demonstrations using art materials supplement class lectures. Counts as humanities credit for general education requirements.

*Source: Academic Catalog 2013-14*

# HUMN203

**Survey of Chinese Culture**

**(3,0) 3 summer**

Designed for students interested in Chinese culture and study abroad. Taught in English and offered at a partner university in China during the first summer session. This four-week course introduces the major cultural and artistic aspects of Chinese society. Lecture topics include Chinese history, geography, language, ethos, philosophy, literature, religion, historical relics, education, medicine, architecture, etiquette, and social and economic aspects of Chinese culture. Field trips to museums, art galleries, historic sites, and places of interest are scheduled throughout the trip.

*Source: Academic Catalog 2013-14*

# HUMN240

**Native Art and Culture**

**(3,0) 3**

An overview of traditional and contemporary Native arts including visual art, music, literature, storytelling, architecture, theater and dance within their cultural context. Relationships between historical and contemporary forms and expression of Native identity and philosophy through artistic mediums will be examined. Also listed as NATV240.

*Source: Academic Catalog 2013-14*

# HUMN252

**Humanities II**

**(4,0) 4 fall, spring,**

Continuation of HUMN251, the humanities in the age of science, from the early Renaissance to the present. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# HUMN255

**World Mythology**

**(4,0) 4**

A survey of world mythology from "Gilgamesh" to "Finnegan's Wake". Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# MUSC220

**History and Appreciation of Music I**

**(4,0) 4**

A survey of music from the Middle Ages to the early 19th century with emphasis on the music of Bach, Handel, Haydn, Mozart and Beethoven. Counts as humanities credit for general education requirements.

*Source: Academic Catalog 2013-14*

# MUSC221

**History and Appreciation of Music II**

**(4,0) 4**

A survey of music of the 19th and 20th centuries. Counts as humanities credit for general education requirements.

*Source: Academic Catalog 2013-14*

# NATV240

**Native Art and Culture**

**(3,0) 3**

An overview of traditional and contemporary Native arts including visual art, music, literature, storytelling, architecture, theater and dance within their cultural context. Relationships between historical and contemporary forms and expression of Native identity and philosophy through artistic mediums will be examined. Also listed as HUMN240.

*Source: Academic Catalog 2013-14*

# PHIL302

**Ancient Western Philosophy**

**(3,0) 3**

A study of the origins and the development of Greek and Roman philosophy from the pre-Socratics to the early Christians. Counts as humanities credit for general education requirement. Prerequisite: ENGL111.

*Source: Academic Catalog 2013-14*

# PHIL305

**Modern and Contemporary Philosophy**

**(3,0) 3**

Students will become familiar with the arguments and ideas that have sought to describe and, in many cases, to shape the consciousness of the modern and postmodern epochs. From Descartes to Kant, modern philosophy experimented with new ways to understand existence, identity, causality, and God. From Russell to Williams, contemporary philosophers grappled with new ways to understand logic, ethics, gender, and subjective experience. Students will learn to make connections between their own ways of experiencing the world and the sometimes subtle ways that philosophers since Descartes have influenced their understanding of their experiences. Prerequisite: ENGL111.

*Source: Academic Catalog 2013-14*

# MATH110

**Explorations in Mathematics**

**(3,0) 3**

A discovery course in mathematics which explores the varied relationships of mathematics to society and the natural world through application and enrichment. A statistics component is included, and a term project is required. This course satisfies the general education mathematics requirement. It will not count toward a major or minor in mathematics. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# PHIL205

**Logic**

**(3,0) 3**

An introductory course in logic; study of the role of logical methods of the rational approach to knowledge; consideration of such concepts as definition, implication, inference, syllogism, deduction. Prerequisite: ENGL111.

*Source: Academic Catalog 2013-14*

# BIOL104

**Survey of General Biology**

**(3,3) 4**

This course is a non-majors biology course that will cover the major units of general biology: (1) cells and energy; (2) genetics; (3) evolution; (4) organismal biology; (5) ecology. Developing a solid understanding of the fundamentals of general biology is vital to being an informed citizen about advances in the medical and food sciences, foundational and new information about the organization of life, and current issues of environmental and ecological concern. Course content is tied to the State of Michigan's benchmarks for training elementary school teachers, but any students interested in the life sciences are encouraged to take this class. The laboratory is designed to illustrate the course content as well as illustrate the principles of inquiry. Prerequisites: ENGL091, MATH086 and READ091 or equivalent test scores.

*Source: Academic Catalog 2013-14*

# BIOL105

**Function of the Human Body**

**(3,2) 4**

Survey of the functional anatomy and the related physiological processes needed for the understanding of normal human activity. Not open to biological majors or minors. Prerequisite: ENGL091 or equivalent.

*Source: Academic Catalog 2013-14*

# BIOL122

**Human Anatomy and Physiology II**

**(3,3) 4**

The second half of the Human Anatomy and Physiology sequence emphasizes the endocrine system, cardiovascular system, lymphatics and the immune response, respiratory system, digestive system, urinary system and the reproductive system. Laboratory experiences are coordinated with the lecture discussions. Prerequisite: BIOL121.

*Source: Academic Catalog 2013-14*

# BIOL131

**General Biology: Cells**

**(3,3) 4**

This course is an introduction to the cellular aspects of general biology. This course will provide an overview of cellular biology and serve as a framework for further biological studies. Topics to be covered include basic chemistry of the cell, function of cellular organelles, cellular metabolism including respiration and photosynthesis, the cell cycle, mitosis, meiosis, simple transmission genetics, introduction to molecular and developmental biology. The laboratory introduces the student to inquiry based scientific method. Prerequisites: MATH086, ENGL091, or equivalent scores on the math and English placement exams.

*Source: Academic Catalog 2013-14*

*Source: Academic Catalog 2013-14*

# CHEM108

**Applied Chemistry**

**(3,0) 3**

An introduction to selected principles of chemistry with emphasis on technological applications. Credit in this course does not apply toward a major or minor in chemistry. Prerequisites: ENGL091 or equivalent and pre- or corequisite of MATH102.

*Source: Academic Catalog 2013-14*

# CHEM109

**Applied Chemistry Lab**

**(0,3) 1**

Laboratory experience for CHEM108 Applied Chemistry (must complete both lecture and laboratory to qualify for general education credit). Corequisite: CHEM108.

*Source: Academic Catalog 2013-14*

# CHEM115

**General Chemistry I-Intro to Fundamental Principles of Chemistry**

**(4,2) 5**

Fundamental principles of chemistry with emphasis on scientific method, basic chemical reactions and acid base equilibria, stoichiometry, periodic trends of elements, an introduction to the energy of reactions, atomic structure, simple bonding models, molecular structure, intermolecular forces, and nuclear chemistry will be presented. Pre- or corequisite of MATH111 or higher with a grade of C (2.0) or better. ENGL091 or equivalent. One year of high school chemistry is strongly recommended.

*Source: Academic Catalog 2013-14*

# CHEM116

**General Chemistry II-Intro to Physical Chemistry**

**(4,3) 5**

Continuation of CHEM115 with emphasis on physical chemical concepts such as bonding, gas laws, solids and solutions, kinetics, thermodynamics, and equilibrium, including acid-base reactions and electron transfer processes. Prerequisite: CHEM115 with a grade of C (2.0) or better.

*Source: Academic Catalog 2013-14*

# GEOG106

**Physical Geography: Landforms**

**(3,2) 4**

Introduction to the description and distribution of landforms with emphasis on lithospheric, hydrospheric and atmospheric relationships. Natural (physical) science credit given. Prerequisite: Completion of mathematics competency graduation requirement. Credit for both GEOG106 and NSCI107 not permitted.

*Source: Academic Catalog 2013-14*

# GEOG108

**Physical Geography: Meteorology & Climatology**

**(3,2) 4**

Introduction to earth-sun relationships, maps and elementary principles of atmospheric science. Natural (physical) science credit given. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam. Credit for both GEOG108 and NSCI105 not permitted.

*Source: Academic Catalog 2013-14*

# GEOL115

**Field Excursions in Earth Science**

**(2,4) 4**

A field- and project-based educational experience in which aspects of geology, including environmental geology, earth resources, tectonic processes and the interrelationships among geology and other natural sciences, will be addressed. Travel destinations will include regions with unique natural history. Credit can be earned for only one of NSCI102, GEOL115 and 121.

*Source: Academic Catalog 2013-14*

# GEOL121

**Physical and Historical Geology I**

**(3,2) 4**

The study of processes and features of the rocks and surficial materials that form the Earth's crust. Emphasis will be placed on the dynamic earth including volcanoes, plate tectonics, geologic time, catastrophic events such as earthquakes, and natural resources and their impact on society. The class requires student projects and emphasizes active problem-solving. Laboratory exercises involve minerals, rocks, topographic and geologic maps. Credit can be earned for only one of NSCI102, GEOL115 and 121.

*Source: Academic Catalog 2013-14*

# GEOL122

**Physical and Historical Geology II**

**(3,2) 4**

The study of surficial processes and landforms in the context of their historical perspective. Emphasis will be placed on evolution of the earth; stratigraphic principles, tectonic framework of North America; landforms and depositional environments; climate, weathering, surficial processes, and sea level changes; and significant events in the history of plants and animals. Laboratory exercises involve geologic maps, invertebrate paleontology, and surficial processes including envrionmental applications. Pre- or corequisites: GEOL121 or NSCI102 or GEOL115.

*Source: Academic Catalog 2013-14*

# NSCI101

**Conceptual Physics**

**(3,2) 4**

A survey of basic physical science principles emphasizing their applications in daily life. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# NSCI102

**Introduction to Geology**

**(3,2) 4**

A survey course to acquaint students with the major concepts and phenomena inherent in a study of geology. It will also provide sufficient background for a better understanding of human relationships to the physical environment. Credit can be earned for only one of NSCI102, GEOL115 and 121. Prerequisite: None.

*Source: Academic Catalog 2013-14*

# NSCI103

**Environmental Science**

**(3,0) 3**

An introduction to environmental concepts and a brief survey of environmental issues facing society. Emphasis is placed on solutions and the responsibility of the individual towards these solutions.

*Source: Academic Catalog 2013-14*

# NSCI104

**Environmental Science Laboratory**

**(0,2) 1**

Laboratory component of environmental science. Corequisite: NSCI103.

*Source: Academic Catalog 2013-14*

# NSCI110

**Investigations in Chemistry and Forensics**

**(3,2) 4**

An applied introductory chemistry course introduces the world of forensics focusing on the aspects of chemistry used during an investigation. This unique general education class will incorporate a criminal justice and fire science perspective while providing an introduction to chemical principles. Attention will be given to developing critical thinking skills, understanding the scientific process and to making scientifically informed decisions about every day events. Pre- or co-requisite of MATH102 (or higher) or equivalent/satisfactory score on ACT, SAT or Placement Exam.

*Source: Academic Catalog 2013-14*

# NSCI116

**Introduction to Oceanography**

**(3,2) 4**

A survey of the features, processes and evolution of Earth's ocean basins. The course will examine geological, physical, chemical and ecological aspects of oceanography with an emphasis on their interrelationships and their impact on humanity.

*Source: Academic Catalog 2013-14*

# NSCI119

**Descriptive Astronomy**

**(3,2) 4**

Introductory course with a balanced, comprehensive account of contemporary astronomy with emphasis placed on the broad principles of astronomy rather than on a chronological or historical framework. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# PHYS221

**Principles of Physics I**

**(3,2) 4**

General principles of rigid body mechanics (kinematics, forces, laws of motion, energy, momentum, rotation) and fluid mechanics. Prerequisites: Two years of high school algebra and one-half year of high school trigonometry with a math ACT score of 27 or better; or MATH108 and 111; or 140.

*Source: Academic Catalog 2013-14*

# PHYS231

**Applied Physics for Engineers and Scientists I**

**(3,2) 4**

An introductory course in rigid body mechanics and fluid mechanics using calculus with emphasis on practical applications. Intended primarily for students of engineering, physical science and mathematics. Prerequisite: MATH151.

*Source: Academic Catalog 2013-14*

# BUSN121

**Introduction to Business**

**(3,0) 3**

This course is intended to provide students a broad overview of the complex and dynamic contemporary world of business. The course will illustrate how human resources management, marketing, production, and finance are major functions that work together to help owners, employees and customers reach their objectives. Business must operate within economic, social, natural, technological, international, legal, and political environments.

*Source: Academic Catalog 2013-14*

# ECON201

**Principles of Macroeconomics**

**(3,0) 3**

Nature and scope of economics; national income accounting; problems of unemployment and price instability; public revenues and expenditures; money and banking; fiscal and monetary policies to promote stability and economic growth. Prerequisite: Two years of high school algebra and equivalent/satisfactory score on ACT or Placement Exam or MATH102 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# ECON202

**Principles of Microeconomics**

**(3,0) 3**

Principles of economic reasoning; supply and demand analysis; theories of production; price and output determination under each of the four market structures; factor returns and income distribution theories; public policy implications. Prerequisite: Two years of high school algebra and equivalent/satisfactory score on ACT or Placement Exam or MATH102 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# ECON208

**Honors Principles of Microeconomics**

**(3,0) 3**

This course employs algebra, geometry and calculus intensively in the development of principles of microeconomics. The topics covered are nominally the same as in ECON202; however, there is more advanced coverage of topics in which a knowledge of mathematics is required. Prerequisites: MATH151 or 112. Credit not allowed for both ECON202 and 208.

*Source: Academic Catalog 2013-14*

# ECON209

**Honors Principles of Macroeconomics**

**(3,0) 3**

This course employs algebra, geometry and calculus intensively in the development of principles of macroeconomics. The topics covered are nominally the same as in ECON201; however, there is more advanced coverage of topics in which a knowledge of mathematics is required. Prerequisites: MATH151 or 112. Credit not allowed for both ECON201 and 209.

*Source: Academic Catalog 2013-14*

# ECON302

**Managerial Economics**

**(4,0) 4**

A study of the application of economic analysis to managerial decisions. Topics include the firm and its environment, demand estimation, production and cost analysis, optimization and profit maximization, analysis of markets, pricing strategy and analysis of project decisions. Prerequisite: MATH112 or equivalent.

*Source: Academic Catalog 2013-14*

# GEOG201

**World Regional Geography**

**(4,0) 4 alternate years**

A study of the physical environment, resources, past and present economic development, population distribution and historical development of Europe, Asia, the Islamic Middle East and North Africa, Sub-Saharan Africa, Latin America and North America.

*Source: Academic Catalog 2013-14*

# GEOG302

**Economic Geography**

**(4,0) 4 alternate years**

A study of the internal and external inter-relationships of the various economic groupings of the world; i.e. North America, Europe and the emerging third world.

*Source: Academic Catalog 2013-14*

# HIST101

**History of World Civilization I**

**(4,0) 4 fall**

A study of world civilization from earliest time through the baroque.

*Source: Academic Catalog 2013-14*

# HIST102

**History of World Civilization II**

**(4,0) 4 spring**

A study of world civilization from the baroque to the present.

*Source: Academic Catalog 2013-14*

# HIST131

**United States History I**

**(4,0) 4 fall**

A study of United States history from the colonial settlement to the end of the American Civil War in 1865.

*Source: Academic Catalog 2013-14*

# HIST132

**United States History II**

**(4,0) 4 spring**

A study of United States history from the end of the Civil War to the present.

*Source: Academic Catalog 2013-14*

# POLI110

**Introduction to American Government and Politics**

**(4,0) 4**

An introductory survey of American national government and politics.

*Source: Academic Catalog 2013-14*

# POLI160

**Introduction to Canadian Government and Politics**

**(3,0) 3**

An introductory survey of Canadian government and politics.

*Source: Academic Catalog 2013-14*

# POLI241

**Introduction to International Relations**

**(4,0) 4**

An introductory study of the factors that influence the conduct of international relations and of the various methods by which those relations are conducted. This material will then be applied to an examination of some appropriate current international controversies.

*Source: Academic Catalog 2013-14*

# PSYC101

**Introduction to Psychology**

**(4,0) 4**

A general introduction to the systematic study of behavior and mental processes in humans and animals.

*Source: Academic Catalog 2013-14*

# PSYC155

**Lifespan Development**

**(3,0) 3**

Human psychological development from birth to death. This course covers social, emotional and intellectual development across the lifespan.

*Source: Academic Catalog 2013-14*

# SOCY101

**Introduction to Sociology**

**(4,0) 4**

This course introduces students to core sociological theorists and perspectives, including functionalism, conflict and symbolic interactionism, and familiarizes them with basic research designs, terminology and findings within the context of collective behavior and social movements.

*Source: Academic Catalog 2013-14*

# SOCY102

**Social Problems**

**(4,0) 4**

An introductory to descriptions, theories, proposed solutions, and research methods for a variety of social problems including inequality, poverty, unemployment, environmental issues, family problems, and violence.

*Source: Academic Catalog 2013-14*

# SOCY113

**Sociology of the American Family**

**(3,0) 3**

A study of the development and change of the American family since 1890. This study will explore the impact of urbanization, industrialization, increased mobility, extended education and the changing status of women on the American family.

*Source: Academic Catalog 2013-14*

# BUSN308

**Managing Cultural Differences**

**(3,0) 3**

Study of differing cultural norms that impact business decisions; designed for students interested in international and cross-cultural activities.

*Source: Academic Catalog 2013-14*

# EDUC250

**Student Diversity and Schools**

**(4,0) 4**

This course will examine the impact of diversity on students and educational systems through the consideration of the historical and philosophical foundations of schooling, the impact of diversity on students' participation in the system, and the characteristics of effective teaching practice to meet the needs of diverse learners. Field experience in an Eastern Upper Peninsula elementary or secondary school is required. Prerequisite: ENGL111.

*Source: Academic Catalog 2013-14*

# GEOG306

**Cultural Geography**

**(3,0) 3**

A study of the relationship of environment, culture and adaptive patterns; i.e., socio-economic development. A special emphasis will be placed upon the current problems associated with food supplies, shortages and third world development.

*Source: Academic Catalog 2013-14*

# HIST203

**Chinese Cultural Diversity**

**(3,0) 3 summer**

Designed for students interested in the diversity of Chinese culture and study abroad. Taught in English and offered at a partner university in China during the first summer session. This four-week course explores, but is not limited to, the traditional social values, classes, divergences, ethnicity, religion, and gender issues characteristic of Chinese culture. The course is conducted in a lecture format with class discussions and guided field trips.

*Source: Academic Catalog 2013-14*

# HLTH328

**Multicultural Approaches to Health Care**

**(3,0) 3**

This course explores values, beliefs and practices related to health behaviors in a variety of culturally diverse groups. Methods for fostering culturally sensitive care are explored. Content includes communication, biological and nutritional considerations, assessment techniques and alternative/complementary health practices. Prerequisite: SOCY101. Also listed as NURS328.

*Source: Academic Catalog 2013-14*

# NATV225

**Native Cultures of North America**

**(3,0) 3**

A study of the Native American Indian and Inuit cultures of North America from earliest times to the present, with emphasis on contrasting patterns of cultures. Also listed as SOWK225.

*Source: Academic Catalog 2013-14*

# POLI234

**Women and Politics Around the World**

**(4,0) 4**

This course will examine a broad range of issues involving gender and politics: the political participation of women, the history of women's movements, voting differences, political divisions among women, and the present political status of women in the United States and globally.

*Source: Academic Catalog 2013-14*

# POLI334

**Middle East Politics**

**(3,0) 3**

An examination of government and politics in the Middle East, with special emphasis on the influences of Islam and nationalism on both international and domestic politics of the area. Prerequisite: Junior or senior standing.

*Source: Academic Catalog 2013-14*

# SOCY103

**Cultural Diversity**

**(3,0) 3**

This course introduces the student to racial, ethnic, gender and social class variation within the United States and the global community to enable the student to better understand, live with, and appreciate diversity.

*Source: Academic Catalog 2013-14*

# SOCY213

**Introduction to Anthropology**

**(3,0) 3**

A study of the evolution of humankind and the evolution and development of culture and society. Prerequisite: One introductory sociology course.

*Source: Academic Catalog 2013-14*

# SOCY225

**Native Cultures of North America**

**(3,0) 3**

A study of the Native American Indian and Inuit cultures of North America from earliest times to the present with emphasis on contrasting patterns of cultures. Also listed as NATV225.

*Source: Academic Catalog 2013-14*

# SOCY226

**Races and Minorities**

**(3,0) 3**

Study of various social and ethnic minorities in the United States with an emphasis on Black/White relations. Competition, conflict and prejudice as they influence social and ethnic minority group relations. Social movements and their effects on majority, minority relations. Prerequisite: Sophomore standing.

*Source: Academic Catalog 2013-14*

# SOCY321

**Sociology of Women**

**(3,0) 3**

This analysis of the roles and status of women in contemporary American society covers social structure, social psychology and social movements; also includes some cross-cultural comparisons.

*Source: Academic Catalog 2013-14*

# MATH102

**Intermediate Algebra**

**(4,0) 4**

Algebra for students who have not had second-level high school algebra or who need a refresher course in that level of algebra. Real numbers and operations, solving and graphing first degree equations and inequalities, solving systems of equations and quadratic equations, algebra of polynomials, radical and rational expressions and equations, exponential and logarithmic functions. Prerequisites: One year of high school algebra and MATH086 or equivalent/satisfactory score on ACT or Placement Exam. This course will not count toward a major or minor in mathematics.

*Source: Academic Catalog 2013-14*

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# Post-Baccalaureate Bachelor

## Program Description

The Bachelor of Education degree is a post-baccalaureate program specifically designed for degree-holding individuals who wish to complete a program leading to certification as an elementary or secondary teacher. A recommendation for Michigan teacher certification requires the candidate to hold 1) an earned bachelor's degree, 2) approved majors/minors (approved by the Michigan Department of Education as appropriate to K-12 educators and authorized by this institution), 3) professional education courses, and 4) courses considered as general/liberal education.

Individuals who completed non-teaching field majors (e.g. fisheries and wildlife management or forensic chemistry) may later seek to gain Michigan teacher certification (e.g. as teachers of biology or chemistry, respectively). These candidates complete a substantial quantity of education-specific courses, including 27 credits of 400-level and above courses, after completion of their bachelor's degree.

## Plan of Study

Courses required in the B.Ed. degree include the required courses leading to Michigan teacher certification. Candidates must complete at least 27 credits of 400-level EDUC coursework after completion of their initial bachelor degree. Student teaching requires 12 credits, the balance are earned in association with the teacher certification requirements.

In addition, candidates for secondary (grades 6 - 8) certification must complete the required coursework for a teachable major and teachable minor, if not done as part of the initial bachelors degree. Similarly, candidates for elementary (grades K - 8) certification must complete either a teachable major or two teachable minors, as well as the coursework required in the elementary planned program.

## Completion requirements for the B.Ed. program include

- An earned 4-year bachelor's degree with a minimum 2.70 (out of 4.00) grade point average
- Earned GPA in major/minor fields at least 2.70 (out of 4.00)
- No grade below C in major/minor, no EDUC course grade below B- (2.70)
- Completion of approved teaching majors and/or minors. Secondary candidates are required to hold an approved teachable major and minor. Elementary candidates are required to hold approved teachable major or two teachable minors. See the undergraduate teacher handbook for additional guidelines.
- Satisfactory field experiences totaling more than 150 hours with appropriate evaulations

- Satisfactory professional dispositions based on references and evaluation.

## Degree Requirements

**Professional Educational Sequence (37-40 credits)**

- EDUC150 Reflections of Teaching and Learning 3
- EDUC250 Student Diversity & Schools 3
- EDUC301 Learning Theory Teaching Practice 4
- EDUC480 Internship Teaching: Seminar 1
- EDUC492 Internship/Advanced Methods: [Subject] 8
- EDUC602 Reflection Inquiry Teaching Practice I 3
  **or**
- EDUC605 Integrated Approach to Curriculum Design Implementation 3
- EDUC Electives 400-level or higher 8

**Complete one of the following two sequences:**

**Elementary candidates complete —**

- EDUC330 Reading in the Elementary Classroom 3
- EDUC410 Corrective Reading 3
- EDUC411 Elementary Language Arts Methods 3
- EDUC420 Elementary Math Methods 2
- EDUC421 Elementary Science Methods 2
- EDUC422 Elementary Social Studies Methods 2

**Secondary candidates complete —**

- EDUC430 General Methods for Secondary Teachers 3
- EDUC431 The Secondary Learner 3
- EDUC440 Reading Content Area 3

**Select at least one from the following list based on academic major/minor or the respective independent study methods course by subject:**

- EDUC441 Language Arts Methods for Secondary Teachers
  **or**
- EDUC451 Directed Study in Language Arts Methods
- EDUC442 Math Methods for Secondary Teachers
  **or**
- EDUC452 Directed Study in Mathematics Methods
- EDUC443 Science Methods for Secondary Teachers
  **or**
- EDUC453 Directed Study in Science Methods
- EDUC444 Social Studies Methods for Secondary Teachers
  **or**
- EDUC454 Directed Study in Social Studies Methods
- EDUC445 Teaching Computer Science in the Secondary Classroom
  **or**
- EDUC455 Directed Study in Computer Science Methods
- EDUC446 Business Education Methods for Secondary Teachers
  **or**

- EDUC456 Directed Study in Business/Economics Methods

**Education Cognates (4 credits)**

- MATH207 Principles of Statistical Methods 3

**One credit from courses in:**

- ARTS, DANC, MUSC, THEA, or NATV240 1

**Graduation Requirements:**

- 27 credits in EDUC courses earned after initial bachelor's degree
- B- (2.70/4.00) in all EDUC courses
- 2.70/4.00 GPA in major, minor and overall
- Satisfactory completion of student teaching internship

**Michigan Certification Requirements:**

- Passing score on appicable MTTC examinations
- Satisfactory Professional Dispositions
- Valid AHA/ARC First Aid/CPR certification
- Criminal Disclosure documentation

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- Biology: Bachelor of Science
- Biochemistry Pre-Professional: Bachelor of Science
- Business Administration - Entrepreneurship: Bachelor of Science
- Business Administration - International Business: Bachelor of Science
- Business Administration - Management: Bachelor of Science
- Business Administration - Marketing: Bachelor of Science
- Chemistry: Bachelor of Arts/Science
- Communication: Bachelor of Arts
- Computer Engineering: Bachelor of Science
- Computer Networking: Bachelor of Science
- Computer Science: Bachelor of Science
- Conservation Biology: Bachelor of Science
- Criminal Justice - Corrections: Bachelor of Science
- Criminal Justice - Criminalistics: Bachelor of Science
- Criminal Justice - Generalist: Bachelor of Science
- Criminal Justice - Homeland Security: Bachelor of Science
- Criminal Justice - Law Enforcement: Bachelor of Science
- Criminal Justice - Law Enforcement Certification: Bachelor of Science
- Criminal Justice - Law Enforcement Certification with NRT: Bachelor of Science
- Criminal Justice - Loss Control: Bachelor of Science
- Criminal Justice - Public Safety: Bachelor of Science
- Early Childhood Education: Bachelor of Science
- Electrical Engineering: Bachelor of Science
- Electrical Engineering Technology: Bachelor of Science
- Elementary Education: Bachelor of Arts/Science
- Elementary Education: Special Education - Learning Disabilities: Bachelor of Science
- Environmental Health: Bachelor of Science
- Environmental Science: Bachelor of Science
- Exercise Science: Bachelor of Science
- Finance and Economics: Bachelor of Science
- Fine Arts Studies: Bachelor of Arts
- Fire Science - Engineering Technology: Bachelor of Science
- Fire Science - Generalist: Bachelor of Science
- Fire Science - Generalist Non Certification: Bachelor of Science
- Fish Health: Bachelor of Science

- Fisheries and Wildlife Management: Bachelor of Science
- Forensic Chemistry: Bachelor of Science
- Geology: Bachelor of Science
- History: Bachelor of Arts/Science
- Individualized Studies: Bachelor of Arts/Science
- Industrial Technology: Bachelor of Science
- Language Arts: Bachelor of Arts
- Liberal Studies: Bachelor of Arts/Science
- Literature: Bachelor of Arts
- Literature - Creative Writing: Bachelor of Arts
- Manufacturing Engineering Technology: Bachelor of Science
- Mathematics: Bachelor of Science
- Mechanical Engineering: Bachelor of Science
- Medical Laboratory Science: Bachelor of Science
- Nursing: Bachelor of Science
- Parks and Recreation: Bachelor of Science
- Physical Science: Bachelor of Science
- Political Science: Bachelor of Arts/Science
- Prelaw (non-degree)
- Pre-Pharmacy (transfer program)
- Psychology: Bachelor of Arts/Science
- Secondary Education: Bachelor of Arts/Science
- Social Science: Bachelor of Arts/Science
- Sociology: Bachelor of Arts/Science
- Sociology - Social Services: Bachelor of Arts/Science
- Spanish: Bachelor of Arts
- Sport and Recreation Management: Bachelor of Arts/Science

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- Criminal Justice-Homeland Security
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- Electrical Engineering Technology
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- Health Care Provider
- Health/Fitness Specialist
- Internet/Network Specialist
- Liberal Arts
- Manufacturing Engineering Technology
- Marine Technology
- Natural Resources Technology
- Paramedic Technology
- Personal Computer Specialist
- Small Business Administration
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- Chemistry
- Chemistry-Secondary Teaching
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- English Teaching - Elementary Language Arts
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- International Business
- International Studies
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- Law Enforcement
- Literature
- Loss Control

- Marine and Freshwater Sciences
- Marketing
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- Mathematics - Secondary Teaching
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- Philosophy
- Political Science
- Prelaw
- Professional Communication
- Psychology
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- Public Relations
- Recreation Studies
- Robotics Technology
- Social Work
- Society and Environment
- Sociology - General
- Spanish Language - Literature and Culture
- Speech and Drama
- Sports Marketing
- Substance Abuse Counseling
- Theatre
- Web Development

**Minors require a minimum of 20 earned credits (at the 100 level or higher) with a minimum gpa of 2.00 or higher. Some minors require a higher gpa. Teaching minors require a minimum gpa of 2.70 or higher.**

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# Emeriti Faculty

Anderson, Melvin L., Professor of Chemistry (1969-1993); BS 1953, MS 1955, Michigan Technological University; PhD 1965, Michigan State University (deceased)

Anderson, Roland A., Associate Professor of Office Administration (1969-1986); BA 1953, Wisconsin State University-Whitewater; MA 1961, Northern Colorado University-Greeley

Arbic, Bernard J., Professor of Mathematics (1967-2000); BS 1962, Massachusetts Institute of Technology; MA 1967, Bowdoin College; PhD 1972, University of Wyoming

Behmer, David J., Professor of Biology (1967-1996); BS 1963, Wisconsin State College; MS 1965, PhD 1966, Iowa State University

Blashill, James R., Associate Professor of Criminal Justice and Fire Science(1995-2008); BS 1963, Wayne State University; MS 1976, Michigan State University

Brown, Lewis M., Professor, Geology and Physics (1979-2012); BA 1965, Cornell College; MS 1967, University of Iowa; PhD 1973, University of New Mexico

Bruce, Russell D., Professor of Physical Education and Recreation (1976-1987); BA 1953, Cornell College; MA 1956, University of Michigan; PhD 1966, University of Wisconsin (deceased)

Carlson, Arthur F., Associate Professor of Physics (1947-1970); BS 1935, University of Minnesota. (deceased)

Carlson, Delphine, Associate Professor of Mathematics (1947-1969); BA 1934, MA 1938, University of Michigan (deceased)

Campagna, Carol A., Associate Professor of Nursing (1984-2001); BSN 1964, D'Youville College; MSN 1969, University of Colorado

Castor, William N., Professor of Political Science (1971-1994); BA 1951, Middlebury College; MA 1952, Columbia University; PhD 1975, University of Denver

Chandra, Purna, Professor of Microbiology (1967-1994); BS 1949, MS 1951, Agra University; PhD 1958, Oregon State University

Chelberg, Raymond R., Professor of Chemistry (1946-1970); BS 1926, Gustavus Adolphus College; MS 1931, University of Minnesota (deceased)

Cole, Wallace, Associate Professor of Mathematics (1955-1969); BS 1926, MA 1928, University of Wisconsin (deceased)

Conboy, Richard T., Professor, Political Science/Coordinator of the Center for Social Research (1988-2011); BA 1967, MPA 1969, University of Dayton; PhD 1984, The American University

Connaughton, M. Carole, Professor of Nursing (1984-1999); BSN 1956, Saint Mary's College; MSN 1967 and PhD 1974, Indiana University

Cooper, Ronald R., Professor of Physical Education (1956-1986); Director of Intercollegiate Athletics and James Norris Physical Education Center (1976-1986); BS 1951, MA 1958, Central Michigan University (deceased)

Cullen, John C., Professor of Spanish (1967-2001); BA 1963, MA 1965, Michigan State University; PhD 1973, Interamerican University (deceased)

Curtis, Robert W., Professor of Engineering Technology (1955-1986); BSME 1948, Michigan Technological University; BSEd 1950, Northern Michigan University; MA 1954, University of Michigan. (deceased)

Dahlman, Marvin, Associate Professor of Mechanical Engineering Technology (1952-1985); BS 1947, MS 1952, University of Minnesota

Delaney-Lehman, Maureen J., Associate Professor/Librarian (1989-2009); BM 1975, Western Michigan University; MS 1980, Michigan State University; MLS 1988, University of Kentucky

Duesing, Sherilyn R., Associate Professor of Mathematics (1993-2013); AS 1971, North Central Michigan College; BS 1976, Central Michigan University; MS 1998, Northern Michigan University

Duwe, Arthur E., Professor of Biological Science (1968-1991); BS 1949, Al,ma College; MS 1950, PhD 1953, Ohio State University (deceased)

Erkkila, John E., Professor of Business and Economics (1990-2009); BS 1970, Lake Superior State College; MA 1971, University of Windsor; PhD 1988, University of Western Ontario

Fabbri, Anthony J., Associate Professor of Computer Science (1996-2008); BA 1965, MS 1967, Indiana State University; EdD 1995, University of Louisville

Flynn, Michael, Professor of English (1961-1986); BA 1954, Central Michigan University; MA 1964, Northern Michigan University

Francisco, Wayne H., Assistant Professor of Criminal Justice (1973-1983); BS 1950, Eastern Michigan University; MA 1967, MS 1971, Michigan State University

Gaertner, Georgegeen P., Associate Professor of English (1965-2000); BA 1959, Michigan State University; MA 1963, University of Michigan (deceased)

Gaertner, Robert C., Associate Professor of Finance (1965-2000); BBA 1964, University of Notre Dame; MBA 1965, Michigan State University

Gleason, Gale R., Professor of Biology and Department Head of Biology and Chemistry (1965-1986); BS 1950, Central Michigan University; MS 1951, PhD 1960 Michigan State University

Gleason, Gilbert J., Professor of Biology (1961-1988); BS 1958, MA 1960, Central Michigan University (deceased)

Gutowski, Mieczyslaw, Associate Professor of Mathematics (1984-2004); MS 1965, University of Lodz, Poland; PhD 1973, University of Gdansk, Poland

Haag, William L., Professor of Chemistry (1984-2001); BS 1961, Loras College; MS 1965, PhD 1971, University of Nebraska

Halsey, Alice I., Associate Professor of Nursing (1963-2000), BSN 1962, University of Michigan; MSN 1977, Wayne State University

Harris, Earle B., Associate Professor of English (1976-1987); AB 1946, University of Michigan; BD 1947, ThM 1964, Princeton Theological Seminary (deceased)

Howe, Margaret, Associate Professor of Humanities (1969-1981); AB 1932, Northwestern University; MA 1965, Northern Michigan University (deceased)

Hudson, John S., Associate Professor of Accounting (1970-2002); BA 1963, MA 1965, Michigan State University; MBA 1967, Western Michigan University

Jemison, Eugene F., Associate Professor of Humanities (1969-1986); BA 1946, Washburn University; MFA 1948, Kansas City Art Institute (deceased)

Jennings, Richard P., Professor of Speech (1970-December 1998); BA 1950, University of Michigan; Master of Divinity 1953, Virginia Theological University; MA 1970, Central Michigan University

Jones, Charles W., Professor of Chemistry (1970-2001); AB 1954, Western State College of Colorado; MS 1957, PhD 1973, Oklahoma State University

Kelly, Thomas M., Professor of Sociology (1971-1992): BA 1952, St. Mary of the Lake University; STL 1956, Gregorian University, Rome; MA 1964, University of Notre Dame; MEd 1979, Loyola University

Kemp, C. Ernest, Associate Professor of Geology (1944-1980); Honorary Title "Dean Emeritus" of Lake Superior State University; BS 1949, Michigan Technological University (deceased)

Kennedy, Robert E., Associate Professor of Engineering (1948-1971); BS 1932, MS 1939, University of Michigan (deceased)

Knowles, David M., Professor of Geology (1969-1994); BS 1954, MS 1955, Michigan Technological University; PhD 1967, Columbia University

Knudson, Vernie A., Associate Professor of Natural Resources Technology (1971-1994); BS 1954, Bethany College; BS 1958, University of Kansas; MS 1959, Fort Hays State College; PhD 1970, Oklahoma State University (deceased)

Lehman, John W., Professor of Chemistry (1966-2001); BS 1960, McPherson College; PhD 1969, University of Colorado

Linderoth, Leon W., Professor of English (1968-2000), BA/BS 1958, Central Michigan University; MA 1960 and PhD 1966, Florida State University

Madden, James P., Professor, Criminal Justice, Fire Science and EMS (1984-2012); BA 1971, William Carey College; MS 1975, University of Southern Mississippi

Madl, John T., Associate Professor of Mechanical Engineering (1967-2002); BSME 1965, MSME 1967, Michigan Technological University

Marinoni, Ann B., Professor; Management, Marketing and Entrepreneurship (1976-2012); BS 1975, Lake Superior State College; MBA 1977, Central Michigan University; PhD 1992, Michigan State University

Marken, Marzale, Associate Professor of Engineering Technology (1955-1984); BS 1948; MA 1956, University of Minnesota (deceased)

Matheson, John M., Professor of Journalism and Secretary, Board of Control (1969-1984); BA 1948, Michigan State University; MA 1965, PhD 1967, Southern Illinois University

McCabe, John C. III, Professor of English (1970-1987); PhB 1947, University of Detroit; MFA 1948, Fordham University; PhD 1954, Shakespeare Institute, University of Birmingham, England (deceased)

Mickewich, Thomas, Professor of Mathematics (1967-2002); BA 1964, MA 1967, University of Maine

Money, Robert M., Professor of History (1969-2010); BA 1953, Northern Michigan University; MA 1958, University of Michigan (deceased)

Mullin, C. Randolph (Randy), Professor of Physics/Coordinator of the Planetarium (1969-2009); BS 1959, St. Vincent College; PhD 1964, University of Notre Dame

Otis, Franklin F., Professor of Mathematics (1948-1978); B.Ed., River Falls State, 1937; MS 1948, Wisconsin (deceased)

Person, Steven J., Professor of Biology (1974-1989); B.S. 1966, MS 1968, Iowa State University; PhD 1976, University of Alaska

Poisson, Joseph A., Associate Professor of Physical Education (1963-1976); SS 1940, Northern Michigan University; MA 1957, University of Michigan (deceased)

Reilly, Raymond, E., Professor of Biology and Chemistry, (1966-1990); BS 1951, MS 1951, MS 1963, PhD 1970, Michigan State University (deceased)

Samson, Gerald, Professor of Mathematics (1966-1990); BA 1952, University of Michigan; MA 1955, MS 1966, Texas A & M University

Sawczak, George J., Assistant Professor of English (1965-1982); BA 1952, Alliance; MA 1954, Kent State University

Sawyer, Timothy J., Professor of Psychology (1976-1989); BA 1972, Northern Michigan University; MA 1974, PhD 1976, University of Nevada

Shannon, MaryAnne P., Associate Dean/Professor, Nursing (1988-2011); BSN 1975, University of Michigan; MSN 1979, Wayne State University; PhD 2005, Michigan State University; Advanced Practice Nurse, Board Certified in Gerontological Nursing since 1991

Sherman, Karl J., Associate Professor of Accounting (1971-2000); BS 1965, Northern Michigan University; MS 1967, Southern Illinois University

Shouldice, Kenneth J., Professor of Business Administration and President (1965-1982); BS 1949, Marquette; MS 1951, Northwestern; PhD 1969, Iowa (deceased)

Smith, Bernard M., Professor of Behavioral Science (1966-1980); BA 1947, MA 1949, University of Louisville; MA 1956, University of Kentucky; PhD 1960, Iowa.

(deceased)

Smith, Bryce E., Professor of Biology (1970-1995); BS 1952, MA 1957, University of Michigan; PhD 1965, University of Wisconsin

Stai, Deborah K., Professor, Biological Sciences (1991-2011); BS 1974, BS 1978, Mankato State University; MA 1980, PhD 1989, Union Institute (deceased)

Stough, Bessie, Associate Professor of Mathematics (1947-1963); BA 1923, MA 1929, University of Michigan (deceased)

Thesing, Gary L., Professor of Mathematics (1971-1999), BA 1969, Saint Mary of the Plains College; MS 1964, University of Notre Dame; EdD 1971, Oklahoma State University

Thomsen, Viggo, Associate Professor of Biological Sciences (1947-1973); BA 1932, University of Michigan (deceased)

Toffolo, E. Gary, Professor of Humanities (1970-2001); BS 1958, Northwestern University; MA 1961, University of Chicago

Truckey, John, Associate Professor of Counseling (1966-1986); BS 1958, MA 1964, Northern Michigan University (deceased)

Vialpando, Edeltraute, Professor of Foreign Languages (1967-1988); PhD 1944, Charles University, Prague, Czechoslovakia (deceased)

Ward, Louis R., Professor of English (1961-1981); BA 1939, MA 1940, University of Colorado; PhD 1959, Purdue University (deceased)

Weber, Charles L., Associate Professor of Electrical Engineering (1970-1999), BS 1964 and MSEE 1970, Michigan Technological University

Wilson, Paul W., Professor of Mathematics (1963-2000), BS 19621 and MA 1963, Central Michigan University

Youngs, Stephen P., Professor and Psychometrist (1947-1968); BS 1930, Northern Michigan University; MEd 1941, Colorado. (deceased)

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# Emeriti Staff

Adams, Ray, Dean, College of Engineering and Mathematics; BS 1975, MS 1978, Nicholls State College

Arbuckle, Robert D., President, Professor of History (1992-2002); BS 1964, Clarion State University; MA 1966, PhD 1972, Penn State University

Bugbee, Thomas R., Vice President for Student Affairs/Secretary to the Board of Trustees; BA 1973, Michigan State University; MA 1974, Eastern Michigan University (deceased)

DePlonty, Stella R., Assistant to the Provost for Academic Records (1960-2011)

Fenlon, Paul T., Director of Employment Services; BS 1964, Western Michigan University

Harger, Bruce T., Vice President for Academic Affairs and Provost (1967-2007); BA 1966, MA 1967, PhD 1991, Michigan State University

Markstrom, Mae E., Dean of the School of Health and Human Services (1968-1997); Nursing Diploma 1959, Grace Hospital of Nursing; BA 1970, Lake Superior State University; MSN 1977, Wayne State University; PhD 1991, Michigan State University

Michels, Fredrick A., Dean of Academic Services (1976-2011); BS, University of Wisconsin; MLS, EdD, Western Michigan University

Munsell, William T., Financial Aid Director (1967-1998)

Pike, Harry E., Vice President for Student Programs and Services (1969-1997); BA 1957, University of Washington; PhD 1969, Michigan State University

Tomlinson, Earl C., Director of Financial Planning and Investments (1972-1980; 1984-1997); BS, Ferris State College; MA, Central Michigan University

White, Beverly E., Director of Human Resources (1976-2011); BS, Lake Superior State College; MBA, Lake Superior State University

Youngblood, Betty J., President (2002-2007); BA 1965, Oakland University; MA 1966, PhD 1970, University of Minnesota

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# Department Accreditation Requirements

ABET requires accredited programs within the School of Engineering and Technology to publish their program educational objectives and outcomes in the university catalog.

## Computer Engineering

**Program Educational Objectives**

1. 1. Experienced graduates of the Computer Engineering program will have successfully applied engineering skills and tools to solve problems in their profession.
2. Experienced graduates of the Computer Engineering program will have successfully demonstrated professional application of design principles subject to technical, practical, and societal constraints.
3. Experienced graduates of the Computer Engineering program will have set professional goals, experienced professional growth, and engaged in ongoing professional development and learning activities. Through life-long learning, they will have the ability to adapt in a constantly changing world and will be capable self-learners.

**Program Outcome Objectives**

1. Employability. Each graduate of the Computer Engineering program will receive an engineering education that is respected by relevant engineering and manufacturing organizations, companies, and societies. Graduates will have the ability to seek employment in a variety of engineering or engineering technology positions or enter a related graduated school.
2. Learning Environment. Each graduate of the Computer Engineering program will have experienced a learning environment administered by quality faculty, utilizing both internal and external review processes to ensure students are being educated using accepted educational methods. The assessment process will assure continuous improvement for the program, the facilities, and the meeting of students' needs.
3. Societal Awareness. Each graduate of the Computer Engineering program will have knowledge of contemporary issues and cultures and will recognize the impact of technological decisions within both global and societal contexts.
4. Engineering Professionalism. Each graduate of the Computer Engineering program will be able to utilize appropriate basic sciences, mathematics, and engineering sciences to design systems, components, or processes that meet desired outcomes and design constraints. They will have the ability to apply these skills and use modern engineering tools to solve engineering problems through the analysis, design, and implementation of digital systems and through the development of computer algorithms. The fundamental technical skills will include those in the areas of complex variables, linear algebra, discrete mathematics, calculus, differential

equations, statistics, chemistry, physics, C/C++ programming, data structures and algorithms, computer networks, discrete structures, numerical methods, electronic devices, signals and systems, analog circuits, digital circuits and systems, digital signal processing, microprocessors, assembly language programming, and control systems.

5. Specialized Technical Skills. Each graduate of the Computer Engineering program will either possess specialized technical skills in robotics and automation, as well as the ability to apply these skills to solve practical engineering problems, or will possess additional skills in mathematics, engineering, or computer science. This will have been accomplished by completing the Robotics and Automation option or by selecting approved courses in mathematics, engineering and computer science.

## Electrical Engineering

**Program Educational Objectives**

1. Experienced graduates of the Electrical Engineering program will have successfully applied engineering skills and tools to solve problems in their profession.
2. Experienced graduates of the Electrical Engineering program will have successfully demonstrated professional application of design principles subject to technical, practical, and societal constraints.
3. Experienced graduates of the Electrical Engineering program will have set professional goals, experienced professional growth, and engaged in ongoing professional development and learning activities. Through life-long learning, they will have the ability to adapt in a constantly changing world and will be capable self-learners.

**Program Outcome Objectives**

1. Employability. Each graduate of the Electrical Engineering program will receive an engineering education that is respected by relevant engineering and manufacturing organizations, companies, and societies. Graduates will have the ability to seek employment in a variety of engineering or engineering technology positions or enter a related graduated school.
2. Learning Environment. Each graduate of the Electrical Engineering program will have experienced a learning environment administered by quality faculty, utilizing both internal and external review processes to ensure students are being educated using accepted educational methods. The assessment process will assure continuous improvement for the program, the facilities, and the meeting of students' needs.
3. Societal Awareness. Experienced graduates of the Electrical Engineering program will have knowledge of contemporary issues and cultures and will recognize the impact of technological decisions within both global and societal contexts.
4. Engineering Professionalism. Each graduate of the Electrical Engineering program will be able to utilize appropriate basic sciences, mathematics, and engineering sciences to design systems, components, or processes that meet desired outcomes and design constraints. They will have the ability to interact in all aspects of the design process from product inception to completion. They will have the ability to act professionally and ethically as individuals or as members of multi-disciplinary teams. They will be able to clearly communicate their ideas in both written and oral forms as typically expected within the engineering discipline. They will have the ability to generate various forms of documentation necessary for product design and production.
5. Fundamental Technical Skills. Each graduate of the Electrical Engineering program will possess fundamental technical skills in mathematics, science,

software, and engineering, as well as the ability to apply these skills and use modern engineering tools to solve engineering problems through the analysis, design, and implementation of electrical systems. The fundamental technical skills will include those in the areas of complex variables, linear algebra, calculus, differential equations, statistics, chemistry, physics, computer programming, numerical methods, electromagnetics, electronic devices and circuits, signals and systems, analog circuits, digital circuits, microprocessors, assembly language programming, and control systems.

6. Specialized Technical Skills. Each graduate of the Electrical Engineering program will possess specialized technical skills in either digital systems, robotics and automation, or mechanical systems, as well as the ability to apply these skills to solve practical engineering problems. This will have been accomplished by completing one of the approved Electrical Engineering program options in addition to the Electrical Engineering program core.

## Mechanical Engineering

**Program Educational Objectives**

1. Experienced graduates of the Mechanical Engineering program will have successfully applied engineering skills and tools to solve problems in their profession.
2. Experienced graduates of the Mechanical Engineering program will have successfully demonstrated professional application of design principles subject to technical, practical, and societal constraints.
3. Experienced graduates of the Mechanical Engineering program will have set professional goals, experienced professional growth, and engaged in ongoing professional development and learning activities. Through life-long learning, they will have the ability to adapt in a constantly changing world and will be capable self-learners.

**Program Outcome Objectives**

1. Students of the Mechanical Engineering program at graduation will receive an engineering education that is respected by relevant engineering and manufacturing organizations, companies, and societies. Graduates will have the ability to seek employment in a variety of engineering positions or enter a related graduate school.
2. Students of the Mechanical Engineering program at graduation will have experienced a learning environment administered by quality faculty, utilizing both internal and external review processes to ensure students are being educated using accepted educational methods. The assessment process will assure continuous improvement for the program, the facilities, and the meeting of students' needs.
3. Students of the Mechanical Engineering program at graduation will have knowledge of contemporary issues and cultures and will recognize the impact of technological decisions within both global and societal contexts.
4. Students of the Mechanical Engineering program, at graduation, will be able to utilize appropriate basic sciences, mathematics, and engineering sciences to design systems, components, or processes that meet desired outcomes and design constraints. They will have the ability to interact in all aspects of the design process from product inception to completion. They will have the ability to act professionally and ethically as individuals or as members of multi-disciplinary teams. They will be able to clearly communicate their ideas in both written and oral forms as typically expected within the engineering discipline. They will have the ability to generate various forms of documentation necessary for product design and production.

5. Students of the Mechanical Engineering program at graduation will have foundational skills in technical areas including basic and advanced mathematics, science, software, and engineering, as well as applied skills involving industrially-relevant problems, laboratory experiences, computer-based experiences, and applied research. The graduate will use these skills and modern engineering tools to conduct experiments and to identify, analyze, and solve engineering problems. Such skills are to be obtained in areas including, but not limited to: linear algebra, calculus, differential equations, complex variables, statistics, computer programming, numerical methods, chemistry, physics, manufacturing processes, drafting and solid modeling, dimensioning and tolerancing, statics, strength of materials, dynamics, thermodynamics, fluid mechanics, heat transfer, material science, machine design, electronics, analog circuit analysis, automatic controls.
6. Each graduate of the Mechanical Engineering program will have the opportunity to develop breadth or depth in their foundational skills in the Robotics and Automation, the Vehicle Systems or General options, as well as the ability to apply these skills to solve practical engineering problems. This will have been accomplished by completing one of the approved Mechanical Engineering program options in addition to completing the core Mechanical Engineering program courses.

## Manufacturing Engineering Technology

**Program Educational Objectives**

1. Experienced graduates of the Manufacturing Engineering Technology program will have successfully demonstrated professional application of technical skills and engineering judgment to solve problems in their profession subject to technical, practical, and societal constraints.
2. Experienced graduates of the Manufacturing Engineering Technology program will have set professional goals, experienced professional growth, and are engaged in ongoing professional development and learning activities. They will appreciate the need for life-long learning in a constantly changing world and be capable self-learners.

**Program Outcome Objectives**

1. Students of the Manufacturing Engineering Technology program at graduation will receive an engineering education that is respected by relevant engineering and manufacturing organizations, companies, and societies. Graduates will have the ability to seek employment in a variety of engineering positions or enter a related graduate school.
2. Students of the Manufacturing Engineering Technology program at graduation will have experienced a learning environment administered by quality faculty, utilizing both internal and external review processes to ensure students are being educated using accepted educational methods. The assessment process will assure continuous improvement for the program, the facilities, and the meeting of students' needs.
3. Students of the Manufacturing Engineering Technology program at graduation will have knowledge of contemporary issues and cultures and will recognize the impact of technological decisions within both global and societal contexts.
4. Each graduate of the Manufacturing Engineering Technology program will possess foundational technical skills in mathematics, science, software, and engineering technology, as well as the ability to apply these skills and use modern engineering technology tools through the analysis and implementation of manufacturing systems. The fundamental technical skills will include those in the areas of algebra, trigonometry, differential and integral calculus, statistics, physics, chemistry, computer applications,

drafting and solid modeling, statics, strength of materials, electricity and electronics, manufacturing operations, CNC applications, PLC applications, robotic systems, and quality engineering.

5. Each graduate of the Manufacturing Engineering Technology program will have the opportunity to broaden knowledge in the manufacturing area and/or develop in-depth specialized skills in robotics and automation, as well as the ability to apply these skills to solve practical engineering technology problems. This will have been accomplished by completing one of the approved Manufacturing Engineering Technology program options in addition to the Manufacturing Engineering Technology core.
6. Students of the Manufacturing Engineering Technology program at graduation will be able to systematically apply the basic sciences, mathematics, and technology to design systems or processes that meet desired outcomes and satisfy design constraints. They will have the ability to act professionally and ethically both as individuals and as members of multi-disciplinary teams. They will be able to clearly communicate their ideas in both written and oral forms as typically expected within the engineering technology discipline. They will understand the need for, and will have the ability to generate, various forms of documentation necessary for process/system design and production.

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# EDUC150

**Reflections on Learning and Teaching**

**(3,0) 3**

Students will examine their experiences and assumptions about schooling in order to understand the multiple roles of teachers, characteristics of effective teaching practice, and the roles of school in society. Human development (physical, emotional and cognitive) is studied in terms of teaching and learning. Fieldwork required. Prerequisites: successful completion with a C- grade or better or placement beyond ENGL091.

*Source: Academic Catalog 2013-14*

# EDUC301

**Educational Psychology and Learning Theory**

**(3,0) 3**

This course focuses on research-based theories of learning and learning processes, the role of the teacher in supporting the process, and alternatives for evaluation of learning outcomes. Field experience is required. Prerequisites: EDUC250 and admission to the teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC480

**Directed Teaching Seminar**

**(2,0) 2**

This seminar provides a forum for students in the Directed Teaching experience to discuss issues in teacher education, classroom management, teaching of all students and professional development. Co-requisite: EDUC492.

*Source: Academic Catalog 2013-14*

# EDUC492

**Directed Teaching**

**10**

This course is a full-time teaching practicum under the direction and mentoring of a k-12 cooperating teacher. Evolution from observation and facilitation of small group activities, to whole-class instruction of a full-time teaching load in an area school. Emphasis is placed on maintaining classroom communities that ensure equitable access to important knowledge and skills. Grading will be CR/NC. Prerequisites: Admission to student teaching internship. Corequisite: EDUC480.

*Source: Academic Catalog 2013-14*

# EDUC602

**Action Research I**

**(3,0) 3**

Qualitative and quantitative research methods on teaching and learning. Criteria for judging validity and applicability of research-based knowledge. Framing educational problems worthy of inquiry through the research design and assessment of an Action Research proposal. Pre-requisite: Admission to MA: C&I program or permission of instructor, or Co-requisites: EDUC480 and EDUC492.

*Source: Academic Catalog 2013-14*

# EDUC605

**Integrated Approaches in Curricular Design and Implementation**

**(3,0) 3**

Theoretical and practical examination of the principles of integrated curriculum, acquisition of skills and knowledge bases to facilitate the development of curriculum that is integrative, responsive to student needs, and meets recommended curricular frameworks and benchmarks. Pre-requisite: Admission to MA C&I program or permission of instructor; or co-requisites of EDUC480 and 491.

*Source: Academic Catalog 2013-14*

# EDUC330

**Reading in the Elementary Classroom**

**(3,0) 3**

This course examines reading as a process of constructing meaning through dynamic interaction among reader, the text, and the context of the reading situation. Content includes objectives, content, materials, organization and methods of teaching reading in the elementary school. Fieldwork required. Prerequisite: Admission to the teacher education program. Pre- or co-rerequisite: EDUC301.

*Source: Academic Catalog 2013-14*

# EDUC410

**Corrective Reading in the Classroom**

**(3,0) 3**

This course considers methods for the classroom diagnosis of students' reading strengths and weaknesses. Techniques for planning and implementing corrective and remedial interventions based on diagnosis are presented and applied. Fieldwork required. Prerequiste: EDUC330.

*Source: Academic Catalog 2013-14*

# EDUC411

**Elementary Language Arts and Literacy Skills**

**(2,0) 2**

This course studies methods of teaching language arts as literate activity and the use of a research base for the social context of children's learning. Emphasis is on the emergence of literacy in elementary students. Fieldwork required. Prerequisites: EDUC415, admission to teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC420

**Math Methods for Elementary Teachers**

**(2,0) 2**

This course studies strategies and methodologies that facilitate effective mathematics instruction. Students develop and present mathematics lessons and units using national, state and local standards in planning instruction and assessment. Emphasis is placed on effective integration of technology in learning and assessment. Fieldwork required. Prerequisites: MATH103, MATH104, EDUC415 and admission to teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC421

**Science Methods for Elementary Teachers**

**(2,0) 2**

This course studies strategies and methodologies that facilitate effective science instruction. Students develop and present science lessons and units using national, state and local standards in planning instruction and assessment. Emphasis is placed on effective integration of technology in learning and assessment. Fieldwork required. EDUC415 and admission to teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC422

**Social Studies Methods for Elementary Teachers**

**(2,0) 2**

This course studies strategies and methodologies to facilitate effective social studies instruction. Students develop and present social studies lessons and units using national, state and local standards in planning instruction and assessment. Emphasis is placed on effective integration of technology in learning and assessment. Fieldwork required. Prerequisites: EDUC415 and admission to teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC430

**General Methods for Secondary Teachers**

**(3,0) 3**

A study of strategies and methodologies to facilitate learning at the secondary level including classroom management and organization for productive learning communities. The multiple roles of the teacher in the secondary classroom are examined including participant, colleague, researcher, reflective practitioner, accountable professional, counselor and mentor. Integrated technology component. Fieldwork required. Prerequisites: EDUC150, 250, 301 and admission to the teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC431

**The Secondary Learner**

**(3,0) 3**

A study of the dilemmas of adolescents as they affect students in secondary schools. The course focuses on the special needs and sensitivities of adolescents and implications for instruction and classroom management. Integrated technology component. Fieldwork required. Prerequisites: EDUC150, 250, 301 and admission to the teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC440

**Reading in the Content Area**

**(3,0) 3**

A study of reading methods appropriate to use in secondary classrooms. Includes formal and informal assessment procedures for determining students' abilities and the accompanying strategies to enhance content area comprehension and concept development. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Fieldwork required. Prerequisites: EDUC150, 250, 301 and admission to the teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC441

**Language Arts Methods for Secondary Teachers**

**(3,0) 3**

Curriculum, objectives, content, materials, organization, methods and assessment of core subject matter to diverse learners. Includes integrated technology, laboratory and field experiences. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Fieldwork required. Prerequisite: EDUC150, 250, 301 and admission to the teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC451

**Directed Study in Language Arts Methods**

**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC441.

*Source: Academic Catalog 2013-14*

# EDUC442

**Math Methods for Secondary Teachers**

**(3,0) 3**

Curriculum, objectives, content, materials, organization, methods and assessment of teaching mathematics to diverse secondary learners. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Fieldwork required. Prerequisite: EDUC150, 250, 301 and admission to the teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC452

**Directed Study in Mathematics Methods**

**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC442.

*Source: Academic Catalog 2013-14*

# EDUC443

**Science Methods for Secondary Teachers**

**(3,0) 3**

Curriculum, objectives, content, materials, organization, methods and assessment of teaching science to diverse learners. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Fieldwork required. Prerequisites: EDUC150, 250, 301 and admission to teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC453

**Directed Study in Science Methods**

**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC443.

*Source: Academic Catalog 2013-14*

# EDUC444

**Social Studies Methods for Secondary Teachers**

**(3,0) 3**

Curriculum, objectives, content, materials, organization, methods and assessment of teaching social studies to diverse secondary learners. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Fieldwork required. Prerequisites: EDUC150, 250, 301 and admission to teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC454

**Directed Study in Social Studies Methods**

**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC444.

*Source: Academic Catalog 2013-14*

# EDUC445

**Teaching Computer Science in the Secondary Classroom**

**(3,0) 3**

Techniques, materials and models for computer science teachers. Classroom and instructional management. Hardware and software evaluation and selection. Computer programming, including a team software development project. Web pages as an educational resource. Legal, ethical, social, economic and personal issues. Prerequisites: CSCI101 or 103, 201, EDUC150, 250, 301, and admission to the teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC455

**Directed Study in Computer Science Methods**

**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC445.

*Source: Academic Catalog 2013-14*

# EDUC446

**Business Education Methods for Secondary Teachers**

**(3,0) 3**

A study of strategies and methodologies to facilitate effective business course instruction. Students learn to plan and present office cluster, accounting, marketing and computer software lessons and units using contemporary methods. Students use national and state standards and benchmarks in planning instruction and assessment. Integrated technology component. Field work required. Pre-requisites: EDUC150, 250, 301 and admission to the teacher education program.

*Source: Academic Catalog 2013-14*

# EDUC456

**Directed Study in Business/Economics Methods**

**(1-3,0) 1-3**

Independent research or directed study under the supervision of a faculty member. May be repeated for a total of nine credits. Prerequisite: Permission of instructor. This course will substitute for EDUC446.

*Source: Academic Catalog 2013-14*

# MATH207

**Principles of Statistical Methods**

**(3,0) 3**

Descriptive statistics, probability distributions (including normal, binomial and chi-square), techniques of statistical inference including tests of hypotheses and selected nonparametric tests. (This course is a survey of elementary statistical concepts.) Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam. This course will not count toward a major in mathematics.

*Source: Academic Catalog 2013-14*

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# Accounting: Bachelor of Science

## Program Description

The discipline of accounting provides financial and other information essential to the efficient conduct and evaluation of the activities of any organization. Accounting includes the development and analysis of data, the testing of its validity and relevance, and the interpretation and communication of the resulting information to intended users. Students completing the degree will be eligible to sit for various professional certification examinations. The program complies with current educational requirements for the CPA certification.

## Degree Requirements

**Common Professional Component (48 Credits)**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- BUSN121 Introduction to Business 3
- BUSN211 Business Statistics 3
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
- BUSN403 Business, Government and Society 3
- BUSN466 Business Policy 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC341 Managerial Finance 4
- MGMT280 Introduction Management Information Systems 3
- MGMT360 Management Concepts and Apps 3
- MGMT371 Operations/Business Analytics 3
- MRKT281 Marketing Principles and Strategy 3

**Major Requirements (40 Credits)**

- ACTG232 Intermediate Accounting I 4
- ACTG233 Intermediate Accounting II 4
- ACTG332 Cost Management I 4
- ACTG333 Cost Management II 4
- ACTG334 Accounting Information Systems 3
- ACTG421 Federal Taxation Accounting I 3
- ACTG422 Federal Taxation Accounting II 3
- ACTG427 Auditing 4

- ACTG432 Advanced Accounting I Consolidations 4
- ACTG433 Advanced Accounting II Governmental 4
- MATH111 College Algebra 3

**Computer Competency is required - Complete one of the following:**

- CSCI101 Intro/Microcomputer Applications 3
- Passing Score on Computer Competency Exam (CCE)
- Microsoft Office Certificate (Word, Excel, PPT)
- Equivalent Course work

**Electives (8-10 Credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

*ALL STUDENTS WHO WISH TO SIT FOR THE CPA EXAM must complete the 124-hour accounting degree AND take 26 additional hours of course work. Students will work with an advisor to select 26 additional hours which could be in the form of minors, selected courses in legal studies, CIS, law enforcement, internships, etc. An articulated advanced business degree may also be an option.*
*(MICPA Requirement)*

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# Athletic Training: Bachelor of Science

## Program Description

LSSU's Athletic Training major is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). Upon successful completion of the Athletic Training Education Program (ATEP) at LSSU students are eligible to begin the application process to sit for the national certification exam through the Board of Certification.

The ATEP at LSSU is comprised of two phases, the pre-professional phase and the professional phase. The pre-professional phase consists of the students' first two years in which the student completes University core curriculum courses and pre-requisite coursework within the athletic training curriculum to enable the student to become eligible to apply for admission into the professional phase of the program. Students then make a formal application to the ATEP.

The number of clinical sites available to the LSSU ATEP limits the number of students that can be admitted to the program on an annual basis. Students accepted into the professional phase of the ATEP will take advanced coursework and engage in supervised clinical experiences at private and university medical practices as well as LSSU athletics. Senior ATEP students are assigned to a staff ATC as they work with one of the athletic teams, and conclude their training with a 15-week internship selected in consultation with their academic advisor.

A detailed program description, competitive admission requirements and Technical Standards for Admission are provided in the Athletic Training Education Program Student Manual and on the Recreation Studies/Exercise Science Web site.

For a copy of the ATEP Student Manual or if you have further questions, please contact:

Joseph D. Susi II, Ph.D, AT, ATC
Athletic Training Education Program Director
(906) 635-2161
jsusi@lssu.edu

## Degree Requirements

**Program Requirements: (52 credits)**

- EXER141 Introduction to Movement 3
- EXER230 Athletic Injury/Illness Prevention 3
- EXER232 Athletic Injury/Illness Recognition 3
- EXER234 Preventative Taping Techniques 1

- EXER262 Exercise Physiology I 3
- EXER268 Fitness Evaluation I 2
- EXER275 Nutrition for Sport 2
- EXER301 A.T. Clinical Experience I 2
- EXER302 A.T. Clinical Experience II 2
- EXER340 Therapeutic Modalities 3
- EXER344 Kinesiology 3
- EXER346 Therapeutic Exercise 3
- EXER349 Orthopedic Assessment 3
- EXER358 Research Methods 3
- EXER401 A.T. Clinical Experience III 2
- EXER402 A.T. Clinical Experience IV 2
- EXER428 Psychological Aspects of Exercise and Athletic Rehabilitation 3
- EXER452 Allied Health Administration 3
- EXER492 Exercise Science Internship 6

**Cognate Requirements: (31 credits)**

- EMED189 Medical First Responder 3
- MATH207 Statistics 3
- BIOL121 Anatomy & Physiology I 4
- BIOL122 Anatomy & Physiology II 4
- CHEM104 Life Chemistry I 4
- CHEM105 Life Chemistry II 4
- HLTH209 Pharmacology 3
- HLTH232 Pathophysiology 3
- NURS212 Health Appraisal 4

**Support Electives: (9 credits)**

- EXER140 Health & Fitness 3
- EXER248 Psychology of Sport and Performance and Coaching 3
- EXER265 Essentials of Strength Training and Conditioning 3
- EXER348 Fitness Evaluation II 3
- EXER362 Exercise Physiology II 3
- EXER442 Electrocardiology 2
- EXER444 Exercise Prescription 2
- EXER450 Philosophy of Human Performance and Leisure 3
- PHYS221 Elements of Physics I 4
- HLTH328 Multicultural Approaches to Health Care 3

**General Electives (7 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Biology: Bachelor of Science

## Program Description

The Bachelor of Science degree in biology combines theory and concepts of biology with intensive, hands-on experiences in our state-of-the-art laboratories and a wealth of close-by field sites. Students build on a core of biology classes by selecting the physiology and taxonomy classes and other electives that best fit their interests.

The program is an excellent preparation for biology or related careers. Our graduates are currently employed as doctors, dentists, veterinarians, biological researchers, laboratory technicians, consultants and teachers. Many careers in biology require education beyond the baccalaureate degree and LSSU's biology program has a proven record of excellent preparation for professional and graduate school.

New! Two concentrations have been added to the Biology Program at LSSU. The **Pre-medical concentration** prepares students for medical, dental, optometry, physician assistant, and chiropractic graduate programs. The **Pre-Veterinary concentration** prepares students for entrance into veterinary college. Our program has always had an excellent reputation with the health professional schools in Michigan, Ontario, and beyond. With these new concentrations, we will be even better suited to guide students to the health professional school of their choice.

**Available degrees** (see specific requirements further down the page):

- Bachelor of Science Biology
- Bachelor of Science Biology, Pre-Medical Concentration
- Bachelor of Science Biology, Pre-Veterinary Concentration

## Degree Requirements

## Bachelor of Science Biology

**Biology Core (27 credits)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL220 Genetics 4
- BIOL250 Quantitative Biology 3
- or
- MATH207 Statistics 3

- BIOL280 Biostatistics 3
- BIOL299 Sophomore Seminar 1
- BIOL337 General Ecology 3
- BIOL399 Junior Seminar 1
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1

**Physiology Elective (1 course from)**

- BIOL315 Plant Physiology 4
- BIOL330 Animal Physiology 4
- BIOL421 Cell Biology 4

**Taxonomy Elective (1 course from)**

- BIOL202 Field Botany 3
- BIOL204 General Microbiology 4
- BIOL302 Invertebrate Zoology 3
- BIOL303 General Entomology 4
- BIOL306 Medical Mycology 3
- BIOL310 Ichthyology 3
- BIOL311 Mammalogy 3
- BIOL312 Ornithology 3
- BIOL422 Parasitology 3
- BIOL475 Aquatic Entomology 3

**Biology Electives (21 credits)**

A minimum of 17 credits must be from 300 or 400 level courses. At least one elective must be a 400 level class. Courses not used to satisfy the physiology or taxonomy requirement may be used as 'other' electives.

**Support Courses**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 4
- CHEM225 Organic Chemistry I 4
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Science 4
- Physical Science (CHEM, PHYS, GEOL) course with lab 4

**Free Electives**

A minimum of 12 credits must be non-biology courses.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.

## Bachelor of Science Biology, Pre-Medical Concentration

**Biology Core (27 credits)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL220 Genetics 4
- BIOL250 Quantitative Biology 3
- or
- MATH207 Statistics 3
- BIOL280 Biometrics 3
- BIOL299 Sophomore Seminar 1
- BIOL337 General Ecology 3
- BIOL399 Junior Seminar 1
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1

**Physiology Elective (1 course from)**

- BIOL330 Animal Physiology* 4
- BIOL421 Adv Cell & Molecular Biology* 4

**Taxonomy Elective (1 course from)**

- BIOL204 General Microbiology* 4
- BIOL306 Medical Mycology 3
- BIOL422 Parasitology 3

**Other Biology (21 credits from)**

- BIOL243 Vertebrate Anatomy* 4
- BIOL423 Immunology* 4
- BIOL433 Histology* 3
- BIOL285 Epidemiology 3
- BIOL332 Embryology 3
- BIOL380 Hematology 4
- BIOL406 Immunohematology 3
- BIOL420 Evolutionary Analysis 3
- BIOL425 Virology 3
- BIOL434 Histopathology 1
- BIOL455 Body Fluids Analysis 3
- BIOL480 Advanced Microbiology 4

*These courses are highly recommended by medical and dental schools in Michigan, Ontario and around the country.

A minimum of 17 credits from 300/400 level courses. At least one elective must be a 400 level class. Courses not used to satisfy the physiology or taxonomy requirement may be used as 'other' electives.

**Support Courses**

- PHYS221 Principles of Physics I 4
- PHYS222 Principles of Physics II 4
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Science 4
- PSYC101 General Psychology 4
- SOCY101 Sociology 4
- HLTH328 Multicultural Approaches to Health Care 3

**Chemistry Minor (22 credits)**

**Free Electives**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.75 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.

## Bachelor of Science Biology, Pre-Veterinary Concentration

**Biology Core (27 credits)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL220 Genetics 4
- BIOL250 Quantitative Biology 3
- or
- MATH207 Statistics 3
- BIOL280 Biometrics 3
- BIOL299 Sophomore Seminar 1
- BIOL337 General Ecology 3
- BIOL399 Junior Seminar 1
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1

**Physiology Elective (1 course from)**

- BIOL330 Animal Physiology 4
- BIOL421 Adv Cell & Molecular Biology* 4

**Taxonomy Elective (1 course from)**

- BIOL204 General Microbiology* 4
- BIOL306 Medical Mycology 3
- BIOL422 Parasitology 3

**Other Biology (21 credits from)**

- BIOL243 Vertebrate Anatomy 4
- BIOL332 Embryology 3
- BIOL335 Animal Nutrition* 3
- BIOL380 Hematology 4
- BIOL405 Animal Behavior 3
- BIOL423 Immunology 4
- BIOL425 Virology 3
- BIOL426 Ecology of Animial Disease 3
- BIOL433 Histology 3
- BIOL434 Histopathology 1
- BIOL480 Advanced Microbiology 4

*These courses required by MSU-CVM.

A minimum of 17 credits from 300/400 level courses. At least one elective must be a 400 level class. Courses not used to satisfy the physiology or taxonomy requirement may be used as 'other' electives.

**Support Courses**

- PHYS221 Principles of Physics I 4
- PHYS222 Principles of Physics II 4
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Science 4

**Chemistry Minor (22 credits)**

**Free Electives**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.75 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.

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# Biochemistry Pre-Professional: Bachelor of Science

## Program Description

The Chemistry Program at Lake Superior State University is now accredited by the American Chemical Society (ACS). According to the 2011 National Occupational Employment and Wage Estimator, more people are employed as chemists and chemical technicians than in any other job classification in the life and physical science occupations (http://stats.bls.gov). With many free electives and a common general education core, a chemistry degree can also be used in combination with other majors or minors such as pre-professional (medicine, pharmacy, veterinary, law, etc.), engineering, business, biology, and many more to match student interest and career plans.

Graduates with a bachelor of science in Biochemistry Pre-Professional work in many disciplines and industries, and many proceed on to graduate school in natural sciences, medicine, law, and engineering. Internships in chemistry are encouraged where students can gain valuable real-world work experience while gaining college credit. In addition, students pursuing the ACS certified degree will participate in an applied research project in close collaboration with faculty members to address meaningful chemical-based problems. These projects, through the excellent preparation they provide our students, are often cited as important factors in successful job searches and entry into graduate programs.

The LSSU chemistry program has been approved by the American Chemical Society, and may provide certified degrees in Chemistry, Forensic Chemistry, Biochemistry Pre-Professional, and Environmental Chemistry if a student chooses this track. In addition, the BS in Chemistry Secondary Education degree may also be certified by the ACS. Graduates completing the prescribed requirements are awarded an ACS certificate signifying their completion of the approved degree and can qualify for membership in the Society upon graduation.

American Chemical Society
Committee on Professional Training
155 Sixteenth Street, N.W.,
Washington, D.C. 20036

## Degree Requirements

**Chemistry Degree Requirements (44 credits minimum)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4

- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM251 Introductory Biochemistry 4
- CHEM261 Inorganic Chemistry 4
- CHEM332 Instrumental Analysis 4
- CHEM353 Introductory Toxicology 3
- CHEM363 Physical Chemistry Lab 1
- CHEM395 Junior Seminar 1
- CHEM452 Biochemistry II 4
- CHEM499 Senior Seminar 1

**For American Chemical Society certified degree, additionally required (total lab hours must be at least 400 hours). See Department Chair for special rules regarding ACS certification:**

- CHEM495 Senior Project 2
- CHEM Electives 300 level or higher (4 cr min)

**Biology Courses (16 credits)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL220 Genetics 4
- Any BIOL 400 level course 4

**Support Courses (19 credits)**

- BUSN211 Business Statistics 3 **or**
- MATH207 Principles of Statistical Methods 3
- MATH151 Calculus I 4
- MATH152 Calculus II 4
- PHYS231 Applied Physics I 4
- PHYS232 Applied Physics II 4

**General Electives (20 credits minimun)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.50 or higher. A gpa of 2.50 or higher is also required in your Major, and a gpa of a 2.00 or higher is required in your General Education Core Requirements.**

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# Business Administration - Entrepreneurship: Bachelor of Science

## Program Description

The entrepreneurship major is designed to develop students' skills so that they are both confident and competent in analyzing new business ideas; refining a vision of a new business into the kind of business plan lenders and investors are likely to approve; and, translating the business plan into the start-up, launch, daily management, and growth and exit strategies most relevant and feasible for a small business venture. The entrepreneurship major also prepares students for working within a small, entrepreneurial firm, as an employee with specific business skills tailored to the needs of the smaller firm. The study of entrepreneurship includes classes in marketing, accounting, management, and entrepreneurship, and requires an internship placement in a small firm or as an advisor to a small firm. These courses, along with the common professional business core courses, will provide students with the knowledge, training, and practical experience required to become successful small business owners, counselors, and employees.

## Degree Requirements

**Common Professional Component (48 Credits)**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- BUSN121 Introduction to Business 3
- BUSN211 Business Statistics 3
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
- BUSN403 Business, Government & Society 3
- BUSN466 Business Policy 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC341 Managerial Finance 4
- MGMT280 Introduction Management Information Systems 3
- MGMT360 Management Concepts and Applications 3
- MGMT371 Operations/Business Analytics 3
- MRKT281 Marketing Principles and Strategy 3

**Major Requirements**

- BUSN399 Internship 3

- MATH111 College Algebra 3

**Minimum 21 Credits from 3 disciplines should be selected from the following list:**

- ACTG334 Accounting Information Systems 3
- BUSN261 Business Skills 1
- INTB389 Competing in the Global Market Place 3
- INTB486 International Marketing 3
- MGMT365 Human Resource Management 3
- MGMT380 Principles of Leadership 3
- MGMT464 Organizational Behavior 3E
- MGMT476 Employee Training and Development 3
- MRKT283 Principles of Selling 3
- MRKT385 Services Marketing
- MRKT387 Advertising Theory and Practice 3
- MRKT388 Retail Management 3
- MRKT389 Entrepreneurship

**Computer Competency Required - Complete one of the following:**

- CSCI101 Intro/Microcomputer Applications 3
- Passing Score on Computer Competency Exam (CCE)
- Microsoft Office Certificate (Word, Excel, PPT)
- Equivalent Course work

**Free Electives (300/400 level) to reach minimum of 124 credits from: BUSN, MRKT, MGMT, ECON, FINC, ACTG, INTB.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Business Administration - International Business: Bachelor of Science

## Program Description

A major in international business is intended to develop a student's ability to meet the challenges of the global business environment. In addition to providing the fundamental foundations of all business functional areas, the major teaches the student to identify and develop appropriate solutions to situations that are unique to conducting business in the global environment. The international business major provides the student with an understanding of international business by providing upper-level courses in international economics, international marketing, cultural differences, politics and foreign languages. Students will also participate in an approved international experience which will involve either study abroad, work experiences, or internships.

## Degree Requirements

**Common Professional Component (48 Credits)**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- BUSN121 Introduction to Business 3
- BUSN211 Business Statistics 3
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
- BUSN403 Business, Government & Society 3
- BUSN466 Business Policy 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC341 Managerial Finance 4
- MGMT280 Introduction Management Information Systems 3
- MGMT360 Management concepts & Applications 3
- MGMT371 Operations/Business Analytics 3
- MRKT281 Marketing Principles and Strategy 3

**Major Requirements (33 Credits)**

- ECON408 International Economics 3
- INTB389 Competing in the Global Marketplace 3
- INTB375 International Business Law 3
- INTB420 Comparative International Management 3

- INTB486 International Marketing 3
- MATH111 College Algebra 3
- International Experience (BUSN399 or INTD310 or INTD410) 3

**Regional Electives (Minimum 3-4 Credits)**

**Language Electives (Minimum 8 Credits)**

**Computer Competency Required - Complete one of the following:**

- CSCI101 Intro/Microcomputer Applications 3
- Passing Score on Computer Competency Exam (CCE)
- Microsoft Office Certificate (Word, Excel, PPT)
- Equivalent Course work

**Free Electives (300/400 level) to reach minimum of 124 credits from: BUSN, MRKT, MGMT, ECON, FINC, ACTG, INTB.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Business Administration - Management: Bachelor of Science

## Program Description

The management major is designed to provide students with a broad background in business by presenting courses covering the functional areas of business. This management degree program prepares students for human resource and leadership positions in business and non-profit organizations.

## Degree Requirements

**Common Professional Component (48 Credits)**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- BUSN121 Introduction to Business 3
- BUSN211 Business Statistics 3
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
- BUSN403 Business, Government & Society 3
- BUSN466 Business Policy 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC341 Managerial Finance 4
- MGMT280 Introduction Management Information Systems 3
- MGMT360 Management Concepts and Applications 3
- MGMT371 Operations/Business Analytics 3
- MRKT281 Marketing Principles and Strategy 3

**Major Requirements (29 Credits)**

- BUSN308 Managing Cultural Differences 3
- BUSN355 Business Law II 3
- MGMT365 Human Resource Management 3
- MGMT380 Principles of Leadership 3
- MGMT451 Labor Law 4
- MGMT464 Organizational Behavior 3
- MGMT469 Collective Bargaining 3
- MGMT476 Employee Training Development 4
- MATH111 College Algebra 3

**Computer Competency Required - Complete one of the following:**

- CSCI101 Intro/Microcomputer Applications 3
- Passing Score on Computer Competency Exam (CCE)
- Microsoft Office Certificate (Word, Excel, PPT)
- Equivalent Course work

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Business Administration - Marketing: Bachelor of Science

## Program Description

The marketing major is designed to prepare students for the many opportunities in the field of marketing. The study of marketing includes marketing principles, principles of selling, retail management, consumer behavior, advertising theory and practice, marketing management, sales force management, marketing research and international marketing. These courses, along with the common professional business core courses, are designed to provide our students with the appropriate knowledge and skills to understand the function of marketing in the firm and in society and to be effective decision makers.

## Degree Requirements

**Common Professional Component (48 credits)**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- BUSN121 Introduction to Business 3
- BUSN211 Business Statistics 3
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
- BUSN403 Business, Government & Society 3
- BUSN466 Business Policy 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC341 Managerial Finance 4
- MGMT280 Introduction Management information systems 3
- MGMT360 Management Concepts and Applications 3
- MGMT371 Operations/Business Analytics 3
- MRKT281 Marketing Principles and Strategy 3

**Major Requirements (Minimum 30 Credits)**

- MRKT381 Consumer Behavior 3
- MRKT480 Marketing Research 3
- MRKT481 Marketing Management 3
- MATH111 College Algebra 3
- Four Marketing Electives* 12
- Two Business Electives ** 6-8

**Computer Competency Required - Complete one of the following:**

- CSCI101 Intro/Microcomputer Applications 3
- Passing Score on Computer Competency Exam (CCE)
- Microsoft Office Certificate (Word, Excel, PPT)
- Equivalent Course work

*Electives in Marketing, INTB486, or COMM320

**Electives in 300/400 level courses in BUSN, MGMT, ECON, FINC, ACTG, INTB.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Chemistry: Bachelor of Arts/Science

## Program Description

The Chemistry Program at Lake Superior State University is now accredited by the American Chemical Society (ACS). According to the 2011 National Occupational Employment and Wage Estimator, more people are employed as chemists and chemical technicians than in any other job classification in the life and physical science occupations (http://stats.bls.gov). With many free electives and a common general education core, a chemistry degree can also be used in combination with other majors or minors such as pre-professional (medicine, pharmacy, veterinary, law, etc.), engineering, business, biology, and many more to match student interest and career plans.

Graduates with a bachelor of science in chemistry work in many disciplines and industries, and many proceed on to graduate school in natural sciences, medicine, law, and engineering. Internships in chemistry are encouraged where students can gain valuable real-world work experience while gaining college credit. In addition, students pursuing the ACS certified degree will participate in an applied research project in close collaboration with faculty members to address meaningful chemical-based problems. These projects, through the excellent preparation they provide our students, are often cited as important factors in successful job searches and entry into graduate programs.

The LSSU chemistry program has been approved by the American Chemical Society, and may provide certified degrees in Chemistry, Forensic Chemistry, Biochemistry Pre-Professional, and Environmental Chemistry if a student chooses this track. In addition, the BS in Chemistry Secondary Education degree may also be certified by the ACS. Graduates completing the prescribed requirements are awarded an ACS certificate signifying their completion of the approved degree and can qualify for membership in the Society upon graduation.

American Chemical Society
Committee on Professional Training
155 Sixteenth Street, N.W.,
Washington, D.C. 20036

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Arts Chemistry, Secondary Teaching
- Bachelor of Science Chemistry
- Bachelor of Science Chemistry, Secondary Teaching

## Degree Requirements

### Bachelor of Arts Chemistry, Secondary Teaching

**Chemistry Requirements (40 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM332 Instrumental Analysis 4
- CHEM361 Physical Chemistry I 4
- CHEM362 Physical Chemistry II 4
- CHEM451 Introduction to Biochemistry 4
- CHEM462 Advanced Inorganic and Physical Chemistry Lab 1

**Complete one methods course from the following:**

- EDUC453 Directed Study in Science Methods

**Chemistry Cognates (25 credits)**

- CHEM353 Introductory Toxicology 3
- CHEM395 Junior Seminar 1
- CHEM495 Senior Project 1-3
- CHEM499 Senior Seminar 1
- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH207 Pinciples of Statistics 3
- PHYS231 Applied Physics I 4
- PHYS232 Applied Physics II 4
- Foreign Language I 4
- Foreign Language II 4

**Directed Electives (8 credits)**

- INTD399 Internship in Chemistry
- CHEM Electives (300-level or higher beyond courses listed above)

**Secondary Teaching Certification**

To be recommended for secondary teacher certification, students must complete an approved
minor in a second teachable subject.

**Professional Education Requirements and Education Cognates- see Secondary Education.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or

NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is also required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

## Bachelor of Science Chemistry

**Chemistry Degree Requirements (48 credits minimum)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM251 Introductory Biochemistry 4
- CHEM261 Inorganic Chemistry 4
- CHEM332 Instrumental Analysis 4
- CHEM361 Physical Chemistry I 4
- CHEM362 Physical Chemistry II 3
- CHEM363 Physical Chemistry Lab 1
- CHEM395 Junior Seminar 1
- CHEM499 Senior Seminar 1
- CHEM Electives 300 level or higher (4 cr min)

**For American Chemical Society certified degree, additionally required (total lab hours must be at least 400 hours). See Department Chair for special rules regarding ACS certification:**

- CHEM495 Senior Project 2
- CHEM Electives 300 level or higher (7 cr min)

**Support Courses (19-20 credits)**

- BUSN211 Business Statistics 3 **or**
- MATH207 Principles of Statistical Methods 3
- MATH151 Calculus I 4 **and**
- MATH152 Calculus II 4 **or**
- MATH112 Calculus for Business & Life Science I 4 **and**
- EGNR140 Linear Algebra Num Meth Engineers 2 **and**
- EGNR245 Calculus App for Technology 3
- Two semesters of college physics with laboratory (8 cr min)

**General Electives (32 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.50 or higher. A gpa of 2.50 or higher is also required in your Major, and a gpa of 2.00 is required in your General Education Core Requirements.**

## Bachelor of Science Chemistry, Secondary Teaching

**Chemistry Requirements (44 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM261 Inorganic Chemistry 4
- CHEM332 Instrumental Analysis 4
- CHEM351 Introduction to Biochemistry 4
- CHEM361 Physical Chemistry I 4
- CHEM362 Physical Chemistry II 4
- CHEM363 Physical Chemistry Lab 1
- CHEM395 Junior Seminar 1
- CHEM499 Senior Seminar 1

**For American Chemical Society certified degree, additionally required (total lab hours must be at least 400 hours). See Department Chair for special rules regarding ACS certification:**

- CHEM Elective 300 or higher (3 cr min)
- CHEM495 Senior Project 2

**Complete one methods course from the following:**

- EDUC443 Science Methods for Secondary Teachers 3 **or**
- EDUC453 Directed Study in Science Methods 3

**Support Courses (19 credits)**

- MATH151 Calculus I 4
- MATH152 Calculus II 4
- BUSN211 Business Statistics 3 **or**
- MATH207 Principles of Statistical Methods 3
- PHYS221 Principles of Physics I 4 **or**
- PHYS231 Appl Phys Engineer/Scientist I 4
- PHYS222 Principles of Physics II 4 **or**
- PHYS232 Appl Phys Engineer/Scientist II 4

**Secondary Teaching Certification**

To be recommended for secondary teacher certification, students must complete an approved minor in a second teachable subject.

**Professional Education Requirements and Education Cognates- see Secondary Education.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is also required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

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# Communication: Bachelor of Arts

## Program Description

The communication and theatre program offers versatility, nationally award-winning faculty, and excellent preparation for a career or graduate education.

The variety of elective choices allows for program adaptability to better meet future career goals. Culminating in a capstone experience of a communication internship or independent research project, the program provides a blend of theoretical and practical knowledge and experience necessary for success in the communication arts.

## Degree Requirements

Majors in communication must complete one minor in an area to be approved by the chair of the department.

**Required Courses (24-25 credits)**

- COMM101 Fundamentals of Speech, Communication 3
- COMM201 Small Group Communication 3
- COMM225 Interpersonal Communication 3
- COMM280 Understanding Mass Media 3
- COMM307 Classical/Contemporary Rhetoric 3
- COMM308 Communication Theory 3
- INTD399 Internship in Communication** 3
  **or**
- INTD490 Senior Directed Study** 3-4
- THEA251 History of Drama and Theatre I* 3
  **or**
  THEA252 History of Drama and Theatre II* 3

**Select Additional Elective Courses (39 credits)**

- ENGL306 Technical Writing 3
- HUMN256 Introduction to Film: Images of Our Culture 3
- INTD399 Internship in Communication** 3
  **or**
- INTD490 Senior Directed Study** 3-4
- THEA161 Problems in Speech/Drama 1-3
- COMM210 Business and Professional Speaking 3
- THEA251 History of Drama and Theatre I* 3
  **or**

- THEA252 History of Drama and Theatre II*3
- COMM302 Argumentation and Advocacy 3
- THEA309 Speech and Drama Productions 3
- COMM320 Public Relations 3
- COMM325 Organizational Communication 3
- THEA333 Studies in the Drama: the Genre and Theatre in Context 3
- COMM416 Communication in Leadership 3

*A minimum of 12 hours must be from 300 or 400 level courses.*
**may select one class for required class and one for elective.*
***may select one class for required class and one for elective.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Computer Engineering: Bachelor of Science

## Program Description

LSSU's Computer Engineering program has been designed to put you in the high-demand computer market with the potential for good career growth. This accredited* program blends practical computer science courses in computer organization, databases, operating systems, and networks with traditionally hands-on electrical engineering courses in digital circuits, digital system, microcontrollers, computer programming, and digital signal processing. This combination gives you a broad-based education that ties software to hardware and theory to application. Some of the program highlights are:

- The program provides an excellent mix of theory and practical laboratory experiences, preparing you to solve real-world problems.
- For your senior year experience, choose from opportunities in cooperative education, industry-based projects or research projects.
- Engineering courses begin in your freshman year.
- Opportunities exist for you to work with faculty on current undergraduate research projects.
- You will study assembly language programming, computer architecture, microcontroller hardware and software, databases, digital signals and systems, and networking.
- Concentrations available in control systems and robotics and automation.

### Cooperative Education

Opportunities are available as part of this program for students who are academically qualified. A certificate that documents this practical training is available.

## Degree Requirements

### Degree Options (Concentrations) in:

- Control Systems
- Robotics and Automation

**Departmental Requirements:**

**Mathematics**

- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH251 Calculus III 4

- MATH308 Probability and Mathematical Statistics 3
- MATH310 Differential Equations 3

**Sciences**

- CHEM115 General Chemistry I 5
- PHYS231 Applied Physics for Engineers and Scientists I 4
- PHYS232 Applied Physics for Engineers and Scientists II 4

**Computer Science**

- CSCI105 Intro. to Computer Programming 3
- CSCI121 Principles of Programming 3
- CSCI122 Programming Tools and Techniques 3
- CSCI201 Data Structures and Algorithms 3
  **or**
  CSCI221 Computer Networks 3
- CSCI341 Discrete Structures for Computer Science 4

**Engineering**

- EGEE125 Digital Fundamentals 4
- EGEE210 Circuit Analysis 4
- EGEE250 Microcontroller Fundamentals 4
- EGEE280 Introduction to Signal Processing 5
- EGEE320 Digital Design 4
- EGEE345 Fundamentals of Engineering Electromagnetics 3
- EGEE355 Microcontroller Systems 4
- EGEE370 Electronic Devices 4
- EGEE425 Digital Signal Processing 3
- EGNR101 Introduction to Engineering 2
- EGNR140 Linear Algebra and Numerical Methods for Engineers 2
- EGNR340 Advanced Numerical Methods for Engineers 1
- EGNR346 Probability and Statistics Lab for Engineers 1

**Technical Electives (Minimum 11 Credits from one of the following):**

**General**

- CSCI281 Intro to UNIX and Networking (or higher level CSCI) 3
- EGEE310 Network Analysis (or higher level EGEE) 3
- EGEM220 Statics 3
- EGME275 Engineering Materials (or higher level EGME) 3
- EGET310 Electronic Manufacturing Processes 4
- EGRS385 Robotics Engineering 4
- EGRS430 Systems Integration & Machine Vision 4
- EGRS435 Automated Manufacturing Systems 3
- EGRS460 Control Systems 4
- EGRS461 Design of Control Systems 4
- MATH215 Fund Concepts of Mathematics (or higher level MATH) 3

**Control Systems Concentration (C or better grade required for all courses)**

- EGEM220 Statics 3

- EGRS460 Control Systems 4
- EGRS461 Design of Control Systems 4

**Robotics and Automation Concentration (C or better grade required for all courses)**

- EGRS385 Programmable Logic Controllers 3
- EGRS430 Systems Integration and Machine Vision 4
- EGRS435 Automated Manufacturing Systems 4

**Senior Sequence (Complete one of the following sequences):**

**Industrial Project**

- EGNR491 Engineering Design Project I 3
- EGNR495 Engineering Design Project II 3

**Cooperative Project**

- EGNR250 Cooperative Education 2
- EGNR450 Cooperative Education Project I 4
- EGNR451 Cooperative Education Project II 3
- EGNR491 Engineering Design Project I 3

**Research Project**

- EGNR260 Engineering Research Methods 2
- EGNR460 Engineering Research Project I 4
- EGNR461 Engineering Research Project II 2

**32 credits from Mathematics (including EGNR340) and Natural Sciences is required.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Computer Networking: Bachelor of Science

## Program Description

This degree gives students the knowledge and tools necessary to be successful in the field of computer networking. Courses cover a range of networking topics, including network operating systems, hardware, web page design, and system administration.

Students will have hands-on experience with Linux, Novell and Windows platforms, as well as networking hardware and operating system installation.

Some of the highlights of the program are:

- Students get hands-on training in networking hardware and software, and receive the necessary concepts of hardware, software and network operating systems.
- Students are prepared to take industry-standard examinations, such as those established by Cisco, Novell and Microsoft.
- Students can choose software design, research, or co-operative education as their senior capstone experience.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Computer Networking
- Bachelor of Science Computer Networking, Web Development Concentration

## Degree Requirements

### Bachelor of Science Computer Networking

**Departmental Requirements (61 credits)**
*Departmental GPA must be 2.50 or higher*

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI121 Principles of Programming 3
- CSCI163 Troubleshooting & Repair of Personal Computers 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI223 Advanced Networking I 3
- CSCI225 Advanced Networking II 3
- CSCI248 Network Operating Systems I 3

- CSCI263 Managing Computer Security 3
- CSCI281 Intro. to UNIX and Networking 3
- CSCI292 Computer Networking Project 4
- CSCI319 Network Programming Using Java 3
- CSCI333 Systems Programming 3
- CSCI348 Network Operating Systems II 3
- CSCI412 UNIX System Administration 3
- CSCI422 Network and Computer Security 3
- CSCI418 Senior Project I 3
  **and**
- CSCI419 Senior Project II 3
  **or**
- CSCI428 Computer Science Co-operative Education I 3
  **and**
- CSCI429 Computer Science Co-operative Education II 3
  **or**
- CSCI438 Computer Science Research Project I 3
  **and**
- CSCI439 Computer Science Research Project II 3

**Support Courses (12 credits)**

- BUSN121 Introduction to Business 3
- BUSN231 Business Communications 3
- MATH111 College Algebra 3
- MATH207 Princ. of Statistical Methods 3

**Free Electives (14 -18)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.50 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements**

## Bachelor of Science Computer Networking, Web Development Concentration

**Departmental Requirements (64 credits)**
**Departmental GPA must be 2.50 or higher**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI107 Web Graphic Design and Development 3
- CSCI121 Principles of Programming 3
- CSCI207 Developing Multimedia and Rich Interactive Web Sties 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3

- CSCI248 Network Operating Systems I 3
- CSCI263 Managing Computer Security 3
- CSCI275 Web Server Administration 3
- CSCI281 Intro. to UNIX and Networking 3
- CSCI292 Computer Networking Project 4
- CSCI319 Network Programming Using Java 3
- CSCI325 Developing Web Applications with JavaScript and PHP 3
- CSCI326 Developing Web Applications with ASP.NET 3
- CSCI333 Systems Programming 3
- CSCI412 UNIX Network Administration 3
- CSCI348 Networking Operating Systems II 3
  **or**
- CSCI422 Network and Computer Security 3
- CSCI418 Senior Project I 3
- CSCI419 Senior Project II 3
  **or**
- CSCI428 Computer Science Co-operative Education I 3
- CSCI429 Computer Science Co-operative Education II 3
  **or**
- CSCI438 Computer Science Research Project I 3
- CSCI439 Computer Science Research Project II 3

**Support Courses (12 credits)**

- BUSN121 Introduction to Business 3
- BUSN231 Business Communications 3
- MATH111 College Algebra 3
- MATH207 Princ. of Statistical Methods 3

**Free Electives (11-15)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.50 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements**

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# Computer Science: Bachelor of Science

## Program Description

This degree provides a solid background in computer science with supporting coursework in applied mathematics and business. Adding an appropriate minor field of study can complement the program, as well as give the graduate a competitive edge in the work force.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Computer Science
- Bachelor of Science Computer Science, Secondary Teaching

## Degree Requirements

### Bachelor of Science Computer Science

**Departmental Requirements (63 credits)**
**Departmental GPA must be 2.50 or higher**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI121 Principles of Programming 3
- CSCI122 Programing Tools & Techniques 3
- CSCI201 Data Structures and Algorithms 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI291 Computer Science Project 4
- CSCI312 File and Database Management 3
- CSCI315 Computer Organization & Architecture 3
- CSCI321 Computer Graphics 3
- CSCI333 Systems Programming 3
- CSCI334 Operating Systems Concepts 3
- CSCI341 Discrete Structures for Computer Science 4
- CSCI342 Advanced Programming Techniques 3
- CSCI418 Senior Project I 3
  **and**
- CSCI419 Senior Project II 3
  **or**
- CSCI428 Computer Science Co-operative Education I 3
  **and**
- CSCI429 Computer Science Co-operative Education II 3
  **or**

- CSCI438 Computer Science Research Project I 3
  **and**
- CSCI439 Computer Science Research Project II 3
- MATH131 College Trigonmetry 3
- MATH112 Calculus for Business & Life Science 4
  **or**
- MATH151 Calculus I 4
- MATH207 Prin. of Statistical Methods 3

**Other Requirements (11 credits)**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- BUSN121 Introduction to Business 3

**Free Electives (or minor) (12-17 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.50 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements**

## Bachelor of Science Computer Science, Secondary Teaching

**Departmental Requirements (53 credits)**
**Departmental GPA must be 2.70 or higher**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI121 Principles of Programming 3
- CSCI122 Programing Tools and Techniques 3
- CSCI163 Troubleshooting and Repair of Personal Computers 3
- CSCI201 Data Structures and Algorithms 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI271 Network Hardware and Software 3
- CSCI281 Network Design and Implementation 3
- CSCI312 File and Database Management 3
- CSCI341 Discrete Structures of Computer Science 4
- CSCI418 Senior Project I 3
  **and**
- CSCI419 Senior Project II 3
  **or**
- CSCI428 Computer Science Co-operative Education I 3
  **and**
- CSCI429 Computer Science Co-operative Education II 3
  **or**
- CSCI438 Computer Science Research Project I 3

**and**

- CSCI439 Computer Science Research Project II 3
- MATH151 Calculus I 4
- MATH207 Principles of Statistical Methods 3

**Professional Educational Requirements and Education Cognates - see Secondary Education**.

**Teaching Minor (20 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is also required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

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# Conservation Biology: Bachelor of Science

## Program Description

The BS in Conservation Biology prepares students for careers whose goal is to solve a wide range of environmental challenges such as invasive species, altered landscapes, species extinctions, or the restoration of degraded aquatic and terrestrial ecosystems. Our selection of rigorous field based courses in watersheds, soils, forestry, ecology (general, fish, wildlife or plant), and organisms (mammalogy, ornithology, ichthyology, or entomology) offers a strong set of foundational courses in the natural sciences. combining this coursework with interdisciplinary courses and GIS technology adds the breadth needed to formulate sustainable solutions to local, regional and global conservation challenges. Electives allow students to tailor the program to their interests and career goals. Students may choose as a capstone experience, a summer semester internship working in a professional capacity in conservation biology or a senior thesis research project. Students will be prepared for careers or for graduate work in conservation biology or a broad range or related areas.

The Human Dimensions Concentration prepares students for careers in global, national and community conservation advocacy programs including environmental outreach and policy development and communication. This multi-disciplinary program combines a strong core in the biological sciences with classes in geographic information science, communications, business and economics, and political science. The program is flexible, allowing students to select classes that best match their educational and career goals. Students conclude their program by completing a conservation related service learning project for a conservation organization, unit of government, or business (e.g., land conservancies, Michigan Department of Environmental Quality, watershed organizations, zoos and aquariums).

**Available degrees** (see specific degree requirements further down on page):

- Bachelor of Science Conservation Biology
- Bachelor of Science Conservation Biology, Human Dimensions Concentration

## Degree Requirements

## Bachelor of Science Conservation Biology

**Major Requirements (84 - 85 credits)**

- BIOL126 Interpretation of Maps & Aerial Photos 2

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL203 Fundamentals of Natural Resources 3
- BIOL220 Genetics 4
- BIOL230 Introduction to Soil Science 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biometrics 3
- BIOL284 Principles of Forest Conservation 4
- BIOL286 Principles of Watersheds 3
- BIOL287 Conservation Biology 3
- BIOL299 Sophomore Seminar 1
- BIOL337 General Ecology 3
- BIOL420 Evolutionary Analysis 3
- BIOL470 Restoration Ecology 3
- BIOL499 Senior Seminar 1
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- EVRN131 Introduction to GIS and GPS 3
- EVRN231 Intermediate GIS 3
- EVRN311 Environmental Law 3
- INTD300 The Human Environment 3
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Science 4

**Global Perspective - Select 1 course from:**

- ECON307 Environmental Economics 3
- SOCY227 Population and Ecology 3
- POLI342 International Environmental Policy 3
- Study Abroad 3+

**Internship Option**

- INTD398 Planning Experiential  Learning Project 1
- BIOL497 Internship in Conservation Biology 3

**or**

**Research Option**

- BIOL399 Junior Seminar 1
- BIOL495 Senior Project 2

**Free Electives (13-14 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher.  A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core**

**Requirements.**

## Bachelor of Science Conservation Biology, Human Dimensions Concentration

**Major Requirements (84 - 85 Credits)**

- BIOL126 Intrepretation of Maps & Aerial Photos 2
- BIOL131 General Biology I 4
- BIOL132 General Biology II 4
- BIOL199 Freshman Seminar 1
- BIOL203 Fundementals of Natural Resources 3
- BIOL220 Genetics 4
- BIOL230 Introduction to Soil Science 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biometrics 3
- BIOL284 Principles of Forest Conservation 4
- BIOL286 Principles of Watersheds 3
- BIOL287 Conservation Biology 3
- BIOL299 Sophomore Seminar 1
- BIOL337 General Ecology 3
- BIOL420 Evolutionary Analysis 3
- BIOL470 Restoration Ecology 3
- BIOL499 Senior Seminar 1
- CHEM115 General Chemistry I 5
- EVRN131 Introduction to GIS and GPS 3
- EVRN231 Intermediate GIS 3
- EVRN311 Environmental Law 3
- INTD300 The Human Environment 3
- MATH111 College Algebra 3

**Marketing & Management* - 1 course from:**

- MGMT360 Management Concepts & Applications 3
- MRKT281 Marketing Principles & Strategies 3
- MRKT385 Services Marketing 3

**Political Science* - 1 course from:**

- POLI130 Introduction State & local Government 4
- POLI201 Public Administration 3

**Communications* - 1 course from:**

- COMM280 Understanding Mass Media 3
- COMM302 Argumentation & Advocacy 3
- COMM320 Public Relations 4
- COMM416 Communication in Leadership 3

**Global Perspective* - 1 course from:**

- ECON307 Environmental Economics 3
- SOCY227 Population and Ecology 3
- POLI342 International Environmental Policy 3
- Study Abroad 3+

***At least 2 of the designated electives must be 300 or 400 level**

**Internship Option**

- INTD398 Planning Experiential Learning Project 1
- BIOL497 Internship in Conservation Biology 3

**or**

**Research Option**

- BIOL399 Junior Seminar 1
- BIOL495 Senioor Project 2

**Free Electives (13 - 14 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Criminal Justice - Corrections: Bachelor of Science

## Program Description

This emphasis is designed for students preparing for professional positions in adult and juvenile correctional facilities, probation, parole and the prevention, treatment, and control of both youthful and adult offenders. The emphasis is designed to provide the student with all of the varied functions of the corrections field. Students in this emphasis will have the educational requirements for corrections officers as established by the Michigan Corrections Officers' Training Council.

## Degree Requirements

**Major Requirements (46 credits)**

- CJUS101 Intro. to Criminal Justice 3
- CJUS102 Police Process 3
- CJUS110 Introduction to Corrections 3
- CJUS130 Client Relations in Corrections 3
- CJUS140 Correctional Client Growth and Development 3
- CJUS220 Institutional Corrections 3
- CJUS240 Community Based Corrections 3
- CJUS250 Correctional Law 3
- CJUS319 Substantive Criminal Law 3
- CJUS321 Ethical Issues in Public Safety 3
- CJUS330 Correctional Casework 3
- CJUS355 Juvenile Justice 3
- CJUS401 Senior Seminar 3
- CJUS402 Criminal Justice Internship 3-9

**Statistics: Choose one of the following:**

- BUSN211 Business Statistics 3
- CJUS345 Statistics and Design for Public Safety 4
- MATH207 Principles of Statistical Methods 3
- POLI211 Political Science Research and Statistics 4
- PSYC210 Statistics 3
- SOCY302 Statistics for Social Science 4

**Support Courses (20 credits)**

- POLI110 Intro. to American Government & Politics 4
- POLI120 Intro. to Legal Processes 3
- PSYC101 Introduction to Psychology 4
- PSYC259 Abnormal Psychology 3
- SOCY214 Criminology 3
- Approved Diversity Course 3

**Minor/Concentration (20 credits)**

Students may complete an approved minor. This may be an approved minor other than Corrections, or, you may develop an approved concentration in one or more disciplines with the approval of your academic advisor.

**Electives (10 credits)**

**A minimum of 24 credits of 300/400 level CJUS coursework is required for graduation.**

*Canadian students may substitute CJUS202 for CJUS319 and POLI160 for POLI110.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Criminal Justice - Criminalistics: Bachelor of Science

## Program Description

This emphasis is designed for students preparing for professional positions with state, federal or private crime labs. This emphasis provides the student with the knowledge and skills needed to be a field investigator/re-constructionist or a lab technician. This emphasis incorporates courses from criminal justice and chemistry to achieve the needed education. This emphasis allows students to obtain a chemistry minor as part of their degree. This emphasis also includes all of the required courses to allow students to attend the LSSU Skills Completion Academy which in combination allows students to be licensed by the Michigan Commission on Law Enforcement Standards (MCOLES). Students who graduate from this program and successfully complete the State Licensing exam are qualified for direct placement in Michigan police agencies. Many out of state agencies also recognize the MCOLES academy training.

## Degree Requirements

**Major Requirements ( 84-85 Credits)**

- CJUS101 Intro. to Criminal Justice 3
- CJUS102 Police Process 3
- CJUS197 Physical Fitness for Public Safety* 2
- CJUS201 Firearms Training 1
- CJUS243 Investigation 3
- CJUS319 Substantive Criminal Law 3
- CJUS321 Ethical Issues in Public Safety 3
- CJUS401 Senior Seminar 3
- CJUS402 Criminal Justice Internship 3-9
- CJUS409 Procedural Criminal Law 3
- CJUS411 Police Operations*** 5
- CJUS444 Criminalistics 4
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM251 Introductory Biochemistry 4
- CHEM332 Instrumental Analysis 4
- EMED189 Medical First Responder 3

- MATH112 Calculus for Business & Life Sciences** 4
- PHYS221 Principles of Physics I 4
- PHYS222 Principles of Physics II 4

**Statistics: Choose one of the following:**

- CJUS345 Statistics and Design for Public Safety 4
- MATH207 Principles of Statistical Methods 3
- PSYC210 Statistics 3
- SOCY302 Statistics for Social Science 4

**Support Courses (17 cr)**

- POLI110 Intro. to American Government and Politics 4
- PSYC101 Intro. to Psychology 4
- POLI120 Introduction Legal Processes 3
- PSYC259 Abnormal Psychology 3
- SOCY214 Criminology 3

**Repeated twice*
***or MATH151*
****Complete CJUS411 for certification. Non-certification majors will complete CJUS313.*
*Canadian students may substitute POLI160 for POLI110.*
*Canadian students do not take CJUS197 or EMED189. These are replaced by advisor-approved electives.*
*Canadian students may substitute CJUS202 and CJUS406 for CJUS319 and CJUS409.*

**MCOLES Certification:** Students complete CJUS197 (2 cr), CJUS409, CJUS411, CJUS444, and EMED189. These six courses are required by the Michigan Commission on Law Enforcement Standards to be taken by students during their last year at LSSU. CJUS197 will be taken both semesters. In addition, students desiring MCOLES certification must also complete a summer Skills Completion program. See the MCOLES Director for details.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Criminal Justice - Generalist: Bachelor of Science

## Program Description

This emphasis provides a broad understanding of the major components of the criminal justice system. This emphasis is designed to allow the student flexibility in the variety of criminal justice courses selected. Students in this emphasis can customize their educational experience by their course choices. This emphasis prepares students for a variety of occupations within the criminal justice system. Students may also pursue a graduate degree or other professional study.

## Degree Requirements

**Major requirements (44-45 credits)**

- CJUS101 Intro. to Criminal Justice 3
- CJUS102 Police Process 3
- CJUS110 Introduction to Corrections 3
- CJUS321 Ethical Issues in Public Safety 3
- CJUS401 Senior Seminar 3
- CJUS Electives 26

**(24 credits of Criminal Justice Coursework must be 300/400 level)**

**Statistics: Choose one of the following:**

- BUSN211 Business Statistics 3
- CJUS345 Statistics and Design for Public Safety 4
- MATH207 Principles of Statistical Methods 3
- POLI211 Political Science Research and Statistics 4
- PSYC210 Statistics 3
- SOCY302 Statistics for Social Science 4

**Support courses (20 credits)**

- POLI110 Intro. to American Government and Politics 4
- POLI120 Legal Processes 3
- PSYC101 Intro. to Psychology 4
- PSYC259 Abnormal Psychology 3
- SOCY214 Criminology 3
- Approved Diversity Course 3

**Electives (31 credits)**

*Canadian students may substitute POLI160 for POLI110.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Criminal Justice - Homeland Security: Bachelor of Science

## Program Description

This emphasis provides students with the knowledge and skills needed to be employed by local, state, and federal agencies. This emphasis prepares students for careers in law enforcement and investigation with agencies such as Customs and Border Protection (CBP), Department of Homeland Security (DHS), Immigration and Customs Enforcement (ICE), municipal, county and/or state emergency management, Environmental Protection Agency (EPA), Internal Revenue Service, Transportation Security Administration (TSA), US Secret Service and numerous other agencies. This emphasis prepares students for administrative and management positions in their chosen field.

## Degree Requirements

**Major Requirements (60 Credits)**

- CJUS101 Introduction to Criminal Justice 3
- CJUS103 Introduction to Terrorism and Homeland Security 3
- CJUS203 Cyberterrorism 3
- CJUS204 Domestic and International Terrorism 3
- CJUS243 Investigation 3
- CJUS303 Critical Infrastructure Protection 3
- CJUS313 Crisis Intervention and Deviant Behavior 3
- CJUS319 Substantive Criminal Law 3
  **or**
  CJUS202 Canadian Criminal Law 3
- CJUS321 Ethical Issues in Public Safety 3
- CJUS325 Homeland Security and Emergency Services 3
- CJUS444 Criminalistics 4
- CJUS401 / FIRE401 Senior Seminar 3
- CJUS402 Criminal Justice Internship3-9
  **or**
  FIRE403 Fire Science Internship 3-9
- FIRE101 Introduction to Fire Science 3
- FIRE102 Wildland and Rural Fire Control 3
- FIRE111 Hazardous Materials 3
- FIRE312 Hazardous Materials Management 4
- POLI201 Introduction to Public Administration 4
  **or**

- POLI241 Introduction to International Relations 4

**Statistics: Choose one of the following:**

- BUSN211 Business Statistics 3
- CJUS345 Statistics and Design for Public Safety 4
- MATH207 Principles of Sttistical Methods 3
- POLI211 Political Science Research and Statistics 4
- PSYC210 Statistics 3
- SOCY302 Statistics for Social Science 4

**Support Courses (18 Credits)**

- POLI110 Introduction to American Government and Politics 4
- POLI130 Introduction to State and Local Government 4
- PSYC101 Introduction to Psychology 4
- PSYC259 Abnormal Psychology 3
- SOCY214 Criminology 3

**Electives (6-10 Credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Criminal Justice - Law Enforcement: Bachelor of Science

## Program Description

This emphasis provides students with the knowledge and skills needed to be employed as a law enforcement officer. This emphasis prepares students for a career in law enforcement and possible future promotion to supervisory and adminstrative positions with local, state, and federal agencies. This emphasis does not have the Michigan Commission on Law Enforcement Standards (MCOLES) requirements.

## Degree Requirements

**Major Requirements (48 credits)**

- CJUS101 Intro. to Criminal Justice 3
- CJUS102 Police Process 3
- CJUS110 Introduction to Corrections 3
- CJUS201 Firearms Training 1
- CJUS206 Law Enforcement/Loss Control Internship 3
- CJUS212 Loss Control 3
- CJUS243 Investigation 3
- CJUS313 Crisis Intervention and Deviant Behavior 3
- CJUS319 Substantive Criminal Law 3
- CJUS321 Ethical Issues in Public Safety 3
- CJUS401 Senior Seminar 3
- CJUS402 Criminal Justice Internship 3-9
- CJUS409 Procedural Criminal Law 3
- CJUS444 Criminalistics 4
- FIRE101 Introduction to Fire Science 3

**Statistics: Choose one of the following:**

- BUSN211 Business Statistics 3
- CJUS345 Statistics and Design for Public Safety 4
- MATH207 Principles of Statistical Methods 3
- POLI211 Political Science Research and Statistics 4
- PSYC210 Statistics 3
- SOCY302 Statistics for Social Science 4

**Support Courses (20 credits)**

- POLI110 Introduction to American Government and Politics 4
- POLI120 Introduction to Legal Processes 3
- PSYC101 Introduction to Psychology 4
- PSYC259 Abnormal Psychology 3
- SOCY214 Criminology 3
- Approved Diversity Course 3

**Electives (29 credits)**

**A minimum of 24 credits of 300/400 level CJUS Coursework is required for graduation.**

*Canadian students may substitute CJUS202 and CJUS406 for CJUS319 and CJUS409 and POLI160 for POLI110.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Criminal Justice - Law Enforcement Certification: Bachelor of Science

## Program Description

This emphasis provides students with the knowledge and skills needed to be employed as a law enforcement officer. This emphasis prepares students for a career in law enforcement and possible future promotion to supervisory and adminstrative positions with local, state, and federal agencies. This emphasis includes the necessary courses to allow students to attend the LSSU Skills Completion Academy which in combination allows students to be licensed by the Michigan Commission on Law Enforcement Standards (MCOLES). Students who graduate from this program and successfully complete the State licensing exam are qualified for direct placement in Michigan police agencies. Many out of state agencies also recognize the MCOLES academy training.

## Degree Requirements

**Major Requirements (51 credits)**

- CJUS101 Intro. to Criminal Justice 3
- CJUS102 Police Process 3
- CJUS110 Introduction to Corrections 3
- CJUS197 Physical Fitness for Public Safety** 1
- CJUS201 Firearms Training 1
- CJUS206 Law Enforcement/Loss Control Internship 3
- CJUS212 Loss Control 3
- CJUS243 Investigation 3
- CJUS319 Substantive Criminal Law 3
- CJUS321 Ethical Issues in Public Safety 3
- CJUS401 Senior Seminar 3
- CJUS402 Criminal Justice Internship 3
- CJUS409 Procedural Criminal Law* 3
- CJUS411 Police Operations* 5
- CJUS444 Criminalistics* 4
- EMED189 Medical First Responder* 3
- FIRE101 Introduction to Fire Science 3

**Statistics: Choose one of the following:**

- BUSN211 Business Statistics 3
- CJUS345 Statistics and Design for Public Safety 4

- MATH207 Principles of Statistical Methods 3
- POLI211 Political Science Research and Statistics 4
- PSYC210 Statistics 3
- SOCY302 Statistics for Social Science 4

**Support Courses (20 credits)**

- POLI110 Intro. to American Government and Politics 4
- POLI120 Intro. to Legal Processes 3
- PSYC101 Introduction to Psychology 4
- PSYC259 Abnormal Psychology 3
- SOCY214 Criminology 3
- Approved Diversity Course 3

**Electives (22 credits)**

**MCOLES courses*
***Repeated twice*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Criminal Justice - Law Enforcement Certification with NRT: Bachelor of Science

## Program Description

This emphasis provides students with the knowledge and skills needed to be employed as a law enforcement officer. This emphasis prepares students for a career in law enforcement and possible future promotion to supervisory and adminstrative positions with local, state, and federal agencies. This emphasis includes the necessary courses to allow students to attend the LSSU Skills Completion Academy which in combination allows students to be licensed by the Michigan Commission on Law Enforcement Standards (MCOLES). Students who graduate from this program and successfully complete the State licensing exam are qualified for direct placement in Michigan police agencies. Students in this emphasis will also attain an associate's degree in Natural Resources Technology (NRT). The addition of the NRT degree is a key component for students seeking employment with the Michigan Department of Natural Resources and out of state wildlife agencies.

## Degree Requirements

Students with a particular interest in state and federal laws enacted to protect our natural resources and federal restrictions on the use of our renewable resources should consider obtaining both an associate’s degree in natural resources technology and a bachelor of science degree in criminal justice. The NRT degree will provide the student with a good general background in natural resources and the criminal justice degree will allow the student to be fully qualified for many different law enforcement opportunities. Jobs for conservation law officers are limited, but the above configuration of degrees prepares a student to be highly competitive for openings that do occur. Students selecting this course of study should work closely with their advisor in order to complete both degrees in the four-year span. Students will take courses from both programs during their first three years and then complete the final requirements for the Criminal Justice-Law Enforcement degree in their fourth year.

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# Criminal Justice - Loss Control: Bachelor of Science

## Program Description

This emphasis is designed for students preparing for professional positions in the growing private security sector. This emphasis is designed to provide the student with a wide knowledge base of loss control functions and theories. Students in this emphasis will have the education necessary to become a loss control manager or loss control entity owner.

## Degree Requirements

**Major Requirements (64 credits)**

- CJUS101 Intro. to Criminal Justice 3
- CJUS102 Police Process 3
- CJUS110 Introduction to Corrections 3
- CJUS201 Firearms Training 1
- CJUS206 Law Enforcement/Loss Control Internship 3
- CJUS212 Loss Control 3
- CJUS243 Investigation 3
- CJUS306 Security Systems 3
- CJUS319 Substantive Criminal Law 3
- CJUS321 Ethical Issues in Public Safety 3
- CJUS341 Fire Cause & Arson Investigation 3
- CJUS401 Senior Seminar 3
- CJUS402 Criminal Justice Internship 3
- CJUS409 Procedural Criminal Law 3
- CJUS444 Criminalistics 4
- FIRE101 Introduction to Fire Science 3
- FIRE111 Hazardous Materials 3
- FIRE206 Fire Protection Systems Equipment and Industrial Fire Protection 3
- FIRE301 Code Enforcement Inspection and Fire Prevention 3
- FIRE312 Hazardous Materials Management 4

*Statistics: Choose one of the following:*

- BUSN211 Business Statistics 3
- CJUS345 Statistics and Design for Public Safety 4
- MATH207 Principles of Statistical Methods 3
- POLI211 Political Science Research and Statistics 4

- PSYC210 Statistics 3
- SOCY302 Statistics for Social Science 4

**Support Courses (30 credits)**

- CSCI101 Intro. to Microcomputer Applications 3
- MGMT365 Human Resource Management 3
- MGMT451 Labor Law 4
- POLI110 Intro. to American Government and Politics 4
- POLI120 Intro. to Legal Processes 3
- PSYC101 Introduction to Psychology 4
- PSYC259 Abnormal Psychology 3
- SOCY214 Criminology 3
- Approved Diversity Course 3

**Electives (5 credits)**

*Canadian students may substitute CJUS202 and CJUS406 for CJUS319 and CJUS409, and POLI160 for POLI110.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Criminal Justice - Public Safety: Bachelor of Science

## Program Description

This emphasis provides students with the knowledge and skills needed to be employed as a public safety officer, which is a combination of law enforcement, fire fighter and emergency medicine. Students in this emphasis have the option to seek a career as a public safety officer or any of the included occupations of police officer, fire fighter, fire inspector, industrial safety officer, or EMT/Paramedic. This emphasis includes the necessary courses to allow students to attend the LSSU Skills Completion Academy which in combination allows students to be licensed by the Michigan Commission on Law Enforcement Standards (MCOLES). Students who graduate from this program and successfully complete the State Licensing exam are qualified for direct placement in Michigan police agencies. Many out of state agencies also recognize the MCOLES academy training.

## Degree Requirements

**Major Requirements (68 credits)**

- CJUS101 Intro. to Criminal Justice 3
- CJUS102 Police Process 3
- CJUS197 Physical Fitness for Public Safety* 2
- CJUS201 Firearms Training 1
- CJUS206 Law Enforcement/Loss Control Internship 3
- CJUS243 Investigation 3
- CJUS313 Crisis Intervention and Deviant Behavior** 3
- CJUS319 Substantive Criminal Law 3
- CJUS321 Ethical Issues in Public Safety 3
- CJUS401 Criminal Justice Senior Seminar 3

  **or**
- FIRE401 Fire Science Senior Seminar 3
- CJUS402 CJUS Internship 3

  **or**
- FIRE403 Fire Science Internship 3
- CJUS409 Procedural Criminal Law 3
- CJUS444 Criminalistics 4
- FIRE101 Introduction to Fire Science 3
- FIRE111 Hazardous Materials 3
- FIRE204 Fire Protection Hydraulics and Pumps 3
- FIRE206 Fire Protection Systems Equipment and Industrial Protection 3

- FIRE211 Tactics & Strategy 3
- FIRE219 Firefighter Essentials 3
- FIRE220 Fire Science Certification 4
- EMED189 Medical First Responder 3

**Statistics: Choose one of the following:**

- CJUS345 Statistics and Design for Public Safety 4
- MATH207 Principles of Statistical Methods 3
- PSYC210 Statistics 3
- SOCY302 Statistics for Social Science 4

**Support Courses (17 Credits)**

- POLI110 Intro. to American Government and Politics 4
- POLI120 Intro. to Legal Processes 3
- PSYC101 Introduction to Psychology 4
- PSYC259 Abnormal Psychology 3
- SOCY214 Criminology 3

**Repeated twice*
***MCOLES students must take CJUS411 Police Operations (5) instead of CJUS313 (3).*
*FIRE197, FIRE219 and FIRE220 are required if firefighter certification is desired.*

**MCOLES Certification:** Students complete CJUS197 (2 cr), CJUS409, CJUS411, CJUS444, and EMED189. These six courses are required by the Michigan Commission on Law Enforcement Standards to be taken by students during their last year at LSSU. CJUS197 will be taken both semesters. In addition, students desiring MCOLES certification must also complete a summer Skills Completion program. See the MCOLES Director for details.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Early Childhood Education: Bachelor of Science

## Program Description

This four-year program leads to a bachelor of science degree in early childhood education. It is for students interested in working with young children from birth to age eight in preschool, headstart, and day care centers. Students are expected to acquire an understanding of the developmental pattern of the young child in such areas as cognition, emotion, social interaction and physical growth. This understanding will be the basis for working with groups of children through a series of three practicums.

## Degree Requirements

**Departmental Requirements**

- CHLD101 Foundations of Early Childhood Education 3
- CHLD105 Child Guidance & Welfare 3
- CHLD110 Curriculum Development and Teaching Practices 3
- CHLD111 Infants & Toddlers: Developmentally Appropriate Practices 3
- CHLD220 Early Childhood Literature 3
- CHLD260 Practicum I 4
- CHLD261 Practicum II 4
- CHLD270 Administration of Early Childhood Programs 3
- CHLD340 Practicum III: Field Experiences 4
- CHLD420 Emergent Literacy 3
- CHLD430 Directed Studies in Early Childhood Education 4

**Support Courses**

- ARTS212 Art for Elementary Teachers 3
- BIOL105 Function of the Human Body 4
- HLTH104 Nutrition for Early Childhood 3
- EMED181 First Aid 1
- MUSC235 Music for Elementary Teachers 3
- PSYC155 Lifespan Development 3

**or**

- PSYC265 Child & Adolescent Development 3
- PSYC301 Exceptional Child & Adolescent 3
- SOCY113 Sociology of the American Family 3

**Approved Minor (20-24)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Electrical Engineering: Bachelor of Science

## Program Description

The electrical engineering program, which is accredited by EAC of ABET*, combines topics from science, math and engineering in order to study and develop solutions to electrical and computer problems. The program contains a strong laboratory emphasis with plenty of opportunities to work on real electrical systems. Some of the program highlights are:

- The teaching emphasis is on preparing you to solve real-world problems.
- You have three choices for fulfillment of your senior year experience. You may pursue opportunities in cooperative education, industry-based projects or research projects.
- You will study assembly language, circuit design, microcontroller hardware and software, digital electronics, and networks.
- Engineering courses begin in your freshman year.
- The program provides an excellent mix of theory and practical laboratory experiences.

**Your Degree Options —** You may choose to follow one of the following degree concentrations while studying electrical engineering at LSSU. They are: Digital Systems Concentration , Robotics and Automation Concentration, Electrical/Mechanical Concentration or Vehicle Systems Concentration . The Digital Systems Concentration will give you additional knowledge in digital design, digital signal processing and microcontroller systems. The Robotics and Automation Concentration provides you with a strong background in robotics, machine vision, sensors, communications and automation. If you plan to pursue graduate study, then the broader Electrical/Mechanical Concentration is designed for you.

**Engineering Accreditation Commission (EAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Phone: 410-347-7700*

**Cooperative Education:** Opportunities are available as part of this program for students who are qualified. A certificate that documents this practical training is available.

## Degree Requirements

**Departmental Requirements:**

**Mathematics**

- MATH151 Calculus I 4
- MATH152 Calculus II 4

- MATH251 Calculus III 4
- MATH308 Probability and Mathematical Statistics 3
- MATH310 Differential Equations 3

**Sciences**

- CHEM115 General Chemistry I 5
- PHYS231 Applied Physics for Engineers and Scientists I 4
- PHYS232 Applied Physics for Engineers and Scientists II 4

**Engineering**

- EGEE125 Digital Fundamentals 4
- EGEE210 Circuit Analysis 4
- EGEE250 Microcontroller Fundamentals 4
- EGEE280 Introductory Signal Processing 4
- EGEE310 Network Analysis 4
- EGEE330 Electro-Mechanical Systems 4
- EGEE345 Fundamentals of Engineering Electromagnetics 3
- EGEE370 Electronic Devices 4
- EGEE475 Power Electronics 4
- EGNR101 Introduction to Engineering 2
- EGNR140 Linear Algebra and Numerical Methods for Engineers 2
- EGNR265 "C" Programming 3
- EGNR340 Advanced Numerical Methods for Engineers 1
- EGNR346 Probability and Statistics Lab for Engineers 1
- EGEM220 Statics 3
- EGRS460 Control Systems 4
- EGRS461 Design of Control Systems 4

**Technical Electives (Minimum of 10 credits from one of the following):**

**General**

- EGEE320 Digital Design (or higher level EGEE) 3
- EGEM320 Dynamics 3
- EGET310 Electronic Manufacturing Processes 4
- EGME225 Mechanics of Materials (or higher level EGME) 3
- EGRS385 Robotics Engineering 3
- EGRS430 Systems Integration & Machine Vision 4
- EGRS435 Automated Manufacturing Systems 4
- MATH215 Fund Concepts of Mathematics (or higher MATH) 3

**Digital Systems Concentration (C or better grade required in all courses)**

- EGEE320 Digital Design 4
- EGEE355 Microcontroller Systems 4
- EGEE425 Digital Signal Processing 3

**Robotics and Automation Concentration (C or better grade required in all courses)**

- EGRS385 Robotics Engineering 3

- EGRS430 Systems Integration & Machine Vision 4
- EGRS435 Automated Manufacturing Systems 4

**Electrical/Mechanical Concentration (C or better grade required in all courses)**

- EGEM320 Dynamics 3
- EGME225 Strength of Materials I 3
- EGME337 Thermodynamics 4

**Vehicle Systems Concentration (C or better grade required in all courses)**

- EGEE365 Vehicle Instrumentation 4
- EGEM320 Dynamics 3
- EGME310 Vehicle Development & Testing 2
- EGME415 Vehicle Dynamics 2

**Senior Sequence (Complete one of the following sequences):**

**Industrial Project**

- EGNR491 Engineering Design Project I 3
- EGNR495 Engineering Design Project II 3

**Cooperative Project**

- EGNR250 Cooperative Education 2
- EGNR450 Cooperative Education Project I 4
- EGNR451 Cooperative Education Project II 3
- EGNR491 Engineering Design Project I 3

**Research Project**

- EGNR260 Engineering Research Methods 2
- EGNR460 Engineering Research Project I 4
- EGNR461 Engineering Research Project II 2

**32 credits from Mathematics (including EGNR340) and Natural Sciences is required.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Electrical Engineering Technology: Bachelor of Science

## Program Description

LSSU's Electrical Engineering Technology (EET) program integrates knowledge from areas of
study such as science, math, computers, electrical engineering, management and economics in
order to prepare you for an engineering technology career with the potential for growth into management. The EET program includes topics such as C programming, robotics, programmable logic controllers (PLCs), digital system design, embedded microprocessor systems, and circuit board layout and population. Most technical classes in the curriculum include a laboratory along with the lecture.

Students pursuing the BS degree in EET have the option to minor in Robotics Technology. LSSU is one of a few universities in the U.S. to offer an extensive Robotics Technology minor as part of the BS degree in EET and is home to one of the best robotics educational facilities in North America. The minor in Robotics Technology will be indicated on your transcripts.

Some of the program highlights are:

- The program provides an excellent mix of theory and practical laboratory experiences, preparing you to solve real-world problems.
- Engineering courses begin in the freshman year.
- Technical electives may be selected to obtain a minor in Robotics Technology.
- Less mathematics than the Electrical Engineering program.

**Cooperative Education:** Opportunities are available as part of this program for students who are academically qualified. A certificate that documents this practical training is available.

### Additional Degree Information

- *Option in:* General
- *Minor:* Robotics Technology

## Degree Requirements

**Departmental Requirements**

- CHEM108 Applied Chemistry 3

- CHEM109 Applied Chemistry Lab 1
- EGEE125 Digital Fundamentals (C or better required) 4
- EGEE250 Microcontroller Fundamentals 4
- EGEE320 Digital Design 4
- EGEE355 Microcontroller Systems 4
- EGET110 Applied Electronics (C or better required) 4
- EGET175 Applied Electronics (C or better required) 4
- EGET310 Electronic Manufacturing Processes 4
- EGME141 Solid Modeling 3
- EGNR101 Introduction to Engineering 2
- EGNR140 Linear Algebra & Numerical Methods for Engineers 2
- EGNR245 Calculus Applications for Technology 3
- EGNR265 C Programming 3
- EGNR310 Advanced Quality Engineering 3
- EGRS365 Programmable Logic Controllers 3
- EGRS380 Robotics Technology 2
- EGRS381 Robotics Technology Lab 1
- MATH111 College Algebra (C or better required) 3
- MATH112 Calculus for Business and Life Science 4
- MATH131 College Trigonometry 3
- MATH207 Principles of Statistical Methods 3
- MGMT375 Introduction to Supply Chain Management 3
- PHYS221 Elements of Physics I (C or better required) 4
- PHYS222 Elements of Physics II 4
- Technical Elective 2

**Select on of the following Senior Sequence options to complete the Electrical Engineering Technology Degree:**

***Industrial Project***

- EGNR491 Engineering Design Project I 3
- EGNR495 Engineering Design Project II 3

**or**

***Cooperative Project***

- EGNR250 Cooperative Education 2
- EGNR450 Cooperative Education Project I 2
- EGNR451 Cooperative Education Project II 2
- EGNR491 Engineering Design Project I 3

**Technical Electives 10**

- CSCI163 Troubleshooting and Repair of Personal Computers 3
- EGEE305 Analog & digital Electronics 3
- EGEE365 Vehicle Instrumentation 4
- EGME141 Solid Modeling 3
- EGME240 Assembly Modeling and GD&T 3
- EGME275 Engineering Materials 3
- EGME276 Strength of Materials Lab 1
- EGME338 Fluid Mechanics 2

- EGME310 Vehicle Development and Testing 2
- EGMT225 Statics and Strength of Materials 4
- EGMT310 CNC Manufacturing Processes 4
- EGMT332 Thermodynamics and Heath Transfer for Technologists 4
- EGRS215 Robotics Technology 2
- EGRS430 Systems Integration and Machine Vision 4
- EGRS480 Control Systems & Automation 3
- EGRS481 Control Systems & Automation Lab 1
- MATH215 Fundamental Concepts of Math or higher 3

**Students wishing to complete the Robotics Technology minor should take the following as technical or free electives:**

- EGRS430 Systems Integration and Machine Vision 4
- EGRS480 Control Systems & Automation 3
- EGRS481 Control Systems & Automation Lab 1

**Free Electives 3**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Elementary Education: Bachelor of Arts/Science

## Program Description

The Elementary Education program is highlighted by in-depth study in a subject major or dual minors, extended field experience in elementary school settings, and focused development of the knowledge and skills critical for effective teachers.

Elementary-level teacher certification in Michigan permits individuals to teach in self-contained classrooms at grade K - 8, and in all subjects at grades K -5. Individuals may also qualify to teach the subjects of their academic major or minors in grades 6 - 8.

Students begin their studies with a focus on general education requirements, and an academic major or two academic minors. They complete the initial professional education coursework in their sophomore year, and apply for formal admission to the program at the end of that year. By that time, they will have also passed the Michigan Test for Teacher Certification Basic Skills test.

Upper level professional education coursework, along with the completion of the major or minors, is the focus for the junior and senior years. Student teaching, a semester-long culminating experience, may be completed in the spring of the fourth year or fall of the fifth year, depending on the individual student's progress through the program. Generally, this student teaching experience will be in the Eastern Upper Peninsula or in Sault Ste. Marie, Ontario. The Michigan Test for Teacher Certification Elementary Education tests must be passed prior to beginning student teaching.

**Note:** Candidates who pass the Michgian Test for Teacher Certification in their major or minors meet the requirements of the No Child Left Behind Act and are considered "highly qualified" for the subject areas of the endorsements shown on their Michigan teaching certificates.

## Degree Requirements

**The components of the Elementary Education Bachelor of Arts/Sciences programs are:**

**Subject Area Preparation -** Students may complete either of the following options:

- **An academic major** in either Language Arts or Mathematics (see requirements in this catalog for these teaching majors)

**or**

- **Two academic minors**, one in Language Arts and one in Mathematics (see the requirements in this catalog for these teaching minors)

**Elementary Planned Program (49 credits)**

- MATH103 Number Systems & Problem Solving 4
- MATH104 Geometry & Measurement 4
- MATH207 Principles of Statistical Methods 3
- BIOL104 Survey of General Biology 4
- NSCI101 Conceptual Physics 4
- NSCI102 Introduction to Geology 4
- POLI110 American Government 4
- GEOG201 World Regional Geography 4
- HIST131 United States History I 4
- HIST321 History of Michigan 2
- ENGL222 English Grammar 3
- ENGL335 Children's Literature in the Classroom 3
- ENGL180 Introduction to Literary Studies 3
- CHLD420 Emergent Literacy 3

**Professional Education Sequence (47 credits)**

- EDUC250 Student Diversity & Schools 4
- EDUC301 Learning Theory and Teaching Practice 3
- EDUC330 Reading in the Elementary Classroom 3
- EDUC350 Integrating Technology into 21st Learning Environments 3
- EDSE301 Introduction to Special Education 3
- EDUC410 Corrective Reading in the Classroom 3
- EDUC411 Elementary Language Arts and Methods Across the Curriculum 3
- EDUC415 General Instructional Methods 2
- EDUC420 Math Methods for Elementary Teachers 2
- EDUC421 Science Methods for Elementary Teachers 2
- EDUC422 Social Studies Methods for Elementary Teachers 2
- EDUC423 Arts Methods for Classroom Teachers 2
- EDUC424 Health/Physical Education Methods for Classroom Teachers 2
- EDUC460 Classroom Management 2
- EDUC480 Directed Teaching Seminar 2
- EDUC492 Directed Teaching 10

**Formal admission to the Elementary Education program, qualification for student teaching, and successful completion of the program requires:**

- Completion of the Professional Education Sequence courses with a grade of B- (2.70) or higher.
- Completion of all required courses in the education cognates, teaching major or teaching minors with a GPA of 2.70 or higher and no grade below a C (2.00).
- Completion of the elementary planned program with a GPA of 2.70 or

higher and no grade below a C (2.00).

- Completion of the General Education Core Requirements with a gpa of 2.00 or higher.
- Passing scores on all required Michigan Test for Teacher Certification tests.

The Elementary Education program undergoes periodic review, evaluation, and alignment with the Michigan Department of Education standards. Since program approval and renewal cycles vary, individuals should contact the School of Education regularly to confirm the current requirements of each program component. Graduates must meet the standards that are in place at the time of completion of their programs, in order to be recommended to the Department of Education for teacher certification.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

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# Elementary Education: Special Education - Learning Disabilities: Bachelor of Science

## Program Description

The Special Education - Learning Disabilities program expands the basic elementary education program to prepare teachers to work with students with learning disabilities from kindergarten through grade 12. Program features include extended field experience in regular and special education settings, and focused development of the knowledge and skills critical for effective teachers.

Graduates are prepared for elementary-level teacher certification in Michigan, which permits individuals to teach in self-contained classrooms at grades K-8, and in all subjects at grade K-5, as well as a Learning Disabilities endorsement for grades K-12. Individuals may also qualify to teach the subject of an optional academic minor in grades 6-8.

Students begin their studies with a focus on general education requirements, elementary planned program coursework and an academic minor of either Language Arts or Mathematics. They complete the initial professional education coursework in their sophomore year, and apply for formal admission to the program at the end of that year. By that time, they will have also passed the Michigan Test for Teacher Certification Basic Skills test.

Special education and upper-level professional education coursework, along with the completion of the elementary planned program and minor, are the focuses for the junior and senior years. Students in the special education program complete two semesters of student teaching, one in a regular elementary education setting and one in a special education setting. These experiences are normally in the fifth year of the program, depending on the individual student's progress through the program. Generally, student teaching will be in the Eastern Upper Peninsula or in Sault Ste. Marie, Ontario. The Michigan Test for Teacher Certification Elementary Education and Learning Disabilities tests must be passed prior to beginning student teaching.

**Note:** Candidates who pass the Michigan Test for Teacher Certification in their minor meet the requirements of the No Child Left Behind Act and are considered "highly qualified" for the subject area of the endorsement shown on their Michigan teaching certificates.

## Degree Requirements

**The components of the Elementary Education: Special Education - Learning Disabilities: Bachelor of Science program are:**

**Special Education**

- EDSE301 Introduction to Special Education 3
- EDSE302 Communication and Community 3
- EDSE320 Introduction to Learning Disabilities 4
- EDSE401 Issues and Trends Impacting Learning Disabilities & Special Ed 3
- EDSE403 Assessment and Diagnosis 3
- EDSE404 Instruction and Technology for Learning Disabilities-Preschool to Empl 4
- EDSE480 Student Teaching Seminar: Special Education 1
- EDSE492 Internship/Supervised Student Teaching: Learning Disabilities 8
- PSYC301 Exceptional Child and Adolescent 3

**Elementary Planned Program:**

- MATH103 Number Systems & Problem Solving 4
- MATH104 Geometry & Measurement 4
- MATH207 Principles of Statistical Methods 3
- BIOL104 Survey of General Biology 4
- NSCI101 Conceptual Physics 4
- NSCI102 Introduction to Geology 4
- POLI110 Introduction to American Government and Politics 4
- GEOG201 World Regional Geography 4
- HIST131 United States History I 4
- HIST321 History of Michigan 2
- ENGL222 English Grammer 3
- ENGL335 Children's Literature 3
- ENGL180 Ontroduction Literary Studies 3
- CHLD420 Emergent Literacy 3

**Academic Minor (Optional):** Students may complete a teaching minor in either language Arts or Mathematics (see the requirements in this catalog for these teaching minors).

**Professional Education Sequence**

- EDUC250 Student Diversity & Schools 4
- EDUC301 Learning Theory and Teaching Practice 3
- EDUC330 Reading in the Elementary Classroom 3
- EDUC350 Integrating Technology 3
- EDUC410 Corrective Reading in the Classroom 3
- EDUC411 Elementary Language Arts and Methods Across the Curriculum 3
- EDUC415 General Instructional Methods 2
- EDUC420 Math Methods for Elementary Teachers 2
- EDUC421 Science Methods for Elementary Teachers 2
- EDUC422 Social Studies Methods for Elementary Teachers 2
- EDUC423 Arts Methods for Classroom Teachers 2
- EDUC424 Health/Physical Education Methods for Classroom Teachers 2
- EDUC460 Classroom Management 2
- EDUC480 Internship in Teaching: Seminar 1
- EDUC492 Internship/Advanced Methods: (subject) 8

**Formal admission to the program, qualification for student teaching, and successful completion of the program requires:**

- Completion of the Professional Education Sequence courses with a grade of B- (2.70) or higher.
- Completion of all required courses in the education cognates and teaching minor with a GPA of 2.70 or higher and no grade below a C (2.00).
- Completion of the elementary planned program with a GPA of 2.70 or higher and no grade below a C (2.00).
- Completion of the General Education Core Requirements with a gpa of 2.00 or higher.
- Passing scores on all required Michigan Test for Teacher Certification tests.

The Elementary Education program undergoes periodic review, evaluation, and alignment with the Michgian Department of Education standards. Since program approval and renewal cycles vary, individuals should contact the School of Education regularly to confirm the current requirements of each program component. Graduates must meet the standards that are in place at the time of completion of their programs, in order to be recommended to the Department of Education for teacher certification.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College Transfer Students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is also required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

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# Environmental Health: Bachelor of Science

## Program Description

The B.S. environmental health program is accredited by the National Environmental Health Science and Protection Accreditation Council.

The B.S. in environmental health is offered in response to strong student, state and local government demand for an academic program to prepare students for careers in public health, environmental health and related fields. Graduates of this program will be prepared to seek employment in jobs with titles like public health officer, environmental technician, and scientist, as well as many others. After working in the field for a period of time, graduates may sit for the Registered Sanitarian (RS) examination and achieve state certification, or for the Registered Environmental Health Specialist (REHS) examination and achieve national certification.

This program is similar to the successful environmental science degree, but includes many required elements that are specifically directed to public health. These include courses in Geographic Information Systems and Global Positioning Systems, Hydrology and Groundwater, Toxicology and Epidemiology, Public Health Care and Public Administration. Students participate in an applied research project in close collaboration with faculty members to address meaningful environmental health problems. These projects, through the excellent preparation they provide our students, are often cited as important factors in successful job searches and entry into graduate programs.

## Degree Requirements

**Major Requirements (111 credits)**

**Chemistry Courses (21 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry 4
- CHEM231 Quantitative Analysis 4
- CHEM353 Introductory Toxicology 3

**Environmental Courses (44 credits)**

- NSCI103 Environmental Science 3
- NSCI104 Environmental Science Lab 1
- EVRN131 Introduction to GPS and GIS 3
- EVRN231 Intermediate GIS 2

- EVRN311 Environmental Law 3
- EVRN313 Solid & Hazardous Waste 3
- EVRN317 Environmental Health Applications 4
- EVRN341 Environmental Chemistry I 4
- EVRN395 Junior Seminar 1
- EVRN425 Environmental Systems Analysis 3
- EVRN495 Senior Project 1
- EVRN499 Senior Seminar 1
- GEOL411 Hydrological Systems: Surface and Groundwater 4
- HLTH210 Intro. to Health Care Concepts 3
- HLTH328 Multicultural Approach to Health Care 3
- INTD399 Internship in Environmental Health 4

**Support Courses (34 credits)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL204 General Microbiology 4
- BIOL285 Principles of Epidemiology 3
- ECON202 Principles of Microeconomics 3
- ECON307 Environmental Economics 3
- One semester of College Physics with Lab 4
- MATH112 Calculus for Business & Life Sciences 4 **or**
- MATH151 Calculus I 4
- MATH207 Principles of Statistical Methods 3
- POLI201 Intro. to Public Administration 3

**Directed Electives (6 credits)**

*Select from the following:*

- BIOL126 Interpretation of Maps and Aerial Photography 2
- BIOL220 Genetics 4
- BIOL230 Introduction to Soil Science 4
- BIOL280 Biometrics 3
- BIOL422 Parasitology 3
- CHEM251 Introductory Biochemistry 4
- CHEM332 Instrumental Analysis 4
- INTD300 The Human Environment 3
- POLI342 International Environmental Policy 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 136 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.50 or higher. A gpa of 2.50 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core requirements.**

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# Environmental Science: Bachelor of Science

## Program Description

Environmental science is the study of human interaction with the environment. By seeking solutions for such environmental problems as water pollution, hazardous wastes and acid rain, environmental scientists help ensure a safe, healthful environment for all living things.

Graduates with a bachelor of science in Environmental Science work in many disciplines and industries including Environmental Health and Management positions, and many proceed on to graduate school in natural sciences, medicine, law, engineering. Internships in Environmental Science are encouraged where students can gain valuable real-world experience while gaining college credit. In addition, students pursuing the ACS certified degree will participate in an applied research project in close collaboration with faculty member to address meaningful environmental-based problems. These projects, through the excellent preparation they provide our students, are often cited as important factors in successful job searches and entry into graduate programs.

The LSSU chemistry program has been approved by the American Chemical Society, and may provide certified degrees in Chemistry, Forensic Chemistry, Biochemistry Pre-Professional, and Environmental Chemistry if a student chooses this track. Graduates completing the prescribed requirements are awarded an ACS certificate signifying their completion of the approved degree and can qualify for membership in the Society upon graduation.

American Chemical Society
Committee on Professional Training
155 Sixteenth Street, N.W.,
Washington, D.C. 20036

## Degree Requirements

**Program Core (59 credits)**

**Environmental Science (16 cr)**

- NSCI103 Environmental Science 3
- EVRN131 Introduction to GIS/GPS 3
- EVRN231 Intermediate GIS 2
- EVRN311 Environmental Law 3
- EVRN313 Solid & Hazardous Waste 3
- EVRN395 Junior Seminar 1
- EVRN499 Senior Seminar 1

**Biology (15 cr)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology:  Organisms 4
- BIOL337 General Ecology 3
- BIOL204 General Microbiology 4

**Earth Science (8 cr)**

- GEOL121 Physical & Historical Geology I 4
- NSCI116 Introduction to Oceanography 4 **or**
- GEOL108 Physical Geography: Meteorology & Climatology 4

**Chemistry (10 cr)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5

**Mathematics (7-8 cr)**

- MATH112 Calculus for Business and Life Sciences 4 **or**
- MATH151 Calculus I 4
- BUSN211 Business Statistics 3 **or**
- MATH207 Principles of Statistics 3

**Hydrology (3-4 cr)**

- GEOL411 Hydrologic Systems: Surface and Groundwater 4 **or**
- BIOL286 Principles of Watersheds 3

**Students will select a Concentration from:  Physical Sciences, Chemistry, or Policy and Management.**

**CONCENTRATION: Physical Sciences (40 cr)**

- CHEM225 Organic Chemistry I 4
- CHEM231 Quantitative Analysis 4
- CHEM332 Instrumental Analysis 4
- EVRN317 Environmental Health App 4
- EVRN341 Environmental Chemistry 4
- EVRN425 Environmental Systems Analysis 4
- PHYS221 Principles of Physics I 4 **and**
- PHYS222 Principles of Physics II 4 **or**
- PHYS231 App Phys Engineer/Scientist I 4 **and**
- PHYS232 App Phys Engineer/Scientist II 4

**Directed Electives (at least 8 credits from the following)**

- BIOL126 Interpretation of Maps and Aerial Photographs 2
- BIOL230 Introduction to Soils 4
- BIOL304 The Human Environment 3
- CHEM226 Organic Chemistry II 4
- CHEM261 Inorganic Chemistry 4

- CHEM351 Introductory Biochemistry 4
- FIRE312 Hazardous Materials Management 4
- GEOL122 Physical and Historical Geology II 4
- ECON307 Environmental Economics 3
- Any 300 or 400 level BIOL, CHEM, or EVRN

**CONCENTRATION: Chemistry (50 cr)**

- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM261 Inorganic Chemistry 4
- CHEM332 Instrumental Analysis 4
- CHEM341 Environmental Chemistry I 4
- CHEM351 Introductory Biochemistry 4
- CHEM353 Introductory Toxicology 3
- CHEM361 Physical Chemistry I 4 **or**
- CHEM362 Physical Chemistry II 3
- EVRN425 Environmental Systems Analysis 4
- PHYS221 Principles of Physics I 4 **and**
- PHYS222 Principles of Physics II 4 **or**
- PHYS231 App Phys Engineer/Scientist I 4 **and**
- PHYS232 App Phys Engineer/Scientist II 4
- MATH152 Calculus II 4 **or**
- EGNR140 Linear Algebra Numerical Methods Engineers 2 **and**
- EGNR265 Calculus Applications for Technology 3

**For American Chemical Society certified degree, additionally required (total lab hours must be at least 400 hours). See Department Chair for special rules regarding ACS certification:**

- EVRN495 Senior Project 2

**CONCENTRATION: Policy and Management (46 cr)**

- BIOL203 Fundamentals of Natural Resources 3
- BIOL287 Conservation Biology 3
- BIOL304 The Human Environment 3
- EVRN317 Environmental Health App 4
- EVRN325 Geospatial Analysis 3
- EVRN345 Advanced Spatial Statistics 4
- EVRN355 GIS Programming and Applications 4
- ECON202 Principles of Microeconomics 3
- ECON307 Environmental Economics 3
- POLI342 International Environmental Policy 3

**Directed Electives (13 credits from the following):**

- BIOL126 Interpretation of Maps and Aerial Photographs 2
- BIOL230 Introduction to Soil Science 4
- BIOL284 Principles of Forest Conservation 4

- BIOL470 Restoration Ecology 3
- BUSN308 Managing Cultural Differences 3
- COMM302 Argumentation and Advocacy 3
- COMM320 Public Relations 4
- CSCI105 Introduction to Computer Programming 3
- EVRN495 Senior Project 2
- FIRE312 Hazardous Materials Management 4
- GEOG302 Economic Geography 3
- GEOG306 Cultural Geography 3
- POLI110 Introduction to American Government and Politics 4
- POLI201 Introduction to Public Administration 3
- POLI301 Policy Analysis and Evaluation 4
- SOCY227 Population and Ecology 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. The Environmental Science, Chemistry Concentration requires a minimum of 132 credits. A gpa of 2.00 or higher is also required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

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# Exercise Science: Bachelor of Science

## Program Description

A bachelor of science degree in exercise science prepares you to work in a variety of professional settings, ranging from corporate fitness to hospital clinical to educator and trainer.

Upon graduation, students are prepared and qualify to sit for both American College of Sports Medicine (ACSM) and National Strength and Conditioning Association (NSCA) certifications.

Graduate School Preparations: Students progress to graduate programs in exercise science, sport psychology, physical therapy, chiropractic medicine and other allied health fields.

## Degree Requirements

**Program Requirements (51 credits)**

- EXER105 Leadership Programming 3
- EXER140 Health Fitness 3
- EXER141 Introduction to Movement 3
- EXER230 Athletic Injury and Illness Prevention 3
- EXER262 Exercise Physiology I 3
- EXER265 Essentials of Strength Training and Conditioning 3
- EXER268 Fitness Evaluation I: Field Tests 2
- EXER275 Nutrition for Sport and Exercise Performance 2
- EXER295 Practicum 1
- EXER344 Kinesiology 3
- EXER348 Fitness Evaluation II: Laboratory Procedures 3
- EXER358 Research Methods in Exercise Science 3
- EXER362 Exercise Physiology II 3
- EXER390 Recreation Leadership Apprenticeship 1
- EXER444 Exercise Prescription 2
- EXER452 Allied Health Administration 3
- EXER481 Professional Development Seminar 1
- EXER492 Internship 6
- EXER496 Selected Research Topics 3

**Cognate Requirements (25-27 credits)**

- BIOL121 Anatomy & Physiology I 4

- BIOL122 Anatomy & Physiology II 4
- CHEM104 or CHEM115 General Chemistry I 3-5
- CHEM105 or CHEM116 General Chemistry II 4
- MATH207 Principles of Statistical Methods 3
  **or**
- PSYC210 Statistics 3
- PSYC101 Introduction to Psychology 4
- PSYC385 Health Psychology 3

**School Electives (10 credits)**

- EXER232 Athletic Injury & Illness Recognition and Evaluation 3
- EXER234 Preventative Taping Techniques 1
- EXER248 Psychology of Sport and Performance and Coaching 3
- EXER295 Practicum 3
- EXER340 Therapeutic Modalities in Athletic Training 3
- EXER346 Therapeutic Exercise in Athletic Training 3
- EXER349 Orthopedic Assessment in Sports Medicine 3
- EXER390 Recreation Leadership Apprenticeship 1
- EXER428 Psychological Aspects of Exercise and Athletic Rehabilitation 3
- EXER434 Neurological Basics of Motor Learning 3
- EXER440 Exercise Physiology Seminar 2
- EXER442 Electrocardiography in Exercise Science 2
- EXER446 Exercise Prescription and Testing for Special Populations 3
- EXER450 Philosophy of Human Performance and Leisure 3

**Cognate Electives (12 credits)**

- *Select with your advisor*

Elective credits (approximately 3)

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Finance and Economics: Bachelor of Science

## Program Description

This degree requires successful completion of a minimum of 124 semester credits as prescribed on the following page. The study of finance and economics develops the capacity for analytical reasoning and critical thinking, the most important decision making tools in business, government, education, and in your personal life.

Organizations need planners and problem-solvers, people who are logical thinkers. Economists and financiers learn to develop accurate information upon which to make decisions from the vast quantities of complex and often conflicting data generated in today's global economy. Employers hire these professionals because of their abilities for careful analysis, planning and decision making.

**Graduate, Professional and Continuing Education**

This degree program is an excellent preparation for graduate and professional education in such fields as finance, economics, accounting, business administration and law. Graduates may seek professional certification in related professions such as Certified Financial Planner (CFP), Chartered Financial Analyst (CFA), Chartered Financial Consultant (ChFC), Chartered Life Underwriter (CLU) and Certified Management
Accountant (CMA).

## Degree Requirements

**Common Professional Component (48 credits)**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- BUSN121 Introduction to Business 3
- BUSN211 Business Statistics 3
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
- BUSN403 Business, Government & Society 3
- BUSN466 Business Policy 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC341 Managerial Finance 4
- MGMT280 Intro Management Information Systems 3
- MGMT360 Management Concepts & Apps 3
- MGMT371 Operations/Business Analytics 3

- MRKT281 Marketing Principles & Strategy 3

**Major Requirements (Minimum 33 credits)**

- MATH111 College Algebra 3
- MATH112 Calculus Business/Life Science 4

**FINC 400-Level Courses. Choose two from the following:**

- FINC443 Insurance 4
- FINC446 Financial Analysis and Policy 4
- FINC448 Investment Strategy 4

**Economics Option (18 credits)**

- ECON407 Introductory Econometrics 3
- ECON300-400 Level Electives (3 Courses) 9
- Economics, Finance or Mathematics Electives 6

**Finance Option (18 credits)**

- FINC** 400-level Elective 4
- Finance, Economics or Accounting Electives 14

**Computer Competency is required - Complete one of the following:**

- CSCI101 Intro/Microcomputer Applications 3
- Passing Score on Computer Competency Exam (CCE)
- Microsoft Office Certificate (Word, Excel, PPT)
- Equivalent Course work

***FINC 400-level courses include FINC446, Financial Analysis & Policy; FINC448, Investment Strategy; and FINC443, Insurance. Two courses from this group must be completed for all options; all three courses must be completed for the finance option.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Fine Arts Studies: Bachelor of Arts

## Program Description

The fine arts degree is for students who have wide-ranging interests in fine arts, and who wish to explore and express their potential through following a personalized course of study. While students will invariably participate in a broad range of courses, they must select two main areas of focus (concentrations).

Fine arts have been an important aspect of the human experience since first recorded history; from African cave paintings to Greek dramas, from Beethoven symphonies to the writings of Canadian playwrights. From the study of fine arts we can gain an understanding of various cultures through their own indigenous means of expression. Furthermore, we can deepen our understanding of our own culture by participation in various contemporary art forms (drama, music, painting, writing etc.). Most important, by exploring our own creative potential, we can develop a better understanding of ourselves.

## Degree Requirements

To graduate with a B.A. in fine arts studies, a student must:

1. satisfy all stated requirements for a bachelor of arts degree;
2. complete 124 credits (100 level or higher) with an overall grade point average of at least 2.00;
3. complete at least 78 credits from three fine arts concentrations (minimum 9 credits in third concentration) as defined below, with an average GPA of at least 2.00 in each concentration;
4. complete no more than 30 credits in studio and/or performance courses with no more than 15 in any one discipline;
5. complete all general education requirements;
6. complete a student project (students must complete 6 credits of FINE405), which is intended to allow you, with the approval of the supervising professor, the opportunity to integrate or synthesize some aspects of the fine arts into a single project.

**Concentration**: A concentration is a sequence of at least 21 credits and no more than 36 credits, beyond the first-year prerequisite, in which related subject matter 'as defined below' is studied to develop knowledge of a particular discipline**.**

**Arts Management Concentration (Total Credits Required: 32-35)**

**Required History Courses (6-8 Credits)**

- ARTS250 Art History & Appreciation I 4
- ARTS251 Art History & Appreciation II 4
  **or**
- MUSC220 History & Appreciation of Music I 4
- MUSC221 History & Appreciation of Music II 4
  **or**
- THEA251 History of Drama & Theatre I 3
- THEA252 History of Drama & Theatre II 3
  **or**
- DANC305 Dance History 3
  **and**
- Elective from: ARTS250-ARTS251, MUSC220-MUSC221, or THEA251-THEA252

**Required Courses (25-28 Credits)**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- COMM210 Business and Professional Speaking 3
- COMM320 Public Relations 4
- FINC245 Principles of Finance 3
- INTD399 Internship in Department 1-4
- MRKT281 Marketing Principles and Strategy 3
- MGMT360 Management Concepts and Applications 3
  **or**
- MRKT387 Advertising Theory and Practice 3

**Dance Concentration (Total Credits Required: 23-24)**

**Technique Classes (8 credits)**

- DANC101 Ballet I 1
- DANC201 Ballet II 1
- DANC301 Ballet III 1
- DANC125 Modern Dance I 1
- DANC225 Modern Dance II 1
- DANC120 Jazz Dance I 1
- DANC130 Scottish Highland 1
- RECA173 Social Dance 1

**Dance Performance (13 credits)**

- DANC110 Dance Company 1
- DANC220 Musical Theatre: Tap/Jazz 1
- DANC305 Dance History 3
- DANC310 Choreography 3
- DANC401 Senior Thesis 1-4

Elective (2-3 credits)

- DANC205 Creative Movement form Elem Educators 3
- DANC210 Movement for Actors 3

**Theatre Concentration (Total Credits Required: 21-24)**

- THEA101 Acting I 3
- THEA161 Theatre Practicum 3-6
- THEA251 History of Drama & Theatre I 3
  **or**
- THEA252 History of Drama & Theatre II 3

**Choose 12 credits from the following courses:**

- THEA201 Acting II 3
- THEA309 Theatre Studies (Topic) 3-6
- THEA333 Studies in the Drama: The Genre & Theatre in Context 3-6
- DANC210 Movement for Actors 3
- DANC220 Musical Theatre: Tap/Jazz 2
- MUSC140 Chorus 1
- MUSC141 Chorus 1

**Visual Arts Concentration (Total Credits Required: 35)**

- ARTS250 Art History & Appreciation I 4
- ARTS251 Art History & Appreciation II 4
- ARTS109 Principles of Design & Color 3
- ARTS110 Fundamentals of Drawing 3

Select at least 15 credits from the classes below:

- ARTS111 Intro to Painting Media & Tech 3
- ARTS211 Mixed Media Explorations 3
- CSCI105 Intro to Computer Programing 3
- CSCI106 Web Page Design & Development 3
- CSCI107 Web Graphic Design & Development 3
- CSCI207 Developing Multimedia & Rich Interactive Web Sited 3
- JOUR220 Photojournalism 3

**Web Design and Management Concentration (Total Credits Required: 28)**

- ARTS109 Principles of Design and Color 3
- CSCI105 Introduction to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI107 Web Graphic Design and Development 3
- CSCI121 Principles of Programming 3
- CSCI207 Developing Multimedia and Rich Interactive Web Sites 3
- CSCI211 Database Applications 3
- CSCI292 Computer Networking Project 4
- CSCI325 Developing Web Applications with Javascript and PHP 3
  **or**
- CSCI326 Developing Web Applications with ASP.NET 3

**Writing Concentration (Total Credits Required: 24)**

**Select 6 credits from the following:**

- ENGL180 Intro to Literary Studies 3
- ENGL231 American Literature I 3
- ENGL232 American Literature II 3
- ENGL233 English Literature I 3
- ENGL234 English Literature II 3

**Pick at least 18 credits, including 3 from each of Groups I and II and additional credits from Group III. A minimum of 9 credits in applied rhetoric or writing courses must be completed.**

**Group I: Practical Writing & Production Courses**

- ENGL310 Advanced Writing 3
- ENGL306 Technical Writing 3
- COMM280 Understanding the Mass Media 3
- JOUR211 Newswriting 3
- JOUR310 Editing & Production 3

**Group II: Creative Writing Courses**

- ENGL221 Intro to Creative Writing 3
- ENGL301 Creative Prose Writing 3
- ENGL302 Poetry Writing 3
- ENGL303 Performance Writing 3
- ENGL320 Responding to Writing 3
- ENGL321 Rhetoric & Composition 3

**Group III: Senior Year Course**s

- ENGL409 Advanced Writing Workshop 3
- ENGL420 History of English Language 3
- ENGL421 History of Literary Criticism 3
- ENGL480 Creative Writing Portfolio 3
- JOUR410 Broadcast Newswriting 3
- JOUR411 Broadcast Editing & Production 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Fire Science - Engineering Technology: Bachelor of Science

## Program Description

This emphasis is designed for students preparing for professional positions in the private sector. This emphasis is designed to provide the student with a wide knowledge base of the fire service while earning a minor in engineering. Students in this emphasis will have the education necessary to become part of an engineering team that specializes in fire suppression and design. It should be noted that students of this emphasis are equally marketable for municipal, county, state, and federal fire departments, and have the option of earning firefighter certfications.

## Degree Requirements

**Major Requirements (49 credits)**

- CJUS341 Fire Cause and Arson Investigation 3
- FIRE101 Introduction to Fire Science 3
- FIRE111 Hazardous Materials 3
- FIRE197 Physical Fitness for Public Safety 1
- FIRE201 Fire Protection Construction Concepts 3
- FIRE204 Fire Protection Hydraulics and Pumps 3
- FIRE206 Fire Protection Systems Equipment and Industrial Fire Protection 3
- FIRE211 Tactics & Strategy 3
- FIRE220 Fire Science Certification 4
- FIRE301 Code Enforcement Inspection and Fire Prevention 3
- FIRE312 Hazardous Materials Management 4
- FIRE315 Company Level Supervision and Management 3
- FIRE401 Senior Seminar 3
- FIRE402 Fire Service and the Law 3
- FIRE403 Fire Science Internship 3

***Statistics: Choose one of the following:***

- BUSN211 Business Statistics 3
- CJUS345 Statistics and Design for Public Safety 4
- MATH207 Principles of Statistical Methods 3
- POLI211 Political Science Research and Statistics 4
- PSYC210 Statistics 3

- SOCY302 Statistics for Social Science 4

**Support Courses (35 credits)**

- CSCI101 Intro. to Microcomputer Applications 3
- MATH112 Calculus for Business/Life Science* 4
- MATH140 Pre-Calculus 5
- EGME337 Thermodynamics 4
- EGME338 Fluid Mechanics 2
- EGMT225 Statics & Strength of Materials I 4
- EGMT332 Thermodynamics & Heat Transfer for Technologists 4
- EGNR140 Linear Algebra and Numerical Methods for Engineers 2
- EGNR245 Calculus Applications for Technology 3
- PHYS221 Elements of Physics I 4

*or MATH151

**Electives (9 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Fire Science - Generalist: Bachelor of Science

## Program Description

This emphasis is designed for students preparing for professional fire service positions in public and private sectors. The emphasis is designed to provide the student with a working knowledge of the many different areas of the fire service, giving the students the ability to function in fire departments and participate in fire prevention and investigation divisions. Students in this emphasis will complete the requirements for Firefighter I and II state certifications established by the Michigan Firefighters Training Council.

## Degree Requirements

**Major Requirements (54-55 credits)**

- CJUS341 Fire Cause & Arson Investigation 3
- FIRE101 Introduction to Fire Science 3
- FIRE111 Hazardous Materials 3
- FIRE197 Physical Fitness for Public Safety 1
- FIRE201 Fire Protection Construction Concepts 3
- FIRE204 Fire Protection Hydraulics & Pumps 3
- FIRE206 Fire Protection Systems Equipment and Industrial Fire Protection 3
- FIRE211 Tactics & Strategy 3
- FIRE219 Firefighter Essentials 3
- FIRE220 Fire Science Certification 4
- FIRE301 Code Enforcement Inspection and Fire Prevention 3
- FIRE309 Fire-Related Human Behavior 3
- FIRE312 Hazardous Materials Management 4
- FIRE315 Company Level Supervision and Management 3
- FIRE401 Senior Seminar 3
- FIRE402 Fire Service and the Law 3
- FIRE403 Fire Science Internship 3

**Statistics: Choose one of the following:**

- CJUS345 Statistics and Design for Public Safety 4
- MATH207 Principles of Statistical Methods 3
- PSYC210 Statistics 3
- SOCY302 Statistics for Social Science 4

**Minor or Paramedic License (20 credits)** Students may complete an approved minor. The minor must be an approved minor other than Fire Science.

**Electives (9 - 14 credits)**

**Note: A minimum of 24 credits of 300/400 level coursework is required for graduation.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Fire Science - Generalist Non Certification: Bachelor of Science

## Program Description

This emphasis is designed for long-distance students who currently possess firefighting certifications; it also serves those students who do not desire, or have the physical ability, to enter the fire service as active firefighters. This emphasis is designed for students who seek promotions or desire a professional position in the private fire service sector, and provides students a wide knowledge base of the fire service. Students in this emphasis will have the education necessary to work in preventive, investigative, and educational areas of the fire service.

## Degree Requirements

**Major Requirements (45-46 credits)**

- FIRE101 Introduction to Fire Science 3
- FIRE204 Fire Protection Hydraulics and Pumps 3
- FIRE206 Fire Protection Systems Equipment and Industrial Fire Prevention 3
- FIRE301 Code Enforcement, Inspection and Fire Prevention 3
- FIRE315 Company Level Supervision and Management 3
- FIRE401 Senior Seminar 3

**Statistics: Choose one of the following:**

- CJUS345 Statistics and Design for Public Safety 4
- MATH207 Principles of Statistical Methods 3
- PSYC210 Statistics 3
- SOCY302 Statistics for Social Science 4

**Electives - Select at least 30 additional credits of Fire Science and Criminal Justice Electives from:**

- CJUS103 Introduction to Terrorism and Homeland Security 3
- CJUS203 Cyberterrorism 3
- CJUS204 Domestic and International Terrorism 3
- CJUS303 Critical Infrastructure Protection 3
- CJUS321 Ethical Issues in Public Safety 3

- CJUS325 / FIRE325 Homeland Security and Emergency Services 3
- CJUS341 Fire Cause and Arson Investigation 3
- FIRE111 Hazardous Materials 3
- FIRE201 Fire Protection Construction Concepts 3
- FIRE211 Tactics and Strategy 3
- FIRE300 Special Topics 3-6
- FIRE309 Fire-Related Human Behavior 3
- FIRE312 Hazardous Materials Management 4
- FIRE400 Special Topics 3-6
- FIRE402 Fire Service and the Law 3
- FIRE403 Fire Science Internship 3

**Electives to reach 124 credits.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Fish Health: Bachelor of Science

## Program Description

The Bachelor of Science degree in Fish Health prepares students for assessment of aquatic animal health in areas of bacterial, viral and parasitic disease. The degree requirements cover content in fish ecology, physiology and hatchery culture, including diseases caused by environmental stress (e.g. gas bubble disease or issues with low dissolved oxygen), as well as those caused by nutritional and mineral deficiencies. In addition, the program includes background in the microbial, viral and parasitic vectors of disease as well as the ecology of disease transmission. The program satisfies the academic requirements for American Fisheries Society (AFS) Fish Pathologists. The program is an excellent preparation for veterinary school* and other careers in the health professions. Our graduates are currently employed as medical doctors, dentists, veterinarians, clinical laboratory scientists, biological researchers, consultants and teachers. Many careers in biology require education beyond the baccalaureate degree and LSSU's biology program has a proven record of excellent preparation.

*Most veterinary colleges will also require one year of physics.

## Degree Requirements

**Fish Health Major (74 credits)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL204 General Microbiology 4
- BIOL220 Genetics 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biometrics 3
- BIOL299 Sophomore Seminar 1
- BIOL310 Ichthyology 3
- BIOL330 Animal Physiology 4
- BIOL333 Fish Ecology 3
- BIOL335 Principles of Animal Nutrition 3
- BIOL337 General Ecology 3
- BIOL345 Limnology 3
- BIOL372 Freshwater Fish Culture 3
- BIOL389 Internship in Biology 3-4
- BIOL399 Junior Seminar 1

- BIOL422 Parasitology 3
- BIOL423 Immunology 4
- BIOL425 Virology 3
- BIOL426 Ecology of Animal Disease 3
- BIOL433 Histology 3
- BIOL434 Histopathology 1
- BIOL480 Advanced Clinical Microbiology 4
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1

**Chemistry Minor (22 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM251 Biochemistry 4

**Support Courses (10 credits)**

- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Science 4
- HLTH209 Pharmacology 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 131 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Fisheries and Wildlife Management: Bachelor of Science

## Program Description

Fisheries and Wildlife Management programs place a strong emphasis on understanding the relationship between organisms and their habitats by blending a conceptual understanding of fish and wildlife ecology and population dynamics with practical skills obtained during laboratory and field exercises. Students graduating from this rigorous, applied curriculum can meet the qualifications of state and federal natural resource management agencies as technicians and biologists.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Fisheries and Wildlife Management
- Bachelor of Science Fisheries and Wildlife Management, Fisheries Management Concentration
- Bachelor of Science Fisheries and Wildlife Management, Wildlife Management Concentration

## Degree Requirements

### Bachelor of Science Fisheries and Wildlife Management

**Fisheries & Wildlife Core Requirements**

- BIOL131 General Biology I: Cells 4
- BIOL132 General Biology II: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL202 Field Botany 3
  **or**
- BIOL284 Forestry 4
- BIOL203 Fundamentals of Natural Resources 3
- BIOL220 Genetics 4
- BIOL243 Vertebrate Anatomy 4
  **or**
- BIOL330 Animal Physiology 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biometrics 3
- BIOL299 Sophomore Seminar 1
- BIOL310 Ichthyology 3
- BIOL311 Mammology 3
- BIOL312 Ornithology 3

- BIOL330 Animal Physiology 4
- BIOL333 Fish Ecology 3
- BIOL337 General Ecology 3
- BIOL339 Wildlife Ecology 3
- BIOL345 Limnology 3
- BIOL399 Junior Seminar 1
- BIOL432 Fisheries Management 3
- BIOL439 Wildlife Management 3
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1
- BIOL Electives 3
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 4
- CHEM225 Organic Chemistry I 4
  **or**
- PHYS221 Principles of Physics I 4
- EVRN131 Introduction to GIS and GPS 2
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Sciences 4

**Free Electives - 10-11 credits**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Fisheries and Wildlife Management, Fisheries Management Concentration

**Fisheries & Wildlife Core Requirements**

- BIOL131 General Biology I: Cells 4
- BIOL132 General Biology II: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL203 Fundamentals of Natural Resources 3
- BIOL220 Genetics 4
- BIOL243 Vertebrate Anatomy 4
  **or**
- BIOL330 Animal Physiology 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biometrics 3
- BIOL299 Sophomore Seminar 1
- BIOL310 Ichthyology 3
- BIOL333 Fish Ecology 3
- BIOL337 General Ecology 3

- BIOL345 Limnology 3
- BIOL372 Freshwater Fish Culture 3
- BIOL399 Junior Seminar 1
- BIOL432 Fisheries Management 3
- BIOL475 Aquatic Entomology 3
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1
- BIOL Electives 8
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 4
- CHEM225 Organic Chemistry I 4
  **or**
- PHYS221 Principles of Physics I 4
- EVRN131 Introduction to GIS and GPS 2
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Sciences 4

**Human Dimensions - 3 credits from:**

- ECON307 Environmental Economics 3
- EVRN311 Environmental Law 3
- INTD300 The Human Environment 3
- POLI342 International Environmental Policy 3

**Free Electives - 12 credits**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Fisheries and Wildlife Management, Wildlife Management Concentration

**Fisheries & Wildlife Core Requirements**

- BIOL126 Interpretation of Maps and Aerial Photography 2
- BIOL131 General Biology I: Cells 4
- BIOL132 General Biology II: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL202 Field Botany 3
- BIOL203 Fundamentals of Natural Resources 3
- BIOL220 Genetics 4
- BIOL243 Vertebrate Anatomy 4
- **or**

- BIOL330 Animal Physiology 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biometrics 3
- BIOL284 Principles of Forestry 4
- BIOL299 Sophomore Seminar 1
- BIOL311 Mammology 3
- BIOL312 Ornithology 3
- BIOL337 General Ecology 3
- BIOL339 Wildlife Ecology 3
- BIOL399 Junior Seminar 1
- BIOL439 Wildlife Management 3
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1
- BIOL Electives 3
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 4
- EVRN131 Introduction to GIS and GPS 2
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Sciences 4

**Physical Science* - 3-4 credits from:**

- BIOL230 Introduction to Soil Science 4
- BIOL286 Principles of Watersheds 3
- PHYS221 Principles of Physics I 4

**Policy/Admin/Law - 9 credits from:**

- BIOL287 Conservation Biology 2
- ECON307 Environmental Economics 3
- EVRN311 Environmental Law 3
- INTD300 The Human Environment 3
- POLI342 International Environmental Policy 3

**Free Electives - 10 credits**

*Students considering graduate school should select PHYS221

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Forensic Chemistry: Bachelor of Science

## Program Description

The B.S. in Forensic Chemistry combines elements of criminal justice and biology with a strong chemistry program. The forensic chemist analyzes and interprets materials collected at crime scenes, accidents, and at sites of terrorist activities.

The degree is offered in response to strong student, state and local government demand for an undergraduate academic program to prepare students for careers in forensic chemistry. According to the U.S. Department of Labor Bureau of Labor Statistics 2010 Occupational Outlook Handbook, forensic science technicians will grow much faster than average.

Graduates with a bachelor of science in forensic chemistry work in forensic laboratories for federal, state, or local government agencies or in some cases, work for private investigative laboratories. Some graduates may also go on to pursue a graduate degree.

The Chemistry Program at Lake Superior State University is now accredited by the American Chemical Society (ACS). According to the 2011 National Occupational Employment and Wage Estimator, more people are employed as chemists and chemical technicians than in any other job classification in the life and physical science occupations (http://stats/bls.gov). With many free electives and a common general education core, a chemistry degree can also be used in combination with other majors or minors such as pre-professional (medicine, pharmacy, veterinary, law, etc.), engineering, business, biology, and many more to match student interest and career plans.

Graduates with a bachelor of science in chemistry work in many disciplines and industries, and many proceed on to graduate school in natural sciences, medicine, law, or engineering. Internships in chemistry are encouraged where students can gain valuable real-world work experience while gaining college credit. In addition, students pursuing the ACS certified degree will participate in an applied research project in close collaboration with faculty members to address meaningful chemical-based problems. These projects, through the excellent preparation they provide our students, are often cited as important factors in successful job searches and entry into graduate programs.

The LSSU chemistry program has been approved by the American Chemical Society, and may provide a certified degree in Chemistry, Environmental Chemistry, Forensic Chemistry, and Pre-Professional Chemistry degrees if a student chooses this track. Graduates completing the prescribed requirements are awarded an ACS certificate signifying their completion of the approved degree and can qualify for membership in the Society upon graduation.

American Chemical Society
Committee on Professional Training

155 Sixteenth Street, N.W.,
Washington, D.C. 20036

## Degree Requirements

**Major Requirements (55 credits)**

**Chemistry (39 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM231 Quantitative Analysis 4
- CHEM251 Intro to Biochemistry 4
- CHEM332 Instrumental Analysis 4
- CHEM353 Introductory Toxicology 3
- CHEM395 Junior Seminar 1
- CHEM/CJUS445 Forensic Science 4
- CHEM452 Biochemistry II 4 **or**
- CHEM310 Applied Spectroscopy 4
- CHEM499 Senior Seminar 1

For American Chemical Society certified degree, additionally required (total lab hours must be at least 400 hrs). See Department Chair for special rules regarding ACS certification:

- CHEM261 Inorganic Chemistry 4
- CHEM495 Senior Project 2
- CHEM226 Organic Chemistry II 4 **or**
- CHEM Electives at the 300 level or higher (3 cr min)
  Additional math: either MATH152 or EGNR140 and EGNR245

**Criminal Justice (16 credits)**

- CJUS101 Introduction to Criminal Justice 3
- CJUS243 Investigation 3
- CJUS319 Substantive Law 3
- CJUS409 Procedural Law 3
- CJUS444 Criminalistics 4

**Support Courses (47 credits)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL204 Microbiology 4
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Sciences 4
- MATH207 Principles of Statistical Methods 3
  **or**
- BUSN211 Business Statistics 3

- Two semesters of College Physics with laboratory (8 cr min)
- POLI110 Introduction to American Government and Politics 4
- PSYC101 Introduction to Psychology 4
- PSYC259 Abnormal Psychology 3
- SOCY103 Cultural Diversity 3
- SOCY214 Criminology 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian university).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.50 or higher. A gpa of 2.50 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

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# Geology: Bachelor of Science

## Program Description

Geology examines the dynamic Earth and its physical, chemical and biologic history. It involves the study of changes that are taking and have taken place and the forces that cause these changes. For example, geologists interpret the movements of the continents over geologic time and the formation of mountains, volcanoes and other features of the Earth's surface. Geologists attempt to understand our physical environment from which we derive most of the natural resources essential to civilization. They investigate the processes that led to the formation of mineral deposits, and oil, gas and coal. They also study environmental change throughout the history of the Earth and how those changes and the development of life are related. Geologists attempt to predict natural disasters such as earthquakes, volcanic eruptions, and landslides, and they are very active in modeling groundwater flow to develop water reserves for municipalities and to protect groundwater from contamination. Geologists study the natural world and apply their knowledge to achieve harmony between the human race and its environment.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Geology
- Bachelor of Science Geology, Environmental Geology Concentration

## Degree Requirements

### Bachelor of Science Geology

**Geology (60 credits)**

- GEOL121 Physical/Historical Geology I 4
- GEOL122 Physical/Historical Geology II 4
- GEOL218 Structural Geology and Tectonics 5
- GEOL223 Mineralogy and Petrology 5
- GEOL315 Geoenvironmental Systems 5
- GEOL318 Tectonic Systems 5
- GEOL323 Geochemical Systems 4
- GEOL325 Clastic Systems 4
- GEOL380 Introduction to Field Geology 3
- GEOL411 Hydrologic Systems: Surface and Groundwater 4
- GEOL431 Geophysical Systems 5
- GEOL445 Carbonate Systems 5
- GEOL450 Geology Seminar I 2
- GEOL451 Geology Seminar II 2

- GEOL480 Advanced Field Geology 3

**Support Courses (28-31 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- PHYS221 Elements of Physics I* 4
- PHYS222 Elements of Physics II* 4
- MATH112 Calculus for Business and Life Sciences* 4
- MATH111 College Algebra* 3
  **or**
- MATH140 Precalculus Mathematics* 5

***and***

- MATH207 Principles of Statistical Methods 3
  **or**
- MATH308 Probability and Mathematical Statistics 3
  **or**
- BUSN211 Business Statistics 3

**Students with adequate preparation in mathematics are advised to take MATH151 and MATH152 in place of MATH111 or MATH140 and MATH112 and to take PHYS231-PHYS232 in place of PHYS221-PHYS222.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Geology, Environmental Geology Concentration

**Total Program Requirements Plus Distributed Electives (95 credits)**

**Program Requirements (78-80 credits)**

- GEOL121 Physical & Historical Geology I 4
- GEOL122 Physical & Historical Geology II 4
- GEOL218 Structural Geology and Tectonics 5
- GEOL223 Mineralogy and Petrology 5
- GEOL315 Geoenvironmental Systems 5
- GEOL380 Introduction to Field Geology 3
- GEOL411 Hydrologic Systems: Surface and Groundwater 4
- GEOL431 Geophysical Systems 5
- GEOL450 Geology Seminar I 2
- GEOL451 Geology Seminar II 2
- GEOL480 Advanced Field Geology 3
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5

- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- PHYS221 Elements of Physics I* 4
- PHYS222 Elements of Physics II* 4
- MATH112 Calculus for Business and Life Sciences* 4
- MATH111 College Algebra* 3
  **or**
- MATH140 Precalculus Mathematics* 5

***and***

- MATH207 Principles of Statistical Methods 3
  **or**
- MATH308 Probability and Mathematical Statistics 3
  **or**
- BUSN211 Business Statistics 3

**Distributed Electives (17 credits min)**

*Select electives to equal total of 95 credits*

- BIOL230 Introduction to Soil Science 4
- CHEM231 Quantitative Analysis 4
- CHEM332 Instrumental Analysis 4
- CHEM341 Environmental Chemistry 4
- EVRN131 Introduction to GIS and GPS 2
- FIRE312 Hazardous Material Management 4
- GEOL325 Clastic Systems 4
- GEOL445 Carbonate Systems 5
- GEOL490 Research Topics in Geology 1-4
- NSCI103 Environmental Science 3

**Students with adequate preparation in mathematics are advised to take MATH151 and MATH152 in place of MATH111 or MATH140 and MATH112 and to take PHYS231-PHYS232 in place of PHYS221-PHYS222.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# History: Bachelor of Arts/Science

## Program Description

The bachelor of arts or science degree will prepare you for entry-level work in industry and government as well as prepare you for graduate or professional schools.

Other Qualifications — Graduate degrees may be necessary for some of the positions shown. The Ph.D. is essential for appointment to a permanent teaching and research position in colleges and universities.

## Degree Requirements

**Required Courses**

- HIST101 History of World Civilization I 4
  **and**
- HIST102 History of World Civilization II 4
  **or**
- HIST131 United States History I 4
  **and**
- HIST132 United States History II 4
- HIST496 Historical Methods 2
- HIST497 Senior Seminar in History 2

**300/400-Level**

**Choose 16 credits from any 300/400 level History classes except HIST496 and HIST497** *:*

- History Electives to Total 30 Semester Hours 4
- GEOG201 World Regional Geography 4
- GEOG306 Cultural Geography 3

**Choose one course from:**

- ECON201 Principles of Macroeconomics 3
- GEOG321 Geography of Europe and Great Britain 4
- GEOG322 Geography of South American, Central American and Caribbean Region 4
- GEOG323 Geography of East and Southeast Asia 4
- GEOG325 Regional Geography of North America 4
- GEOG360 Historical Geography of Eastern North America 4

**Minor (20 credits minimum)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Individualized Studies: Bachelor of Arts/Science

## Program Description

The individual studies degree may be appropriate if you desire an unusually specialized program. The purpose of the degree is to provide you an opportunity to specialize in two or more academic areas. You will meet with an academic advisor to plan an individualized studies academic program that reflects your professional and personal goals.

## Degree Requirements

### Guidelines for an individualized studies degree are:

1. Contact a department chair or regional site director with a preliminary plan for degree development.
2. The department chair or regional site director will identify possible faculty advisor/s or another department chair to counsel you in degree planning.
3. The advisor/s will assist you in the development of the proposal. The proposal must include justification for specialization and a list of courses which meet the individualized studies degree requirement including:
    1. general education requirements.
    2. minimum of 124 credits and a minimum of 32 credits on campus or a minimum of 32 credits of LSSU classes offered at a regional center. Fifty percent of the 300-400 level credits used in the concentration areas must be completed with LSSU classes.
    3. 24 credits at 300/400 level in addition to general education requirements and a 2.00 cumulative GPA. At least one three-credit course at the 400 level is required.
    4. BA or BS degree requirement.
4. You need to contact the chairperson of the Individualized Studies Committee to schedule a committee meeting.
5. You will present the degree proposal to the committee for review. It is recommended that your advisor attend this meeting.
6. The committee will approve your original proposal, approve your proposal with recommended changes, or not approve your degree proposal.
7. You and your advisor will submit an approved Degree Audit Sheet to the chairperson to be distributed to the committee.
8. You will process a Major Change Form.
9. Any course changes from the approved program must be submitted to the committee for approval.

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# Industrial Technology: Bachelor of Science

## Program Description

Your academic experience will include a foundation in the basic sciences, mathematical concepts through algebra and trigonometry, general education, software, technology and automation.

You will learn to apply your skills toward the solution of practical, industrial-type technical problems. During your senior year, you will participate in the construction-and-build semester of a real-world industrial project, working with engineers and company representatives. During your time at LSSU, you will also have developed communication skills that will enable you to grow and succeed in your professional career.

Not a first-time college student? There are multiple technical and free electives to allow transfer students to fit into the flow of the program.

## Degree Requirements

**Required Courses**

- CHEM108 Applied Chemistry 3
- CHEM109 Applied Chemistry Lab 1
- COMM101 Fundamentals of Speech Communication 3
- CSCI101 Introduction to Microcomputer Applications 3
- CSCI105 Introduction to Computer Programming 3
- Social Science Elective 3
- EGEE125 Digital Fundamentals 4
- EGET110 Applied Electricity 4
- EGET175 Applied Electronics 4
- EGME110 Manufacturing Processes 3
- EGME141 Solid Modeling 3
- EGME240 Assembly Modeling and GD&T 3
- EGMT225 Statics and Strength of Materials I 4
- EGME312 CNC Manufacturing Processes 3
- EGNR265 C Programming 3

  **or**
- CSCI121 Principles of Programming 3
- EGNR310 Advanced Quality Engineering 3
- EGRS215 Introduction to Robotics 2
- EGRS365 Programmable Logic Controllers 3
- EGRS380 Robotics Technology 2

- EGRS381 Robotics Technology Lab 1
- MATH102 Intermediate Algebra 4
- MATH111 College Algebra 3
- MATH131 College Trigonometry 3
- MATH207 Principles of Statistical Methods 3
- PHYS221 Principles of Physics I 4

***Complete one sequence:***

**Industrial Project**

- EGNR496 Senior Directed Project 3

**Cooperative Project**

- EGNR450 Cooperative Education Project I 2
- EGNR451 Cooperative Education Project II 2

**Technical Electives (18 credits*)**

*Choose from:*

- CSCI106 Web Page Design and Development 3
- CSCI200 Level or higher
- EGEE250 Micro-Controller Fundamentals 4
- EGME240 Assembly Modeling and GD&T 3
- EGME275 Engineering Materials 3
- EGME276 Strength of Materials Lab 1
- EGNR101 Introduction to Engineering 2
- EGNR140 Linear Algebra and Numerical Methods for Engineers 2
- EGNR245 Calculus Applications for Technology 3
- EGNR250 Cooperative Education 2
- EGNR491 Engineering Design Project I 3
- EGRS480 Manufacturing Automation 3
- EGRS481 Manufacturing Automation Lab 1
- MATH112 Calculus for Business and Life Sciences 4
- MGMT360 Management Concepts and Applications 3
- MGMT375 Introduction to Supply Chain Management 3
- MGMT471 Production/Operations Management 3

*Other courses may be approved in writing by the Program Chair and School Dean using a substitution/waiver form.*

**Free Electives (9 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Language Arts: Bachelor of Arts

## Program Description

Featuring small classes, lots of reading, many opportunities for writing and research, and supervision by faculty who know their students, the English programs emphasize the human letters and language study.

Every year, the English Department holds the Osborn Poetry Contest and the Fiction Short Story Contest. Submissions are due at the beginning of February, with the winners announced in March.

The Language Arts program prepares graduates for elementary-level teacher certification in Michigan, which permits individuals to teach in self-contained classrooms at grades K-8, in all subjects at grades K-5, and in language arts at grades 6-8. See Elementary Teaching for additional regarding this program.

## Degree Requirements

### Bachelor of Arts Language Arts - Elementary Teaching

**English Requirements (36 credits)**

- ENGL180 Introduction to Literary Studies 3
- ENGL221 Introduction to Creative Writing 3
- ENGL222 English Grammar 3
- ENGL231 American Literature I 3
- ENGL232 American Literature II 3
- ENGL236 Literature and Culture 3
- ENGL320 Responding to Writing 3
- ENGL335 Children's Literature 3
- ENGL340 Genre Studies 3
- COMM225 Interpersonal Communication 3
- THEA309 Speech and Drama Productions 3
- CHLD420 Emergent Literacy 3

**English Departmental Requirements (up to 16 credits)**

- Two years of a foreign language

**For information regarding the Professional Educational Sequence, Education Cognates, and Elementary Planned Program, - see Elementary Education.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp

(Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

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# Liberal Studies: Bachelor of Arts/Science

## Program Description

The liberal studies program is designed for those students who either desire a specific set of courses contained in particular minors or who are planning on attending graduate or professional school.

This program is quite rigorous in that there are a minimum number of upper division credits required as well as a senior capstone experience.

Thus, the graduates of this program will have a firm grounding in the liberal arts as well as the requisite communication skills necessary for success in today's world.

### Guidelines:

Once a student decides on this major:

1. The student contacts the liberal studies degree director.
2. Student and director agree on choice of minors.
    1. If needed, director consults with faculty in the discipline.
    2. If needed, director consults with the Liberal Studies Degree Committee.
3. Student and director discuss core requirements, general education requirements, BA/BS requirements and elective choices.
4. Student and director discuss other requirements; i.e., upper division minimum requirements.
5. Student is given an educational plan including a Degree Audit Sheet.
6. If necessary, student makes formal request to change major.
    1. Advisor(s) assigned after consultation
7. Student matriculates.
8. Student meets with liberal studies director spring of junior year to set up senior capstone experience (INTD490). Subsequent meeting with advisor(s).
9. In senior year, student returns to liberal studies director for final review and signature.

## Degree Requirements

**Bachelor of Arts Liberal Studies**
**Bachelor of Science Liberal Studies**

**Major Requirements**

Minimum of 60 credits must be completed which include two academic minors having no more than two courses in common.

**Additional Major Requirements:**

- PHIL Elective 3
- SOCY103 Cultural Diversity 3
- INTD490 Senior Directed Study 3

**A minimum of 24 of these 60 credits must be at the 300/400 level.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Literature: Bachelor of Arts

## Program Description

This program promotes a well-rounded study of literary texts across mulitiple genres and media in keeping with current scholarship and research in the field of English while honing skills significant to effective writing, critical thinking, and textual analysis.

Opportunities for publishing and editing are available through work on the literary journal, and the student-edited journal, or the monthly magazine.

## Degree Requirements

**Required Courses (45 credits)**

- COMM307 Classical/Contemporary Rhetoric 3
- ENGL180 Introduction to Literary Studies 3
- ENGL221 Introduction to Creative Writing 3
- ENGL231 American Literature I 3
- ENGL232 American Literature II 3
- ENGL233 English Literature I 3
- ENGL234 English Literature II 3
- ENGL340 Genre Studies 3
- ENGL404 Literature Before 1800 (Topic) 3
- ENGL408 Literature After 1800 (Topic) 3
- ENGL420 History of the English Language 3
- ENGL421 History of Literary Criticism 3
- ENGL490 Senior Thesis 3

**Select one from: (3 credits)**

- ENGL235 Survey of Native Literature of North America 3
- ENGL236 Literature and Culture 3

**Select one from: (3 credits)**

- THEA251 History of Drama and Theatre I 3
- THEA252 History of Drama and Theatre II 3
- THEA309 Speech and Drama Productions 3
- THEA333 Studies in the Drama: The Genre and Theater in Context 3

**Foreign Language (14-16 credits)**

**Minor (minimum 20 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Literature - Creative Writing: Bachelor of Arts

## Program Description

Featuring small workshop classes and instruction by faculty who are published authors, the Creative Writing program of the School of English and Language Studies emphasizes the art and craft of imaginative writing in a range of genres, including poetry, fiction, non-fiction, and performance writing.

Every year the Creative Writing program holds the Osborn Poetry Contest and Short Story contest. Opportunities for publishing and editing are available through work on the literary journal, the student-edited journal or the monthly magazine. Guest writers, public readings and other events are also featured.

## Degree Requirements

**Required Courses (45 credits)**

- ENGL180 Introduction to Literary Studies 3
- ENGL221 Introduction to Creative Writing 3
- ENGL223 Creative Writing II 3
- ENGL301 Creative Prose Writing 3
- ENGL302 Poetry Writing 3
- ENGL303 Performance Writing 3
- ENGL340 Genre Studies 3
- ENGL409 Advanced Writing Workshop 3
- ENGL421 History of Literary Criticism 3
- ENGL480 Creative Writing Portfolio 3

**Select one sequence from:**

- ENGL231 American Literature I 3
- ENGL232 American Literature II 3

**or**

- ENGL233 English Literature I 3
- ENGL234 English Literature II 3

**Select one from:**

- ENGL235 Survey of Native Literature of North America 3
- ENGL236 Literature and Culture 3

**Select one from:**

- ENGL404 Literature Before 1800 (Topic) 3
- ENGL408 Literature After 1800 (Topic) 3

**Select one from:**

- THEA251 History of Drama and Theatre I 3
- THEA252 History of Drama and Theatre II 3
- THEA333 Studies in the Drama: The Genre and Theater in Context 3
- THEA309 Theatre Studies: (Topic) 3

**Foreign Language (14-16 credits)**

**Minor (minimum 20 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Manufacturing Engineering Technology: Bachelor of Science

## Program Description

Manufacturing engineering technology (MfgET) is a multi-disciplinary field that integrates knowledge from areas of study such as science, math, computers, mechanical engineering, electronics engineering, management and economics. MfgET is a profession that gives you the expertise to develop tools, processes, machines and equipment to make quality products at a reasonable cost. The profession also involves working with and coordinating people from several other fields.

In addition to providing a strong background in the fundamentals of manufacturing engineering technology, *the program places an emphasis on the application of computer systems to modern manufacturing technologies*. This includes topics such as robotics, computer-aided design (CAD), programmable logic controllers (PLC), computer-aided manufacturing (CAM),and simulation of manufacturing systems. The classes and labs in the curriculum average about 12 students and are taught by faculty who are dedicated to undergraduate teaching excellence.

Students pursuing the B.S. degree in manufacturing at LSSU have the option to minor in robotics technology. LSSU is one of a few universities in the U.S. to offer the robotics minor in the TAC of ABET-accredited* manufacturing engineering technology B.S. degree. LSSU is home to one of the best robotics educational facilities in North America. Graduates with this emphasis have had nearly 100 percent job placement with high and competitive starting salaries. Your minor in robotics will be identified on your transcripts.

A scientific "high technology" basis in the field of manufacturing engineering technology is evolving. The MfgET program is designed to place LSSU graduates at the leading edge of this evolution.

## Degree Requirements

**Departmental Requirements: (102 credits)**

**Mathematics (12 credits)**

- MATH111 College Algebra 3
- MATH112 Calculus for Business and Life Science 4
- MATH131 College Trigonometry 3
- MATH207 Principles of Statistical Methods 3

**Science (9 credits)**

- CHEM108 Applied Chemistry I 3
- CHEM109 Applied Chemistry Lab 1
- PHYS221 Principles of Physics I 4

**Engineering Technology (62 credits)**

- EGNR101 Introduction to Engineering 2
- EGNR140 Linear Algebra and Numerical Methods for Engineers 2
- EGNR245 Calculus Applications for Technology 3
- EGNR265 "C" Programming 3
- EGNR310 Advanced Quality Engineering 3
- EGNR491 Engineering Design Project I 3
- EGNR495 Engineering Design Project II 3
- EGET110 Applied Electricity 4
- EGET175 Applied Electronics 4
- EGME110 Manufacturing Processes I 3
- EGME141 Solid Modeling 3
- EGME240 Assembly Modeling and GD&T 3
- EGME275 Engineering Materials 3
- EGME276 Strength of Materials Lab 1
- EGME312 CNC Manufacturing Processes 3
- EGMT225 Statics and Strength of Materials 4
- EGRS365 Programmable Logic Controllers 3
- EGRS380 Robotics Technology 2
- EGRS381 Robotics Technology Lab 1
- EGRS480 Manufacturing Automation 3
- EGRS481 Manufacturing Automation Lab 1

**Support Courses (22 credits)**

- ECON302 Managerial Economics 4
- MGMT360 Management Concepts and Applications 3
- Cooperative Education* 2
- Technical Electives 10
- Free Electives 3

**Select a Senior Engineering Project Sequence: (0-8 credits)**

**Industrial Project (0 addt'l credits-see above)**

- EGNR491 Engineering Design Project I 3
- EGNR495 Engineering Design Project II 3

**Co-op Project (addt'l 6 credits)**

- EGNR250 Cooperative Education I 2
- EGNR450 Cooperative Education Project I 2
- EGNR451 Cooperative Education Project II 2
- EGNR491 Engineering Design Project I 3

**Research Project (addt'l 8 credits)**

- EGNR260 Engineering Research Methods 2
- EGNR460 Engineering Research Project I 4
- EGNR461 Engineering Research Project I 2

**Your degree options:**

You may choose to follow one of the following degree options while studying manufacturing engineering technology at LSSU. They are the general option or the minor in robotics technology.

In the **general option**, you will have the ability to choose the specific course of study for the course(s) noted as technical electives in the curriculum.

For the **robotics technology minor**, you will complete a specified advanced course in robotics in place of the technical electives credits. The advanced course will provide you with a strong background in systems integration, machine vision, sensors and automation. LSSU is one of a few universities in the USA that offer you this option to specialize in robotics in the manufacturing program. LSSU is home to one of the best robotics educational facilities in North America. Graduates with this emphasis have had nearly 100-percent job placement with high and competitive starting salaries. Your completion of study in the robotics minor will be identified on your transcript.

**Additional Credits for the Robotics Technology minor (4 credits)**

- EGRS430 Systems Integration and Machine Vision 4

**General Option Select ten credits from the following courses:**

*Technical Electives*

- EGRS215 Introduction to Robotics 2
- EGEE250 Microcontroller Fundamentals 4
- EGME310 Vehicle Development & Testing 2
- EGMT332 Thermodynamics & Heat Transfer for Technologists 4
- MGMT375 Introduction to Supply Chain Management 3
- MGMT471 Production/Operations Management 3
- EGME338 Fluid Mechanics 2
- EGET310 Electronic Manufacturing Processes 4
- EGNR250 Cooperative Education I 2

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Mathematics: Bachelor of Science

## Program Description

**Mathematics:**

Many who major in the field of mathematics combine those studies with education courses and obtain employment as teachers. People with mathematics degrees are found in a broad range of occupations where quantitative skills are needed; one of the largest employers of mathematics is the National Security Agency. Often a minor field of study (such as computer science) provides the supporting credential for entry-level jobs.

**Actuarial and Business Applications:**

The actuarial and business applications concentration combines mathematical knowledge with quantitative business applications. The result is a very marketable degree that provides many exciting career opportunities for graduates. A student should be prepared to take the first actuarial examination in the spring of his/her junior year and the second examination the following spring. A student choosing this emphasis will complete a minor in accounting-finance.

**Teaching Certification:**

A completion of professional education coursework, including a semester of student teaching, prepares students for elementary or secondary teacher certification in Michigan and Ontario.

**Graduate School:**

An undergraduate mathematics major with emphasis on abstraction, together with an analytical approach to problem solving, continues to provide strong preparation for graduate work in diverse fields — especially when combined with a minor in the related field.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Mathematics
- Bachelor of Science Mathematics, Elementary Teaching
- Bachelor of Science Mathematics, Secondary Teaching
- Bachelor of Science Mathematics, Actuarial and Business Applications Concentration

## Degree Requirements

## Bachelor of Science Mathematics

**Departmental Requirements: (55 credits)**

- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH251 Calculus III 4
- MATH215 Fundamental Concepts of Mathematics 3
- MATH216 Discrete Mathematics and Problem Solving 3
- MATH261 Intro. to Numerical Methods 3
- MATH305 Linear Algebra 3
- MATH308 Probability and Mathematical Statistics 3
- MATH309 Applied Statistics 4
- MATH310 Differential Equations 3
- MATH341 Abstract Algebra I 3
- MATH351 Graph Theory 3
- MATH401 Mathematical Modeling 3
- MATH411 Advanced Calculus 3
- MATH490 Research Topics in Mathematics 3

**Choose any two (2) of the following (6 credits)**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI121 Principles of Programming 3

**Other Requirements (4 credits)**

- PHYS231 Applied Physics for Engineers and Scientists I 4

**Free Electives or Academic Minor (32-36 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Mathematics, Elementary Teaching

In this program, students will complete a teaching major in mathematics and a planned program in the other three academic areas essential to elementary school teaching: language arts, natural science and social science. The planned program is explained in the Elementary Education section of this catalog.

The program also includes general education requirements and a professional education sequence. Students take the first two teacher education courses (EDUC150 and EDUC250) and then apply for formal admission to the Teacher

Education Program.

**Degree Requirements:**

**Mathematics Requirements (37 hours)**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- MATH103 Number Systems and Problem Solving 4
- MATH104 Geometry & Measurement 4
- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH215 Fundamental Concepts of Math 3
- MATH305 Computational Linear Algebra 3
- MATH308 Probability and Mathematical Statistics 3
  **or**
- MATH207 Principles of Statistical Methods 3
- MATH321 History of Mathematics 3
- MATH325 College Geometry 3

**For information regarding the Professional Education Sequence, Education Cognates, and Elementary Planned Program, see Elementary Education.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

## Bachelor of Science Mathematics, Secondary Teaching

In this program, students will complete a major in mathematics tailored to the needs of a secondary teacher and a minor in a "teachable field." Computer science courses are included, and students work extensively with computer and calculator technology as it applies to classroom teaching.

This program also includes general education requirements and a professional education sequence. Students take the first two teacher education courses (EDUC150 and EDUC250) and then apply for formal admission to the Teacher Education Program.

Graduates earn a bachelor's degree, which includes a semester of student teaching, in order to become certified to teach.

**Degree Requirements:**

**Mathematics Requirements (42 credits)**

- MATH151 Calculus I 4
- MATH152 Calculus II 4

- MATH207 Principles of Statistical Methods 3
- MATH215 Fundamental Concepts of Math 3
- MATH216 Discrete Mathematics and Problem Solving 3
- MATH251 Calculus III 4
- MATH305 Computational Linear Algebra 3
- MATH310 Differential Equations 3
- MATH321 History of Mathematics 3
- MATH325 College Geometry 3
- MATH341 Abstract Algebra I 3
- MATH401 Mathematical Modeling 3

**Complete one methods course from the following:**

- EDUC442 Secondary Math Methods 3
- EDUC452 Directed Study Math Methods 3

**Cognate**

- CSCI105 Intro. to Computer Programming 3
  **or**
- CSCI121 Prin. of Computer Programming 3

**Teaching Minor (21-22 credits)**

**Professional Education Sequence and Education Cognates- see Secondary Education.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

## Bachelor of Science Mathematics, Actuarial and Business Applications Concentration

**Departmental Requirements: (52 credits)**

- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH251 Calculus III 4
- MATH215 Fundamental Concepts of Mathematics 3
- MATH216 Discrete Mathematics and Problem Solving 3
- MATH305 Linear Algebra 3
- MATH308 Probability and Mathematical Statistics 3
- MATH309 Applied Statistics 4
- MATH310 Differential Equations 3
- MATH341 Abstract Algebra I 3
- MATH351 Graph Theory 3

- MATH401 Mathematical Modeling 3
- MATH411 Advanced Calculus 3
- MATH490 Research Topics in Mathematics 3

**Choose any two (2) of the following (6 credits)**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI121 Principles of Programming 3

**Other Requirements (7 credits)**

- ECON201 Principles of Macroeconomics 3
- FINC341 Managerial Finance 4

A student choosing this emphasis will complete a minor in accounting-finance (24 credits).

**Free Electives (11-15 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Mechanical Engineering: Bachelor of Science

## Program Description

Mechanical engineering is a broad-based program that prepares you for a rewarding career in mechanical and related engineering fields. Course work for this EAC of ABET-accredited* program includes 72 credits in Engineering subjects, 32 credits in math and sciences and 25 credits in general education for a total of 129-131 credits in the bachelor of science degree. You will work with mechanical systems in the laboratories and receive an excellent mix of theory and application.

**Program Highlights:**

- Emphasis is on preparing you to solve real-world engineering problems.
- You will participate in multidisciplinary, industrial or research-based senior engineering design projects which emphasize teamwork, communications, project management, customer relations and ethics.
- You will learn numerous software packages for CAD, CAM, fluid dynamics, finite element analysis, and other applications.
- Cooperative education opportunities are available.
- Degree Concentrations — You must choose from among three concentrations: robotics and automation, vehicle systems, or general mechanical while studying mechanical engineering.
- Emphasis on fundamentals of engineering, applications of theory, traceability to first principles, and generous laboratory content to complement and reinforce theoretical understanding.

The **robotics and automation concentration** will give you skills through courses in machine vision, system integration, automated manufacturing, robotics, and programmable logic controllers.

The **vehicle systems concentration** addresses the performance of surface vehicles of all types (automotive, rail, terrain, watercraft, etc.) through a series of courses in vehicle dynamics, geometric dimensioning and tolerancing, vehicle testing, and vibration and noise control. The emphasis is on projecting performance through analytical skills and computer simulation, and testing using modern instrumentation.

The **general Mechanical concentration** enables students to select courses from the concentrations described above as well as other Engineering subjects.

**Cooperative Education:**

Opportunities are available as part of this program for students who are academically qualified. A certificate that documents this practical training is available.

## Degree Requirements

**Departmental Requirements:**

**Mathematics**

- EGNR340 Advanced Numerical Methods for Engineers 1
- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH251 Calculus III 4
- MATH308 Probability & Mathematical Statistics 3
- MATH310 Differential Equations 3

**Sciences**

- CHEM115 General Chemistry I 5
- PHYS231 Applied Physics for Engineers and Scientists I 4
- PHYS232 Applied Physics for Engineers and Scientists II 4

**Engineering**

- EGEE210 Circuit Analysis 4
- EGEM220 Statics 3
- EGEM320 Dynamics 3
- EGME110 Manufacturing Processes I 3
- EGME141 Solid Modeling 3
- EGME225 Mechanics of Materials I 3
- EGME275 Engineering Materials I 3
- EGME276 Strength of Materials Lab 1
- EGME337 Thermodynamics 4
- EGME338 Fluid Mechanics 2
- EGME339 Fundamentals of Fluid Mechanics 1
- EGME350 Machine Design 4
- EGME431 Heat Transfer 3
- EGME432 Thermal & Fluids Lab 1
- EGNR101 Introduction to Engineering 2
- EGNR140 Linear Algebra & Numerical Methods for Engineers 2
- EGNR265 "C" Programming 3
- EGNR340 Adv Numerical Methods for Engineers 2
- EGRS460 Control Systems 4

**Senior Sequence (Complete one of the following sequences):**

**Industrial Project**

- EGNR491 Engineering Design Project I 3
- EGNR495 Engineering Design Project II 3

**Co-op Project**

- EGNR450 Cooperative Education Project I 4
- EGNR451 Cooperative Education Project II 3

- EGNR491 Engineering Design Project I 3

**Research Project**

- EGNR260 Engineering Research Methods 2
- EGNR460 Engineering Research Project I 4
- EGNR461 Engineering Research Project II 2

**Technical Electives (Complete one of the following concentrations):**

**Vehicle Systems Concentration (C or better grade required for all classes)**

- EGEE280 Introduction to Signal Processing 4
- EGEE365 Vehicle Instrumentation 4
- EGME240 Assembly Modeling and GD&T 3
- EGME310 Vehicle Development & Testing 2
- EGME415 Vehicle Dynamics 2
- EGME425 Vibrations and Noise Control 4

**Robotics and Automation Concentration (C or better grade required for all classes)**

- EGRS365 Programmable Logic Controllers 3
- EGRS385 Robotics Engineering 3
- EGRS430 Systems Integration and Machine Vision 4
- EGRS435 Automated Manufacturing Systems 4

**Select one of the following:**

- EGME312 CNC Manufacturing Processes 3
  **or**
- EGNR310 Advanced Quality Engineering 3
  **or**
- EGEE280 Introduction to Signal Processing 4

**General Mechanical Concentration**

- EGME240 Assembly Modeling and GD&T 3
  **or**
- EGRS365 Programmable Logic Controllers 3

**Select 14 credits from the list below with at least 5 credits at the 400 level.**

- EGEE280 Introduction of Signal Processing 4
- EGME310 Vehicle Development & Testing 2
- EGME312 CAM with CNC Applications 3
- EGME415 Vehicle Dynamics 2
- EGME425 Vibrations and Noise Control 4
- EGNR310 Advanced Quality Engineering 3
- EGRS365 Programmable Logic Controllers 3 (if not used above)
- EGRS385 Robotics Engineering 3
- EGRS430 Systems Integration and Machine Vision 4
- EGRS435 Automated Manufacturing Systems 4

**32 credits from Mathematics (including EGNR340) and Natural Sciences is required.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Medical Laboratory Science: Bachelor of Science

## Program Description

Medical laboratory scientists (clinical laboratory scientists, medical technologists) perform most of the clinical tests conducted in hospital, veterinary, state, and health laboratories. After obtaining the Bachelor of Science degree in Medical Laboratory Science, a student must complete an internship at a NAACLS-accredited hospital. Graduates of this program, who complete such an internship, are eligible to take national examinations for certification as registered medical laboratory scientists.

## Degree Requirements

The degree in Medical laboratory science includes the following courses in order to qualify to take the national registry examinations.

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL199 Freshmen Seminar 1
- BIOL204 General Microbiology 4
- BIOL206 Medical Laboratory Practices 2
- BIOL220 Genetics 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biostatistics 3
- BIOL299 Sophomore Seminar 1
- BIOL306 Medical Mycology 3
- BIOL330 Animal Physiology 4
- BIOL380 Hematology 4
- BIOL399 Junior Seminar 1
- BIOL406 Immunohematology 3
- BIOL422 Parasitology 3
- BIOL423 Immunology 4
- BIOL425 Virology 3
- BIOL455 Body Fluids Analysis 4
- BIOL480 Advanced Clinical Microbiology 4
- BIOL495 Senior Project
- BIOL499 Senior Seminar 1
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 4
- CHEM225 Organic Chemistry I 4

- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM251 Introductory Biochemistry 4
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Science 4
- MATH207 Principles of Statistical Methods 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Nursing: Bachelor of Science

## Program Description

Professional nursing blends a unique body of knowledge from the sciences, social sciences and humanities with a compassionate heart and a sensitive spirit to provide holistic care to those in need.

The School of Nursing offers two curricular tracks to the bachelor of science degree in nursing; the four-year, pre-licensure program and the two-year, completion program for the registered nurse. The programs provide you with the opportunity to acquire knowledge, values and skills necessary for the practice of professional nursing.

Course requirements provide liberal backgrounds in physical science, social science and humanities. This curriculum provides a solid basis for the variety of roles in nursing practice. The nursing curriculum provides an interdisciplinary major and, therefore, does not require a minor to meet graduation requirements. These nursing programs are approved by the Michigan Board of Nursing and the BSN program is accredited by the National League for Nursing Accrediting Commission.*

**National League for Nursing Accrediting Commission*
*3343 Peachtree Rd. N.E. Suite 500*
*Atlanta, GA 30326.*
*Telephone: 404-975-5000*

### Mission Statement

To graduate outstanding students who are ready and able to provide professional nursing services using theory and evidence based practice.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Nursing
- Bachelor of Science Nursing, Pre-Licensure Program
- Bachelor of Science Nursing, Post-Licensure Completion Program, Completion Program for RN Students

## Degree Requirements

### Bachelor of Science Nursing, Pre-Licensure Program

**Pre-Nursing Entrance Requirements:**

To qualify as a pre-nursing major, applicants must satisfy University admission requirements described in the admission section of the Catalog.

For students with college-level achievement, the opportunity will be offered, by means of examination, to obtain course credit or placement into an advanced course.

High school academic subjects include a minimum of one unit of biology, one of chemistry, three of English and two of algebra. Additional science and mathematics courses are highly recommended.

Students complete one year in pre-nursing before making application to the School of Nursing for admission to the nursing major. Admission is based upon 1) completing a current application in its entirety by the deadline of each semester, 2) successful completion of selected pre-nursing courses, 3) academic achievement, 4) a negative criminal background report, 5) passing of a physical examination done at the Health CARE Center, and 6) completion of TEAS and Critital Thinking ATI tests with passing score, and 7) verification of CPR training.

It is recommended that students be able to demonstrate computer literacy — basic word processing, library and Internet searches. Mathematics competency is required prior to the sophomore year. Entrance into nursing requires a grade point average of 2.7 or above in core pre-nursing and nursing courses. A maximum of 24 students will be accepted for each fall and spring semester.

**Required academic courses are separated into three groups:**

1. Nursing support courses - anatomy and physiology, microbiology, applied chemistry, mathematics, psychology, sociology, nutrition, pharmacology, pathophysiology, informatics in the health sciences, health issues of aging populations, multicultural approach to health care and statistics).
2. General education requirements (English, humanities and speech).
3. Nursing courses

**Progression Requirements in Nursing:**

A grade of C or above is required in all courses. A grade of D in other general education or elective courses is accepted.

Transfer credit will be granted on an individual basis. Only those courses with a grade of C or better are transferable. Credits for baccalaureate nursing courses and pharmacology are transferable for five years.

Time requirement for program completion is four academic years; however, completion may require more than four years for students who cannot maintain the high credit load each semester. Progression and readmission policies are detailed in the Nursing Student Handbook.

Students are responsible for transportation to and from clinical agencies, as well as all additional costs incurred by enrollment in the nursing program. Costs, academic and general information are listed in the Nursing Student Handbook and viewable on-line.

**Licensure:**

Graduates of this program are eligible to write the NCLEX-RN examination administered by the Michigan Board of Nursing for licensure as a registered nurse (R.N.). Canadian students must pass the NCLEX-RN examination prior to applying for licensure in Ontario. The Michigan Board of Nursing may deny a graduate the opportunity to take the licensure examination on the basis of conviction for a crime or substance abuse. The Immigration Service may deny a visa for entry to Ontario on the basis of a conviction for a crime or for substance abuse. Applicants

with a history of a conviction or substance abuse should consult with the School of Nursing associate dean and direct questions to the Michigan Board of Nursing and the Immigration Service prior to considering entry in the program.

**Nursing (64 credits)**

- NURS211 Intro. to Professional Nursing 3
- NURS212 Health Appraisal 4
- NURS213 Fundamentals of Nursing 6
- NURS325 Nursing of Childbearing Families 5
- NURS326 Nursing of Children & Families 5
- NURS327 Adult Nursing I 8
- HLTH328 Multicultural Approaches to Health Care 3
- HLTH352 Health Issues of Aging Populations 3
- NURS431 Adult Nursing II 8
- NURS432 Nursing of Populations 5
- NURS433 Community Mental Health Nursing 5
- NURS434 Nursing Research 3
- NURS435 Management in Nursing 4
- NURS436 Nursing Issues 2

**Support Courses (42 credits)**

- BIOL121 Human Anatomy & Physiology I* 4
- BIOL122 Human Anatomy & Physiology II* 4
- BIOL223 Clinical Microbiology 3
- CHEM104 Life Chemistry I* 3
- CHEM105 Life Chemistry II 4
- HLTH208 Principles of Human Nutrition 3
- HLTH209 Pharmacology 3
- HLTH232 Pathophysiology 3
- HLTH235 Healthcare Informatics 2
- MATH207 Principles of Statistical Methods 3
- PSYC101 Introduction to Psychology* 4
- PSYC155 Lifespan Development* 3
- SOCY101 Introduction to Sociology* 3

**General Electives (3 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

**Prerequisite courses for entrance to the program.*

## Bachelor of Science Nursing, Post-Licensure Completion Program, Completion Program for RN Students

**Entrance Requirements:**

To qualify for admission to the RN completion program, applicants must satisfy University admission requirements as described in the admission section of the Catalog. (This information is also included in the Viewbook).

For students with college-level achievement, the opportunity will be offered, by means of examination, to obtain course credit or placement into an advanced course.

Applicants must be graduates of state- or provincial-approved associate's degree or diploma nursing programs with a minimum cumulative grade point average of 2.7 in all nursing, nursing support and English courses. Nursing support courses include: chemistry, mathematics, anatomy and physiology, microbiology, statistics, nutrition, pharmacology, pathophysiology, computer applications in health sciences, psychology and sociology courses. Credit may be granted for nutrition and pharmacology upon writing the required NLN tests and achieving scores at the 50th percentile or above. NLN tests may be repeated once; students must enroll in the course if not successful on second writing. Credit by departmental exam is also available to students upon request.

**Required Admission Credentials:**

Submit to Admissions Office: standard LSSU Application for Admission; transcripts from previous nursing school(s) and college(s). Submit to School of Nursing: copy of current Michigan or Ontario professional nursing license and immunization records. All credentials must be on file preceding semester of entry.

**Transfer Credits:**

Transfer credits may be granted on an individual basis for equivalent general education and support courses. Only those courses with a grade of C or better may be transferred. A maximum of 32 semester hours credit in basic nursing courses may be transferred. Credit for pharmacology courses is acceptable for five years.

Time required for completion will be two years including two summers.

Progression and readmission policies are detailed in the Nursing Student Handbook.

Students are responsible for transportation to clinical agencies and all additional costs incurred by enrollment in the nursing program. Costs, academic and general information are listed in the Nursing Student Handbook.

The RN completion program is offered on a part-time basis at the LSSU Regional Centers in Petoskey and Escanaba. For further course information contact the main campus School of Nursing at 906-635-2288, the Petoskey Regional Center at 231-348-6623 or the Escanaba Regional Center at 906-217-4123.

**Nursing (63 credits)**

- NURS325 Nursing of Childbearing Families 5
- NURS326 Nursing of Children & Families 5
- NURS327 Adult Nursing I 8
- NURS328 Multicultural Approach to Health Care 3

- NURS352 Health Issues of Aging Populations 3
- NURS360 Professional Nursing Concepts 4
- NURS363 Comprehensive Health Appraisal 3
- NURS365 Family Nursing Theory 3
- NURS431 Adult Nursing II 8
- NURS432 Nursing of Populations 5
- NURS433 Community Mental Health Nursing 5
- NURS434 Nursing Research 3
- NURS435 Management in Nursing 4
- NURS436 Contemporary Issues in Nursing 2
- NURS437 Professional Nursing Leadership 2

**Health Sciences (11 credits)**

- HLTH208 Principles of Human Nutrition* 3
- HLTH209 Pharmacology* 3
- HLTH232 Pathophysiology 3
- HLTH235 Healthcare Informatics 2

**Other Disciplines (28 credits)**

- BIOL121 Human Anatomy & Physiology I* 4
- BIOL122 Human Anatomy & Physiology* 4
- BIOL223 Clinical Microbiology* 3
- CHEM104 Life Chemistry I* 3
- CHEM105 Life Chemistry II 4
- MATH207 Principles of Statistical Methods 3
- PSYC101 Introduction to Psychology* 4
- SOCY101 Introduction to Sociology* 3

**General Electives (6 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

**Credit by departmental exam (or NLN examination, passing at a 50 percentile or higher) is also available to students upon request. For further information, contact the main campus School of Nursing at 906-635-2288, the Petoskey Regional Center at 231-348-6623 or the Escanaba Regional Center at 906-217-4123.*

**Prerequisite courses for entrance to the program.*

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# Parks and Recreation: Bachelor of Science

## Program Description

The bachelor of science degree in parks and recreation combines an associates degree in natural resources technology with additional course work relative to human resource management in the outdoor environment. Many jobs can be found in the public, private and commercial settings.

A one-semester internship is required for this degree.

## Degree Requirements

**Program Requirements (36 credits)**

- RECS101 Introduction to Recreation 3
- RECS105 Program Development and Leadership 3
- RECS262 Outdoor Recreation 3
- RECS295 Recreation Practicum 1
- RECS360 Facilitation and Interpretation 3
- RECS362 Land Management for Recreation Purposes 3
- RECS365 Expedition Management 3
- RECS390 Recreation Leader Apprenticeship 1
- RECS397 Recreation Studies Junior Research Seminar 1
- RECS435 Research in Recreation and Leisure Sciences 3
- RECS437 Recreation Studies Senior Research Seminar 1
- RECS481 Professional Development Seminar 1
- RECS482 Administration of Recreation and Leisure Services 4
- RECS492* Recreation Internship 6

**Cognate Requirements (32 credits)**

- BIOL107 Field Biology 3
- BIOL126 Interpretation of Maps and Aerial Photography 2
- BIOL230 Introduction to Soils 4
- BIOL240 Natural History of Vertebrates 3
- BIOL284 Principles of Forestry 4
- BIOL286 Watershed Management 3
- CHEM108 Survey of General Chemistry 3
- CHEM109 Survey of General Chemistry Lab 1
- EVRN131 Introduction to GIS and GPOLI 3
- EVRN231 Intermediate GIS 2

- NSCI103 Environmental Science 3
- NSCI104 Environmental Science Lab 1

**Support Requirements (30 credits)**

- ACTG230 Fundamentals of Accounting 4
  **or**
- ACTG132 Principles of Accounting I 4
  **or**
- OFFC119 Computerized Accounting Procedures 4
- COMM101 Fund. of Speech Communication 3
- EMED189 Medical First Responder 3
- FIRE102 Wildland and Rural Fire Control 3
- HMSV480 Grantwriting 3
- MATH111 College Algebra 3
- POLI130 Introduction to State and Local Government 4
- PSYC101 Introduction to Psychology 4
- PSYC210 Statistics 3
  **or**
- MATH207 Principles of Statistical Methods 3

**RECS492 may be completed during the summer of the student's junior or senior year, in accordance with academic prerequisites.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Physical Science: Bachelor of Science

## Program Description

This program is an approved secondary teaching major leading to Michigan Teacher Certification in Physical Science (endorsement code DP). This program combines an interdisciplinary preparation in the natural sciences (chemistry and physics) with your interest in a career as a secondary teacher at the junior or senior high level, grades 6-12.

When completing option A the candidate is not required to complete a teaching minor. Option B candidates must complete a teaching minor. A complete list of teaching minors is available from the School of Education website: http://lssu.edu/education. Secondary teacher certification enables the candidate to teach chemistry, physics and physical science in grades 6-12. Contact the School of Education for additional information.

In addition to classroom teaching, graduates can pursue careers as science educators and curriculum specialists, or enter graduate study in science, science eduction or related fields.

The LSSU chemistry program has been approved by the American Chemical Society, and may provide certified degrees in Chemistry, Forensic Chemistry, Biochemistry Pre-Professional, and Environmental Chemistry degrees if a student chooses this track. In addition, the B.S. in Chemistry for Secondary Education degree may also be certified by the ACS. Graduates completing the prescribed requirements are awarded an ACS certificate signifying their completion of the approved degree and can qualify for membership in the Soeiety upon graduation.

## Degree Requirements

Complete one of the two options listed below (A or B), and all departmental cognates, general education requirements, teacher education courses and free electives for a minimum of 124 credits.

**A. Comprehensive Physical Science Major: no minor required (44 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM261 Inorganic Chemistry 4
- CHEM332 Instrumental Analysis 4
- CHEM351 Introductory Biochemistry 4

- CHEM361 Physical Chemistry I 4
- CHEM362 Physical Chemistry II 4
- CHEM363 Physical Chemisty Lab 1
- CHEM395 Junior Seminar 1
- CHEM499 Senior Seminar 1
- PHYS221 Principles of Physics I 4
- PHYS222 Principles of Physics II 4
- PHYS Electives 3

For American Chemical Society certified degree, additionally required (total lab hours must be at least 400 hrs). See Department Chair for special rules regarding ACS certification:

- CHEM Elective 300 or higher (3 cr min)
- CHEM495 Senior Project 2

*Complete one of the following methods courses:*

- EDUC443 Secondary Methods: Science 3
- EDUC453 Directed Study: Science Methods 3

**B. Group Physical Science Major: a teachable minor is required (45 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM231 Quantitative Analysis 4
- CHEM261 Inorganic Chemistry 4
- CHEM351 Introductory Biochemistry 4
- CHEM332 Instrumental Analysis 4
- CHEM361 Physical Chemistry I 4
- CHEM362 Physical Chemistry II 4
- CHEM363 Physical Chemistry Lab 1
- PHYS221 Principles of Physics I 4
- PHYS222 Principles of Physics II 4

*Complete one of the following methods courses:*

- EDUC443 Secondary Methods: Science 3
- EDUC453 Directed Study: Science Methods 3

***In addition to the program option A or B, complete the following:***

**Support Courses (11 credits)**

- MATH151 Calculus I 4
- MATH152 Calculus II 4
- BUSN211 Business Statistics **or**
- MATH207 Principles of Statistical Methods 3

**Professional Education Requirements and Education Cognates- see Secondary Teaching.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Free Electives as needed to reach 124-credit minimum 2.70 GPA overall and major/minor B- (2.70) minimum in each EDUC course.**

**NOTE: A candidate may double count math courses from the cognate section when completing a math teaching minor.**

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# Political Science: Bachelor of Arts/Science

## Program Description

Political science is the systematic study of government, politics and public policy. It is one of a number of liberal arts majors that prepare students for a broad range of career opportunities.

Political science majors choose one of three tracks or concentrations: general political science, pre-law or public administration. Each concentration provides a combination of knowledge and skills especially appropriate for those with particular career goals. However, choosing one concentration over the others does not limit you to a particular career path — each of the tracks provides a solid grounding in political science and a broad liberal arts background.

General education requirements and sufficient elective credits must be completed so that at least 124 semester credits have been earned.

Other Qualifications — Graduate degrees are required for some positions; thus, a law degree is required for work as an attorney and a Ph.D. is required for appointment to permanent teaching and research positions in colleges and universities.

**Available degrees** (see specific degree requirements further down the page):

Bachelor of Arts/Science Political Science-General
Bachelor of Arts/Science Political Science-Pre-Law
Bachelor of Science Political Science-Public Administration

## Degree Requirements

### Bachelor of Arts/Science Political Science--General

The general political science concentration is designed to provide a broad education in political science. It is most appropriate for students who plan to attend graduate school in political science and for those with an interest in government and politics who wish to get a broad, liberal education. Students who continue their education in graduate school most often pursue careers as professors, researchers, consultants or government officials. Students who do not pursue graduate study choose from a wide variety of career options in government, politics, teaching, journalism and business.

**Political Science Courses**

- POLI110 Introduction to American Government and Politics 4
- POLI211 Political Science Research and Statistics 4

**A minimum of one course in each of four political science fields, and two courses in one of the fields:**

- American Politics (POLI325, POLI364, POLI367, POLI467) 3-4
- Comparative Politics (POLI160, POLI331, POLI334, POLI335, POLI340) 3-4
- International Relations (POLI241, POLI411, POLI413, POLI420) 3-4
- Political Philosophy (POLI351, POLI352) 4
- POLI491 Senior Seminar I 4
- POLI492 Senior Seminar II 4
- Additional political science electives to reach 42 credits 10-13

**A minimum of 21 credits must be at the 300/400 level, with at least nine of these at the 400 level.**

**General Political Science Cognates**

- COMM302 Argumentation and Advocacy 3 **or**
  COMM320 Public Relations 4
- CSCI101 Intro. to Microcomputer Applications 3
- ECON201 Principles of Macroeconomics 3
- ENGL310 Advanced Writing 3 **or**
  ENGL221 Creative Writing 3
- HIST Full-year history sequence (usually HIST101-HIST102 or HIST131-HIST132) 8
- PHIL204 Introduction to Philosophy 3 **or**
  PHIL205 Logic 3

**Complete one of the following (Bachelor of Arts or Bachelor of Science Cognates):**

**Bachelor of Arts Cognates (8 credits)**

One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**Bachelor of Science Cognates (A minimum of 9 credits from the following)**

- ECON202 Principles of Microeconomics 3
- PSYC101 Introduction to Psychology 4
- SOCY101 Introduction to Sociology 3
- SOCY213 Introduction to Anthropology 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Arts/Science Political Science--Pre-Law

The pre-law concentration is designed to provide students interested in legal careers with a planned curriculum that prepares them especially well for law school and for careers in law. Students who choose this option are often interested in careers as attorneys, prosecutors or judges. It should be noted that this is not a mandatory pre-law curriculum; it is a curriculum for pre-law students who have a special interest in government and politics.

**Political Science Courses**

- POLI110 Introduction to American Government and Politics 4
- POLI120 Introduction to Legal Processes 3
- POLI130 Introduction to State and Local Government 4
- POLI211 Political Science Research and Statistics 4
- POLI222 Introduction to the Legal Profession 3

**A minimum of one course in each of three political science fields:**

- Comparative Politics (POLI160, POLI331, POLI334, POLI335, POLI340) 3-4
- International Relations (POLI241, POLI411, POLI413, POLI420) 3-4
- Political Philosophy (POLI351, POLI352) 4
- POLI467 Constitutional Law and Civil Liberties 4
- POLI491 Senior Seminar I 4
- POLI492 Senior Seminar II 4
- Additional political science electives to reach 42 credits 0-2

**A minimum of 21 credits must be at the 300/400 level. (At least nine of these credits must be at the 400 level.)**

**Pre-Law Cognates**

- ACTG230 Fundamentals of Accounting (or ACTG132 or OFFC119) 4
- COMM302 Argumentation and Advocacy 3
- CSCI101 Intro. to Microcomputer Applications 3
- ENGL310 Advanced Writing 3

  or
- ENGL221 Creative Writing 3
- HIST Full-year history sequence (usually HIST101-HIST102 or HIST131-HIST132) 8
- LAWS102 Legal Research and Case Analysis 3
- LAWS202 Legal Writing and Analysis 3
- PHIL205 Logic 3

**Two law courses from the following:**

- LAWS Any legal Assistant courses 2-4
- CJUS202 Canadian Criminal Law 3
- CJUS319 Substantive Criminal Law 3
- CJUS406 Advanced Canadian Jurisprudence 3
- CJUS409 Procedural Criminal Law 3
- BUSN350 Business Law I 3
- BUSN355 Business Law II 3

**Complete one of the following (Bachelor of Arts or Bachelor of Science Cognates):**

**Bachelor of Arts Cognates (8 credits)**

One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**Bachelor of Science Cognates (A minimum of 9 credits from the following)**

- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- PSYC101 Introduction to Psychology 4
- SOCY101 Introduction to Sociology 3
- SOCY213 Introduction to Anthropology 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Political Science--Public Administration

The public administration concentration is most appropriate for students who plan to work in an administrative capacity in public agencies or nonprofit organizations with public missions. Students who choose this option are preparing for careers of public service. Such careers may be pursued through positions in government agencies at the local, state or provincial, and national levels. Other positions may be found in nonprofit organizations involved in public concerns, such as Common Cause, the Environmental Defense Fund, and the Michigan Health Council. Some of these careers of public service may be pursued with only a bachelor's degree. Others may require completion of a master's degree in public administration or a related field.

**Political Science Courses**

- POLI110 Introduction to American Government and Politics 4
- POLI130 Introduction to State and Local Government 4
- POLI201 Introduction to Public Administration 3
- POLI211 Political Science Research and Statistics 4
- POLI301 Policy Analysis and Evaluation 4
- POLI401 Principles of Public Administration 3

**A minimum of one course in each of three political science fields:**

- Comparative Politics (POLI160, POLI331, POLI334, POLI335, POLI340) 3-4

- International Relations (POLI241, POLI411, POLI413, POLI420) 3-4
- Political Philosophy (POLI351, POLI352) 4
- POLI491 Senior Seminar I 4
- POLI492 Senior Seminar II 4
- POLI499 Public Administration Internship 3

**Public Administration Cognates**

- ACTG230 Fundamentals of Accounting (or ACTG132 or OFFC119) 4
- COMM302 Argumentation and Advocacy 3 **or**
- COMM320 Public Relations 4
- CSCI101 Introduction to Microcomputer Applications 3
- ECON201 Principles of Macroeconomics 3
- ECON305 Public Finance 3
- ENGL310 Advanced Writing 3 **or**
- ENGL221 Creative Writing 3
- HIST Full-year history sequence (usually HIST101-HIST102 or HIST131-HIST132) 8
- MGMT360 Management Concepts & Applications 3
- MGMT365 Human Resource Management 3
- PSYC228 Organizational Behavior 3 **or**
- SOCY313 Work and Organization 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Prelaw (non-degree)

## Program Description

There is essentially a three-step process in becoming a licensed attorney. First, an individual must complete an undergraduate degree at a college or university. Second, one must then go on to law school to obtain a juris doctorate degree. Finally, successful completion of the state bar exam is required for licensure. In being admitted into law school, the two most important factors that are evaluated by most law schools are undergraduate grades and Law School Admission Test (LSAT) scores — an entrance exam required of nearly all law schools in the United States and some in Canada.

The American Bar Association and most law schools do not recommend any particular undergraduate major before going on to law school. Consequently, a student should choose a major in which he/she has both interest and aptitude. Yet, there are important skills, values, and certain knowledge that can be acquired prior to law school which will assist a student in being successful at law school. Such values and knowledge include: analytical and problem-solving skills, critical reading abilities, writing skills, oral communication and listening abilities, research skills, task organization and management skills, ethical values, and, of course, knowledge of the law. In fact, a prelaw minor is available at LSSU which consists of courses that will assist a prelaw student in further developing these skills, values and knowledge.

Since there is no required prelaw major, the American Bar Association and law schools strongly recommend that law school bound students contact the Prelaw Advisor at their university as early in the educational process as possible. At LSSU, our approach to advising prelaw students is very individualized. We want to help each student fulfill their goals and to be successful at law school and beyond.

The Prelaw Advisor at LSSU can provide individualized guidance with regard to selecting an undergraduate curriculum (both a major and a minor); recommending particular courses that will enhance necessary skills, values and knowledge; assisting in the law school admission process; and providing relevant career and professional trend information.

## Degree Requirements

Although there is no recommended or required prelaw curriculum, there are some excellent options that students may want to consider at LSSU. The following LSSU programs include key components with regard to legal knowledge as well as writing, analytical and research skills:

- Political Science—Prelaw Concentration (major)

- Prelaw (minor)

Students should seek guidance from LSSU's Prelaw Advisor as early as possible to ensure they are individually counseled with regards to their respective interests, undergraduate curriculum choice, as well as personal and professional goals.

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# Pre-Pharmacy (transfer program)

## Program Description

Most pharmacy schools require students to take two years of pre-pharmacy preparation prior to being admitted to their four-year professional program. Admission into the professional pharmacy programs is very competitive and is based, to a large extent, on grades in specific required courses. Many pharmacy colleges also require applicants to take the Pharmacy College Admission Test (P.C.A.T.). This exam is generally taken mid-way through your second pre-pharmacy year.

Pre-pharmacy requirements vary greatly between different colleges that offer professional programs in pharmacy. In general, most require a pre-pharmacy program that emphasizes math and science as well as strong communication skills. Recently, a majority of the nation's schools began to move toward awarding the doctor of pharmacy (Pharm.D.) as the only professional degree in pharmacy. Because many pharmacy curricula are currently being modified, pre-pharmacy requirements are also subject to change.

The modifications in professional pharmacy curricula, combined with the variability in pre-pharmacy requirements, make it imperative for a pre-pharmacy student to determine the requirements for admission at the schools he or she desires to attend. A pre-pharmacy curriculum at Lake Superior State University can then be designed to help you obtain your goals. It is your responsibility to contact the directors of admissions at the pharmacy schools to which you are planning to apply so you can remain informed of their most recent requirements for admission.

## Degree Requirements

**Following is an example of typical minimum requirements for admission to many pharmacy programs:**

- Biology (with lab) 1 year
- General Chemistry (with lab) 1 year
- Organic Chemistry (with lab) 1 year
- Physics (with lab) 1 year
- Economics 1 course
- Calculus at least 1 course
- English Composition 1 year
- Speech 1 course
- Social Science 1 year

*In addition, several schools have specific pre-pharmacy requirements that are not on*

*this list.*

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# Psychology: Bachelor of Arts/Science

## Program Description

A comprehensive four-year program with emphasis on research, experimentation, computer applications and a senior-research sequence. Excellent preparation for graduate work at the master's or Ph.D. level in a wide variety of psychology disciplines.

**Other Qualifications —** A master's degree in psychology is usually the minimum requirement for the sample careers shown. The Ph.D. is essential for most senior-level positions and is required for appointment to permanent teaching and research positions in colleges and universities.

## Degree Requirements

**Required Psychology Credits (35-36 credits)**

- PSYC101 Introduction to Psychology 4
- PSYC210 Statistics 3 **or**
- MATH207 Principles of Statistical Methods 3
- PSYC212 Experimental Psychology 4
- PSYC311 Learning and Motivation 3
- PSYC357 Personality Theory 3
- PSYC396 Tests and Measurements 3
- PSYC456 History & Systems of Psychology 3
- PSYC457 Cognition 3
- PSYC459 Physiological Psychology 3
- PSYC495 Senior Research Practicum 3
- PSYC498 Senior Research I 3
- PSYC499 Senior Research II 1

**Elective Psychology Credits (6 credits)**

- PSYC Elective - any level 3
- PSYC217 Social Psychology
  **or**
- PSYC259 Abnormal Psychology 3
  **or**
- PSYC265 Child & Adolescent Behavior

**Select One Course from:**

- BIOL105 Function of the Human Body 4
- BIOL122 Human Anatomy & Physiology II 4
- BIOL131 General Biology: Cells 4

**Required & Electives Total (41-42 credits)**

**Acceptable Minors 21 credits**

Psychology majors may select an approved minor (21 credits) or may complete 21 credits in courses approved in lieu of the minor by their advisor. Nine credits must be at the 300-400 level.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree:** One year of a modern language other than English (if taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Secondary Education: Bachelor of Arts/Science

## Program Description

The Secondary Education program is highlighted by in-depth study in a subject major and a subject minor, extended field experience in secondary school settings, and focused development of the knowledge and skills critical for effective teachers. The program leads to a bachelor of arts or a bachelor of science degree in the student's major area.

Secondary-level teacher certification in Michigan permits individuals to teach the subject areas, in which they hold endorsements, at grades 6-12. The subject majors and minors provide the required coursework for the related endorsements. Completing the courswork and passing the corresponding Michigan Test for Teacher Certification subject test enable graduates to meet the requirements of No Child Left Behind and to be highly qualified in their subject areas.

Subject major and minor options are listed below. Specfiic requirements for these are found in the appropriate sections of this catalog.

| **Majors** | **Minors** |
|---|---|
| Chemistry | Chemistry |
| Computer Science | Computer Science |
| Mathematics | Mathematics |
| Physical Science | |

Students begin their studies in the secondary education program with a focus on general education requirements, an academic major and an academic minor. They complete the initial professional education coursework in their sophomore year, and apply for formal admission to the program at the end of that year. By that time, they will have also passed the Michigan Test for Teacher Certification Basic Skills test.

Upper level professional education coursework, along with the completion of the major and minor, is the focus for the junior and senior years. Student teaching, a semester-long culminating experience, may be completed in the spring of the fourth year or the fall of the fifth year, depending on the individual student's progress through the program. Generally, this student teaching experience will be in the Eastern Upper Peninsula or in Sault Ste. Marie, Ontario. The Michigan Test for Teacher Certification subject test in the major must be passed prior to beginning student teaching.

## Degree Requirements

**The components of the Secondary Education: Bachelor of Arts/Sciences programs are:**

**Academic Major:** Choose one from the above (see requirements under the subject area in this catalog)

**Academic Minor:** Choose one from list above (see requirements in the Minors section of this catalog)

**Professional Education Sequence**

- EDUC250 Student Diversity & Schools 4
- EDUC301 Learning Theory and Teaching Practice 3
- EDSE301 Introduction to Special Education 3
- EDUC350 Integrating Technology into 21st Century Learning Environments 3
- EDUC415 General Instructional Methods 2
- EDUC440 Reading in the Content Area 3
- EDUC44X or EDUC45X Methods in major and in minor (minimum credits) 3
- EDUC460 Classroom Management 2
- EDUC480 Directed Teaching: Seminar 2
- EDUC492 Directed Teaching 10

**Education Cognates (3 credits)**

- MATH207 Principles of Statistical Methods 3

**Formal admission to the program, qualification for student teaching, and successful completion of the program requires:**

- Completion of the Professional Education Sequence courses with a grade of B- (2.70) or higher
- Completion of all required courses in the education cognates, teaching major or teaching minors with a GPA of 2.70 or higher and no grade below a C (2.00).
- Completion of the General Education Core Requirements with a gpa of 2.00 or higher.
- Passing scores on all required Michigan Test for Teacher Certification tests.

The Secondary Education program undergoes periodic review, evaluation, and alignment with the Michigan Department of Education standards. Since program approval and renewal cycles vary, individuals should contact the School of Education regularly to confirm the current requirements of each program component. Graduates must meet the standards that are in place at the time of completion of their programs, in order to be recommended to the Department of Education for teacher certification.

**General Education:** All bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different

languages will not meet this requirement.

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# Social Science: Bachelor of Arts/Science

## Program Description

The social science degree helps prepare students to be effective citizens and develops skills useful in various employment areas, both in the public and private sectors. Both degree programs allow you to take a large number of electives, providing flexibility in accommodating a number of career plans.

## Degree Requirements

**Major Area Requirements:**

**Introductory Sequences (27-31 credits)**

**Students must select four full-year introductory sequence courses from the following six areas:**

- Economics 6
- Geography 8
- History 8
- Political Science 8
- Psychology 7
- Sociology 6

**Lower-level Courses from the Six Areas of the Major (9 credits)**

- Students must choose at least nine credits from the 100-200 level in the six areas.

**Upper-level Courses from the Six Areas of the Major (21 credits)**

- Students must choose 21 credits from the 300-400 level offerings in the six areas. No more than 12 credits can be in any one discipline.

**Methodology courses (5-7 credits)**

**Students choose one course from List A and one course from List B:**

**List A: Statistics (choose one)**

- SOCY302 Statistics for Social Science
- PSYC210 Statistics
- POLI211 Political Science Research and Statistics

**List B: Methods (choose one)**

- SOCY202 Social Research Methods
- PSYC212 Experimental Psychology
- HIST496 Historical Methods

**Minor or Cognate:** To earn a bachelor of arts degree, students must take eight credits of a foreign language as well as an additional 12 approved credits from English, humanities, speech, journalism or philosophy (beyond general education requirements).

For a bachelor of science degree, students will take an approved minor in natural science or social science (20-28 credits).

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Sociology: Bachelor of Arts/Science

## Program Description

This major prepares you to enter a variety of fields with a bachelor degree. It also provides an excellent foundation from which to continue educational preparation for a number of professions.

Many entry-level positions in private and public sector organizations require the understanding of organizations and human relations provided by the Sociology major. The sociology program emphasizes research skills, knowledge about diversity, critical thinking and writing skills, all of which will enhance your value to employers. With assistance from your advisor and your career goals in mind, you will select one or two minors. This combination of broad knowledge about social organizations from the Sociology major together with a set of specific job skills and knowledge from the minor(s) will give you a competitive edge in securing employment and in making career changes as opportunities present themselves and the labor market demands change.

If you are preparing for graduate studies or professional school , you will find that the Sociology major, together with one or two carefully selected minor(s), provides competitive preparation for a number of areas of advanced study, such as social work, business, international relations, survey researcher, public relations, urban planning and more. If you are planning to undertake graduate studies in Sociology, you are encouraged to take both a major and a minor in Sociology. Or, if you are planning to apply to professional schools, such as law or medicine, you will find that the Sociology program, more than any other major, allows you extensive time within the four-year program to take courses strategically selected to best prepare you for the desired professional program.

## Degree Requirements

**Required Credits for Major (40-41 credits)**

The sociology major consists of 27 credit hours of core courses, a statistics cognate of 3-4 credit hours, and nine credit hours of sociology electives.

**Core (28 credits)**

**Required sociology courses are:**

- SOCY101 Introduction to Sociology 4
- SOCY102 Social Problems 4
- SOCY238 Social Psychology 4
- SOCY301 Social Research Methods 3

- SOCY310 Development of Sociological Theory 3
- SOCY311 Contemporary Sociological Theory 3
- SOCY399 Sociology Junior Seminar 1
- SOCY401 Sociological Seminar I 1
- SOCY495 Senior Project I 2
- SOCY402 Sociology Seminar II 1
- SOCY496 Senior Project II 2

**Cognate in Statistics (3-4 credits)**

**Student must complete one of the following courses:**

- SOCY302 Statistics for Social Science 4
- PSYC210 Statistics 3
- MATH207 Principles of Statistical Methods 3

**Elective Sociology Credits (9 credits)**

Students must select an additional nine credit hours of sociology courses. At least three credit hours must be at the 300/400 level.

**Minor or other Cognate (20 credits)**

Choose one of the following alternatives. At least six credit hours must be at the 300/400 level.

**Minor:** Students may complete an approved LSSU minor. This minor could be in sociology, giving the student a double concentration, which provides a solid background for graduate work in sociology.

**or**

**An approved concentration:** The student may develop an approved concentration in one or more disciplines in consultation with his/her advisor.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Sociology - Social Services: Bachelor of Arts/Science

## Program Description

This program provides entry level knowledge and skills for a variety of social service positions. A foundation of knowledge about social structure, organizations and human relationships is provided by the Sociology major. This major also helps you develop critical thinking ability, improve writing skills and acquire competency in conducting research—all valued by employers in the field of social services. To this sociological base are added knowledge about social work practice, current issues in social work, clinical diagnosis and skills in counseling. An extensive internship in one or more agencies allows you to apply knowledge and skills gained in the classroom in a closely supervised setting. Internships may be with local agencies or programs outside the local area.

You will find room within this four-year program to elect a minor, if you wish. You may choose among human service minors, such as Child Development, Corrections, Counseling, Gerontology, Human Service Administration, or Substance Abuse Counseling. Alternatively, you may choose to develop knowledge and skills supportive of a career in social services through taking a minor in such areas as Communications, Psychology, Public Relations, Public Administration, a foreign language or other.

If you plan to continue studies in a graduate program, such as a Master Degree in Social Work, this program provides the academic background and exposure to the field necessary for success in such graduate studies.

## Degree Requirements

**Required Credits in Sociology and Statistics (40-41 credits)**

Required are 28 credit hours of core sociology courses, a statistics cognate of 3-4 credit hours, and 9 credit hours of sociology electives.

**Core (28 credits)**

- SOCY101 Introduction to Sociology 4
- SOCY102 Social Problems 4
- SOCY238 Social Psychology 4
- SOCY301 Social Research Methods 3
- SOCY310 Development of Sociological Theory 3
- SOCY311 Contemporary Sociological Theory 3
- SOCY399 Sociology Junior Seminar 1

- SOCY401 Sociological Seminar I 1
- SOCY495 Senior Project I 2
- SOCY402 Sociology Seminar II 1
- SOCY496 Senior Project II 2

**Cognate in Statistics (3-4 credits)**

Student must complete one of the following courses:

- SOCY302 Statistics for Social Science 4
- PSYC210 Statistics 3
- MATH207 Principles of Statistical Methods 3

**Elective Sociology Credits (9 credits)**

Students must select an additional nine credit hours of Sociology courses. At least three credit hours must be at the 300/400 level.

**Social Work Concentration (24 credits)**

- SOWK110 Introduction to Social Work 3
- SOWK201 Communication Skills in Counseling 3
- SOWK250 Social Work Practicum 9
- SOWK310 Clinical Diagnosis and Treatment 3
- SOWK344 Social Welfare System 3
- SOWK480 Grantwriting 3

**Support Course (4 credits)**

- BIOL105 Function of the Human Body 4

**Total Departmetal Credits: 68-69**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Spanish: Bachelor of Arts

## Program Description

Spanish is spoken by the third largest group of the world's population today — 250 million people. The Spanish B.A. program at LSSU is designed to give students the opportunity to acquire Spanish language proficiency in listening, speaking, reading and writing. The program will introduce Spanish majors to prominent historical, social and artistic developments of Spanish speaking countries.

Students successfully completing their Spanish major studies will improve their skills in critical reading, analytic writing, communication and linguistic awareness. In addition, they will develop understanding of, and appreciation for, diversity and cultural difference through immersion into the history, culture, and art of Spanish speaking countries.

The program will prepare students for the communicative and culturally aware use of the Spanish language in careers related to international relations, business, communication and cultural exchange. Students with a degree in Spanish will gain marketable linguistic skills to work in areas of public service with bilingual or Spanish speaking populations in the United States.

## Degree Requirements

### Spanish Degree Requirements (45 credits)

**Required (20 credits)**

- SPAN161 First-Year Spanish I 4
- SPAN162 First-Year Spanish II 4
- SPAN261 Second-Year Spanish I 3
- SPAN262 Second-Year Spanish II 3
- SPAN361 Advanced Spanish Grammar 3
- SPAN362 Advanced Spanish Composition 3

**Electives (9 credits must be at the 400 level) (25 credits)**

- LING403 Language Acquisition & Foreign Language Teaching 3
- SPAN100 Special Topics 1-3
- SPAN200 Special Topics 1-3
- SPAN300 Special Topics 1-3
- SPAN400 Special Topics 1-3
- SPAN165 Spanish for Public Safety 4
- SPAN301 Study Abroad 8

- SPAN368 Selected Topics in Conversation 2
- SPAN380 Survey of Spanish-American Literature I 3
- SPAN381 Survey of Spanish-American Literature II 3
- SPAN401 The Spanish Novel 3
- SPAN402 The Spanish-American Novel 3
- SPAN410 Spanish-American Civilization 3
- SPAN411 Spanish Civilization 3
- SPAN412 Hispanic Literature of the Southwest 3
- SPAN490 Topics in Hispanic Literature 1-4

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts Requirement (8 credits)**

**One year of foreign language**

- SPAN161 First-Year Spanish I 4
- SPAN162 First-Year Spanish II 4

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Sport and Recreation Management: Bachelor of Arts/Science

## Program Description

The bachelor of science/bachelor of arts in sport and recreation management is a professional degree which focuses on leading, planning, managing and directing athletic, recreation and leisure opportunities for all ages of clientele, in a variety of public, private and commercial settings. A business minor is included in the degree to enhance management knowledge and skills. Career specialization can be achieved through additional minors or concentrations. A bachelor of arts includes eight hours of foreign language requirements.

A one-semester internship is required for both the bachelor of science and bachelor of arts degrees.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Arts Sport and Recreation Management
- Bachelor of Science Sport and Recreation Management

## Degree Requirements

### Bachelor of Arts Sport and Recreation Management

**Program Requirements (33 credits)**

- RECS101 Introduction to Recreation and Leisure Services 3
- RECS105 Program Development & Leadership 3
- RECS270 Sports Management 3
- RECS295 Practicum 1
- RECS375 Commercial Recreation 3
- RECS390 Recreation Leader Apprenticeship 1
- RECS397 Recreation Studies Junior Research Seminar 1
- RECS435 Research in Recreation and Leisure Sciences 3
- RECS437 Recreation Studies Senior Research Seminar 1
- RECS450 Philosophy of Leisure and Human Performance 3
- RECS481 Professional Development Seminar 1
- RECS482 Administration of Recreation and Leisure Services 4
- RECS492* Internship 6

**It is recommended that RECS492 be completed during the summer of the student's senior year.*

**Business Requirements (25 credits)**

- ACTG132 Principles of Accounting I 4
  **or**
- OFFC119 Computerized Accounting Procedures 4
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC245 Principles of Finance 3
- MRKT281 Marketing Principles and Strategy 3
- MGMT360 Principles of Management 3

**Cognate Requirements (19 credits)**

- BIOL105 Functions of the Human Body 4
- EMED181 First Aid 1
- HMSV480 Grantwriting 3
- Foreign Language 8
- PSYC210 Statistics 3

**School Electives (12 credits)**

- EXER140 Health and Fitness 3
- EXER141 Introduction to Movement 3
- EXER230 Athletic Injury and Illness Prevention 3
- EXER234 Preventative Taping Techniques 1
- EXER248 Psychology of Sport and Performance and Coaching 3
- RECS212 Instructional Methods in Adapted Aquatics 2
- RECS220 Methods in Arts & Crafts 3
- RECS262 Outdoor Recreation 3
- RECS280 Readiness in Games, Activities and Sports 3
- RECS295 Practicum 1-3
- RECS320 Dance and Rhythmic Activities for Recreation 3
- RECS344 Adapted Sports and Recreation 3
- RECS362 Land Management for Recreation Purposes 3
- RECS365 Expedition Management 3
- RECS367 National Parks, National Monuments and National Culture 3
- RECS370 Recreation for the Elderly 3
- RECS390 Recreation Leader Apprenticeship 1
- RECS496 Selected Research Topics 1-3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Sport and Recreation Management

**Program Requirements (33 credits)**

- RECS101 Introduction to Recreation & Leisure Services 3
- RECS105 Program Development & Leadership 3
- RECS270 Sports Management 3
- RECS295 Practicum 1
- RECS375 Commercial Recreation 3
- RECS390 Recreation Leader Apprenticeship 1
- RECS397 Recreation Studies Junior Research Seminar 1
- RECS435 Research in Recreation and Leisure Sciences 3
- RECS437 Recreation Studies Senior Research Seminar 1
- RECS450 Philosophy of Leisure and Human Performance 3
- RECS481 Professional Development Seminar 1
- RECS482 Administration of Recreation and Leisure Services 4
- RECS492* Internship 6

**It is recommended that RECS492 be completed during the summer of the student's senior year.*

**Business Requirements (25 credits)**

- ACTG132 Principles of Accounting I 4
  **or**
- OFFC119 Computerized Accounting Procedures 4
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC245 Principles of Finance 3
- MRKT281 Marketing Principles and Strategy 3
- MGMT360 Principles of Management 3

**Cognate Requirements (17-19 credits)**

- BIOL105 Function of the Human Body 4
- EMED181 First Aid 1
- HMSV480 Grantwriting 3
- POLI130 Intro. to State & Local Government 4
  **or**
- POLI160 Intro. to Canadian Government 3
- PSYC101 Introduction to Psychology 4
  **or**
- PSYC155 Lifespan Development 3
- PSYC210 Statistics 3

**School Electives (12 credits)**

- EXER140 Health and Fitness 3
- EXER141 Introduction to Movement 3
- EXER230 Athletic Injury and Illness Prevention 3
- EXER234 Preventitive Taping Techniques 1
- EXER248 Psychology of Sport and Performance and Coaching 3
- RECS212 Instructional Methods in Adapted Aquatics 2
- RECS220 Methods of Arts & Crafts 3
- RECS262 Outdoor Recreation 3
- RECS280 Readiness in Games, Activities and Sports 3
- RECS295 Practicum 1-3
- RECS320 Dance and Rhythmic Activities for Recreation 3
- RECS344 Adapted Sports and Recreation 3
- RECS362 Land Management for Recreation Purposes 3
- RECS365 Expedition Management 3
- RECS367 National Parks, National Monuments and National Culture 3
- RECS370 Recreation for Elderly 3
- RECS390 Recreation Leader Apprenticeship 1
- RECS496 Selected Research Topics 1-3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Chemical Technology

## Program Description

The associate of applied science degree prepares students to work as chemical technicians. It also easily fits within any of a number of existing baccalaureate degrees, providing the student a stepping stone to an advanced degree, as well as increased marketability for summer jobs and internships.

Chemical technicians and technologists conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analysis of solids, liquids and gaseous materials for purposes such as maintenance of environmental standards, and other work involving experimental, theoretical or practical application of chemistry and related sciences. Nationally, the mean hourly wage is $15.46 (National Occupational Employment and Wage Estimates http://stats.bls.gov). Chemical technicians work in a variety of jobs for manufacturing companies, testing labs, government labs, for public utilities, and for universities.

This degree program may also lead to a B.S. in Chemistry, Environmental Chemistry, Forensic Chemistry, Biochemistry Pre-Professional, or Environmental Science that may be certified by the American Chemical Society.

## Degree Requirements

**Degree requirements (34 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM332 Instrumental Analysis 4
- FIRE312 Hazardous Material Management 4
- INTD399 Internship in Chemistry 4

**Other Departments (14 credits)**

- BUSN211 Business Statistics 3 **or**
- MATH207 Principles of Statistical Methods 3
- MATH131 College Trigonometry 3
- Two semesters of College Physics 8

**Free Electives (6 credits minimum)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Chemistry

## Program Description

Graduates of the two-year associate's degree in chemistry may find employment as chemical laboratory technicians or proceed on to complete bachelor's degrees in an area of chemistry. This program transfers directly into the bachelor's degree in environmental chemistry.

This degree program may also lead to a BS in Chemistry, Environmental Chemistry, Forensic Chemistry, Biochemistry Pre-Professional, or Environmental Science that may be certified by the American Chemical Society.

## Degree Requirements

**Chemistry (26 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM332 Instrumental Analysis 4

**Other Departments (19 credits)**

- BUSN211 Business Statistics 3 **or**
- MATH207 Principles of Statical Methods 3
- MATH151 Calculus I 4
- MATH152 Calculus II 4
- Two semesters of College Physics (8 cr min)

**Free Electives (8 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.50 or higher. A gpa of 2.50 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

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# Computer Science

## Program Description

This degree provides an initial framework in computer science which allows you to branch into many career paths. Students complete a capstone "real-world" project in their sophomore year. You will often choose a project that relates to your specific interests, such as Web page design, database administration, and applications or systems programming.

## Degree Requirements

**Departmental Courses (34 credits)**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI121 Principles of Programming 3
- CSCI122 Programming Tools and Techniques 3
- CSCI163 Troubleshooting/Repair of Personal PCs 3

**or**

- CSCI315 Computer Organization and Architecture 3
- CSCI201 Data Structures and Algorithms 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI291 Computer Science Project 4
- MATH111* College Algebra 3
- MATH207 Principles of Statistical Methods 3

**Support Courses (7 credits)**

- BUSN121 Introduction to Business 3
- PSYC101* Introduction to Psychology 4

**Free Electives (13 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

**May be used for general education credit.*

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# Criminal Justice-Corrections

## Program Description

The associate degree in corrections will prepare you to work in correctional facilities as corrections officers. The degree contains the five courses required by the Michigan Corrections Officers Training Council (MCOTC). Associate degree graduates may also find paraprofessional jobs in other areas of corrections. This degree is compatible with the bachelor of science degree in criminal justice/corrections.

## Degree Requirements

**Major Requirements (30 credits)**

- CJUS101 Intro. to Criminal Justice 3
- CJUS110 Introduction to Corrections 3
- CJUS130 Client Relations in Corrections 3
- CJUS140 Correctional Client Growth & Development 3
- CJUS220 Institutional Corrections 3
- CJUS240 Community Based Corrections 3
- CJUS250 Correctional Law 3
- CJUS319 Substantive Criminal Law 3
  **or**
- CJUS202 Canadian Criminal Law 3
- CJUS330 Correctional Casework 3
- CJUS355 Juvenile Justice 3

**Support Courses (6 credits)**

- POLI120 Introduction to Legal Process 3
  **or**
- POLI160 Intro. to Canadian Government and Politics 3
- SOCY214 Criminology 3

**Electives (8 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher**

**is also required in your Major, as well as in your General Education Core Requirements**

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# Criminal Justice-Homeland Security

## Program Description

This emphasis provides students with the knowledge and information related to careers in law enforcement and investigation with agencies such as Customs and Border Protection (CBP), Department of Homeland Security (DHS), Immigration and Customs Enforcement (ICE), municipal, county and/or state emergency management, Environmental Protection Agency (EPA), Internal Revenue Service, Transportation Security Administration (TSA), US Secret Service and numerous other agencies. Students are strongly encouraged to continue their studies to complete a Bachelor's degree to be successful in today's competitive labor market.

## Degree Requirements

**Departmental Requirements (18 credits)**

- CJUS101 Introduction to Criminal Justice 3
- CJUS103 Introduction to Terrorism and Homeland Security 3
- CJUS203 Cyberterrorism 3
- CJUS204 Domestic and international Terrorism 3
- FIRE101 Introduction to Fire Science 3
- FIRE111 Hazardous Materials 3

**Required Support Courses (21 credits) Choose from:**

**(No more than 15 credits from one discipline area)**

- ACTG230 Fundamentals of Accounting 4
- BIOL121 Human Anatomy and Physiology I 4
- BIOL126 Interpretation of Maps and Aerial Photography 2
- BIOL230 Introduction to Soil Science 4
- CHEM108/109 Applied Chemisty and Lab 4
- CHEM115 General Chemistry I
- CJUS243 Investigation 3
- CJUS303 Critical Infrastructure Protection 3
- CJUS313 Crisis Intervention and Deviant Behavior 3
- CJUS319 Substantive Criminal Law 3
- CJUS321 Ethical Issues in Public Safety 3
- CJUS325 Homeland Security and Emergency Services 3
- CJUS384 International and Comparative Criminal Justice Systems 3
- COMM320 Public Relations 3

- CSCI103 Survey of Computer Science 3
- EVRN131 Introduction to GIS & GPS 3
- EVRN231 Intermediate GIS 2
- FIRE102 Wildlife and Rural Fire Control 3
- FIRE211 Tactics and Strategy 3
- FIRE219 Firefighter Essentials 3
- FIRE220 Fire Science Certification 4
- FIRE312 Hazardous Materials Management 4
- FIRE315 Company Level Supervision and Management 3
- GEOL121 Physical and Historical Geology I
- NSCI102 Introduction to Geology 4
- NSCI103/104 Environmental Science and Lab
- NSCI105 Physical Geography:  Earth, Sun and Weather 3
- NSCI107 Physical Geography: Landforms and Soils 3
- NSCI110 Chemistry in Society 4
- NSCI116 Introduction to Oceanography 4
- POLI120 Introduction to Legal Processes 3
- POLI130 Introduction to State and Local Government 4
- POLI201 Introduction to Public Administration 3
- POLI241 Introduction to International Relations 4
- PSYC259 Abnormal Psychology 3
- SOCY103 Cultural Diversity 3
- SOCY214 Criminology 3
- SPAN161 First-Year Spanish I 4
- SPAN162 First-Year Spanish II 4
- SPAN165 Spanish for Public Safety 4

**Electives (5 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher.  A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Criminal Justice-Law Enforcement

## Program Description

The associate degree in law enforcement will prepare you for work in local law enforcement agencies provided you attend a police academy after graduation. This associate degree is also compatible with the bachelor of science degree in criminal justice/law enforcement. Graduates may also find positions with private security agencies.

## Degree Requirements

**Major Requirements (16 credits)**

- CJUS101 Intro. to Criminal Justice 3
- CJUS102 Police Process 3
- CJUS201 Firearms Training 1
- CJUS206 Law Enforcement/Loss Control Internship 3
- CJUS212 Loss Control 3
- CJUS243 Investigation 3

**Support Courses (17 credits)**

- POLI110 Introduction to American Government and Politics 4
- POLI120 Introduction to Legal Process 3
- SOCY103 Cultural Diversity 3
- SOCY214 Criminology 3
- PSYC101 Introduction to Psychology 4

**Electives (17 credits)**

*Canadian students may substitute POLI160 for POLI110.*

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Early Childhood Education

## Program Description

This two-year program leads to an associate's degree in early childhood education. It is for students interested in working with young children from birth through age five. Students are expected to acquire an understanding of developmental patterns of the preschool child in such areas as condition, emotion, social interaction and physical growth. This understanding will be the basis of working with groups of children and will culminate in a practicum.

Graduates also matriculate into the four-year bachelor's degree program in early childhood education at the University or pursue a degree in elementary education. A total of 62 credits is required.

## Degree Requirements

**Degree Requirements:**

- BIOL105 Function of the Human Body 4
- CHLD101 Foundation of Early Childhood Education 3
- CHLD105 Child Guidance & Welfare 3
- CHLD110 Curriculum Development and Teaching Practice 3
- CHLD111 Infants & Toddlers: Developmentally Appropriate Practices 3
- CHLD220 Early Childhood Literature 3
- CHLD260 Practicum I 4
- CHLD261 Practicum II 4
- CHLD270 Administration of Early Childhood Programs 3
- HLTH104 Nutrition for Early Childhood 3
- EMED181 First Aid 1
- SOCY103 Cultural Diversity 3

  or
- SOCY225 Native Cultures of North America 3
- SOCY113 Sociology of the American Family 3

**Cognate Required:**

- PSYC155 Lifespan Development 3

  or
- PSYC265 Child & Adolescent Development 3
- PSYC228 Organizational Behavior 3

or

- PSYC301 Exceptional Child & Adolescent 3

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Electrical Engineering Technology

## Program Description

LSSU's Electrical Engineering Technology (EET) Associate's program integrates knowledge from areas of study such as science, math, computers, and electrical engineering to prepare you for an engineering technology career.

The EET program includes topics such as C programming, robotics, digital and microcontroller fundamentals. Most technical classes in the curriculum include a laboratory along with the lecture.

## Degree Requirements

**Engineering and Engineering Technology Courses (26 credits)**

- EGEE125 Digital Fundamentals (C or better required) 4
- EGEE250 Microcontroller Fundamentals 4
- EGET110 Applied Electricity (C or better required) 4
- EGET175 Applied Electronics (C or better required) 4
- EGME141 Solid Modeling 3
- EGNR101 Introduction to Engineering 2
- EGNR140 Linear Algebra and Numerical Methods for Engineers 2
- EGNR265 C Programming 3

**Mathematics and Science Courses (22 credits)**

- CHEM108 Applied Chemistry 3
- CHEM109 Applied Chemistry Lab 1
- MATH111 College Algebra (C or better required) 3
- MATH112 Calculus for Business and Life Science 4
- MATH131 College Trigonometry 3
- PHYS221 Elements of Physics I (C or better required) 4
- PHYS222 Elements of Physics II 4

**Free Elective * (5 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher**

**is also required in your Major, as well as in your General Education Core Requirements.**

** General Education approved Humanities, Social Science, or Cultural Diversity elective is recommended for those students intending to pursue a BS-EET degree.*

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# Fire Science

## Program Description

The associate degree in fire science degree prepares you for entry-level positions with fire departments and some government agencies. You may also be eligible for Michigan Firefighter Certification through the Michigan Firefighters Training Council (MFFTC). Students in this program will have the opportunity to experience a "hands-on" approach by practicing with up-to-date equipment and experiencing live fire training in the burn training center located adjacent to campus. This degree is also compatible with the bachelor of science degrees in fire science and public safety.

## Degree Requirements

**Major Requirements (24 credits)**

- CJUS341 Fire Cause & Arson Investigation 3
- FIRE101 Introduction to Fire Science 3
- FIRE111 Hazardous Materials 3
- FIRE201 Fire Protection Construction Concepts 3
- FIRE204 Fire Protection Hydraulics & Pumps 3
- FIRE206 Fire Protection Systems Equipment and Industrial Fire Protection 3
- FIRE211 Tactics & Strategy 3
- FIRE315 Company Level Supervision and Management 3

**Support Courses (17 credits)**

- EMED190 Prehospital Emergency Care & Crisis Intervention I 4
- EMED191 Prehospital Emergency Care & Crisis Intervention II 4
- SOCY, PSYC or POLI Electives 9

**Electives to total 62 credits (3 credits)**

(FIRE197 and FIRE220 required for MFFTC certification)

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core**

**Requirements.**

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# General Engineering

## Program Description

You should enroll in this program if you want to major in engineering but have not yet selected a specific field. You also should enroll in this program if you plan to transfer to an engineering program at another university after two years at Lake Superior State University.

## Degree Requirements

**Departmental Requirements**

**Engineering Courses (21 credits)**

- EGEE210 Circuit Analysis 4
- EGEM220 Statics 3
- EGNR101 Intro. to Engineering 2
- EGNR140 Linear Algebra and Numerical Methods for Engineers 2
- EGNR265 "C" Programming 3
- EGNR340 Advanced Numerical Methods for Engineers 1
- Approved Technical Electives (see advisor for details) 6

**Mathematics and Science Courses (28 credits)**

- CHEM115 General Chemistry I 5
- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH251 Calculus III 4
- MATH310 Differential Equations 3
- PHYS231 Applied Physics for Engineers and Scientists I 4
- PHYS232 Applied Physics for Engineers and Scientists II 4

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 64 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

**Engineering course qualifies as General Education course*

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# General Engineering Technology

## Program Description

You should select this program if you are interested in engineering technology but have not decided upon a specific program. You will receive extra advising and schedule courses in different areas to assist in determining career interests. As soon as you choose an engineering technology major, you will transfer to that program.

## Degree Requirements

**Departmental Requirements**

**Engineering and Engineering Technology Courses (25 credits)**

- EGME141 Solid Modeling 3
- EGNR101 Introduction to Engineering 2
- EGET110 Applied Electricity 4
- Technical Electives 16

*Choose at least nine credits of additonal EGxx Courses. Choose seven additional Technical Electives from PHYS222 Elements of Physics II, any MATH course, MATH151 or higher.*

**Mathematics and Science Courses (21 credits)**

- CHEM108 Applied Chemistry 3
- CHEM109 Applied Chemistry Lab 1
- MATH111 College Algebra 3
- MATH112 Calculus for Business and Life Science 4
- MATH131 Trigonometry 3
- MATH207 Principles of Statistical Methods 3
- PHYS221 Elements of Physics I 4

**Support Course**

- CSCI101 Intro. to Microcomputer Applications 3

**Electives (4 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general

education certification (Sault College transfer students).

(General Education Electives met by CHEM108, CHEM109, and PHYS221 listed above)

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Health Care Provider

## Program Description

The associate of applied science degree program serves the community by providing students with the necessary skills and training to provide safe and competent care to patients and qualifies the students to write the required licensure examinations for practical nursing. Students wishing to obtain an associate of applied science degree would be able to complete the required course work in six semesters, including two summer semesters. The general education courses required for the associate of applied science degree would apply to the baccalaureate degree in nursing, allowing for a smooth articulation between the two programs if students wish to continue their education.

## Degree Requirements

**Major Requirements (40 credits)**

- HLTH208 Principles of Human Nutrition 3
- PNUR101 Introduction to Practical Nursing I 2
- PNUR102 Drugs and Dosages 3
- PNUR104 Introduction to Practical Nursing II 2
- PNUR107 Understanding Clincial Nutrition Lab 1
- PNUR113 Fundamentals to Practical Nursing 7
- PNUR201 Medical Surgical Practical Nursing 10
- PNUR202 Ethical/Legal Aspects of Practical Nursing 2
- PNUR203 OB Practical Nursing 5
- PNUR204 Pediatric Practical Nursing 5

**Support Courses (25 credits)**

- BIOL121 Human Anatomy & Physiology I 4
- BIOL122 Human Anatomy & Physiology II 4
- CHEM108 Applied Chemistry I 3
- PSYC101 Introduction to Psychology 4
- PSYC155 Lifespan Development 3
- MATH102 Intermediate Algebra 4
- SOCY101 Introduction to Sociology 3

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 72 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher.**

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# Health/Fitness Specialist

## Program Description

This degree prepares you for entry-level positions in the health and fitness industry. Specific course work and experiences prepare you to be certified by the American College of Sports Medicine as an Exercise LeaderSM or Health/Fitness Instructor. Students develop fitness assessment skills with current technologies employed for anthropometric, cardiovascular and metabolic functioning.

## Degree Requirements

**Program Requirements (33 credits)**

- EXER105 Program Development and Leadership in Recreation and Leisure Services 3
- EXER140 Health Fitness 3
- EXER141 Introduction to Movement 3
- EXER230 Athletic Training I 3
- EXER248 Psychology of Sport and Performance and Coaching 3
- EXER262 Exercise Physiology I 3
- EXER265 Essentials of Strength Training and Conditioning 3
- EXER268 Fitness Evaluation I: Field Tests 2
- EXER275 Nutrition for Sport and Exercise Performance 2
- EXER295 Practicum 2
- EXER Program Electives 6

**Cognate Requirements (18-20 credits)**

- BIOL121 Human Anatomy & Physiology I 4
- BIOL122 Human Anatomy & Physiology II 4
- CHEM104 Life Chemistry 3
  or
- CHEM115 General Chemistry I 5
- MATH111 College Algebra 3
- PSYC101 Introduction to Psychology 4

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 63 credits (at the 100 level or higher) must be earned for**

**graduation with a cumulative gpa of 2.00 or higher.  A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Internet/Network Specialist

## Program Description

This degree provides you with knowledge in the use of computer networks as they apply to commercial and industrial enterprises. You will be prepared to analyze the needs of a user, to design a computer network system to satisfy those needs, and to modify and maintain the network environment relative to both hardware and software.

Most organizations make use of the Internet and the World Wide Web. You will use state-of-the art software tools to prepare you to meet the growing needs of the business world.

One of the main objectives in this program is to develop an understanding of the business world so that you can effectively communicate with all levels of management.

## Degree Requirements

### Internet/Network Specialist

**Departmental Courses (31 credits)**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI163 Troubleshooting and Repair of Personal Computers 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI248 Network Operating Systems I 3
- CSCI263 Managing Computer Security 3
- CSCI281 Intro. to UNIX and Network Programming 3
- CSCI292 Computer Networking Project 4

**Support Courses (6 credits)**

- BUSN121 Introduction to Business 3
- BUSN231 Business Communications 3

**Free Electives (7 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp

(Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Internet/Network Specialist, Web Development Option (Concentration):

**Departmental Courses (34 credits)**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI107 Web Graphic Design and Development 3
- CSCI207 Developing Multimedia and Rich Interactive Web Sites 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI248 Network Operating Systems I 3
- CSCI263 Managing Computer Security 3
- CSCI275 Web Server Administration 3
- CSCI292 Computer Networking Project 4

**Support Courses (6 credits)**

- BUSN121 Introduction to Business 3
- BUSN231 Business Communications 3

**Free Electives (4 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Liberal Arts

## Program Description

This degree is offered to students who complete the general education core requirements, any minor* presently offered by the University, and free electives for a total of 62 credit hours (minimum). Consult departmental offerings for requirements of a minor and electives.

Courses selected for credits toward the general education requirements may be, at the discretion of the department offering the minor, accepted for the minor.

Note: Once you have chosen a minor, contact the department which offers it in order to be assigned an advisor. The department offering your minor will both advise you and conduct your degree audit before graduation.

*see *minors section*.

## Degree Requirements

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Manufacturing Engineering Technology

## Program Description

The manufacturing engineering technology associate's degree program prepares you to work with traditional and modern manufacturing equipment and methods in today's high-tech manufacturing environment. Graduates will have theoretical and practical knowledge in traditional manufacturing processes such as turning, milling, foundry and welding along with newer technologies such as robotics, CAD (computer-aided drafting), and CAM (computer-aided manufacturing).

Throughout the program, students acquire cross-disciplinary skills in manufacturing, computer applications, electronics and mechanical technology that are in high demand in industry.

## Degree Requirements

**Departmental Requirements (52 Credits)**

**Engineering and Engineering Technology Courses (35 credits)**

- EGEE125 Digital Fundamentals 4
- EGNR101 Introduction to Engineering 2
- EGNR265 "C" Programming 3
- EGET110 Applied Electricity 4
- EGET175 Applied Electronics 4
- EGME110 Manufacturing Processes I 3
- EGME141 Solid Modeling 3
- EGME240 Assembly Modeling and GD&T 3
- EGMT225 Statics and Strength of Materials 4
- Technical Elective 2
- Electives 3

**Mathematics and Science Courses (17 credits)**

- MATH111 College Algebra 3
- MATH131 College Trigonometry 3
- CHEM108 Applied Chemistry 3
- CHEM109 Applied Chemistry Lab 1
- MATH207 Principles of Statistical Methods* 3
- PHYS221 Elements of Physics I* 4

**Electives** (3 credits)**

**Technical Electives:**

- EGEE250 Microcontroller Fundamentals 4
- EGME310 Vehicle Development and Testing 2
- EGNR250 Cooperative Educaction 2
- EGRS215 Introduction to Robotics 2

**The math, chemistry and physics courses satisfy the general education and departmental requirements.*

***A social science course is recommended for those students intending to continue for the B.S. degree in Manufacturing Engineering Technology.*

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 64 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Marine Technology

## Program Description

The associate degree in Marine technology will prepare you for careers related to oceanography and Great Lakes limnology. The program provides a solid basis in the biological and physical aquatic sciences, incorporating LSSU's expertise in robotics and GIS technologies. Graduates will be ideally suited for liaison positions between ship personnel and scientific research teams.

## Degree Requirements

**Major Degree Requirements (54 credits)**

- BIOL107 Field Biology 3
- BIOL126 Interpretation of Maps and Aerial Photography 2
- BIOL286 Principles of Watersheds 3
- BIOL289 /EVRN289 Aquatic Research Sampling Methods 3
- CHEM108 Applied Chemistry 3
- CHEM109 Applied Chemistry Lab 1
- EGET110 Applied Electricity 4
- EGRS215 Introduction to Robotics 2
- EMED189 Medical First Responder 3
- EVRN131 Introduction to GIS and GPS 3
- GEOG108 Physical Geography: Meteorology and Climatology 4
- INTD101 Boat Handling and Navigation 3
- INTD399 Internship in (Marine Biology) 4
- MATH108 Trigonometry and Vectors for Physics 1
- MATH111 College Algebra 3
- NSCI116 Introduction to Oceanography 4

**Directed Electives:**

***Choose 8 credits from:***

- EGME110 Manufacturing Processes 3
- EVRN231 Intermediate GIS 2
- GEOL121 Physical and HIstorical Geology I 4
- NSCI103 Environmental Science 3
- NSCI119 Descriptive Astronomy 4
- RECA194 Scuba 1

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 63 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Natural Resources Technology

## Program Description

The natural resources technology program stresses the acquisition of field skills necessary for success in a natural resources agency or organization, as well as the theoretical foundations for these skills. This practical knowledge is enriched by course materials which emphasize communication skills along with the links between society, economics, policy and the natural resource base. This program can be taken as a stand alone two-year program, can constitute the first half of the bachelor of science in parks and recreation management, or it can be used in conjunction with a three-year criminal justice program to prepare a student for a career in conservation law.

*All natural resource technology students are strongly encouraged to participate in at least one summer of work or volunteer experience in the natural resource field to gain the professional experience and contacts they will need to begin their careers.*

**Continuing education to bachelor's degree program —** The high degree of competition in the natural resource field makes the pursuit of a bachelor's degree highly desirable. Programs which join well with the NRT degree are the parks and recreation management degree, the fisheries & wildlife degree and the 2+3 criminal justice degree programs or the conservation biology major. These programs lead to careers such as conservation officer, park naturalist, expedition leader, guide or recreation specialist.

## Degree Requirements

Students are required to take sufficient elective credits to reach the minimum of 62 semester credits needed for graduation. Only 2 credits of RECA courses can be applied to elective credits.

**College of Natural, Mathematical, & Health Science Requirements (38 Credits)**

- BIOL107 Field Biology 3
- BIOL126 Interpretation of Maps and Aerial Photography 2
- BIOL230 Introduction to Soil Science 4
- BIOL240 Natural History of the Vertebrate 3
- BIOL284 Principles of Forest Conservation 4
- BIOL286 Principles of Watersheds 3
- CHEM108 Survey of General Chemistry 3
- CHEM109 Survey of General Chemistry Lab 1
- EVRN131 Introduction to GIS and GPS 2
- EVRN231 Intermediate GIS 2

- MATH111 College Algebra 3
- NSCI103 Environmental Science 3
- NSCI104 Environmental Science Lab 1
- RECS101 Introduction to Recreation & Leisure Service 3

**Other Departments (6 Credits)**

- FIRE102 Wildland and Rural Fire Control 3
- EMED189 Medical First Responder 3

**Free Electives (9 Credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Paramedic Technology

## Program Description

Paramedics are trained to aggressively manage all types of emergency situations by providing scene control, emergency medical care and patient transport to a medical facility or trauma center. The paramedic is an integral part of the health care team, serving as an extension of the hospital emergency department. Paramedics provide a variety of skilled functions in the pre-hospital phase of patient care, often the most critical period of care. The professional paramedic is highly motivated and qualified by education and certification to provide pre-hospital care under the supervision of a physician director of the Emergency Medical Service System.

This program is designed to allow current fire science and public safety students to earn a minor and obtain their paramedic certification; it also allows students to obtain paramedic certification without committing to a four-year degree. Students can be certified as an Emergency Medical Technician-Basic after the first year with little or no previous training; and as a Paramedic at the end of the second year. Graduates will be eligible to challenge state and/or national licensure examination for both EMT-Basic and paramedic license.

## Degree Requirements

**Paramedic Technology (46 credits)**

- EMED190 Prehospital Emergency Care I 4
- EMED191 Prehospital Emergency Care II 4
- EMED211 Emergency Pharmacology I 2
- EMED212 Emergency Pharmacology II 2
- EMED251 Advanced Emergency Care I 4
- EMED252 Advanced Emergency Care II 4
- EMED261 Emergency Cardiology I 2
- EMED262 Emergency Cardiology II 2
- EMED271 Prehospital Emergency Pediatrics 2
- EMED284 Advanced Skills and Situations I 3
- EMED285 Advanced Skills and Situations II 3
- EMED286 Paramedic Operations 2
- EMED297 Paramedic Clinical I 2
- EMED298 Paramedic Clinical II 2
- EMED299 Paramedic Field Internship 4
- EMED301 National Registry Certification Prep 2
- HLTH101 Introduction to Medical Terminology 2

**Other Disciplines (7 credits)**

- MATH111 College Algebra 3
- BIOL105 Functions of the Human Biology 4

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 65 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Personal Computer Specialist

## Program Description

Personal computers of today outperform the mainframe computers of a generation ago at a fraction of the cost. This associate's degree trains individuals to assist personal computer users. They will be able to assemble, upgrade, maintain, troubleshoot, and repair personal computers. Computer skill courses are combined with general education and business courses.

## Degree Requirements

**Department Requirements (31 credits)**

- OFFC119 Accounting Procedures (or ACTG132 and ACTG133) 4
- BUSN231 Business Communications 3
- CSCI163 Troubleshooting and Repair of Personal Computers 3
- CSCI221 Computer Networks 3
- CSCI263 Managing Computer Security 3
- DATA225 Word Processing Techniques 3
- DATA250 Desktop Publishing and Presentation Design 3
- DATA261 Multimedia Applications 3
- DATA231 Database 3
- DATA235 Spreadsheets 3

**Business or Computer Science Electives (9 credits)**

- BUSN121 Introduction to Business 3
- BUSN350 Business Law I 3
- CSCI105 Intro. to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI271 Network Hardware and Software 3
- CSCI281 Network Design and Implementation 3
- FINC242 Personal Finance 3
- FINC245 Principles of Finance 3
- MRKT281 Marketing Principles and Strategy 3

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 62 credits (at the 100 level or higher) must be earned for**

**graduation with a cumulative gpa of 2.00 or higher.  A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Small Business Administration

## Program Description

This program prepares you for entry-level positions in industry and government requiring two years of college-level business preparation. The program is oriented toward marketing and should be of special interest to individuals seeking careers in marketing or as management trainees in retail organizations. The degree program is transferable into a four-year program in business administration.

## Degree Requirements

**Departmental Requirements (34 credits)**

- ACTG132 Principles of Accounting I 4
- BUSN121 Introduction to Business 3
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
  or
- BUSN355 Business Law II 3
- ECON202 Principles Microeconomics 3
- FINC245 Principles of Finance 3
- MGMT280 Intro Management Information Systems 3
- MGMT360 Management Concepts & Applications 3
- MGMT365 Human Resource Management 3
- MRKT281 Marketing Principles and Strategy 3
- MRKT389 Entrepreneurship 3

**Electives (13 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**62 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Social Work

## Program Description

Workers in this field help people improve their lives, work to alleviate human suffering and promote social justice. In direct service delivery programs you will be working with people who are caught in the grips of social problems and/or struggling with personal adjustment issues. This program provides beginning level skills and knowledge to enable you help people in these circumstances.

You will learn about the field of social work, current issues in social work, introductory level clinical diagnosis and practice and will acquire skills in one-on-one counseling. Behavioral and social science perspectives on human behavior as well as basic human biology are included in this program. An extensive internship experience in one or more agency settings will provide you with an opportunity to apply, in a supervised setting, knowledge and skills gained in the classroom. The internship may be completed in the local area or outside the local area.

If you are seeking the Associate Degree in Social Work you are strongly encouraged to continue your studies to complete a Bachelor's degree to be successful in today's competitive labor market. You may find the expanded understanding of human behavior provided by the Sociology major or Psychology major to be particularly useful for work in social work programs. Both of these majors also help you develop critical thinking ability, improve writing skills and learn about research through first-hand experience developing and conducting a research project. These abilities are valued by employers in social work and human service agencies.

Although most students combine the Associate Degree in Social Work with a bachelor degree in Psychology or Sociology, some choose other bachelor programs to best prepare them to achieve their particular career goals. Advisors will help you make these decisions.

## Degree Requirements

**Required Courses (21 credits)**

- SOWK110 Introduction to Social Work 3
- PSYC201 Communication Skills in Counseling 3
- SOWK250 Social Work Practicum 9
- SOWK310 Clinical Diagnosis and Treatment 3
- SOWK344 Social Welfare Systems 3

**Cognates- Required (3 credits)**

**Select one additional social work course, not taken above, from the following:**

- SOCY301 Social Research Methods 3
- PSYC291 Group Counseling 3
- SOCY338 Deviance 3
- SOWK341 Addiction 3
- PSYC391 Family Therapy 3

**Other Departments (12-13 credits)**

- BIOL105 Function of the Human Body 4
- PSYC101 Introduction to Psychology 4
  or
- SOCY101 Introduction to Sociology 4
- SOCY102 Social Problems 4
  or
- PSYC155 Lifespan Development 3

**Electives (8 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 64 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Substance Abuse Prevention and Treatment

## Program Description

This program provides the basic knowledge and skills for entry level substance abuse work. Included are social, psychological and biological bases of substance abuse, with special attention to alcoholism, and skills training in counseling. You will also improve your communication skills and expand your knowledge about cultural diversity and psychological and social foundations of human behavior. You will apply knowledge and skills acquired in an extensive internship working under close supervision in a substance abuse program. Placements include residential and out-patient rehabilitation settings, detoxification programs, and prevention programs. You may complete your internship locally or outside the local area.

If you are seeking the Associate Degree in Substance Abuse Prevention and Treatment you are strongly encouraged to continue your studies to complete a Bachelor's degree to be successful in today's competitive labor market. You may find the expanded understanding of human behavior provided by the Psychology major or Sociology major to be particularly useful for work in social work programs. Both of these majors also help you develop critical thinking ability, improve writing skills and learn about research through first-hand experience developing and conducting a research project. These abilities are valued by employers in this field.

Although most students combine the Associate Degree in Social Work with a bachelor degree in Sociology or Psychology, some choose other bachelor programs to best prepare them to achieve their particular career goals. Advisors will help you make these decisions.

## Degree Requirements

**Required Courses (39 credits)**

- BIOL105 Function of the Human Body 4
- HMSV204 Fundamentals of Drug Abuse 3
- HMSV250 Human Services Practicum 9
- HMSV292 Alcohol Abuse Prevention & Treatment 3
- PSYC101 Introduction to Psychology 4
- PSYC201 Communication Skills in Counseling 3
- PSYC259 Abnormal Psychology 3
- SOCY102 Social Problems 4
- SOWK341 Addiction 3
- SOWK344 Social Welfare Systems 3

**Cognates- Required (6 credits)**

- PSYC291 Group Counseling 3
  or
- PSYC391 Family Therapy 3
- SOCY225 Native Cultures of North America 3
  or
- SOCY103 Cultural Diversity 3

**Electives (7 credits)**

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 64 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Technical Accounting

## Program Description

This program is designed for those who do not plan to go to college for four years but desire a working knowledge in the field of accounting. The program provides students with knowledge in the accounting techniques used in business as well as knowledge of economics, business law, data processing and business communication. After completing this program, you may transfer to the four-year program without loss of credits.

## Degree Requirements

**Departmental requirements**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- ACTG232 Intermediate Accounting I 4
- ACTG233 Intermediate Accounting II 4
- ACTG332 Cost Accounting I 4
- ACTG421 Federal Taxation Accounting I 3
- BUSN231 Business Communication 3
- BUSN350 Business Law I 3
- DATA235 Spreadsheets 3
- ECON201 Principles of Macroeconomics 3
  or
- ECON202 Principles of Microeconomics 3
- FINC245 Principles of Finance 3-4
  or
- FINC341 Managerial Finance 3-4

**General Education:** All LSSU Associate's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students).

**A minimum of 64 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Certificate: International Studies

## Program Description

This program can be completed in three ways:

- Concurrently with a B.S. or B.A. degree program
- Post-baccalaureate program
- Minor

The purpose of the certificate program is to better prepare a person to work with a more diverse work force. The program is designed to begin preparing students for potential foreign work assignments and improved multicultural relations.

The international studies certificate/minor is an interdisciplinary program. Course substitutions to meet your objectives in international studies may be approved by your academic advisor. As an example, Canadian or American courses might be approved as a substitute for students from countries other than Canada or the U.S. Also, special topics courses listed in the certificate curriculum may change with future development and additional international courses.

The listed courses may be taken throughout a student's baccalaureate program or as a one-year, post graduate certificate. This program features opportunities for students to study in foreign countries and in classes at Lake Superior State University with international faculty.

**The certificate program is Not eligible for federal financial aid.**

## Degree Requirements

Choose at least one course from six of the following categories to total a minimum of 32 credits.

Category 7, Foreign Language is required.

**1. Cultural Diversity**

- SOCY103 Cultural Diversity 3
- BUSN308 Managing Cultural Differences 3

**2. Business and Economics**

- ECON408 International Economics 3

- INTB486 International Marketing 3
- BUSN400 Special Topics:

**3. Geography**

- GEOG302 Economics Geography 4
- GEOG306 Cultural Geography 3

**4. Political Science**

- POLI411 U.S. Foreign Policy 3
- POLI420 Politics of the World Economy 4
- POLI331 Comparative Politics of Western Europe and Russia 4
- POLI334 Middle East Politics 3

**5. History**

- HIST310 Russia 4
- HIST316 Europe in the 20th Century 4
- HIST361 Latin America 4
- HIST371 Far East Civilization 4
- HIST442 Diplomatic History of the U.S. 4

**6. Humanities**

- HUMN261 World Literature I 3
- HUMN262 World Literature II 3
- FREN353 Business French I 3
- FREN354 Business French II 3
- FREN360 French Cultural Perspectives 3-4
- JAPN105 Intensive Introductory Japanese Language I 10
- JAPN106 Intensive Introductory Japanese Language II 10
- JAPN201 Culture and Society of Japan I 3
- JAPN202 Culture and Society of Japan II 3
- JAPN301 Japanese Art and Culture I 4
- JAPN302 Japanese Art and Culture II 4

**7. Foreign Language**

- A minimum of two semesters of a modern foreign language 8

***Special Topics: Study in a foreign country may be used for up to eight credits of the Humanities and/or Foreign Language credits.***

**A minimum of 32 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher.**

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# Certificate: Manufacturing

## Program Description

This one year certificate familiarizes the student with machine tools and manufacturing processes. Graduates of the program will be able to safely and efficiently work with traditional manufacturing tools to perform a variety of tasks such as drill, cut, deburr, tap, mill, grind, thread, face, turn, bore, turn a taper as well as perform machining set-ups, and measure using precision inspection equipment and gages.

In addition to traditional machining, the student will also be able to work safely and efficiently with CNC machines to perform a variety of tasks such as drill, cut, deburr, tap, mill, grind, thread, turn, taper and perform machine set-ups. This program also covers the reading and interpreting of manufacturing blueprints along with the application of principles from the machinery handbook. Finally, fundamentals in the implementation of Geometric Dimensioning and Tolerancing (GD&T) in manufacturing and the use of CAD software for drawing and animating simple mechanical components and linkages will be covered in the program.

**This certificate program is Not eligible for federal financial aid.**

## Degree Requirements

- CSCI101 Introduction to Microcomputer Applications 3
- EGME141 Solid Modeling 3
- EGME240 Assembly Modeling and GD&T 3
- EGMF110 Introduction to Machining I 4
- EGMF130 Introduction to Machining II 4
- EGMF210 Advanced Machining 4
- EGRS215 Introduction to Robotics 2
- MATH102 Inermediate Algebra 4
- Technical elective 2
- Free elective 1
- Free elective 1

**A minimum of 32 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher.**

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# Certificate: Paramedic Training

## Program Description

This program provides advanced life support skills to assess and treat the sick and injured. It will allow graduates to qualify to write the state licensing examination for paramedic and possess advanced life support skills to assess and treat the sick and injured.
Admission requirements are:

- 18 years of age by September of year entering program.
- evidence of high school diploma or equivalent.
- evidence of valid, current Michigan driver's license.
- evidence of valid, current Michigan EMT-basic certification or National Registry EMT certification.
- evidence of current CPR or CPR instructor certification.
- evidence of completion of ENGL110 First-Year Composition I, three credits.

Note: Financial Aid Student Disclosure

## Degree Requirements

**Department Requirements**

- EMED211 Emergency Pharmacology I 2
- EMED212 Emergency Pharmacology II 2
- EMED251 Advanced Emergency Care I 4
- EMED252 Advanced Emergency Care II 4
- EMED261 Advanced Cardiology I 2
- EMED262 Advanced Cardiology II 2
- EMED271 Prehospital Emergency Pediatrics 2
- EMED284 Advanced Skills and Situations I 3
- EMED285 Advanced Skills and Situations II 3
- EMED286 Paramedic Operations 2
- EMED297 Paramedic Clinical I 2
- EMED298 Paramedic Clinical II 2
- EMED299 Paramedic Field Internship 4
- EMED301 National Registry Certification Prep 2

**Support Courses**

- BIOL105 Functions of the Human Body 4

**A minimum of 40 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher.**

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# Certificate: Practical Nursing

## Program Description

The certificate of practical nursing provides students with the necessary skills and training to provide safe and competent care to patients and qualifies students to write the required licensure examinations for practical nursing. Course work can be completed in 4 semesters of full-time study.

Note: Financial Aid Student Disclosure

## Degree Requirements

**Major Requirements (37 Credits)**

- PNUR101 Introduction to Practical Nursing I 2
- PNUR102 Drugs and Dosages 3
- PNUR104 Introduction to Practical Nursing II 2
- PNUR107 Understanding Clinical Nutrition Lab for Practical Nurses 1
- PNUR113 Fundamentals to Practical Nursing 7
- PNUR201 Medical Surgical Practical Nursing 10
- PNUR202 Ethical/Legal Aspects of Practical Nursing 2
- PNUR203 OB Practical Nursing 5
- PNUR204 Pediatric Practical Nursing 5

**Support Courses (10-11 Credits)**

- BIOL105 Function of the Human Body 4
- HLTH208 Principles of Human Nutrition 3
- PSYC155 Lifespan Development 3
- MATH086 Introductory Algebra III 1

**A minimum of 47 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher.**

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# Minor: Accounting — Finance

## Degree Requirements

**Total Credits Required: 24**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- ACTG232 Intermediate Accounting I 4
- FINC341 Managerial Finance 4

**Choose One From:**

- FINC443 Insurance 4
- FINC446 Financial Analysis and Policy 4
- FINC448 Investment Strategy 4

**ACTG or FINC Electives 4**

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# Minor: Anishinaabemowin/Ojibwe Language and Literature

## Degree Requirements

**Total Credits Required: 30**

- NATV141 Anishinaabemowin/Ojibwe I 4
- NATV142 Anishinaabemowin/Ojibwe II 4
- NATV201 Second Year Anishinaabemowin/Ojibwe Conversation I 4
- NATV202 Second Year Anishinaabemowin/Ojibwe Conversation II 4
- NATV301 Anishinabe Oral and Recorded Literature I 3
- NATV302 Anishinabe Oral and Recorded Literature II 3
- NATV401 Seminar in Advanced Language Studies I 4
- NATV402 Seminar in Advanced Language Studies II 4

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# Minor: Art

## Degree Requirements

**Total Credits Required: 20**

- ARTS109 Principles of Design and Color 3
- ARTS110 Fundamentals of Drawing and Composition 3
- ARTS111 Introduction to Painting Media and Techniques 3
- ARTS211 Mixed Media Explorations 3
- ARTS250 Art History & Appreciation I 4
- ARTS251 Art History & Appreciation II 4

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# Minor: Biology

## Degree Requirements

**Total Credits Required: 21**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL204 General Microbiology 4
- BIOL337 General Ecology 3
- BIOL Biology Electives (200+ level) 6

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# Minor: Business French

## Degree Requirements

Total Credits Required: 28

- FREN151 First Year French I 4
- FREN152 First Year French II 4
- FREN251 Second Year French I 4
- FREN252 Second Year French II 4
- FREN351 Advanced Conversation and Composition I 3
- FREN352 Advanced Conversation and Composition II 3
- FREN353 Business French I 3
- FREN354 Business French II 3

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# Minor: Chemistry

## Degree Requirements

**Total Credits Required: 22**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5

*And complete one of the following options:*

**a)**

- CHEM225 Organic Chemistry I 4
- CHEM231 Quantitative Analysis 4
- CHEM332 Instrumental Analysis 4

or

- CHEM361 Physical Chemistry I 4

**b)**

- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM251 Intro Biochemistry 4

A minimum gpa of 2.50 or higher is required for this minor.

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# Minor: Chemistry-Secondary Teaching

## Degree Requirements

**Total Credits Required: 25**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM105 Life Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM332 Instrumental Analysis 4
- EDUC443 Science Methods-Secondary 3
  or
- EDUC453 Directed Study: Science Methods 3

A minimum gpa of 2.70 or higher is required for this minor.

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# Minor: Coaching

## Degree Requirements

**Total Credits Required: 23**

- EXER230 Athletic Injury Illness Prevention 3
- EXER248 Psychology of Sport Performance and Coaching 3
- EXER265 Essentials in Strength and Conditioning 3
- EXER275 Nutrition for Sport and Exercise Performance 2
- RECS/EXER105 Programming Development and Leadership 3
- RECS270 Sports Management 3
- RECS280 Readiness in Activities Sports and Games 3
- RECS/EXER295 Coaching Techniques Practicum 2
- RECS/EXER390 Apprenticeship 1

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# Minor: Communication

## Degree Requirements

Total Credits Required: 21

- COMM201 Small Group Communication 3

or

- COMM225 Interpersonal Communication 3
- COMM211 Advanced Public Speaking 3

or

- COMM210 Business & Professional Speaking 3
- COMM302 Argumentation & Advocacy 3
- COMM307 Classical/Contemporary Rhetoric 3

or

- ENGL321 Rhetoric & Composition Theory 3
- COMM308 Communication Theory 3
- COMM325 Organizational Communication 3
- COMM416 Communication in Leadership 3

*Students must complete 21 semester hours of credit in addition to basic requirements of composition and speech (COMM101).*

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# Minor: Computer Science

## Degree Requirements

**Total Credits Required: 24**

- CSCI105 Intro. to Computer Programming 3
- CSCI121 Principles of Programming 3
- CSCI122 Programming Tools and Techniques 3
- CSCI201 Data Structures and Algorithms 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI315 Computer Organization and Architecture 3
- Plus three additional CSCI credits at the 300- or 400-level 3

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# Minor: Computer Science — Teaching

## Degree Requirements

**Total Credits Required: 24**

- CSCI105 Intro. to Computer Programming 3
- CSCI121 Principles of Programming 3
- CSCI122 Programming Tools and Techniques 3
- CSCI201 Data Structures and Algorithms 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI315 Computer Organization and Architecture 3
- EDUC445 Teaching Computer Science in the Secondary Classroom 3

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# Minor: Corrections

## Degree Requirements

**Total Credits Required: 21**

*Required Courses:*

- CJUS110 Introduction to Corrections 3
- CJUS220 Institutional Corrections 3
- CJUS240 Community Based Corrections 3
- CJUS319 Substantive Criminal Law 3

*Minimum of nine hours from: (At least one must be 300-400)*

- CJUS130 Client Relations in Corrections 3
- CJUS140 Correctional Client Growth & Development 3
- CJUS250 Correctional Law 3
- CJUS330 Correctional Casework 3
- CJUS355 Juvenile Justice 3

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# Minor: Counseling

## Degree Requirements

**Total Credits Required: 21**

- PSYC155 Lifespan Development 3
- PSYC201 Communication Skills in Counseling 3
- PSYC396 Tests and Measurements* 3
- SOWK344 Social Welfare Systems 3
- SOWK250 Human Services Practicum 3
- BIOL105 Function of the Human Body** 4
- PSYC259 Abnormal Psychology*** 3

  **or**
- SOCY338 Deviance*** 3
- PSYC291 Group Counseling 3

  **or**
- PSYC391 Family Therapy 3
- PSYC240 Behavioral Management 3

  **or**
- PSYC385 Health Psychology 3

**Note: PSYC396 has a prerequisite of one of these statistics courses: MATH207, PSYC210 or SOCY302.*

***May count toward general education.*

****May count toward SOCY/PSYC minor.*

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# Minor: Creative Writing

## Degree Requirements

**Total Credits Required: 24**

- ENGL180 Introduction to Literary Studies 3
- ENGL221 Introduction to Creative Writing 3
- ENGL223 Creative Writing II 3
- ENGL231 American Literature I 3
  **and**
- ENGL232 American Literature II 3
  **or**
- ENGL233 English Literature I 3
  **and**
- ENGL234 English Literature II 3

**Select one from the following:**

- ENGL409 Adv. Creative Writing Workshop 3
- ENGL480 Creative Writing Portfolio 3

**Select two from the following:**

- ENGL301 Creative Prose Writing 3
- ENGL302 Poetry Writing 3
- ENGL303 Performance Writing 3

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# Minor: Dance

## Degree Requirements

**Total Credits Required: 21**

*Required Courses:*

- *DANC305 Dance History 3*
- *DANC310 Choreography 3*

*Technique Classes - Select minimun of six (6) credits:*

- DANC101 Ballet I 1
- DANC201 Ballet II 1
- DANC301 Ballet III 1
- DANC125 Modern Dance I 1
- DANC220 Musical Theatre Tap/Jazz 1
- DANC225 Modern Dance II 1
- DANC120 Jazz Dance I 1
- DANC130 Scottish Highland Dance 1
- RECA173 Social Dance 1

*Choose from the following courses to complete 21 credits (Minimum of 9 credits)*

- DANC110 Dance Company 1-8
- DANC205 Creative Movement for Elementary Educators 3
- DANC210 Movement for Actors 2
- DANC401 Senior Thesis 1-4

**Electives from either Emphasis to total 21 credits.**

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# Minor: Early Childhood Education - Teaching

## Degree Requirements

**Total Credits Required: 27**

- CHLD101 Foundations of Early Childhood Education 3
- CHLD110 Curriculum Development & Teaching Practices 3
- CHLD220 Early Childhood Literature 3
- CHLD260 Practicum I 4

or

- CHLD261 Practicum II 4
- CHLD270 Administration of Early Childhood Programs 3
- CHLD420 Emergent Literacy 3
- CHLD430 Directed Studies — Early Childhood Education 4
- CHLD450 Internship in Teaching Infant/Toddler Preprimary Ed. 4

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# Minor: Economics - Finance

## Degree Requirements

**Total Credits Required: 28**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- ECON201 Prin. of Macroeconomics 3
- ECON202 Prin. of Microeconomics 3
- FINC341 Managerial Finance 4
- ECON or FINC Electives 10

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# Minor: Electrical Engineering

## Degree Requirements

**Total Credits Required: 26**

- EGNR101 Introduction to Engineering 2
  **or**
- CSCI105 Introduction to Computer Programming 3
- EGNR140 Linear Algebra and Numerical Methods for Engineers 2
- EGEE125 Digital Fundamentals* 4
- EGEE210 Circuit Analysis* 4
- EGEE250 Microcontroller Fundamentals 4
- MATH152 Calculus II 4

**Elective Courses:**

- EGEE200 or higher 3
- EGEE300 or higher 3

***C or better grade**

****At least one elective course must not count toward any other major or minor.**

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# Minor: English Teaching - Elementary Language Arts

## Degree Requirements

**Total Credits Required: 24**

*English Requirements:*

- ENGL180 Introduction to Literary Studies 3
- ENGL221 Introduction to Creative Writing 3
- ENGL222 English Grammar 3
- ENGL231 American Literature I 3
- ENGL232 American Literature II 3
- ENGL320 Responding to Writing 3
- ENGL335 Children's Literature 3
- THEA309 Speech and Drama Productions 3

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# Minor: Environmental Science

## Degree Requirements

**Total Credits Required: 25**

**Required Courses (19 credits):**

- BIOL132 General Biology: Organisms 4
- BIOL337 General Ecology 3
- CHEM115 General Chemistry I 5
- NSCI103 Environmental Science 3

**One of the Following:**

- NSCI102 Introduction to Geology 4
- GEOL121 Physical and Historical Geology I 4
- NSCI116 Introduction to Oceanography 4

**At least 6 credits of the following:**

- BIOL286 Principles of Watersheds 3
- ECON307 Environmental Economics 3
- EVRN131 Introduction to GIS and GPS 2
- EVRN311 Environmental Law 3
- EVRN313 Solid & Hazardous Waste 3
- EVRN317 Environmental Health Apps
- EVRN341 Environmental Chemistry 4
- GEOL411 Hydrologic Systems 4
- INTD300 The Human Environment 3

A minimum gpa of 2.50 or higher is required for this minor.

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# Minor: Fire Science

## Degree Requirements

**Total Credits Required: 21**

*Required Courses:*

- FIRE101 Introduction to Fire Science 3
- FIRE111 Hazardous Materials 3
- FIRE204 Fire Protection Hydraulics & Pumps 3
- FIRE206 Fire Protection Systems, Equipment and Industrial Fire Protection 3

*Minimum of 9 credits from the following:*

- FIRE201 Fire Protection Construction Concepts 3
- FIRE211 Tactics and Strategy 3
- FIRE301 Code Enforcement Inspection and Fire Prevention 3
- FIRE315 Company Level Supervision and Management 3
- CJUS341 Fire Cause & Arson Investigation 3
- FIRE220 Fire Science Certification 4

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# Minor: General Business

## Degree Requirements

**Total Credits Required: 22-23**

*Required Courses:*

- ACTG132 Principles of Accounting I 4

  or
- OFFC119 Accounting Procedures 4
- MGMT360 Management Concepts & Apps. 3
- MRKT281 Marketing Principles & Strategy 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC245 Principles of Finance 3

  or
- FINC341 Managerial Finance 4
- BUSN231 Business Communication 3

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# Minor: Geographic Information Systems

## Degree Requirements

**Total Credits Required: 20**

**Required Courses:**

- CSCI105 Introduction to Computer Programming 3
- EVRN131 Introduction to GIS and GPS 3
- Any 200-level course in Statistics 3

**Select two from the following:**

- EVRN325 Geospatial Analysis 3
- EVRN345 Advanced Spatial Analysis and 4 Statistics
- EVRN355 GIS Programming and Applications 4
- EVRN465 Geographic Databases and Web-based GIS 4

**Select two from the following:**

- CSCI211 Database Applications 3
- BIOL126 Interpretation of Maps and Aerial Photography 2
- EVRN231 Intermediate GIS 2

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# Minor: Geography

## Degree Requirements

**Total Credits Required: 20**

*Geography (9-11 credits)*

- GEOG106 Physical Geography: Landforms 4

  or
- GEOL121 Physical and Historical Geology I 4
- GEOG108 Physical Geography: Meteorology and Climatology 4
- GEOG302 Economic Geography 4
- GEOG306 Cultural Geography 3
- GEOG492 Individualized Studies in Geography 2-4

*Geography electives to total 20 credits:*

- GEOG201 World Regional Geography 4
- GEOG321 Geography of Europe and Great Britain 4
- GEOG322 Geography of South America, Central America and the Caribbean Region 4
- GEOG323 Geography of East and Southeast Asia 4
- GEOG325 Regional Geography of North America 4
- GEOG360 Historical Geography of Eastern North America 4

*It is strongly suggested that students pursuing professional careers complete MATH207 Principles of Statistical Methods.*

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# Minor: Geology

## Degree Requirements

**Total Required Courses: 21**

- GEOL121 Physical/Historical Geology I 4

  or
- GEOL115 Field Excursions in Earth Science 4
- GEOL122 Physical/Historical Geology II 4
- GEOL218 Structural Geology and Tectonics 5
- GEOL223 Mineralogy and Petrology 5
- GEOL380 Introduction to Field Geology 3

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# Minor: Gerontology

## Degree Requirements

**Total Credits Required: 23**

**Required Courses:**

- BIOL105 Function of the Human Body 4
  or
- BIOL122 Human Anatomy and Physiology II 4
- PSYC155 Lifespan Development 3
- RECS105 Program Development & Leadership 3
- RECS295 Practicum 1
- RECS370 Recreation for the Elderly 3
- HLTH352 Health Issues of Aging Populations 3
- SOCY326 The Sociology of Aging and the Aged 3
- SOCY327 The Sociology of Dying and Death 3

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# Minor: History

## Degree Requirements

**Total Credits Required: 21-22**

*Required Courses:*

- HIST101 History of World Civilization I 4

  and
- HIST102 History of World Civilization II 4

  or
- HIST131 United States History I 4

  and
- HIST132 United States History II 4
- HIST496 Historical Methods 2
- HIST 300/400-Level History Elective 8

*One course from:*

- GEOG306 Cultural Geography 3
- GEOG321 Geography of Europe and Great Britain 4
- GEOG322 Geography of South America, Central America and the Caribbean Region 4
- GEOG323 Geography of East & Southeast Asia 4
- GEOG325 Regional Geography of North America 4
- GEOG360 Historical Geography of Eastern North America 4

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# Minor: Homeland Security

## Degree Requirements

**Total Credits Required: 21**

*Required Courses:*

- CJUS101 Introduction to Criminal Justice 3
- CJUS103 Introduction to Terrorism and Homeland Security 3
- CJUS203 Cyberterrorism 3
- CJUS303 Critical Infrastructure Protection 3

*Select two courses from:*

- CJUS204 Domestic and International Terrorism 3
- CJUS325 Homeland Security and Emergency Services 3
- CJUS384 International and Comparative Criminal Justic Systems 3

*Select one course from:*

- CJUS306 Security Systems 3
- CJUS313 Crisis Intervention and Deviant Behavior 3
- CJUS444 Criminalistics 4
- FIRE312 Hazardous Materials Management 3

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# Minor: Human Nutrition

## Degree Requirements

**Total Credits Required: 23**

- BIOL122 Anatomy and Physiology II 4
- CHEM105 Life Chemistry II 4
- HLTH104 Nutrition for Early Childhood 3
- HLTH208 Principles of Human Nutrition 3
- EXER275 Nutrition for Sport and Exercise Performance 2
- HLTH330 Applied Nutrition 2
- HLTH452 Contemporary Issues in Nutrition 3
- HLTH490 Independent Study in Health 2

or

- EXER496 Selected Research Topics 2

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# Minor: Human Resource Management

## Degree Requirements

**Total Credits Required: 31**

- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- BUSN350 Business Law I 3
- MGMT360 Management Concepts & Apps. 3
- MGMT365 Human Resource Management 3
- MGMT451 Labor Law 4
- MGMT469 Collective Bargaining 3
- PSYC228 Organizational Behavior 3
- PSYC396 Tests and Measurements 3
- PSYC201 Communication Skills in Counseling 3

  or
- PSYC383 Industrial Psychology 3

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# Minor: Human Services Administration

## Degree Requirements

**Total Credits Required: 22**

- SOWK344 Social Welfare Systems 3
- MGMT365 Human Resource Management 3
- DATA Elective 3
- POLI201 Intro. to Public Administration 3

or

- PSYC228 Organizational Behavior 3
- HMSV250 Human Services Practicum 3
- ACTG230 Fundamentals of Accounting 4
- MRKT281 Marketing Principles and Strategy 3

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# Minor: Humanities

## Degree Requirements

**Total Credits Required: 24**

*Required Courses:*

- HUMN251 Humanities I 4
- HUMN252 Humanities II 4
- Select 6-8 credits from one discipline
- Select 10 credits from three other disciplines
- No more than 3 credits in studio or performance classes
  - Art
  - Film
  - Second Year Foreign Language (provided it is not used to satisfy any other requirement)
  - History of Drama
  - Music
  - Mythology
  - Philosophy
  - World Literature

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# Minor: Institutional Loss Control

## Degree Requirements

**Total Credits Required: 21**

- CJUS212 Loss Control 3
- CJUS306 Security Systems 3
- CJUS341 Fire Cause & Arson Investigation 3
- FIRE101 Introduction to Fire Science 3
- FIRE111 Hazardous Materials 3
- FIRE206 Fire Protection Systems Equipment and Industrial Fire Prevention 3
- FIRE301 Code Enforcement Inspection and Fire Prevention 3

*This minor may not be used for fire science majors.*

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# Minor: International Business

## Degree Requirements

**Total Credits Required: 21**

*Required Courses:*

- INTB375 International Business Law 3
- INTB389 Competing in the Global Marketplace 3
- INTB420 Comparative International Management 3
- INTB486 International Marketing 3
- MGMT360 Management Concepts 3
- MRKT281 Principles of Marketing 3
- Approved International Experience Elective (3)

*Select one of the following courses for the International Experience Elective:*

- BUSN399 Internship in Discipline 3
- INTD310 Foreign Study 3
- INTD410 Internship in Department 3

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# Minor: International Studies

## Degree Requirements

**Total Credits Required: 32**

*Choose at least one course from six of the following categories to total a minimum of 32 credits.*

*Category 7, foreign language, is required.*

**1. Cultural Diversity**

- SOCY103 Cultural Diversity 3
- BUSN308 Managing Cultural Differences 3

**2. Business and Economics**

- ECON408 International Economics 3
- INTB486 International Marketing 3
- BUSN400 Special Topics 3

**3. Geography**

- GEOG302 Economics Geography 4
- GEOG306 Cultural Geography 3

**4. Political Science**

- POLI411 U.S. Foreign Policy 3
- POLI420 Politics of the World Economy 4
- POLI331 Comparative Politics of Western Europe and Russia 4
- POLI334 Middle East Politics 3

**5. History**

- HIST310 Russia: From Under-developed State to Superpower 4
- HIST316 Europe in the 20th Century 4
- HIST361 Latin America 4
- HIST371 Far East Civilization: 1850 to Present 4
- HIST442 Diplomatic History of the U.S. I 4

**6. Humanities**

- HUMN261 World Literature I 3
- HUMN262 World Literature II 3
- FREN353 Business French I 3
- FREN354 Business French II 3
- FREN360 French Cultural Perspectives 3-4
- JAPN105 Intensive Introductory Japanese Language I 10
- JAPN106 Intensive Introductory Japanese Language II 10
- JAPN201 Culture and Society of Japan I 3
- JAPN202 Culture and Society of Japan II 3
- JAPN301 Japanese Art and Culture I 4
- JAPN302 Japanese Art and Culture II 4

**7. Foreign Language**

- A minimum of two semesters of a modern foreign language 8

*Special Topics — study in a foreign country may be used for up to eight credits of the humanities and foreign language credits.*

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# Minor: Japanese Study

## Degree Requirements

**Total Credits Required: 26-28**

*Required Courses:*

- JAPN105 Intensive Introductory Japanese Language I 10
- JAPN106 Intensive Introductory Japanese Language II 10

*Select two courses from the following:*

- JAPN201 Culture and Society of Japan I 3
- JAPN202 Culture and Society of Japan II 3
- JAPN301 Japanese Art and Culture I 4
- JAPN302 Japanese Art and Culture II 4

*Students must complete the full-year program at the Japan Center for Michigan Universities. Enrollment in the program is based upon the requirement that the student be a full-time, tuition-paying student of LSSU. The center is located in Hikone, Japan, and it is their staff and resources that provide the courses for this minor. Completion of this minor shall fulfill the one-year foreign language required for a bachelor of arts degree. Students are strongly advised to take GEOG323.*

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# Minor: Law Enforcement

## Degree Requirements

**Total Credits Required: 21**

**Required Courses:**

- CJUS101 Intro. to Criminal Justice 3
- CJUS102 Police Process 3

**Minimum of 15 credits from:**

- CJUS202 Canadian Criminal Law 3
- CJUS206 Law Enforcement/Loss Control Internship 3
- CJUS243 Investigation 3
- CJUS313 Crisis Intervention and Deviant Behavior 3
- CJUS319 Substantive Criminal Law 3
- CJUS321 Ethical Issues in Public Safety 3
- CJUS406 Advanced Canadian Jurisprudence 3
- CJUS409 Procedural Criminal Law 3
- CJUS444 Criminalistics 4

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# Minor: Literature

## Degree Requirements

**Total Credits Required: 21**

*Required Courses:*

- ENGL180 Introduction to Literary Studies 3
- ENGL340 Genre Studies 3

*Select one sequence:*

- ENGL231 American Literature I 3

and

- ENGL232 American Literature II 3

or

- ENGL233 English Literature I 3

and

- ENGL234 English Literature II 3

*Select one of the following:*

- ENGL235 Survey of Native Literature of North America 3
- ENGL236 Literature and Culture 3

*Select one of the following:*

- ENGL221 Introduction to Creative Writing 3
- THEA251 History of Drama and Theater I 3
- THEA252 History of Drama and Theater II 3
- THEA309 Speech and Drama Productions 3
- THEA333 Studies in the Drama: The Genre and Theater in Context 3

*Select one of the following:*

- ENGL404 Literature Before 1800 (Topic) 3
- ENGL408 Literature After 1800 (Topic) 3

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# Minor: Loss Control

## Degree Requirements

**Total Credits Required: 21**

*Required Courses:*

- CJUS212 Loss Control 3
- CJUS306 Security Systems 3

*Minimum of six hours from:*

- CJUS202 Canadian Criminal Law 3
- CJUS319 Substantive Criminal Law 3
- CJUS406 Advanced Canadian Jurisprudence 3
- CJUS409 Procedural Criminal Law 3

*Minimum of nine hours from:*

- MGMT365 Human Resource Management 3
- CSCI101 Intro. to Microcomputer Applications 3
- MGMT451 Labor Law 4
- MRKT281 Marketing Principles & Strategy 3
- MGMT360 Management Concepts & Applications 3

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# Minor: Marine and Freshwater Sciences

## Degree Requirements

**Total Credits Required: 24-26**

- NSCI116 Introduction to Oceanography 4
- BIOL286 Principles of Watershed 3
- BIOL310 Ichthyology 3
- BIOL345 Limnology 4
- BIOL389 Internship in Biology 3
- BIOL450 Lab Apprentice* 1

**Select two of the following (must represent different disciplines):**

- BIOL289 Aquatic Research Sampling Methods* 3
- BIOL302 Invertebrate Zoology 3
- BIOL333 Fish Ecology 3
- BIOL475 Aquatic Entomology 3
- EVRN341 Environmental Chemistry I 4
- GEOL121 Physical & Historical Geology I 4
- GEOL411 Hydrological Systems 4

***Cross-listed as EVRN**

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# Minor: Marketing

## Degree Requirements

**Total Credits Required: 21**

*Required Courses:*

- ECON202 Principles of Microeconomics 3
- INTB486 International Marketing 3
- MRKT281 Marketing Principles & Strategy 3
- MRKT283 Personal Selling 3
- MRKT381 Consumer Behavior 3
- MRKT Electives (300 level or above) 6

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# Minor: Mathematics

## Degree Requirements

**Total Credits Required: 22**

*Required Courses:*

- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH207 Principles of Statistical Methods 3

or

- MATH308 Probability and Mathematical Statistics 3

*Plus additional mathematics courses numbered 215 or higher for a minimum of 22 credits.*

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# Minor: Mathematics - Elementary Teaching

## Degree Requirements

**Total Credits Required: 23**

*Courses Required:*

- MATH103 Number Systems and Problem Solving 4
- MATH104 Geometry & Measurement 4
- MATH112 Calculus for Business & Life Sciences 4

or

- MATH151 Calculus I 4
- MATH207 Principles of Statistical Methods 3
- MATH215 Fundamental Concepts of Mathematics 3
- MATH321 History of Mathematics 3
- EDUC420 Math Methods for Elementary Teachers 2

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# Minor: Mathematics - Secondary Teaching

## Degree Requirements

**Total Credits Required: 26**

- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH215 Fundamental Concepts of Mathematics 3
- MATH216 Discrete Mathematics and Problem Solving 3
- MATH207 Principles of Statistical Methods 3
- MATH321 History of Mathematics 3
- MATH325 College Geometry 3
- EDUC442 Math Methods for Secondary Teachers 3

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# Minor: Mechanical Engineering

## Degree Requirements

**Total Credits Required: 21**

- EGNR140 Linear Algebra and Numerical Methods for Engineers 2
- EGEM220 Statics 3
- EGME110 Manufacturing Processes 3
- EGME141 Solid Modeling 3
- EGME225 Mechanics of Materials 3
- EGME or EGEM listed courses at the 300/400 level 7

*Not for mechanical engineering students.*

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# Minor: Native Studies of the Americas

The Native Studies of the Americas minor is designed to provide valuable historical and contemporary information about Native culture and society. The courses in the Native Studies of the Americas minor reflect the Native experience throughout North and South America, but focus on issues of importance to Native peoples in the Great Lakes region.

The Native Studies of the Americas minor is appropriate for students majoring in a wide variety of subjects who may or may not be Native themselves, but expect to work in a Native setting or in an area with a high Native population. Students who are simply interested in and wish to explore the Native cultures in our area will also benefit from this program.

## Degree Requirements

**Total Credits Required 23**

*Required Courses (10 credits)*

- NATV/SOCY225 Native Cultures of North America 3
- NATV/HIST230 Survey of Native History of North America 4
- NATV 310 Seminar in Native Studies of the Americas 3

*Electives from the following (13 credits)*
(at least 3 credits must be 300 level)

- SOCY103 Cultural Diversity 3
- NATV141 Ojibwe I, Anishinaabemowin 4
- NATV142 Ojibwe II, Anishinaabemowin 4
- NATV201 Second-Year Ojibwe I, Anishinaabemowin 4
- NATV202 Second-Year Ojibwe II, Anishinaabemowin 4
- NATV210 Indigenous Peoples of Central and South America 3
- NATV/ENGL235 Survey of Native Literature of North America 3
- NATV/HUMN240 Native Art and Culture 3
- NATV/LAWS/POLI305 Tribal Law and Government 3
- NATV320 Contemporary Native Issues of North America 3

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# Minor: Paramedic Technology

## Degree Requirements

Current licensure as a Michigan Basic EMT and all course prerequisites must be met by the student prior to beginning this program.

**Total Credits Required: 40**

*Paramedic Technology (36 credits)*

- EMED211 Emergency Pharmacology I 2
- EMED212 Emergency Pharmacology II 2
- EMED251 Advanced Emergency Care I 4
- EMED252 Advanced Emergency Care II 4
- EMED261 Emergency Cardiology I 2
- EMED262 Emergency Cardiology II 2
- EMED271 Prehospital Emergency Pediatrics 2
- EMED284 Advanced Skills and Situations I 3
- EMED285 Advanced Skills and Situations II 3
- EMED286 Paramedic Operations 2
- EMED297 Paramedic Clinical I 2
- EMED298 Paramedic Clinical II 2
- EMED299 Paramedic Field Internship 4
- EMED301 National Registry Certification Preparation 2

*Co-requisite (4 credits)*

- BIOL105 Functions of the Human Body 4

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# Minor: Philosophy

## Degree Requirements

**Total Credits Required: 20-21**

*Required Courses (12 credits):*

- PHIL205 Logic 3
- PHIL215 Ethical Theory and Practice 3
- PHIL302 Ancient Western Philosophy 3
- PHIL305 Modern and Contemporary Philosophy 3

*Elective Courses (8-9 credits)*

- PHIL100 Special Topics (if offered) 1-4
- PHIL200 Special Topics (if offered) 1-4
- PHIL204 Introduction to Philosophy 3
- PHIL210 Existentialsim 3
- PHIL220 Biomedical Ethics 3
- PHIL250 Philosophy of Religion 3
- PHIL300 Special Topics (if offered) 1-4
- PHIL400 Special Topics (if offered) 1-4
- PHIL490 Directed Study in Philosophy 1-4
- HUMN261 World Literature I 3
- HUMN262 World Literature II 3

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# Minor: Political Science

## Degree Requirements

**Total Credits Required: 28**

*Required Courses:*

- POLI110 Intro. to American Government & Politics 4
- POLI211 Political Science Research & Statistics 4

*A minimum of one course in each of the following four fields: (13-16 credits)*

- American Politics: POLI325, POLI364, POLI367, POLI467
- Comparative Politics: POLI160, POLI331, POLI333, POLI334, POLI335, POLI340
- International Relations: POLI241, POLI411, POLI413, POLI420
- Political Philosophy: POLI351, POLI352

*Additional political science electives must be taken to reach 28 credits. A minimum of 12 credits must be at the 300/400 level.*

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# Minor: Prelaw

## Degree Requirements

**Total Credits Required: 27-29**

*Required Courses:*

- COMM302 Argumentation and Advocacy 3
- LAWS102 Legal Research and Case Analysis 3
- LAWS125 Civil Litigation and Procedure 4
- LAWS150 Legal Professionals and Ethical Considerations 3
- LAWS202 Legal Writing and Analysis 3
- PHIL205 Logic 3
- POLI222 Introduction to the Legal Profession 3

*Select two courses from the following:*

- Any LAWS course(s)
- BUSN350 Business Law I 3

  or
- BUSN355 Business Law II
- CJUS319 Substantive Criminal Law 3

  or
- CJUS409 Procedural Criminal Law
- POLI467 Constitutional Law and Civil Liberties 4

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# Minor: Professional Communication

## Degree Requirements

**Total Credits Required: 21-22**

**Required Courses:**

- COMM308 Communication Theory 3
- CSCI106 Web Paige Design and Development 3
- ENGL222 English Grammar 3
- ENGL306 Technical Writing 3
- COMM399 Internship (1-4)

**Elective Courses: (6-7 credits)**

- COMM210 Business & Professional Speaking 3
  or
- BUSN231 Business Communications 3
- COMM211 Advanced Public Speaking 3
- COMM302 Argumentation and Advocacy 3
- COMM320 Public Relations 3
- COMM325 Organizational Communication 3
- ENGL221 Creative Writing 3
- ENGL320 Responding to Writing 3
- JOUR220 Photojournalism 3
- SOWK480 Grantwriting 3
- MRKT281 Marketing Principles & Strategy 3
- MRKT387 Advertising Theory and Practice 3

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# Minor: Psychology

## Degree Requirements

**Total Credits Required: 22-23**

- PSYC101 Introduction to Psychology 4
- PSYC210 Statistics 3
  **or**
- MATH207 Principles of Statistical Methods 3
- PSYC212 Experimental Psychology 4
- PSYC Electives 6
- PSYC Elective at 300+ level 3
- PSYC357 Personality Theory 3
  **or**
- PSYC396 Tests & Measurements 3
  **or**
- PSYC457 Cognition 3
  **or**
- PSYC459 Physiological Psychology 3

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# Minor: Public Administration

## Degree Requirements

**Total Credits Required: 28**

- POLI110 Intro. to American Government & Politics 4
- POLI130 Intro. to State and Local Government 4
- POLI201 Intro. to Public Administration 3
- POLI301 Policy Analysis & Evaluation 4
- POLI401 Prin. of Public Administration 3
- POLI499 Political Science/Public Administration Internship 3
- ECON201 Prin. of Macroeconomics 3
- POLI211 Political Science Research & Statistics 4

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# Minor: Public Relations

## Degree Requirements

**Total Credits Required: 21**

**Required Courses: (13 credits)**

- COMM210 Business & Professional Speaking 3
  or
- COMM211 Advanced Public Speaking 3
- COMM302 Argumentation and Advocacy 3
- COMM308 Communication Theory 3
- COMM320 Public Relations 4

**Elective Courses: (8 credits)**

- BUSN231 Business Communications 3
- COMM280 Understanding Mass Media 3
- COMM307 Classical/Contemporary Rhetoric 3
  COMM325 Organizational Communication 3
- COMM399 Internship in Public Relations 1-4
- CSCI106 Web Design and Development 3
- CSCI107 Web Graphic Design and Development 3
- MRKT281 Marketing Principles and Strategy 3
- MRKT387 Advertising Theory and Practice 3
- POLI325 Politics and Media 3

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# Minor: Recreation Studies

## Degree Requirements

**Total Credits Required: 24**

**Required Courses: (16 credits)**

- EXER140 Health and Fitness 3
- RECS101 Intro. to Recreation and Leisure Services 3
- RECS105 Program Development and Leadership 3
- RECS295 Practicum 2
- RECS390 Recreation Leader Apprenticeship 1
- RECS482 Administration of Recreation and Leisure Services 4

**Departmental Elective: (8 credits)**
**(six credits from 300- and 400-level classes)**

- HMSV480 Grantwriting 3
- RECA210 Lifeguarding 2
- RECA211 Water Safety & Lifeguard Instructor 2
- RECS212 Instructional Methods in Adapted Aquatics 2
- RECS220 Methods in Arts & Crafts 3
- RECS262 Outdoor Recreation 3
- RECS270 Sports Management 3
- RECS280 Readiness in Games, Activities and Sports 3
- RECS320 Dance & Rhythmic Activities for Recreation 3
- RECS344 Adapted Sports and Recreation 3
- RECS362 Land Management for Recreational Purposes 3
- RECS365 Expedition Management 3
- RECS367 National Parks, National Monuments and National Culture 3
- RECS370 Recreation for the Elderly 3
- RECS375 Commercial Recreation 3
- RECS397 Recreation Studies Junior Research Seminar 1
- RECS437 Recreation Studies Senior Research Seminar 1
- RECS435 Research in Recreation and 3
- RECS450 Philosophy of Human Performance and Leisure 3
- RECS496 Selected Research Topics 1

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# Minor: Robotics Technology

## Degree Requirements

**Total Credits Required: 24**

*Required Courses: 12 credits*

- EGRS215 Robotics Technology I 2
- EGRS380 Robotics Technology II 2
- EGRS381 Robotics Technology Lab 1
- EGRS365 Programmable Logic Controllers 3
- EGRS480 Manufacturing Automation 3
- EGRS481 Manufacturing Automation Lab 1

*Select 12 credits from either of the two following sequences:*

*Engineering*

- EGNR140 Linear Algebra and Numerical Methods for Engineers 2
- EGNR245 Calculus Applications in Technology 3
- EGNR265 "C" Programming 3
- EGRS430 Systems Integration and Machine Vision 4

*Computer Science*

- CSCI121 Principles of Programming 3
- CSCI221 Computer Networks 3
- CSCI461 Desicion Support and Expert Systems 3

or

- CSCI490 Special Topics 3
- CSCI or MATH 300-level or above 3

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# Minor: Social Work

## Degree Requirements

**Total Credits Required: 21**

**Required Courses:**

- SOWK110 Introduction to Social Work 3
- PSYC201 Communication Skills in Counseling 3
- SOWK250 Social Work Practicum 6-9
- SOWK310 Clinical Practice and Diagnosis 3
- SOWK344 Social Welfare Systems 3

**One elective course from the following:**

- SOCY301 Social Research Methods 3
- PSYC291 Group Counseling 3
- SOWK301 Alternative Dispute Resolution and Conflict Management 3
- SOWK305 Tribal Law and Government 3
- SOCY338 Deviance 3
- SOWK341 Addiction 3
- PSYC391 Family Therapy 3
- SOWK480 Grantwriting 3

**The practicum may be taken for six or nine credits; nine credits are required when application for social work technician registration with state of Michigan is desired.**

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# Minor: Society and Environment

## Degree Requirements

**Total Credits Required: 25**

- ECON202 Principles of Microeconomics 3
- ECON307 Environmental Economics 3
- INTD300 The Human Environment 3
- INTD490 Senior Directed Study 3
- NSCI103 Environmental Science 3
- POLI342 International Environmental Policy 3
- SOCY102 Social Problems 4
- SOCY227 Population and Ecology 3

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# Minor: Sociology - General

## Degree Requirements

**Total Credits Required: 23**

- SOCY101 Introduction to Sociology 3
- SOCY238 Social Psychology 4
- SOCY310 Development of Sociological Theory 3
  **or**
- SOCY311 Contemporary Sociological Theory 3

**Additional sociology courses (13 credits) to total a minimum of 23 credits, among which at least six hours are 300- or 400-level courses.**

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# Minor: Spanish Language - Literature and Culture

## Degree Requirements

**Total Credits Required: 28**

*Required Courses:*

- SPAN161 First Year Spanish I 4
- SPAN162 First Year Spanish II 4
- SPAN261 Second Year Spanish I 3
- SPAN262 Second Year Spanish II 3
- SPAN361 Advanced Spanish Grammar 3
- SPAN362 Advanced Spanish Composition 3

*Minimum of 8 credit hours from the following list of Spanish electives:*

- SPAN301 Study Abroad 8
- SPAN368 Selected Topics in Conversation 2
- SPAN380 Survey of Spanish-American Lit. I 3
- SPAN381 Survey of Spanish-American Lit. II 3
- SPAN401 The Spanish Novel 3
- SPAN402 The Spanish-American Novel 3
- SPAN410 Spanish-American Civilization 3
- SPAN411 Spanish Civilization 3
- SPAN412 Hispanic LIterature of the Southwest 3
- SPAN490 Topics in Hispanic Literature 1-4
- LING403 Language Acquisition and Foreign Language Teaching 3

*A minimum of 28 hours in Spanish, with at least 3 hours of 400-level Spanish course work, must be completed for all Spanish minors. In addition, all Spanish minors are required to take SPAN361 and SPAN362 in residency at LSSU.*

*With faculty approval, courses taken abroad may substitute for SPAN261 and SPAN262.*

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# Minor: Speech and Drama

## Degree Requirements

Students must complete 21 semester hours of credit in addition to Composition and Speech (COMM101) from communication and drama offerings, or their equivalents.

Those who wish both a major in English language and literature and a minor in speech and drama must take additional credit in English for any of the advanced courses that overlap both programs.

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# Minor: Sports Marketing

## Degree Requirements

**Total Credits Required: 28**

*Required Courses:*

- BUSN231 Business Communications 3
- MRKT281 Marketing Principles and Strategy 3
- MRKT379 Sports and Events Marketing 3
- RECS270 Sports Management 3
- RECS295 Practicum 2
- RECS496 Selected Research Topics 2

*Select 12 credit hours from the following electives:*

- COMM320 Public Relations 4
- INTB486 International Marketing 3
- MRKT283 Principles of Selling 3
- MRKT381 Consumer Behavior 3
- MRKT383 E-Marketing 3
- MRKT385 Services Marketing 3
- MRKT387 Advertising Theory and Behavior 3
- MRKT388 Retail Management 3
- MRKT480 Marketing Research 3

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# Minor: Substance Abuse Counseling

## Degree Requirements

**Total Credits Required: 27**

- SOWK204 Fundamentals of Drug Abuse 3
- SOWK250 Social Work Practicum 3
- SOWK292 Substance Abuse Prevention and Treatment 3
- SOWK341 Addiction 3
- PSYC201 Communication Skills in Counseling 3
- PSYC240 Behavior Management 3
- PSYC396 Tests and Measurements* 3
- PSYC291 Group Counseling 3

  **or**
- PSYC391 Family Therapy 3
- PSYC259 Abnormal Psychology** 3

  **or**
- SOCY338 Deviance** 3

**Note: PSYC396 has a prerequisite of one of these statistics courses: MATH207, PSYC210 or SOCY302.*

***May count toward SOCY/PSYC minor.*

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# Minor: Theatre

## Degree Requirements

**Total Credits Required: 24**

- THEA101 Acting I 3
- THEA161 Theatre Practicum 6
- THEA251 History of Drama and Theatre I 3
  **or**
- THEA252 History of Drama and Theatre II 3

**Choose 12 credits from the following courses:**

- THEA201 Acting II 3
- THEA309 Theatre Studies (Topic) 3-6
- THEA333 Studies in the Drama: The Genre and Theatre in Context 3
- DANC110 Dance Company 3
- DANC120 Jazz Dance I 1
- DANC125 Modern Dance I 1
- DANC210 Movement for Actors 3
- DANC220 Musical Theatre: Tap/Jazz 1
- ENGL303 Performance Writing 3
- MUSC140 Chorus 1
- MUSC141 Chorus 1

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# Minor: Web Development

## Degree Requirements

**Total Credits Required: 21**

- CSCI105 Introduction to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI107 Web Graphic Design and Development 3
- CSCI121 Principles of Programming 3
- CSCI207 Developing Multimedia and Rich Interactive Web Sites 3
- CSCI211 Database Applications 3
- CSCI325 Developing Web Applications with JavaScript and PHP 3

  or
- CSCI326 Developing Web Applications with ASP.NET3

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# ACTG132

**Principles of Accounting I**

**(4,0) 4**

An introduction to the principles and procedures of accounting as applied to proprietorships and corporations. Areas of study include the accounting, internal control and the asset, liability and equity sections of the balance sheet. Prerequisite: Two years of high school algebra and equivalent/satisfactory score on ACT/SAT or Placement Exam or MATH102 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# ACTG133

**Principles of Accounting II**

**(4,0) 4**

This course emphasizes the role of managerial accounting information within a firm. Topics include budgeting, responsibility accounting, cost allocations, cost behavior, decision models, product costing, cost control, performance evaluation, capital budgeting, cash flows and methods of financial analysis. Prerequisite: Grade of C or higher in ACTG132.

*Source: Academic Catalog 2013-14*

# BUSN211

**Business Statistics**

**(3,0) 3**

An introduction to business statistics. Topics include collection and presentation of data, measures of central tendency, variation and skewness, probability, probability distributions, Bayes's Theorem, sampling, sampling distributions, estimation, hypothesis testing, simple linear regression and correlation. Prerequisite: MATH111.

*Source: Academic Catalog 2013-14*

# BUSN231

**Business Communications**

**(3,0) 3**

Business and management communications problems. Direct, indirect, and persuasive letters; memos, short reports and directives. Some assignments must be typed. Extensive writing practice. Prerequisite: ENGL111.

*Source: Academic Catalog 2013-14*

# BUSN350

**Business Law I**

**(3,0) 3**

This portion of business law covers the law applicable to contracts, sales, personal property and bailments.

*Source: Academic Catalog 2013-14*

# BUSN403

**Business, Government and Society**

**(3,0) 3**

This course examines the relationships of the business firm to government and to society. The course focuses on the economic, legal, political, social and ethical environment of business firms. Topics include consumer protection, environmental regulation, antitrust, constitutional and administrative law, alternative dispute resolution, and other topics of current concern. The business firm is examined in the context of market capitalism and the global economy. The course is structured to meet communication-intensive requirement of general education. Prerequisites: ECON202 and junior standing.

*Source: Academic Catalog 2013-14*

# BUSN466

**Business Policy**

**(3,0) 3**

This course provides an opportunity for the student to develop an understanding of the interrelationship of the various divisions, departments and functions of a business organization from a top management perspective. Library research and case analysis are utilized. Prerequisites: Senior status and FINC341.

*Source: Academic Catalog 2013-14*

# FINC341

**Managerial Finance**

**(4,0) 4**

The nature and scope of financial management including math of finance, financing instruments, leverage and capital structure, financial planning and forecasting, risk and return analysis, capital budgeting. Prerequisites: ACTG133 and BUSN211.

*Source: Academic Catalog 2013-14*

# MGMT280

**Introduction to Management Information Systems**

**(3,0) 3**

This course will introduce students to MIS theories including (1) Information Systems in Business and Society (information management in global society; security, privacy and ethical issues); (2) Information Technology Concepts (hardware technology, software technology, database management systems, network and internet technology); (3) Business Information Systems (automation and support systems, transaction processing systems, management information systems, decision support and expert systems, enterprise systems such as ERP); (4) Systems Development (systems investigation and analysis, systems planning development and implementation). Students will gain hands-on computer skills in advanced spreadsheet, database, and web technologies. Prerequisites: BUSN121 and ACTG132 with a grade of C or higher, and computer competency.

*Source: Academic Catalog 2013-14*

# MGMT360

**Management Concepts and Applications**

**(3,0) 3**

Principles and techniques applicable to the functions of management: Planning, organizing, directing (staffing and leading) and controlling; development of management thought and decision-making; current issues and future concerns in management. Foundation course for study and understanding of management theory and practice. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# MGMT371

**Operations and Business Analytics**

**(3,0) 3**

This course introduces students to (1) Operations Management (operations strategy, operations design, operations planning & control, operations execution), (2) Supply Chain Management, and (3) Quantitative Business Analysis (linear programming, project scheduling including PERT and CPM, inventory modeling, statistical process control, queuing theory, simulation, decision analysis, time-series forecasting, advanced statistical analysis). Prerequisite: BUSN211 or equivalent.

*Source: Academic Catalog 2013-14*

# MRKT281

**Marketing Principles and Strategy**

**(3,0) 3**

A study of the marketing principles, variables, institutions, target markets, marketing mix and the development of marketing strategy. Prerequisite: ENGL110

*Source: Academic Catalog 2013-14*

# ACTG232

**Intermediate Accounting I**

**(4,0) 4**

A review of the general theoretical framework and process of accounting for use as a reference in an intensive study of accounting doctrines and procedures proposed by various authoritative groups. Topics: Generally accepted accounting principles; the accounting process; balance sheet; income statement; present value principles and application; cash and temporary investments; receivables; inventories, plant and intangible assets; and long term investments. Prerequisites: ACTG132 and 133.

*Source: Academic Catalog 2013-14*

# ACTG233

**Intermediate Accounting II**

**(4,0) 4**

Continuation of ACTG232 with reference to accounting theory as applied to specific critical areas of financial data accumulation and presentation. Emphasis is placed on valuation concepts and their influence on contemporary practice. Topics: Liabilities; long term debt securities; owner's equity; earnings and revenue recognition; income taxes; leases; pensions; error correction; cash flows; and financial statement analysis. Prerequisite: Grade of C or higher in ACTG232.

*Source: Academic Catalog 2013-14*

# ACTG332

**Cost Management I**

**(4,0) 4**

An advanced study of managerial accounting as it applies to management practices. Topics include job order and process costing systems, value chain management, activity based costing and management, joint product costing, CVP analysis, cost allocations, budgeting, and financial planning models, and allocation of support activity costs. Prerequisite: ACTG133.

*Source: Academic Catalog 2013-14*

# ACTG333

**Cost Management II**

**(4,0) 4**

A continuation of ACTG332. Topics include strategic decision making, strategic issues in capital investment decisions, standard costing and variance analysis, performance evaluation and the balanced scorecard, responsibility accounting, investment centers and transfer pricing, target costing, theory of constraints, and strategic pricing, managing and controlling quality, management compensation, and business valuation. Prerequisite: ACTG332.

*Source: Academic Catalog 2013-14*

# ACTG334

**Accounting Information Systems**

**(3,0) 3**

Elements that constitute an accounting system and theories upon which a system should be designed. Emphasis upon computerized accounting systems with extensive use of computers. Prerequisites: ACTG233, ACTG332, introductory data processing course.

*Source: Academic Catalog 2013-14*

# ACTG421

**Federal Taxation Accounting I**

**(3,0) 3**

Basic concepts of the theory and practice applicable to the preparation of individual tax returns. A comprehensive analysis of regulations governing inclusions and exclusions of income; capital gains and losses; and personal, standard, and itemized deductions. Prerequisites: ACTG133 and junior standing or approval of the department.

*Source: Academic Catalog 2013-14*

# ACTG422

**Federal Taxation Accounting II**

**(3,0) 3**

Theory and practice of income tax accounting as applied to tax credits, partnerships, and corporations. Includes some library tax research. Prerequisite: ACTG421.

*Source: Academic Catalog 2013-14*

# ACTG427

**Auditing**

**(4,0) 4**

A study of ethical, professional, and technical standards for independent audits and auditing procedures as they apply to internal controls. A study of audit program applications as they apply to elements of the financial statements. Prerequisites: ACTG233 and 333.

*Source: Academic Catalog 2013-14*

# ACTG432

**Advanced Accounting: Consolidations**

**(4,0) 4**

This course involves a study of corporate business combinations and the preparation of related consolidated financial statements. International accounting issues related to the hedging of foreign currency transactions, translation of foreign financial statements and the application/comparison of international accounting standards will also be presented. Prerequisite: ACTG233 with a grade of C or higher.

*Source: Academic Catalog 2013-14*

# ACTG433

**Advanced Accounting: Governmental**

**(4,0) 4**

An introduction to governmental and nonprofit accounting as applied to state and local governments and other nongovernmental not-for-profit entities including colleges and universities, and health care organizations. Areas of study include both the source of GASB standards and statements and the application of this theory to the governmental accounting cycle. Students will also be exposed to and apply a variety of financial performance measures unique to this sector of the economy. Students will prepare a monthly transaction analysis and complete a governmental practice set. Prerequisite: ACTG233 with a grade of C or higher.

*Source: Academic Catalog 2013-14*

# MATH111

**College Algebra**

**(3,0) 3**

This course is a study of families of functions through formulas, tables, graphs and words, emphasizing applications in business, life and social science. The function families include linear, polynomial, rational, exponential, logarithmic and power functions. Within these families, topics include problem solving, model creation, solving equations, systems of equations and inequalities, rates of change, graphing, analysis, and interpretation. Prerequisites: Two years of high school algebra and satisfactory achievement on the mathematics placement exam or MATH102 with a grade of C or better. High school plane geometry also recommended. This course will not count toward a major or minor in mathematics.

*Source: Academic Catalog 2013-14*

# CSCI101

**Introduction to Microcomputer Applications**

**(2,2) 3**

The study of a selection of contemporary microcomputer applications, including operating systems concepts, word processing, spreadsheets, database management systems, and the Internet and World Wide Web. Brief survey of other applications, such as presentation graphics, multimedia usage and desktop publishing. Does not apply toward credit in computer science major or minor.

*Source: Academic Catalog 2013-14*

# EXER141

**Introduction to Movement**

**(3,0) 3**

This course reviews and applies the pertinent aspects of the prerequisite disciplines of anatomy and physiology. Specific attention will be placed on muscles, bones, joint structures, and functions as well as the fundamentals of leverage, balance, and “the feel of the movement”. A detailed understanding of movement description is the most critical element in the student’s mastery of the subject matter.

*Source: Academic Catalog 2013-14*

# EXER230

**Athletic Injury and Illness Prevention**

**(3,0) 3**

This is an introductory class to the field of athletic training. It will provide an overview for the student as to what an athletic trainer does. Topics be included will be a history of athletic training, developing conditioning programs, nutrition, protective equipment in sports, the healing process, emergency plans, injury assessment, psychology of injury, environmental conditions and the use of drugs in sports.

*Source: Academic Catalog 2013-14*

# EXER232

**Athletic Injury and Illness Recognition and Evaluation**

**(3,0) 3**

This class will be a continuation of EXER230. After a general knowledge base is established in EXER230, EXER232 will elaborate on those concepts and extend them to the various extremities of the body as well as the spine and head. Prerequisites: EXER230 and BIOL122.

*Source: Academic Catalog 2013-14*

# EXER234

**Preventative Taping Techniques**

**(0,2) 1**

To present current and comprehensive taping and wrapping techniques used in athletic training. Prerequisite: EXER232.

*Source: Academic Catalog 2013-14*

# EXER262

**Exercise Physiology I**

**(3,0) 3**

Introduction to biological energy systems and support systems involved in physical activity and exercise. Emphasis on energy system recruitment dynamics, acute and chronic adaptations to training, and applications to programs employing physically based activities. Prerequisites: BIOL121 and CHEM104 or 115.

*Source: Academic Catalog 2013-14*

# EXER268

**Fitness Evaluation I: Field Tests**

**(1,2) 2**

Provides theoretical background and measurement concepts specific to field tests employed in exercise science settings. Emphasis on skill, development and interpretation of results relative to normative data. Prerequisites: BIOL121 and EXER140.

*Source: Academic Catalog 2013-14*

# EXER275

**Nutrition for Sport and Exercise Performance**

**(2,0) 2**

Extends the basic principles of nutrition presented in EXER262 and explicitly details the role of the major nutrients in their application to wellness and fitness settings, as well as athletic performance. Specifically addresses the interaction of diet and exercise in modifying the condition of the individuals with metabolic dysfunction (diabetes, obesity) or compromised cardiovascular health (hypertension, coronary heart disease). Also examines the special nutritional needs of athletes and the effectiveness of ergogenic aids in enhancing sport performance. Prerequisites: BIOL121 and EXER262.

*Source: Academic Catalog 2013-14*

# EXER301

**Athletic Training Clinical Experience I**

**(0,4) 2**

This course requires athletic training students to acquire, practice and demonstrate competency in basic clinical skills necessary to provide healthcare to a physically active population in a variety of clinical settings. Prerequisites: junior status and admission to the Athletic Training Education Program.

*Source: Academic Catalog 2013-14*

# EXER302

**Athletic Training Clinical Experience II**

**(0,4) 2**

In this course, athletic training students are required to continue acquiring, practicing and demonstrating competency of the basic clinical skills necessary to provide healthcare to a physically active population in a variety of clinical settings. Prerequisites: EXER301 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# EXER340

**Therapeutic Modalities in Athletic Training**

**(2,2) 3**

This course will introduce the student to the theory and application of physical medicine devices commonly used in athletic training and sports medicine settings. Specific attention will be placed on the use of cryotherapy, thermotherapy, electrotherapy, ultrasound, traction, intermittent compression, and therapeutic massage in caring for physical injuries and illness. This course will focus on determining the most effective therapeutic modality for a given situation and the correct application of the selected therapeutic modality. This course is designed to present the knowledge, skills and values an entry-level certified athletic trainer must possess to plan, implement, document and assess the efficacy of therapeutic modalities in the care of physical injuries and illnesses. Prerequisites: EXER232 and BIOL122.

*Source: Academic Catalog 2013-14*

# EXER344

**Kinesiology**

**(3,0) 3**

Science of movement applied to muscle, joint structure and function and application of physical laws of gravity, leverage, motion and balance to human performance. Video tape motion analysis is used to apply these theories into practical experience. Prerequisite: EXER141.

*Source: Academic Catalog 2013-14*

# EXER346

**Therapeutic Exercise in Athletic Training**

**(2,2) 3**

EXER346 will introduce the student to the theory and application of commonly used rehabilitative exercises in the field of athletic training. Students will be introduced to the "10 Goals of Rehabilitation," and will then study the relationship that therapeutic exercise plays in the attainment of each goal. Students will then develop a comprehensive rehabilitation plan that will enable a physically active person to return to activity as safely as possible. Students will be exposed to current surgical techniques and the rehabilitation that is involved. Prerequisite: EXER262.

*Source: Academic Catalog 2013-14*

# EXER349

**Orthopedic Assessment in Sports Medicine**

**(3,0) 3**

Provides a clear, concise process of physical examination of the spine and extremities which would direct the student in a logical, efficient and thorough search of anatomy relevant to the field of sports medicine. This course will allow the student to continue to build a solid foundation in anatomy specific to orthopedic education. Prerequisites: EXER230 and 232.

*Source: Academic Catalog 2013-14*

# EXER358

**Research Methods in Exercise Science**

**(3,0) 3**

Introduction to research methods and related statistical procedures for constructing and analyzing research activities. Presentation of statistical concepts including correlation, t-tests and analysis of variance and their use in exercise science. Introduction to measurement concepts of validity and reliability and the facets of writing a research report. Prerequisites: MATH207 and EXER262.

*Source: Academic Catalog 2013-14*

# EXER401

**Athletic Training Clinical Experience III**

**(0,4) 2**

In this course, athletic training students continue to demonstrate an integration of risk management skills, assessment skills, and therapeutic rehabilitation skills into the health care of a physically active population in a variety of clinical settings. Prerequisite: EXER302 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# EXER402

**Athletic Training Clinical Experience IV**

**(0,4) 2**

In this course, athletic training students continue to demonstrate an integration of risk management skills, assessment skills, therapeutic rehabilitation skills and administrative skills into the healthcare of a physically active population in a variety of clinical settings. Prerequisite: EXER401 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# EXER428

**Psychological Aspects of Exercise and Athletic Rehabilitation**

**(3,0) 3**

The acute and chronic psychological consequences that occur as a result of involvement in physically based activities will be examined as they apply to recreational exercisers and sport enthusiasts, as well as individuals with health problems. Emphasis will be placed on developing an understanding of the theoretical background for specific topic areas and investigating the support for these theories by examining original research reports on the effects of exercise and rehabilitation on adherence, chronic pain, anxiety, depression and sport injury. Prerequisites: EXER262 and 358.

*Source: Academic Catalog 2013-14*

# EXER452

**Allied Health Administration**

**(3,0) 3**

This course is intended to enhance the administra-tive ability of allied health professionals. Students will learn to apply current management theories to administrative problems they may face. This will allow entry level allied health professionals the ability to craft creative solutions to administrative problems. Content in this course includes management strategies for the following: Program offerings, finances, human resources, facilities, information, insurance, and legal considerations. Prerequisites: EXER230 and junior standing.

*Source: Academic Catalog 2013-14*

# EXER492

**Internship**

**6**

Comprehensive practical application of students formal academic preparation. Prerequisite: Junior status and instructor permission.

*Source: Academic Catalog 2013-14*

# EMED189

**Medical First Responder**

**(2,3) 3**

This course is designed to teach students the principles of basic life support and emergency care. Topics include patient assessment and handling, airway maintenance, cardiopulmonary resuscitation, bandaging, splinting and spinal immobilization. Management of common environmental and medical emergencies will also be addressed. Upon successful completion of the course, students will be eligible to apply for a Michigan Medical First Responder license.

*Source: Academic Catalog 2013-14*

# BIOL121

**Human Anatomy and Physiology I**

**(3,3) 4**

This is the first half of a two-course sequence. This course covers organization of the human body, basic principles of chemistry, the integumentary system, the skeletal and muscular systems, the nervous system and special senses. Laboratory experiences are designed to complement the lecture topics. This course may not be used as a general education natural science elective nor does this sequence apply toward a major or minor in biological science. Prerequisites: High school chemistry, ENGL091 or equivalent, and MATH086 or equivalent satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# HLTH209

**Pharmacology**

**(3,0) 3**

Study of basic concepts of pharmacology and their relationships to health care. Drug metabolic processes are described providing foundation for clinical judgments about drug actions, reactions and interactions. Prerequisites: BIOL122 or 105 and CHEM105.

*Source: Academic Catalog 2013-14*

# HLTH232

**Pathophysiology**

**(3,0) 3**

Study of physiological alterations in the body which disrupt homeostasis. Integrates anatomy, physiology and biochemistry into framework for studying disease. Core content provides understanding of mechanism and principles of disruptions of health. Emphasis on clinical correlations and physiological basis for common disorders. Prerequisite: BIOL122.

*Source: Academic Catalog 2013-14*

# NURS212

**Health Appraisal**

**(2,6) 4**

This course serves as an introduction to the nursing assessment and analysis component of the nursing process as a method of determining a well individual's health potential and status across the lifespan. Emphasis is on obtaining and documenting a health history, performing a nursing assessment and beginning to formulate a nursing diagnosis. Prerequisite: permission of dean or instructor only.

*Source: Academic Catalog 2013-14*

# EXER140

**Health and Fitness**

**(3,0) 3**

Introductory course: Theoretical basics of exercise, diet and nutrition and the wellness lifestyle. Topics include aerobic and musculoskeletal fitness, weight control, stress reduction, alcohol and tobacco abuse and presents principles for promoting a wellness lifestyle.

*Source: Academic Catalog 2013-14*

# EXER248

**Psychology of Sport and Performance and Coaching**

**(3,0) 3**

A review of the psychological aspects related to success in sport and athletics. Emphasis will be placed on presenting techniques for improving individual and team athletic performance, as well as consideration of the psychological aspects of coaching. Specific topics will include personality and sport, attention/anxiety/arousal regulation, motivational techniques, the aggression-performance relationship, and the development of team cohesion and leadership.

*Source: Academic Catalog 2013-14*

# EXER265

**Essentials of Strength Training and Conditioning**

**(3,0) 3**

This course will enable the student to develop knowledge and expertise in the components of sport-related fitness. Specifically, strength training, cardiovascular endurance, flexibility, reaction time, speed and agility will be explored in both traditional and non-traditional sports. Emphasis will be placed on the implementation and measurement of the above sport-related fitness components and the design of a strength training and conditioning program for the purpose of enhancing athletic performance.

*Source: Academic Catalog 2013-14*

# EXER348

**Fitness Evaluation II Laboratory Procedures**

**(2,2) 3**

Provides theoretical background and technical aspects specific to laboratory procedures employed in clinical exercise science settings. Emphasis on developing skills with instrumentation for assessing cardiac activity, respiratory functioning, metabolic dynamics, anthropometer, and administering exercise protocols for diseased populations. Prerequisites: EXER268 and 262.

*Source: Academic Catalog 2013-14*

# EXER362

**Exercise Physiology II**

**(3,0,) 3**

Extends the study of the physiological aspects of exercise by examining advanced topic areas. Specific topics covered are the endocrine system and exercise, effects of exercise on the immune system, exercise and altitude, exercise and thermal stress, as well as exercise physiology concerns of various clinical populations. Prerequisites: BIOL122, CHEM115 and EXER262.

*Source: Academic Catalog 2013-14*

# EXER442

**Electrocardiography in Exercise Science**

**(2,0) 2**

Examines electrophysiological basis of ECG, cardiac anatomy and metabolism responses to rest and exercise. Prerequisite: EXER262 with a C grade or better.

*Source: Academic Catalog 2013-14*

# EXER444

**Exercise Prescription**

**(2,0) 2**

Provides experience in writing and developing advanced training and conditioning programs for a variety of populations. Process oriented; considers needs analysis and cyclic training.

*Source: Academic Catalog 2013-14*

# EXER450

**Philosophy of Human Performance and Leisure**

**(3,0) 3**

A study of the origins and development of leisure behavior, sport, athletics and personal fitness across cultures. Ethical issues such as violence, opportunity, exploitation, role models and equity will be examined. Prerequisites: EXER262 or RECS101 and junior status.

*Source: Academic Catalog 2013-14*

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# Biology: Bachelor of Science

## Program Description

The Bachelor of Science degree in biology combines theory and concepts of biology with intensive, hands-on experiences in our state-of-the-art laboratories and a wealth of close-by field sites. Students build on a core of biology classes by selecting the physiology and taxonomy classes and other electives that best fit their interests.

The program is an excellent preparation for biology or related careers. Our graduates are currently employed as doctors, dentists, veterinarians, biological researchers, laboratory technicians, consultants and teachers. Many careers in biology require education beyond the baccalaureate degree and LSSU's biology program has a proven record of excellent preparation for professional and graduate school.

New! Two concentrations have been added to the Biology Program at LSSU. The **Pre-medical concentration** prepares students for medical, dental, optometry, physician assistant, and chiropractic graduate programs. The **Pre-Veterinary concentration** prepares students for entrance into veterinary college. Our program has always had an excellent reputation with the health professional schools in Michigan, Ontario, and beyond. With these new concentrations, we will be even better suited to guide students to the health professional school of their choice.

**Available degrees** (see specific requirements further down the page):

- Bachelor of Science Biology
- Bachelor of Science Biology, Pre-Medical Concentration
- Bachelor of Science Biology, Pre-Veterinary Concentration

## Degree Requirements

## Bachelor of Science Biology

**Biology Core (27 credits)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL220 Genetics 4
- BIOL250 Quantitative Biology 3
- or
- MATH207 Statistics 3

- BIOL280 Biostatistics 3
- BIOL299 Sophomore Seminar 1
- BIOL337 General Ecology 3
- BIOL399 Junior Seminar 1
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1

**Physiology Elective (1 course from)**

- BIOL315 Plant Physiology 4
- BIOL330 Animal Physiology 4
- BIOL421 Cell Biology 4

**Taxonomy Elective (1 course from)**

- BIOL202 Field Botany 3
- BIOL204 General Microbiology 4
- BIOL302 Invertebrate Zoology 3
- BIOL303 General Entomology 4
- BIOL306 Medical Mycology 3
- BIOL310 Ichthyology 3
- BIOL311 Mammalogy 3
- BIOL312 Ornithology 3
- BIOL422 Parasitology 3
- BIOL475 Aquatic Entomology 3

**Biology Electives (21 credits)**

A minimum of 17 credits must be from 300 or 400 level courses. At least one elective must be a 400 level class. Courses not used to satisfy the physiology or taxonomy requirement may be used as 'other' electives.

**Support Courses**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 4
- CHEM225 Organic Chemistry I 4
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Science 4
- Physical Science (CHEM, PHYS, GEOL) course with lab 4

**Free Electives**

A minimum of 12 credits must be non-biology courses.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.

## Bachelor of Science Biology, Pre-Medical Concentration

**Biology Core (27 credits)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL220 Genetics 4
- BIOL250 Quantitative Biology 3
- or
- MATH207 Statistics 3
- BIOL280 Biometrics 3
- BIOL299 Sophomore Seminar 1
- BIOL337 General Ecology 3
- BIOL399 Junior Seminar 1
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1

**Physiology Elective (1 course from)**

- BIOL330 Animal Physiology* 4
- BIOL421 Adv Cell & Molecular Biology* 4

**Taxonomy Elective (1 course from)**

- BIOL204 General Microbiology* 4
- BIOL306 Medical Mycology 3
- BIOL422 Parasitology 3

**Other Biology (21 credits from)**

- BIOL243 Vertebrate Anatomy* 4
- BIOL423 Immunology* 4
- BIOL433 Histology* 3
- BIOL285 Epidemiology 3
- BIOL332 Embryology 3
- BIOL380 Hematology 4
- BIOL406 Immunohematology 3
- BIOL420 Evolutionary Analysis 3
- BIOL425 Virology 3
- BIOL434 Histopathology 1
- BIOL455 Body Fluids Analysis 3
- BIOL480 Advanced Microbiology 4

*These courses are highly recommended by medical and dental schools in Michigan, Ontario and around the country.

A minimum of 17 credits from 300/400 level courses. At least one elective must be a 400 level class. Courses not used to satisfy the physiology or taxonomy requirement may be used as 'other' electives.

**Support Courses**

- PHYS221 Principles of Physics I 4
- PHYS222 Principles of Physics II 4
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Science 4
- PSYC101 General Psychology 4
- SOCY101 Sociology 4
- HLTH328 Multicultural Approaches to Health Care 3

**Chemistry Minor (22 credits)**

**Free Electives**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.75 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.

## Bachelor of Science Biology, Pre-Veterinary Concentration

**Biology Core (27 credits)**

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL220 Genetics 4
- BIOL250 Quantitative Biology 3
- or
- MATH207 Statistics 3
- BIOL280 Biometrics 3
- BIOL299 Sophomore Seminar 1
- BIOL337 General Ecology 3
- BIOL399 Junior Seminar 1
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1

**Physiology Elective (1 course from)**

- BIOL330 Animal Physiology 4
- BIOL421 Adv Cell & Molecular Biology* 4

**Taxonomy Elective (1 course from)**

- BIOL204 General Microbiology* 4
- BIOL306 Medical Mycology 3
- BIOL422 Parasitology 3

**Other Biology (21 credits from)**

- BIOL243 Vertebrate Anatomy 4
- BIOL332 Embryology 3
- BIOL335 Animal Nutrition* 3
- BIOL380 Hematology 4
- BIOL405 Animal Behavior 3
- BIOL423 Immunology 4
- BIOL425 Virology 3
- BIOL426 Ecology of Animial Disease 3
- BIOL433 Histology 3
- BIOL434 Histopathology 1
- BIOL480 Advanced Microbiology 4

*These courses required by MSU-CVM.

A minimum of 17 credits from 300/400 level courses. At least one elective must be a 400 level class. Courses not used to satisfy the physiology or taxonomy requirement may be used as 'other' electives.

**Support Courses**

- PHYS221 Principles of Physics I 4
- PHYS222 Principles of Physics II 4
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Science 4

**Chemistry Minor (22 credits)**

**Free Electives**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.75 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.

# BIOL132

**General Biology:Organisms**

**(3,3) 4**

An introduction to the diversity of life, including the morphology, physiology, reproduction, general habitats and taxonomy of organisms. Adaptation to environment and modern concepts of evolution are stressed as unifying themes throughout the course. Prerequisites: MATH086, ENGL091, or equivalent scores on the math and English placement exams.

*Source: Academic Catalog 2013-14*

# BIOL199

**Freshman Seminar**

**(1,0) 1**

A partial focus for this course will be on academic skills and the transition from high school to college. Topics will include time management, use of campus resources, development of critical thinking, and strengthening study skills. At other times students will meet in discipline-based groups in conjunction with BIOL299, BIOL399 and BIOL499. These meetings will include discussion of literature relevant to the discipline and progress reports from upper-class students engaged in scholarly projects.

*Source: Academic Catalog 2013-14*

# BIOL220

**Genetics**

**(3,3) 4**

This course covers the three major subdivisions of the study of genetics - Mendelian or transmission genetics, molecular biology, and population genetics. Transmission genetics topics will include traditional genetics problems and modes of inheritance; mitosis, meiosis and control of the cell cycle; chromosomal structure and recombination. Molecular topics will include information on DNA structure and replication, transcription, translation, gene cloning, genomics, and current research in DNA technology. Topics in population genetics will include aspects of the Hardy-Weinberg theory. The laboratory will include exercises in both traditional and molecular genetics. Prerequisites: BIOL131, CHEM115 and (BIOL250 or sophomore statistics course).

*Source: Academic Catalog 2013-14*

# BIOL250

**Quantitative Biology**

**(3,0) 3**

This course will use quantitative methods to examine biological relationships and processes. Students will explore diverse biological topics including heat and energy balance, relative growth, photosynthesis, genetic drift, and diffusion using a variety of quantitative tools. Prerequisites: BIOL131, 132 and MATH111.

*Source: Academic Catalog 2013-14*

# BIOL280

**Biostatistics**

**(2,2) 3**

A course in the design and analysis of biological experiments. The focus of the course is the development of a systematic method for determining an appropriate statistical technique and the interpretation of results in terms of biological science. Prerequisites: BIOL131, BIOL132, and MATH111 or Calculus.

*Source: Academic Catalog 2013-14*

# BIOL299

**Sophomore Seminar**

**(1,0) 1**

Students meet in discipline-based, student-faculty groups in conjunction with BIOL199, 399 and 499. Weekly meetings will include discussion of literature relevant to the discipline and progress reports from upperclass students engaged in scholarly projects. Sophomores will assist with ongoing projects and will be guided by faculty and juniors enrolled in BIOL399 to conduct a comprehensive, annotated literature search in their area of interest. Prerequisite: BIOL199 and ENGL111.

*Source: Academic Catalog 2013-14*

# BIOL337

**General Ecology**

**(2,3) 3**

A survey of concepts of plant and animal autecology, population ecology and community ecology. Prerequisites: BIOL131, 132 and MATH111.

*Source: Academic Catalog 2013-14*

# BIOL399

**Junior Seminar**

**(1,0) 1**

Students meet in discipline-based, studentfaculty groups in conjunction with BIOL199, 299 and 499. Weekly meetings will include discussion of literature relevant to the discipline and progress reports from upper class students engaged in scholarly projects. Juniors will serve as mentors to sophomores in the group and will develop and present a proposal for a scholarly project. Prerequisites: BIOL280, 299 and COMM101.

*Source: Academic Catalog 2013-14*

# BIOL495

**Senior Project**

**(0,6) 2**

A practicum under the guidance of a faculty member. The student will conduct a scholarly project based on the proposal submitted by the student in BIOL399 (or a appropriate substitute). Prerequisite: BIOL399.

*Source: Academic Catalog 2013-14*

# BIOL499

**Senior Seminar**

**(1,0) 1**

Students meet in discipline-based, student-faculty groups in conjunction with BIOL199, BIOL299 and BIOL399. Weekly meetings will include discussion of literature relevant to the discipline and progress reports from upperclass students engaged in scholarly projects. Seniors will serve as mentors to freshmen in the group. Seniors will also produce a manuscript describing the results of their project and will be required to give poster and oral presentations to the University community. Prerequisite: BIOL495 or BIOL497.

*Source: Academic Catalog 2013-14*

# BIOL315

**Plant Physiology**

**(3,3) 4**

A study of the organization of plants, plant replication, photophysiology and photosynthesis, mineral nutrition, water transport in higher plants, plant growth substances, physiology of seeds, control of plant growth and plant cell tissue culture. Prerequisites: BIOL250 and CHEM115.

*Source: Academic Catalog 2013-14*

# BIOL330

**Animal Physiology**

**(3,3) 4**

The course examines the many ways animal groups solve the problem of maintaining internal homeostasis. Neural control, endocrine systems, gas exchange, energy acquisition and temperature regulation are a few of the topics examined. The lab is closely tied to the lecture material using non-invasive live animal experiments, computer-interfaced data gathering and analysis. Prerequisites: BIOL250 and CHEM116.

*Source: Academic Catalog 2013-14*

# BIOL421

**Advanced Cell & Molecular Biology**

**(3,3) 4**

This course will examine cellular structure and function with emphasis on organelle ultrastructure, cell membranes and permeability, cellular interactions, and the molecular foundations of genetic mechanisms and cell energetics. Prerequisites: BIOL220 and CHEM251.

*Source: Academic Catalog 2013-14*

# BIOL202

**Field Botany**

**(2,3) 3**

A study of the common families, genera, and species, especially those in the local flora. Prerequisite: BIOL132

*Source: Academic Catalog 2013-14*

# BIOL204

**General Microbiology**

**(3,3) 4**

This course will deal with the history and scope of microbiology, a study of microbial structure, growth, nutrition, metabolism, genetics, taxonomy and control. A study of mycoplasma, viruses and molds will be incorporated with genetic engineering and recombinant DNA. Labs will emphasize the identification and cultivation of molds and bacteria. Prerequisites: BIOL131 and CHEM115.

*Source: Academic Catalog 2013-14*

# BIOL302

**Invertebrate Zoology**

**(2,3) 3**

A study of the invertebrate groups with emphasis on morphology, phylogeny and life cycles. Prerequisite: BIOL132.

*Source: Academic Catalog 2013-14*

# BIOL303

**General Entomology**

**(2,3) 3**

An introduction to the biology, ecology and systematics of the insects. This course covers fundamentals of insect taxonomy and physiology; and the varied roles insects play in the natural world and in human history and culture. Prerequisite: BIOL132.

*Source: Academic Catalog 2013-14*

# BIOL306

**Medical Mycology**

**(2,2) 3**

Covers fungal structure, reproduction, and classification, medically important fungi and the diseases they cause, techniques for identifying fungi in clinical specimens and for culturing fungi in the laboratory. Laboratory covers techniques for fungal culture and identification, and practice identifying fungal diseases from prepared slides and/or photographs. Prerequisite: BIOL132 and BIOL204.

*Source: Academic Catalog 2013-14*

# BIOL310

**Ichthyology**

**(2,3) 3**

Study of the anatomy, physiology, behavior, taxonomy and natural history of fishes, with emphasis on freshwater species, particularly those in the Great Lakes region. Prerequisite: BIOL131 and BIOL132.

*Source: Academic Catalog 2013-14*

# BIOL311

**Mammalogy**

**(2,3) 3**

An investigation of the natural history, biology and taxonomy of mammals. Techniques for measuring and monitoring mammalian populations will be presented. The laboratory will focus on field techniques and the identification by skin, skull and track of mammals of the Great Lakes region. Prerequisite: BIOL243 or BIOL330.

*Source: Academic Catalog 2013-14*

# BIOL312

**Ornithology**

**(2,4) 3**

A study of the biology and taxonomy of birds. Labs will focus upon bird anatomy and bird recognition using video tapes and specimens. Prerequisite: BIOL132.

*Source: Academic Catalog 2013-14*

# BIOL422

**Parasitology**

**(2,2) 3**

A study of the morphology, taxonomy, habitats, pathology and life cycles of parasites. Prerequisites: BIOL131 and 132.

*Source: Academic Catalog 2013-14*

# BIOL475

**Aquatic Entomology**

**(2,3) 3**

Survey and identification of regional lake and stream insects, with additional emphasis on lifehistory strategies and community ecology. Insect physiology, ecology, behavior, importance as fish food organisms, and utility as indicators of water quality is also presented. Prerequisites: BIOL337 and junior standing.

*Source: Academic Catalog 2013-14*

# CHEM225

**Organic Chemistry I**

**(3,3) 4**

Fundamental principles of organic chemistry, covering the structures, reactions and properties of aliphatic and alicyclic compounds. The course will introduce the study of organic nomenclature, functional group chemistry, stereochemistry, reactive intermediates, organic synthesis, reaction mechanisms and conjugated unsaturated systems. The laboratory introduces basic organic laboratory techniques and includes experiments in organic separations, synthesis, and analysis. Prerequisite: CHEM116 with a grade of C (2.0) or better.

*Source: Academic Catalog 2013-14*

# MATH112

**Calculus for Business and Life Sciences**

**(4,0) 4**

Limits, differentiation, applications of the derivative, integration, application of the definite integral, techniques of integration. Calculus of exponential and logarithmic functions, elementary differential equations, functions of several variables. Prerequisite: MATH111 with a grade of C or better. This course will not count toward a major or minor in mathematics.

*Source: Academic Catalog 2013-14*

# BIOL243

**Vertebrate Anatomy**

**(3,3) 4**

A detailed study of the origin, phylogeny and anatomy of the vertebrates. Laboratories emphasize the thorough dissection of representatives of at least three classes of vertebrates. Prerequisite: BIOL132 and sophomore standing.

*Source: Academic Catalog 2013-14*

# BIOL423

**Immunology**

**(3,3) 4**

A study of the basic elements of the immune response system and the various ways in which the immune system can fail, leading to immunopathological reactions. Labs will include current diagnostic methodologies. Prerequisites: BIOL131, 132, 204 and CHEM226.

*Source: Academic Catalog 2013-14*

# BIOL433

**Histology**

**(2,3) 3 alternate years**

A systems approach is used to study the microscopic anatomy of mammalian tissues and organs. Related physiological processes are integrated with the anatomical studies. Prerequisites: BIOL330.

*Source: Academic Catalog 2013-14*

# BIOL285

**Principles of Epidemiology**

**(3,0) 3**

Principles, purpose and methods of descriptive and analytic epidemiology with emphasis on environmental health. Prerequisite: MATH207.

*Source: Academic Catalog 2013-14*

# BIOL332

**Embryology**

**(2,2) 3 alternate years**

A study of pattern formation and morphogenic processes in animals, with an emphasis on vertebrates. The laboratory portion of the course emphasizes descriptive ontogeny of representative vertebrates. Prerequisites: BIOL131 and BL132. (BL243 is highly recommended.)

*Source: Academic Catalog 2013-14*

# BIOL380

**Clinical Hematology and Hemostasis**

**(3,3) 4 alternate years**

A study of the components of blood. Discussions of the formed elements to include normal and malignant states; anemias, leukemias, lymphomas, hemostasis (coagulation) processes and disease states. Laboratories will cover routine and automated blood component measurements. Offered evennumbered spring semesters. Prerequisites: CHEM226 and BIOL330.

*Source: Academic Catalog 2013-14*

# BIOL406

**Immunohematology**

**(2,3) 3**

Fundamentals of blood banking in the ABO, Rh and other blood group systems; blood component preparation and utilization; transfusion complications; quality control and problem solving. Laboratories include techniques used in immunology/serology; blood grouping; compatibility testing; and antibody identification. Prerequisites: BIOL220, CHEM226, Junior standing and permission of instructor.

*Source: Academic Catalog 2013-14*

# BIOL420

**Evolutionary Analysis**

**(3,0) 3**

This course explores the fundamental mechanisms of evolutionary process and speciation, and illustrates the use of evolutionary analysis as a problem-solving tool. Issues of current interest in ecology, conservation, animal behavior, human medicine and a variety of other fields are addressed from the evolutionary perspective to explain biological phenomena and community interactions. Prerequisite: BIOL220 and 250.

*Source: Academic Catalog 2013-14*

# BIOL425

**Virology**

**(2,3) 3**

The basic concepts of virology are discussed. Lab will cover some traditional virology methods but will emphasize recent molecular approaches to viral identification. Prerequisite: BIOL204 and BIOL220.

*Source: Academic Catalog 2013-14*

# BIOL434

**Histopathology**

**(0,3) 1**

The course is an intensive laboratory experience where students will learn to visually identify diseased tissue. They will also learn methods of sample preparation including sectioning and staining for microscopic identification of pathogens. Prerequisite or corequisite: BIOL433.

*Source: Academic Catalog 2013-14*

# BIOL455

**Body Fluids Analysis**

**(3,2) 4**

Covers molecular analytes that are measured in blood, urine, and body fluids: the physiologic and pathologic processes that affect the levels of these analytes, correlations of analyte levels with disease, methods and instruments used to measure them, and principles and practices of quality control. Prerequisites: MATH207, CHEM226, CHEM332, BIOL330.

*Source: Academic Catalog 2013-14*

# BIOL480

**Advanced Clinical Microbiology**

**(3,3) 4 alternate years**

An advanced course in clinical microbiology concerning the role of bacteria, viruses, and fungi as the cause of various human infections. Standard modern clinical laboratory methodology will be covered. Offered oddnumbered spring semesters. Prerequisites: BL204 and CH226.

*Source: Academic Catalog 2013-14*

# PHYS222

**Principles of Physics II**

**(3,2) 4**

Thermodynamics, vibrations and waves, electricity and magnetism, light, optics, relativity and modern physics. Prerequisite: PHYS221 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# BIOL335

**Principles of Animal Nutrition**

**(3,0) 3 alternate years**

A scientific approach to the nutritional role of water, carbohydrates, proteins, lipids, minerals, and vitamins. The course will emphasize comparative aspects of gastrointestinal anatomy and physiology for livestock, wildlife, and fish. Prerequisites: BIOL250 AND CHEM116.

*Source: Academic Catalog 2013-14*

# BIOL405

**Animal Behavior**

**(3,0) 3 alternate years**

A course designed to examine the proximate mechanisms and the evolutionary development of animal behavior. Important concepts are explained by reference to illustrative studies. An appreciation of the methods and theoretical significance of current research is emphasized. Prerequisites: Junior standing and BIOL330 or 337. Offered even-numbered fall semesters.

*Source: Academic Catalog 2013-14*

# BIOL426

**Ecology of Animal Disease**

**(3,0) 3**

The course covers the population and environmental conditions that favor disease in both terrestrial and aquatic ecosystems. Basic concepts of infection through epidemics will be discussed. Prerequisite: BIOL337.

*Source: Academic Catalog 2013-14*

# CHEM226

**Organic Chemistry II**

**(3,3) 4**

A continuation of CHEM225 covering the structures, properties and reactions of aromatic compounds, carbonyl compounds, carboxylic acids and their functional derivatives, phenols, amines, organometallics, carbohydrates, amino acids and proteins. The course will introduce the study of spectral methods of structure determination and expand the study of organic synthesis and mechanisms. The laboratory will include experiments in spectroscopy, organic synthesis and mechanisms, qualitative organic analysis, and instrumental analysis. Prerequisite: CHEM225 with a grade of C (2.0) or better.

*Source: Academic Catalog 2013-14*

# CHEM231

**Quantitative Analysis**

**(3,3) 4**

Evaluation of analytical data and study of gravimetric and titrimetric methods of analysis. Prerequisites: CHEM116 with a grade of C (2.0) or better and MATH151 or MATH112.

*Source: Academic Catalog 2013-14*

*Source: Academic Catalog 2013-14*

# CHEM261

**Inorganic Chemistry**

**(3,3) 4**

This course will provide a foundation in Inorganic Chemistry with a focus on understanding the properties of the elements, bonding and geometries of small molecules and their chemical reactivities. Survey of main group and transition metal chemisty and applications to bio-inorganic chemistry. The laboratory component will provide students with opportunities to observe and measure the changes that accompany inorganic reactions and to make predictions regarding these inorganic reactions. Prerequisite: CHEM116 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CHEM332

**Instrumental Analysis**

**(3,3) 4**

Continuation of CHEM231. An instrumental analysis course involving the theory and use of spectrochemical, electroanalytical and separation methods for the characterization and determination of selected chemical substances. Prerequisite: CHEM231, and either PHYS222 or PHYS232.

*Source: Academic Catalog 2013-14*

# CHEM353

**Introductory Toxicology**

**(3,0) 3 alternate years**

An introduction to toxicology, including its history, types of poisons, their mode of operation and the biochemistry of detoxification. Environmental problems caused by toxic contaminants will be discussed. Prerequisite: CHEM225.

*Source: Academic Catalog 2013-14*

# CHEM363

**Physical Chemistry Laboratory: Kinetics and Reaction Dynamics**

**(0,3) 1**

An advanced laboratory exploring reaction kinetics and dynamics with an emphasis on modern methods of physical chemistry measurement. Prerequisite: CHEM116 and one semester of calculus.

*Source: Academic Catalog 2013-14*

# CHEM395

**Junior Seminar**

**(1,0) 1**

Literature searching, scientific writing, and oral presentation of scientific data. Students will be expected to listen to presentation of peers enrolled in CHEM/EVRN499 and develop a topic for their senior thesis. Prerequisite: Junior standing. Note: Also listed as EVRN395.

*Source: Academic Catalog 2013-14*

# CHEM452

**Advanced Biochemical and Molecular Techniques**

**(2,4) 4 alternate years**

A course covering advanced laboratory techniques for manipulating and analyzing bio-polymers such as proteins and nucleic acids. A brief discussion of bioinformatics will be presented. Protein expression vectors, PCR, and modern molecular techniques will be explored with potential applications for chemistry, biology, toxicology, forensic, and clinical lab science. Prerequisite: CHEM251.

*Source: Academic Catalog 2013-14*

# CHEM499

**Senior Seminar**

**(1,0) 1**

Required for seniors majoring in chemistry/environmental science. Students will present the results of their scholarly research. Students who have completed CHEM/EVRN495 will be required to give poster and oral presentations to the University community as part of this class. Pre- or corequisite: CHEM395 (also listed as EVRN395). Dual listed as EVRN499.

*Source: Academic Catalog 2013-14*

# CHEM495

**Senior Project**

**(0,6) 2**

This is a practicum course in which students, under the guidance of a faculty mentor, conduct a scholarly project mutually agreed upon by the student and his/her faculty mentor. This course will be required for a degree certified by the American Chemical Society. This course may not be repeated for credit. Prerequisites: CHEM395 (also listed as EVRN395), CHEM231, and CHEM225. Dual listed as EVRN495.

*Source: Academic Catalog 2013-14*

# MATH151

**Calculus I**

**(4,0) 4**

Limits, continuity and inverse functions. Logarithmic and exponential functions. Differentiation and applications of the derivative. L'Hopital's rule. Inverse trigonometric functions. Integration and the definite integral. Prerequisites: high school mathematics that includes two years of algebra, one year of plane geometry and one-half year of trigonometry and equivalent/satisfactory score on ACT or Placement Exam, or MATH140 with a grade of C or better, or both MATH111 and 131 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH152

**Calculus II**

**(4,0) 4**

Applications of the definite integral. Techniques of integration and improper integrals. Infinite series. Conic sections, polar coordinates and parametric equations. Prerequisite: MATH151 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# PHYS232

**Applied Physics for Engineers and Scientists II**

**(3,2) 4**

Continuation of PHYS231. Introduction to thermal physics, electricity, magnetism, electromagnetic waves, and optics. Prerequisite: PHYS231 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# BUSN399

**Internship in [Discipline]**

**(4,0) 4**

This course is designed to provide students with an opportunity to earn credit while obtaining meaningful discipline-related work experience outside the classroom setting. Students are expected to spend a minimum of 180 hours in an appropriate work setting. The course may be repeated once for a maximum of eight credits. Prerequisites: 2.5 GPA, junior standing, employer and instructor approval, and submission to, and approval by, departmental faculty of internship plan, including method of evaluation.

*Source: Academic Catalog 2013-14*

# BUSN261

**Business Skills**

**(1,0) 1**

A series of specific, business-skill classes. Each course will provide 15 classroom hours of instruction. A student may register for one or more sections per term, for a maximum of three credits earned in this course.

*Source: Academic Catalog 2013-14*

# INTB389

**Competing in the Global Market Place**

**(3,0) 3**

This course presents a systematic overview of international business and provides an introduction to important issues, including international trade policy, the global monetary system, and strategies of international business. Additionally, the course will look at management practices of international business, including: organizational structure of multinational organizations, production and logistics, human resource management, and financial management.

*Source: Academic Catalog 2013-14*

# INTB486

**International Marketing**

**(3,0) 3**

The International Marketing course examines the scope, challenge and dynamic environment of international marketing. This course will provide an understanding of the cultural environment of global markets, global opportunities and the development and implementation of global marketing strategies. Challenging decisions must be made in international marketing objectives-strategies-policies, regional & country market selection, products that fit regions-countries, multiple distribution channels, communications to fit each global region, management models & organizations per region-country, knowledge-information-data management, exploration of cultural issues, competition, economies, and customers. Prerequisites: MRKT281 or permission of instructor.

*Source: Academic Catalog 2013-14*

# MGMT365

**Human Resource Management**

**(3,0) 3**

An examination of current practices and recommended techniques by which management procures, develops, utilizes and maintains an effective work force. The major areas studied are: recruitment and selection, equal employment opportunity and affirmative action programs, training and development, career planning and performance appraisal, compensation and benefits, safety and health issues, employee and labor relations, including grievance handling, contract negotiation and remaining union-free as an organization. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# MGMT380

**Principles of Leadership**

**(3,0) 3**

This course provides the student with an understanding of the principles and behaviors situationally appropriate to inspire and influence others. Whether people work individually, in small teams, task forces, or other units at all organizational levels; effective leadership sustains profitability, productivity, and excellent service. Studying research findings, leadership practices, and skills helps the student understand how this knowledge can be applied to effectively lead others. Prerequisite: MGMT360.

*Source: Academic Catalog 2013-14*

# MGMT464

**Organizational Behavior**

**(3,0) 3**

An analysis of problems and cases relating to management and organizational behavior typically requiring decisions by an administrator. Topics include leadership, motivation, communication, negotiation, problem solving, decision making, conflict resolution, group dynamics, stress management, job design and organization structure. Prerequisite: MGMT360.

*Source: Academic Catalog 2013-14*

# MGMT476

**Employee Training and Development**

**(4,0) 4**

This course provides the student with an understanding of how to prepare and deliver effective employee training. The course is in five parts: training and development needs analysis, program design, development, delivery, and evaluation. The principles and concepts learned are applied by preparing, delivering, and evaluating a three-hour training program. Prerequisite: Senior standing.

*Source: Academic Catalog 2013-14*

# MRKT283

**Principles of Selling**

**(3,0) 3**

The study of personal selling and its requirements. Topics included are buyer behavior, sales presentations from prospecting to closing the sale, and overcoming objections. Sales interviews by students are an integral part of the course.

*Source: Academic Catalog 2013-14*

# MRKT385

**Services Marketing**

**(3,0) 3**

A study of the principles and practices unique to service providers. The focus of this course is to examine how the marketing of services differs from traditional marketing principles/concepts applied to goods and the alternative strategies for service providers to improve service marketing effectiveness and customer interactions. Prerequisite: MRKT281.

*Source: Academic Catalog 2013-14*

# MRKT387

**Advertising Theory and Practice**

**(3,0) 3**

A study of the principles and practices in various advertising media such as newspaper, radio, television, outdoor and direct mail; consideration of creative methods, consumer behavior, measurement of effectiveness and coordination with other aspects of the promotional program. Prerequisite: MRKT281.

*Source: Academic Catalog 2013-14*

# MRKT388

**Retail Management**

**(3,0) 3**

A study of the field of retailing. A survey of retail institutions; store location and organization; buying and merchandising techniques; retail advertising, sales promotion and image; human resource policies; and store protection. Prerequisite: MRKT281.

*Source: Academic Catalog 2013-14*

# MRKT389

**Entrepreneurship**

**(3,0) 3**

A study of individual small firms: start-up, on-going management, challenges, and requirements for success. Students will apply both strategic planning and the knowledge acquired from other business courses to (a) demonstrate understanding and competence in using S.A.P. in small business decision-making and operations, (b) develop a viable business plan for a new small business, and (c) utilize problem-solving for other local small businesses, where required, in an advisory capacity. Prerequisites: ACTG132 or 230, BUSN121 and MRKT281.

*Source: Academic Catalog 2013-14*

# ECON408

**International Economics**

**(3,0) 3**

Pure theory of trade and comparative advantage; free trade versus protectionism; trade problems of developing nations; balance of payment accounting; exchange rates; international monetary systems. Prerequisites: ECON201 and 202.

*Source: Academic Catalog 2013-14*

# INTB375

**International Business Law**

**(3,0) 3**

The course provides an introduction to the environment of international business and law. It will focus on the foundations and principles of the international legal environment and international legal systems. The course covers the law on international trade. It allows the student to understand government foreign trade policies, the law concerning international business transactions, importing, exporting, transportation and logistics. This course covers a range of legal issues involved in conducting international business, surveying some of the many issues encountered in intellectual property and licensing, and the taxation of international business transactions.

*Source: Academic Catalog 2013-14*

# INTB420

**International Comparative Management**

**(3,0) 3**

This course in international comparative management will examine important trends impacting international business as well as the major and developing players in the international economy. The course will examine the stage on which international management is conducted, which includes political, legal and socio-cultural systems as a backdrop. The course will cover how firms develop and execute their international strategies and how they stay ahead of their competitions, once they do. An important aspect for the success of international companies is HR (Human Resources). The course will explore how firms can build an outstanding international workforce through selecting and motivating employees as well as dealing with a host of related human resource management issues, such as compensation, performance appraisal, training and development and labor relations from an international perspective. Prerequisites: MGMT360 or special permission of instructor.

*Source: Academic Catalog 2013-14*

# INTD310

**Foreign Study**

**1-16 graded**

Individual extension added based on student's program.

*Source: Academic Catalog 2013-14*

# INTD410

**Foreign Study**

**3-16 3-16**

Individual extension added based on student's program. (Graded)

*Source: Academic Catalog 2013-14*

# BUSN355

**Business Law II**

**(3,0) 3**

This portion of business law covers the law applicable to commercial paper, corporations, partnerships, agency and employment.

*Source: Academic Catalog 2013-14*

# MGMT451

**Labor Law**

**(4,0) 4**

An analysis of labor laws pertaining to union-management relations; emphasis on the private sector as well as on laws relating to health care institutions; legal aspects of relationships between unions and their members; federal wage and hour laws, including administration of the statutes and their relationship; applicable remedies for violations of federal labor laws. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# MGMT469

**Collective Bargaining**

**(3,0) 3**

An analysis of the process of collective bargaining, the major subjects of negotiation, including arbitration of grievances; process of dispute settlements; and influence of larger environment. The discussion includes theories of bargaining, strategies and weapons available to both parties. Also examines collective employee-employer relationships in the public sector and tactics of public employee groups and agencies. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# MRKT381

**Consumer Behavior**

**(3,0) 3**

A study of behavioral concepts related to consumer behavior. Attention is directed toward understanding consumer needs, perceptions, attitudes, intentions and behavior within a strategic and managerial framework. Topics include the differences of complex decision making and habit and between high and low involvement decision making. Emphasis is on predicting and understanding purchase behavior for best firm/consumer needs' match. Prerequisite: MRKT281.

*Source: Academic Catalog 2013-14*

# MRKT480

**Marketing Research**

**(3,0) 3**

Application of research methods to the field of marketing. Methods of gathering and presenting data, market analysis, consumer surveys and sales forecasting. Students will participate in a research project. Prerequisites: BUSN211, MRKT281 and 381.

*Source: Academic Catalog 2013-14*

# MRKT481

**Marketing Management**

**(3,0) 3**

A study of the essential tasks of marketing managers: (1) identifying marketing opportunities, (2) developing marketing plans, and (3) implementing these plans by introducing marketing strategies. Prerequisites: MRKT281, 381, 480, and senior status.

*Source: Academic Catalog 2013-14*

# COMM320

**Public Relations**

**(4,0) 4**

Public relations theory and practice will form the two emphases of the course. Theory will be explored and discussed as foundation for the application of public relations concepts and strategies. Students will be responsible for working with organizations in order to develop realistic PR campaigns which reflect the awareness of the significant structures and responsibilities involved in a professional approach to public relations. Prerequisite: COMM101.

*Source: Academic Catalog 2013-14*

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# Chemistry: Bachelor of Arts/Science

## Program Description

The Chemistry Program at Lake Superior State University is now accredited by the American Chemical Society (ACS). According to the 2011 National Occupational Employment and Wage Estimator, more people are employed as chemists and chemical technicians than in any other job classification in the life and physical science occupations (http://stats.bls.gov). With many free electives and a common general education core, a chemistry degree can also be used in combination with other majors or minors such as pre-professional (medicine, pharmacy, veterinary, law, etc.), engineering, business, biology, and many more to match student interest and career plans.

Graduates with a bachelor of science in chemistry work in many disciplines and industries, and many proceed on to graduate school in natural sciences, medicine, law, and engineering. Internships in chemistry are encouraged where students can gain valuable real-world work experience while gaining college credit. In addition, students pursuing the ACS certified degree will participate in an applied research project in close collaboration with faculty members to address meaningful chemical-based problems. These projects, through the excellent preparation they provide our students, are often cited as important factors in successful job searches and entry into graduate programs.

The LSSU chemistry program has been approved by the American Chemical Society, and may provide certified degrees in Chemistry, Forensic Chemistry, Biochemistry Pre-Professional, and Environmental Chemistry if a student chooses this track. In addition, the BS in Chemistry Secondary Education degree may also be certified by the ACS. Graduates completing the prescribed requirements are awarded an ACS certificate signifying their completion of the approved degree and can qualify for membership in the Society upon graduation.

American Chemical Society
Committee on Professional Training
155 Sixteenth Street, N.W.,
Washington, D.C. 20036

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Arts Chemistry, Secondary Teaching
- Bachelor of Science Chemistry
- Bachelor of Science Chemistry, Secondary Teaching

## Degree Requirements

### Bachelor of Arts Chemistry, Secondary Teaching

**Chemistry Requirements (40 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM332 Instrumental Analysis 4
- CHEM361 Physical Chemistry I 4
- CHEM362 Physical Chemistry II 4
- CHEM451 Introduction to Biochemistry 4
- CHEM462 Advanced Inorganic and Physical Chemistry Lab 1

**Complete one methods course from the following:**

- EDUC453 Directed Study in Science Methods

**Chemistry Cognates (25 credits)**

- CHEM353 Introductory Toxicology 3
- CHEM395 Junior Seminar 1
- CHEM495 Senior Project 1-3
- CHEM499 Senior Seminar 1
- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH207 Pinciples of Statistics 3
- PHYS231 Applied Physics I 4
- PHYS232 Applied Physics II 4
- Foreign Language I 4
- Foreign Language II 4

**Directed Electives (8 credits)**

- INTD399 Internship in Chemistry
- CHEM Electives (300-level or higher beyond courses listed above)

**Secondary Teaching Certification**

To be recommended for secondary teacher certification, students must complete an approved
minor in a second teachable subject.

**Professional Education Requirements and Education Cognates- see Secondary Education.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or

NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is also required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

## Bachelor of Science Chemistry

**Chemistry Degree Requirements (48 credits minimum)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM251 Introductory Biochemistry 4
- CHEM261 Inorganic Chemistry 4
- CHEM332 Instrumental Analysis 4
- CHEM361 Physical Chemistry I 4
- CHEM362 Physical Chemistry II 3
- CHEM363 Physical Chemistry Lab 1
- CHEM395 Junior Seminar 1
- CHEM499 Senior Seminar 1
- CHEM Electives 300 level or higher (4 cr min)

**For American Chemical Society certified degree, additionally required (total lab hours must be at least 400 hours). See Department Chair for special rules regarding ACS certification:**

- CHEM495 Senior Project 2
- CHEM Electives 300 level or higher (7 cr min)

**Support Courses (19-20 credits)**

- BUSN211 Business Statistics 3 **or**
- MATH207 Principles of Statistical Methods 3
- MATH151 Calculus I 4 **and**
- MATH152 Calculus II 4 **or**
- MATH112 Calculus for Business & Life Science I 4 **and**
- EGNR140 Linear Algebra Num Meth Engineers 2 **and**
- EGNR245 Calculus App for Technology 3
- Two semesters of college physics with laboratory (8 cr min)

**General Electives (32 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.50 or higher. A gpa of 2.50 or higher is also required in your Major, and a gpa of 2.00 is required in your General Education Core Requirements.**

## Bachelor of Science Chemistry, Secondary Teaching

**Chemistry Requirements (44 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- CHEM231 Quantitative Analysis 4
- CHEM261 Inorganic Chemistry 4
- CHEM332 Instrumental Analysis 4
- CHEM351 Introduction to Biochemistry 4
- CHEM361 Physical Chemistry I 4
- CHEM362 Physical Chemistry II 4
- CHEM363 Physical Chemistry Lab 1
- CHEM395 Junior Seminar 1
- CHEM499 Senior Seminar 1

**For American Chemical Society certified degree, additionally required (total lab hours must be at least 400 hours). See Department Chair for special rules regarding ACS certification:**

- CHEM Elective 300 or higher (3 cr min)
- CHEM495 Senior Project 2

**Complete one methods course from the following:**

- EDUC443 Science Methods for Secondary Teachers 3 **or**
- EDUC453 Directed Study in Science Methods 3

**Support Courses (19 credits)**

- MATH151 Calculus I 4
- MATH152 Calculus II 4
- BUSN211 Business Statistics 3 **or**
- MATH207 Principles of Statistical Methods 3
- PHYS221 Principles of Physics I 4 **or**
- PHYS231 Appl Phys Engineer/Scientist I 4
- PHYS222 Principles of Physics II 4 **or**
- PHYS232 Appl Phys Engineer/Scientist II 4

**Secondary Teaching Certification**

To be recommended for secondary teacher certification, students must complete an approved minor in a second teachable subject.

**Professional Education Requirements and Education Cognates- see Secondary Education.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is also required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

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Previous page: Bachelor (Four-Year Programs) ^ Top
Next page: Associate (Two-Year Programs)

# CHEM361

**Physical Chemistry I**

**(4,0) 4 alternate years**

Chemical thermodynamics with applications to both phase and chemical equilibria. Prerequisites: CHEM116, one year of calculus and one year of physics.

*Source: Academic Catalog 2013-14*

# CHEM362

**Physical Chemistry II**

**(3,0) 3 alternate years**

Traditional quantum chemistry topics will be discussed that help explain chemical phenomena and provide descriptions and applications for spectroscopy. Prerequisite: CHEM116 and either MATH112, EGNR140 or EGNR245; or one year of equivalent calculus and numerical methods. One year of college physics preferred.

*Source: Academic Catalog 2013-14*

# CHEM462

**Advanced Inorganic Chemistry Laboratory**

**(0,3) 1 alternate years**

This is an every-other-year course. This laboratory will meet for three hours per week. Advanced concepts of inorganic chemistry will be examined in a laboratory setting.

*Source: Academic Catalog 2013-14*

# INTD399

**Internship in (Department)**

**(1-4,0) 1-4**

This course is designed to provide students with an opportunity to earn credit while obtaining meaningful discipline-related work experience outside the classroom setting. Students are expected to spend a minimum of 45 hours in an approved work setting for each credit hour earned. The course may be repeated once for a maximum of four credits. Prerequisite: 2.5 GPA in major, junior standing and permission of department head at least one semester in advance of registering for the course.

*Source: Academic Catalog 2013-14*

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# Secondary Education: Bachelor of Arts/Science

## Program Description

The Secondary Education program is highlighted by in-depth study in a subject major and a subject minor, extended field experience in secondary school settings, and focused development of the knowledge and skills critical for effective teachers. The program leads to a bachelor of arts or a bachelor of science degree in the student's major area.

Secondary-level teacher certification in Michigan permits individuals to teach the subject areas, in which they hold endorsements, at grades 6-12. The subject majors and minors provide the required coursework for the related endorsements. Completing the courswork and passing the corresponding Michigan Test for Teacher Certification subject test enable graduates to meet the requirements of No Child Left Behind and to be highly qualified in their subject areas.

Subject major and minor options are listed below. Specfiic requirements for these are found in the appropriate sections of this catalog.

| **Majors** | **Minors** |
|---|---|
| Chemistry | Chemistry |
| Computer Science | Computer Science |
| Mathematics | Mathematics |
| Physical Science | |

Students begin their studies in the secondary education program with a focus on general education requirements, an academic major and an academic minor. They complete the initial professional education coursework in their sophomore year, and apply for formal admission to the program at the end of that year. By that time, they will have also passed the Michigan Test for Teacher Certification Basic Skills test.

Upper level professional education coursework, along with the completion of the major and minor, is the focus for the junior and senior years. Student teaching, a semester-long culminating experience, may be completed in the spring of the fourth year or the fall of the fifth year, depending on the individual student's progress through the program. Generally, this student teaching experience will be in the Eastern Upper Peninsula or in Sault Ste. Marie, Ontario. The Michigan Test for Teacher Certification subject test in the major must be passed prior to beginning student teaching.

## Degree Requirements

**The components of the Secondary Education: Bachelor of Arts/Sciences programs are:**

**Academic Major:** Choose one from the above (see requirements under the subject area in this catalog)

**Academic Minor:** Choose one from list above (see requirements in the Minors section of this catalog)

**Professional Education Sequence**

- EDUC250 Student Diversity & Schools 4
- EDUC301 Learning Theory and Teaching Practice 3
- EDSE301 Introduction to Special Education 3
- EDUC350 Integrating Technology into 21st Century Learning Environments 3
- EDUC415 General Instructional Methods 2
- EDUC440 Reading in the Content Area 3
- EDUC44X or EDUC45X Methods in major and in minor (minimum credits) 3
- EDUC460 Classroom Management 2
- EDUC480 Directed Teaching: Seminar 2
- EDUC492 Directed Teaching 10

**Education Cognates (3 credits)**

- MATH207 Principles of Statistical Methods 3

**Formal admission to the program, qualification for student teaching, and successful completion of the program requires:**

- Completion of the Professional Education Sequence courses with a grade of B- (2.70) or higher
- Completion of all required courses in the education cognates, teaching major or teaching minors with a GPA of 2.70 or higher and no grade below a C (2.00).
- Completion of the General Education Core Requirements with a gpa of 2.00 or higher.
- Passing scores on all required Michigan Test for Teacher Certification tests.

The Secondary Education program undergoes periodic review, evaluation, and alignment with the Michigan Department of Education standards. Since program approval and renewal cycles vary, individuals should contact the School of Education regularly to confirm the current requirements of each program component. Graduates must meet the standards that are in place at the time of completion of their programs, in order to be recommended to the Department of Education for teacher certification.

**General Education:** All bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different

languages will not meet this requirement.

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Previous page: Bachelor (Four-Year Programs) ^ Top
Next page: Associate (Two-Year Programs)

# CHIN151

**First-Year Chinese I**

**(4,0) 4**

An introductory course designed to develop the four basic language skills in listening, speaking, reading, and writing in the target language as well as the acquisition of basic Chinese grammar and vocabulary. A communicative approach based on real-life situations. Relevant Chinese cultural aspects discussed. English used as necessary in classroom instruction.

*Source: Academic Catalog 2013-14*

# CHIN152

**First-Year Chinese II**

**(4,0) 4**

Further development of basic language skills in listening, speaking, reading and writing with a strong emphasis on speaking reading fluency. Relevant cultural aspects briefly discussed and the target language used progressively in instruction when it fits. Prerequisite: CHIN151 or equivalent.

*Source: Academic Catalog 2013-14*

# CHIN251

**Second-year Chinese I**

**(4,0) 4**

An intermediate-level course aiming at expanding the learner's ability to communicate in everyday life situations in the target language. Continued focus on language proficiency in listening, speaking, reading, and writing as well as further development of vocabulary knowledge and consolidation of grammatical knowledge. Social and cultural norms and conventions discussed when appropriate. Communicative approach used in instruction. Prerequisite: CHIN151, CHIN152 or equivalent.

*Source: Academic Catalog 2013-14*

# CHIN252

**Second-year Chinese II**

**(4,0) 4**

An intermediate-level course aiming at expanding the learner's ability to communicate in everyday life situations in the target language. Continued focus on language proficiency in listening, speaking, reading, and writing as well as further development of vocabulary knowledge and consolidation of grammatical knowledge. Social and cultural norms and conventions discussed when appropriate. Communicative approach used in instruction. Prerequisite: CHIN251 or equivalent.

*Source: Academic Catalog 2013-14*

# FREN151

**First Year French I**

**(4,0) 4**

An introductory course designed to develop the four basic language skills of understanding, reading, speaking and writing, as well as the fundamentals of grammar. A conversational and cultural approach based on everyday life situations from the Francophone world. Basic information in English with progressive emphasis put on the use of French in class.

*Source: Academic Catalog 2013-14*

# FREN152

**First Year French II**

**(4,0) 4**

Continuation of FREN151 with further acquisition of syntax, grammar and culture with increased emphasis on speaking, reading and writing. As course progresses and the use of French becomes almost dominant in class, basic conversation and composition practice based on increased cultural awareness becomes more elaborate and refined. Prerequisite: FREN151 or equivalent.

*Source: Academic Catalog 2013-14*

# FREN251

**Second Year French I**

**(4,0) 4**

A course designed to help students further and complete their mastery of basic spoken and written French. Review and completion of grammar information. Systemic conversation practice based on more-advanced readings dealing with current social issues within a broad historical and cultural context, as well as a more-elaborate practice of composition writing. Course largely taught in French. Prerequisite: FREN152 or equivalent.

*Source: Academic Catalog 2013-14*

# FREN252

**Second Year French II**

**(4,0) 4**

Continuation of FREN251 with further emphasis on oral presentations, general conversation practice and writing of compositions, essays, reports and letters. Development of a more mature use of syntax, grammar and idioms within a broader cultural context which includes a first approach to French literature. Initiation to the basic principles of translation and interpretation. Course almost completely taught in French. Prerequisite: FREN251 or equivalent.

*Source: Academic Catalog 2013-14*

# NATV141

**Ojibwe I, Anishnaabemowin**

**(4,1) 4**

Introduction to the Ojibwe language's vocabulary, phonics and grammar. This course is designed to acquaint the student with the minimum essentials of oral and written Ojibwe. This course serves as the foundation for further study in the Ojibwe language and culture. Students will begin to learn to read Ojibwe text. Students will learn to express themselves orally and gain the necessary knowledge and skill that will prepare the student for Ojibwe conversation.

*Source: Academic Catalog 2013-14*

# NATV142

**Ojibwe II, Anishnaabemowin**

**(4,1) 4**

Further study on Ojibwe language vocabulary, phonics, grammar and elementary conversation. This course is designed to further acquaint students with the minimum essentials of oral and written Ojibwe. This course rounds out the foundation for further study in Ojibwe language and culture. Students will continue to learn to read Ojibwe text, express themselves orally; and gain the necessary knowledge, skill and practice which will prepare the student for Ojibwe conversation and elementary writing. Prerequisite: NATV141.

*Source: Academic Catalog 2013-14*

# NATV201

**Second-Year Ojibwe Conversation I, Anishnaabemowin**

**(4,1) 4**

Further study in Ojibwe language with particular focus on Ojibwe conversation. This course will equip students with the essentials of oral and written Ojibwe. This course rounds out the foundation for further study in the Ojibwe language and culture. Students will continue to learn to read Ojibwe text, express themselves orally and gain the necessary knowledge, skill and practice which will prepare the student for Ojibwe conversation and elementary writing. Prerequisites: NATV141 and 142.

*Source: Academic Catalog 2013-14*

# NATV202

**Second-Year Ojibwe Conversation II**

**(4,0) 4**

This course is designed for those who wish to further their understanding of the Anishinaabe (Ojibwe) language. More attention will be given to the written form, and conversation practice will be more intensive. Students will learn about the customs and culture of the Anishinaabe people as they learn about the language. Prerequisite: NATV201.

*Source: Academic Catalog 2013-14*

# SPAN161

**First-Year Spanish I**

**(4,1) 4 fall**

Introduction to basic Spanish grammar and vocabulary, designed to acquaint the student with the essentials of oral and written Spanish.

*Source: Academic Catalog 2013-14*

# SPAN162

**First-Year Spanish II**

**(4,1) 4 spring**

Further study of Spanish grammar and vocabulary; emphasis on oral communication; reading of various materials in Spanish with the aim of understanding the meaning, enlarging the vocabulary and using Spanish for communication. Prerequisite: SPAN161 or equivalent.

*Source: Academic Catalog 2013-14*

# EGNR140

**Linear Algebra and Numerical Methods for Engineers**

**(1,3) 2**

This course covers the engineering application of concepts from applied mathematics, iterative programming and numerical methods. Applications of linear algebra and complex numbers are introduced. Iterative programming emphasizes loops, conditional statements and user input-output. Numerical methods topics include root searching methods, numerical integration, and other algorithms involving iterative computations. The lab also includes instruction on commercially-available software used to implement the numerical methods studied. Prerequisite: MATH131. Pre- or Co-requisites: MATH112 or MATH151.

*Source: Academic Catalog 2013-14*

# EGNR245

**Calculus Applications for Technology**

**(2,2) 3**

This course covers engineering applications of differential and integral calculus, including areas, volumes of solids, vector analysis, matrix algebra, polar and cylindrical coordinate systems, partial differentiation, and multiple integrals for typical engineering technology problems. Application and solutions to engineering problems will emphasize and require the use of commercial software packages such as MathCAD and MATLAB. Prerequisite: EGNR140.

*Source: Academic Catalog 2013-14*

# COMM201

**Small Group Communication**

**(3,0) 3**

Analysis of verbal communication in small groups as related to information processing, problem solving, agenda establishment, decision making and policy formation. Prerequisite: COMM101.

*Source: Academic Catalog 2013-14*

# COMM225

**Interpersonal Communication**

**(3,0) 3**

An introduction to interpersonal communication theory, with a focus on improved understanding of relationships and an improved ability to communicate more effectively with a variety of people. Prerequisite: COMM101.

*Source: Academic Catalog 2013-14*

# COMM280

**Understanding the Mass Media**

**(3,0) 3**

Acquaints students with the basic similarities and differences in newswriting among the mass media, particularly newspapers, radio and television. Students will practice writing in the various formats. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# COMM307

**Classical/Contemporary Rhetoric**

**(3,0) 3**

A study of the development of rhetoric beginning with the Greeks and continuing to the present. An emphasis will be placed on the influences of past rhetoric to current theory. Prerequisite: COMM101.

*Source: Academic Catalog 2013-14*

# COMM308

**Communication Theory**

**(3,0) 3**

A study of the sources, dimensions and applications of contemporary communication theory, including the impact of mass communication in modern society. Prerequisite: COMM101.

*Source: Academic Catalog 2013-14*

# INTD490

**Senior Directed Study**

**(3-4,0) 3-4**

This course is designed to allow liberal studies majors the opportunity to develop and implement a project/paper using the skills and knowledge from their previous course work. Projects/papers should relate to the student's individual areas of study, and represent a synthesis of their previous learning under the supervision of an appropriate faculty member. Prerequisites: senior status and approval of the appropriate chair(s).

*Source: Academic Catalog 2013-14*

# THEA251

**History of Drama and Theatre I**

**(3,0) 3**

The study of the historical and esthetic drama and theatre from the Greek period to the European Renaissance. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# THEA252

**History of Drama and Theatre II**

**(3,0) 3**

The study of the historical and esthetic drama and theatre from the Renaissance to current theatre and drama. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# ENGL306

**Technical Writing**

**(3,0) 3**

Technical writing is designed to introduce students to the theory and practice of technical communication. This course incorporates a broad approach, addressing the issues of critical thinking, collaboration, ethics, and the persuasive presentation of technical information in both written documents and oral presentations. The specific documents that will be covered include memos, formal business letters, technical descriptions, short and analytic reports, proposals and formal oral presentations. The central focus of the course will be the completion of a discipline-specific final project, in which the technical communication skills learned during the course will be enhanced. A major goal of this project, and the class, is to introduce students to the demands of their chosen professions, and thereby prepare them for the kinds of disciplined intellectual and practical work they will be required to complete. Prerequisite: ENGL111.

*Source: Academic Catalog 2013-14*

# HUMN256

**Introduction to Film: Images of Our Culture**

**(2,2) 3**

An exploration of film as an image of our culture in both its technical sense and in its role as a contemporary art form which conveys and delimits our aesthetic and social values. Focus on the visual elements of film, historical development of the medium, and its narrative modes through screening of significant films. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# THEA161

**Theatre Practicum**

**(1-6,0) 1-6**

Provides practical experience in the production of a theatrical performance. Requires participation in acting, publicity, costuming, stage crew or set construction. May be repeated for a total of six credits. Prerequisite: Permission of Instructor.

*Source: Academic Catalog 2013-14*

# COMM210

**Business and Professional Speaking**

**(3,0) 3**

An introduction to basic skills, principles and contexts of communication in business and professional settings. Application will be in presentational, team-building and interviewing skills. Prerequisite: COMM101.

*Source: Academic Catalog 2013-14*

# COMM302

**Argumentation and Advocacy**

**(3,0) 3**

Provides a practical grounding in the methods of public debate. Students are familiarized with theoretical frameworks for testing propositions through direct clash of evidence and arguments. The emphasis is on practical experience gained through experiences in oral argument. Prerequisite: COMM101.

*Source: Academic Catalog 2013-14*

# THEA309

**Theatre Studies: (Topic)**

**(3,0) 3**

Practical problems in the development and production of theatre, tournaments and festivals. Course may be repeated one time (for a total of six credits) with a change in focus. Prerequisite: Permission of Instructor.

*Source: Academic Catalog 2013-14*

# COMM325

**Organizational Communication**

**(3,0) 3**

Focus on oral communication as it impacts on and permits coordination among people and thus allows for organized behavior. Focus on business and organizational contexts for interpersonal transactions. Participant involvement in simulation designed to generate insights into the elements involved in coordinated and competitive organizational communication. Selected topics for theory and practice: Interpersonal transactions, communication rules, conflict management, negotiations, trust, power and influence. Prerequisite: COMM101.

*Source: Academic Catalog 2013-14*

# THEA333

**Studies in the Drama: The Genre and Theater in Context (Topic)**

**(3,0) 3**

Students will examine theatre of a specific genre or genres in its social, cultural, political, and personal contexts. Course may be repeated one time (for a total of six credits) with a change of focus. Prerequisite: Junior or Senior standing or Permission of Instructor.

*Source: Academic Catalog 2013-14*

# COMM416

**Communication in Leadership**

**(3,0) 3**

An advanced application of theory from the speech communication field to issues in organizational leadership. Leadership theory is surveyed from the speech communication perspective, with an eye toward building applicable skills. Particular emphasis is laid upon cultivating the ability to continue the process following the conclusion of the course. Prerequisite: COMM101.

*Source: Academic Catalog 2013-14*

# MATH251

**Calculus III**

**(4,0) 4**

Three-dimensional space, vectors, vector-valued functions, partial differentiation, multiple integration, topics in vector calculus. Prerequisite: MATH152 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH308

**Probability and Mathematical Statistics**

**(3,0) 3**

An introductory course in probability and mathematical statistics. Probability, probability distributions, mathematical expectation, moment generating functions and the Central Limit Theorem. Prerequisite: MATH152 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH310

**Differential Equations**

**(3,0) 3**

Differential equations of first order, linear differential equations of second and higher orders, including LaPlace transformation. Introduction to power series methods, applications. Prerequisite: MATH152 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI105

**Introduction to Computer Programming**

**(2,2) 3**

An introductory course in computer programming in a graphical development environment, intended for students with no prior computer programming experience. Arithmetic, control structures and simple data structures. Sound, graphics and animation. Prerequisite: MATH086 or equivalent/satisfactory score on the ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# CSCI121

**Principles of Programming**

**(3,0) 3**

A broad-based introduction to computer programming, using the C++ programming language and basic operating system features as vehicles. Basic programming principles, including built-in and programmer-defined data, operators, functions and control structures. Applications will be drawn from across the discipline of computer science. Prerequisite: CSCI105 and MATH102 (or equivalent math placement), with a grade of C or better in both classes.

*Source: Academic Catalog 2013-14*

# CSCI122

**Programming Tools and Techniques**

**(3,0) 3**

A continuation of CSCI121, with an emphasis on software development, rather than the syntactic and semantic details of C++ language. Advanced class concepts, including operator overloading, dynamic memory allocation, and inheritance. Exception handling, binary files, data representation, and advanced pointer applications. Text management, parsing techniques, and C-style input and output. Separate compilation and third-party libraries. Prerequisite: CSCI121 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI201

**Data Structures and Algorithms**

**(3,0) 3**

An introductory course in data structures and algorithms, with an emphasis on abstraction, implementation and analysis. Pointers, lists, stacks, queues, trees and binary trees, and graphs. Application of various data structures to problems selected from the spectrum of computer science topics. Prerequisite: CSCI122 with a grade of C or better and either MATH111 or 140 (or equivalent math placement) with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI221

**Computer Networks**

**(2,2) 3**

An introduction to the basic principles of computer networks and communication, exploring both the hardware necessary to support computer networks and the software needed to utilize those networks. Basic network topologies, network protocols, and local and wide-area networks. Prerequisites: CSCI103 and 105 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI341

**Discrete Structures for Computer Science**

**(4,0) 4 alternate years**

Formal logic and proof techniques; recursion, recurrence relations and combinational methods; analysis of algorithms; algebraic structures; trees and graphs; Boolean algebra and computer logic; models of computation and formal languages. Emphasis will be on applications to computer science. Prerequisites: CSCI121 with a grade of C or better, and either MATH112 or 151 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# EGEE125

**Digital Fundamentals**

**(3,2) 4**

This course provides a study of numbering systems, Boolean algebra, optimization and reduction techniques, combinational logic, sequential digital logic, digital arithmetic, counters, multiplexers, demultiplexers, and microcomputer memory devices. Emphasis is placed on digital circuit design and contemporary programmable logic concepts. Prerequisite: EGNR101 or EGNR103. Pre or Corequisite: MATH111 and MATH131.

*Source: Academic Catalog 2013-14*

# EGEE210

**Circuit Analysis**

**(3,2) or (3,2,1) 4**

This course is an introduction to the analysis of linear circuits. Topics include: basic circuit elements and their terminal relations, Kirchoff's laws, nodal analysis, mesh analysis, superposition theorem, Thevenin and Norton equivalent circuits, DC transient analysis of RC and RL circuits, phasors, sinusoidal steady-state response of RLC circuits and single-phase and three-phase AC power analysis. Prerequisites: MATH152, EGNR140 and one of the following: EGNR101 or 103.

*Source: Academic Catalog 2013-14*

# EGEE250

**Micro-Controller Fundamentals**

**(3,3) 4**

An introduction to micro-controller architecture, machine and assembly language program development, and computer system hardware and interfacing techniques. Prerequisite: EGEE125 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# EGEE280

**Introduction to Signal Processing**

**(4,0,0) or (4,0,1) 4**

The course introduces mathematical techniques used in the design and analysis of analog and digital signal processing systems. Topics include complex numbers, phasor representation of sinusoids, spectral representations, convolution, frequency response, sampling and reconstruction, Fourier series and Fourier transform, and the use of MATLAB as a signal processing tool. Prerequisites: MATH152 and EGNR140.

*Source: Academic Catalog 2013-14*

# EGEE320

**Digital Design**

**(3,3) 4**

A study of logical and electronic circuit design techniques including combinational and sequential circuits, programmable logic devices, MSI and LSI devices. Synchronous state machine design using computer-based tools is emphasized for control applications. Prerequisite: EGEE125 with a grade of C or better, and either EGNR265 or CSCI121.

*Source: Academic Catalog 2013-14*

# EGEE345

**Fundamentals of Engineering Electromagnetics**

**(3,0) 3**

This course provides an in-depth knowledge of the fundamentals of electromagnetic theory. Topics include vector analysis, electrostatic fields and magnetostatic fields, while familiarizing students with the applications of such fields, Maxwell's equations, and an introduction to wave propagation and radiation. Prerequisites: EGEE210 with a grade of C or better, MATH251 and PHYS232. Pre- or corequisite: MATH310.

*Source: Academic Catalog 2013-14*

# EGEE355

**Microcontroller Systems**

**(3,3) 4**

A study of microcontroller systems design based on the 8/16/32-bit microcontrollers. Assembly and C languages are used for program development in the design of embedded systems. Interfacing techniques, real-time control, and microcontroller emulator use are emphasized. Prerequisites: EGEE250 and one of the following: EGNR265 or CSCI121.

*Source: Academic Catalog 2013-14*

# EGEE370

**Electronic Devices**

**(3,3) (3,3,1) 4**

This course provides an in-depth study of the basic electronic devises. Topics include diodes, MOS field effect transistors, bipolar junction transistors as well as amplifier concepts such as gain, bandwidth, biasing and frequency response. Diode rectifiers, common amplifier configurations, digital CMOS logic circuits, latches, flip-flops and RAM cells are studied as applications of electronic devices. Prerequisites: EGEE125 with a C or better grade, EGEE210 with a C or better grade, and MATH152.

*Source: Academic Catalog 2013-14*

# EGEE425

**Digital Signal Processing**

**(2,2) 3**

A study of the application of real-time digital signal processing in analog and digital control system design. The course emphasizes discrete Fourier transforms, design of digital filters, sampling theory, and process control using data acquisition equipment and computer simulation techniques. Additional emphasis is placed on communication theory in relation to its utilization of DSP technology. Prerequisites: EGEE250, and EGEE 280 with a grade of C or better, EGNR140, and either EGNR265 or CSCI121.

*Source: Academic Catalog 2013-14*

# EGNR101

**Introduction to Engineering**

**(1,2) 2**

An introduction to the different areas of study within the fields of electrical and mechanical engineering. Lecture topics and laboratory activities will introduce computer programming, computer simulation exercises, data-acquisition systems, microcontroller systems, communications, robotic and manufacturing applications, material science and dynamics. Prerequisite or corequisite: MATH102.

*Source: Academic Catalog 2013-14*

# EGNR340

**Advanced Numerical Methods for Engineers**

**(0,2) 1**

This is the second course covering numerical methods in engineering. Topics will include numerical methods for the solution of differential equations used to model and solve engineering problems, as well as numerical algorithms for linear algebra problems, Taylor's series, Fourier analysis and other selected applications. Prerequisites: EGNR140. Pre- or Corequisite: MA310 and CSCI121 or EGNR265.

*Source: Academic Catalog 2013-14*

# EGNR346

**Probability and Statistics Laboratory for Engineers**

**(0,2) 1**

This laboratory accompanies MATH308, a calculus-based introduction to the basic theory of probability and statistics. Topics include methods of data collection, experimental design, interpretation of data and use of a statistical software tool. Pre- or corequisite: MATH308.

*Source: Academic Catalog 2013-14*

# CSCI281

**Introduction to UNIX and Networking**

**(2,2) 3**

An introduction to the UNIX operating system, shell scripting, and UNIX networking from the user's perspective. Topics include basic and intermediate UNIX commands and file structure, regular expressions, BASH/CSH shell scripting, basic UNIX network setup, introduction to UNIX system daemons and networking services. Prerequisite: CSCI221 or 271 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# EGEE310

**Network Analysis**

**(4,0) 4**

A continuation of EGEE210 with an emphasis on the systems approach to circuit analysis and design. Topics include the Laplace transform, transfer functions, frequency response, Fourier series, filter design, and op-amps. Prerequisites: EGEE210, EGEE280. Pre- or corequisite: MATH310.

*Source: Academic Catalog 2013-14*

# EGEM220

**Statics**

**(3,0) or (3,0,1) 3**

A study of theory and application of engineering mechanics principles with emphasis on vector analysis, free body diagrams, properties of areas, and problem solving. This emphasis includes applying principles of equilibrium to particles and rigid bodies. Prerequisite: EGNR140. Pre, or Corequisites: MATH152 and PHYS231.

*Source: Academic Catalog 2013-14*

# EGME275

**Engineering Materials**

**(3,0) 3**

A study of the physical structure of engineering materials, including metals, ceramics, polymers, and composites, as well as their properties and applications. Failure modes of materials, such as corrosion, fatigue, plastic deformation, and brittle failure, are also covered. For metal alloys, there is an emphasis on the interpretation of phase diagrams and time-temperature-transformation diagrams. Prerequisite: CHEM115 or (CHEM108 and CHEM109). Pre- or corequisite: EGME225 or EGMT225.

*Source: Academic Catalog 2013-14*

# EGET310

**Electronic Manufacturing Processes**

**(3,3) 4**

This course will cover traditional and modern techniques for the design, fabrication, and testing of electronic circuit boards. Traditional techniques include wire cutting and stripping and manual and wave soldering. Modern techniques include the routing of multilayer surface mount boards, solder paste stenciling and dispensing, pick-an-place assembly and programming, reflow oven soldering, and rework techniques. Additional topics may include mechanical mounting, assembly line coordination, cell manufacturing, and potting and sealing materials. Prerequisites: either (EGET110 and EGET175) or EGEE210.

*Source: Academic Catalog 2013-14*

# EGRS385

**Robotics Engineering**

**(3,3) 4**

An introduction to the field of robotics engineering. Topics include classification of robotic manipulators, accuracy and repeatability, wrists and end-effectors, actuators and sensors, homogeneous transformations, Denavit-Hartenberg convention, forward kinematics, inverse kinematics, trajectory planning and an introduction to velocity kinematics. Laboratory exercises will focus on the operation and programming of industrial robots and robotics simulation using industry standard software. Prerequisites: EGNR265 or CSCI105, and MATH251

*Source: Academic Catalog 2013-14*

# EGRS430

**Systems Integration and Machine Vision**

**(3,3) 4**

A study of the theory and application of sensors and machine vision in modern manufacturing systems. Topics will include position sensors, encoders, interface electronics, force and torque sensors, LAN, PLC, electrical noise, machine vision, lighting techniques, control software, feature extraction techniques and robot guidance. Prerequisites: MATH152 or EGNR245, EGNR140, EGRS381 or EGRS385, and EGNR265 or CSCI121.

*Source: Academic Catalog 2013-14*

# EGRS435

**Automated Manufacturing Systems**

**(2,3) 3**

A study and analysis of the components of an automated manufacturing system. Topics include analysis of flow lines, automated assembly systems, MRP, materials requirement planning, production economics and CIM. Course work will include applications of manufacturing systems software including factory simulation. Laboratory work will focus on systems integration, advanced programming of industrial robots, and flow line automation. Prerequisites: EGRS385.

*Source: Academic Catalog 2013-14*

# EGRS460

**Control Systems**

**(3,3) 4**

An introduction to the analysis and design of linear feedback control systems. The course will include a study of system modeling, block diagrams, system response, stability, steady state error, bode plots and root locus. Laboratory exercises will develop a student's ability to design feedback systems and quantify system performance. Prerequisites: MATH310, EGEM220 and EGEE210. Pre- or co-requisite: EGNR340.

*Source: Academic Catalog 2013-14*

# EGRS461

**Design of Control Systems**

**(3,3) 4**

This course builds upon the fundamental control system theory covered in EGRS460 and introduces various control system design techniques. General topics include Bode and root locus design techniques, controllability and observability, optimal control, state space design. Several classical design techniques such as phase-lead, phase-lag, deadbeat, pole placement and PID design are covered. Prerequisite: EGRS460.

*Source: Academic Catalog 2013-14*

# MATH215

**Fundamental Concepts of Mathematics**

**(3,0) 3**

Elements of set theory, set algebra, cardinality, logic, mathematical induction, methods of proof, functions, relations, equivalence relations. Prerequisite: MATH151 or 112 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# EGNR491

**Engineering Design Project I**

**(2,3) 3**

This course provides students with the skills necessary for successful completion of their design project. Topics include group dynamics, ethics, timelines, resource allocation, project management and performance evaluations. Skills in oral and written communications, problem conceptualization, creative problem solving and technical presentations are developed. Prerequisites: Permission of instructor on the basis of senior status and expected graduation on or before December of the following calendar year, and one of the following: EGEE320, 370, EGME350 or (EGRS365 and EGMT310). Students who plan to take EGNR495 must complete both EGNR491 and EGNR495 in the same academic year. Coop students must complete EGNR451 prior to enrolling in EGNR491.

*Source: Academic Catalog 2013-14*

# EGNR495

**Engineering Design Project II**

**(1,6) 3**

A continuation of EGNR491. This course provides students with the skills necessary for successful completion of their design project. Topics include group dynamics, engineering economics, timelines, resource allocation, project management and performance evaluations. Skills in oral and written communications, problem conceptualization, creative problem solving, and technical presentations are developed. Prerequisite: EGNR491. The dropping or failing of EGNR495 will result in the student having to repeat both EGNR491 and 495.

*Source: Academic Catalog 2013-14*

# EGNR250

**Cooperative Education**

**(2) 2**

A practicum in which students work in a supervised engineering capacity (on site) with industry. The student is expected to work at least 6 hours per week in an industrial setting. The student's experience must be related to his/her academic studies and thus this experience contributes significantly to his/her professional development. May be repeated for a maximum of 4 credits. Prerequisite: Permission of Instructor.

*Source: Academic Catalog 2013-14*

# EGNR450

**Cooperative Education Project I**

**(4) 4**

A practicum in which students work in a supervised engineering capacity (on site) with industry. This is the first of a two-part sequence that can replace the senior year Engineering Design Project II (EGNR495). The focus of this course is the development of the co-op project proposal and the initiation work on the co-op project. The expectation is that at least 60% of a forty hour work week is devoted to completing the project. Prerequisite: EGNR250 Cooperative Education.

*Source: Academic Catalog 2013-14*

# EGNR451

**Cooperative Education Project II**

**(3) 3**

A practicum in which students work in a supervised engineering capacity (on site) with industry. This is the second of a two-part sequence that can replace the senior year Engineering Design Project II (EGNR495). The focus of this course is the completion of the co-op project. The documentation at the completion of the project includes an update presentation and a final report/final presentation. The expectation is that at least 60% of a forty hour work week is devoted to completing the project. Prerequisite: EGNR450 Cooperative Education.

*Source: Academic Catalog 2013-14*

# EGNR260

**Engineering Research Methods**

**(1,3) 2**

This is an introductory course covering research methods in engineering and engineering-related fields. The student will be involved in faculty-supervised and guided research activities such as assisting with developing experiments, gathering data and analyzing results. Much time will be spent learning about the research project, past experiments and future directions. Can be repeated for credit. Prerequisite: permission of instructor.

*Source: Academic Catalog 2013-14*

# EGNR460

**Engineering Research Project I**

**(2,6) 4**

This is a senior-level course in which students are actively involved in a faculty-supervised and guided research project. Students will acquire the skills listed under EGNR491 and develop a research plan for some portion of a project. The plan will be implemented in EGNR461. Specifically, the students will work to develop a proposal of the expected research goals and create a project timeline and budget. The student's faculty advisor and the director of the Lab for Undergraduate Research in Engineering (LURE) must approve the plan. Prerequisites: EG260, permission of instructor on the basis of senior status and expected graduation on or before December of the following calendar year. Students who plan to take EGNR461 must complete both EGNR460 and 461 in the same academic year.

*Source: Academic Catalog 2013-14*

# EGNR461

**Engineering Research Project II**

**(1,3) 2**

This is a senior-level course in which students are actively involved in a faculty-supervised and guided research project. Students implement their research plan developed in EGNR460 and lead research efforts. Results and finding must be reported in oral and/or written forms to appropriate constituencies outside the LSSU audience. Prerequisites: EGNR460 and permission of instructor. The dropping or failing of EGNR461 will result in the student having to repeat both EGNR460 and 461.

*Source: Academic Catalog 2013-14*

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# Computer Networking: Bachelor of Science

## Program Description

This degree gives students the knowledge and tools necessary to be successful in the field of computer networking. Courses cover a range of networking topics, including network operating systems, hardware, web page design, and system administration.

Students will have hands-on experience with Linux, Novell and Windows platforms, as well as networking hardware and operating system installation.

Some of the highlights of the program are:

- Students get hands-on training in networking hardware and software, and receive the necessary concepts of hardware, software and network operating systems.
- Students are prepared to take industry-standard examinations, such as those established by Cisco, Novell and Microsoft.
- Students can choose software design, research, or co-operative education as their senior capstone experience.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Computer Networking
- Bachelor of Science Computer Networking, Web Development Concentration

## Degree Requirements

### Bachelor of Science Computer Networking

**Departmental Requirements (61 credits)**
*Departmental GPA must be 2.50 or higher*

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI121 Principles of Programming 3
- CSCI163 Troubleshooting & Repair of Personal Computers 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI223 Advanced Networking I 3
- CSCI225 Advanced Networking II 3
- CSCI248 Network Operating Systems I 3

- CSCI263 Managing Computer Security 3
- CSCI281 Intro. to UNIX and Networking 3
- CSCI292 Computer Networking Project 4
- CSCI319 Network Programming Using Java 3
- CSCI333 Systems Programming 3
- CSCI348 Network Operating Systems II 3
- CSCI412 UNIX System Administration 3
- CSCI422 Network and Computer Security 3
- CSCI418 Senior Project I 3
  **and**
- CSCI419 Senior Project II 3
  **or**
- CSCI428 Computer Science Co-operative Education I 3
  **and**
- CSCI429 Computer Science Co-operative Education II 3
  **or**
- CSCI438 Computer Science Research Project I 3
  **and**
- CSCI439 Computer Science Research Project II 3

**Support Courses (12 credits)**

- BUSN121 Introduction to Business 3
- BUSN231 Business Communications 3
- MATH111 College Algebra 3
- MATH207 Princ. of Statistical Methods 3

**Free Electives (14 -18)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.50 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements**

## Bachelor of Science Computer Networking, Web Development Concentration

**Departmental Requirements (64 credits)**
**Departmental GPA must be 2.50 or higher**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI107 Web Graphic Design and Development 3
- CSCI121 Principles of Programming 3
- CSCI207 Developing Multimedia and Rich Interactive Web Sties 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3

- CSCI248 Network Operating Systems I 3
- CSCI263 Managing Computer Security 3
- CSCI275 Web Server Administration 3
- CSCI281 Intro. to UNIX and Networking 3
- CSCI292 Computer Networking Project 4
- CSCI319 Network Programming Using Java 3
- CSCI325 Developing Web Applications with JavaScript and PHP 3
- CSCI326 Developing Web Applications with ASP.NET 3
- CSCI333 Systems Programming 3
- CSCI412 UNIX Network Administration 3
- CSCI348 Networking Operating Systems II 3
  **or**
- CSCI422 Network and Computer Security 3
- CSCI418 Senior Project I 3
- CSCI419 Senior Project II 3
  **or**
- CSCI428 Computer Science Co-operative Education I 3
- CSCI429 Computer Science Co-operative Education II 3
  **or**
- CSCI438 Computer Science Research Project I 3
- CSCI439 Computer Science Research Project II 3

**Support Courses (12 credits)**

- BUSN121 Introduction to Business 3
- BUSN231 Business Communications 3
- MATH111 College Algebra 3
- MATH207 Princ. of Statistical Methods 3

**Free Electives (11-15)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.50 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements**

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Previous page: Bachelor (Four-Year Programs) ^ Top
Next page: Associate (Two-Year Programs)

# CSCI103

**Survey of Computer Science**

**(2,2) 3**

An introduction to the field of computer science for computer science majors. Microcomputer applications, history of computing, computer networks and the Internet, programming, hardware, theory of computation, artificial intelligence.

*Source: Academic Catalog 2013-14*

# CSCI106

**Web Page Design and Development**

**(2,2) 3**

Topics include planning a web site starting with domain name registration and selection of hosting service providers, creating web page using HTML/XHTML and cascading styles sheets; validating web pages; using web authoring tools such as Dreamweaver; publishing web pages to a remote web server, introductory web site design, including best practices for inserting graphics, page layout, building the web site navigation and user interface, integration of third-party and Web 2.0 tools and software, implementing web and accessibility standards, ethical and legal issues such as copyright and trademarks.

*Source: Academic Catalog 2013-14*

# CSCI163

**Troubleshooting and Repair of Personal Computers**

**(2,2) 3**

A basic introduction to the architecture, installation, maintenance, troubleshooting and repair of personal computers. The student will learn elementary principles of electronics, magnetism and interference as they relate to computer repair and operation. The disassembly and upgrading of a personal computer will be covered in the laboratory as well as the use of diagnostic hardware and software.

*Source: Academic Catalog 2013-14*

# CSCI211

**Database Applications**

**(3,0) 3**

An introductory course in database design and implementation, using microcomputer-based relational database software. Single and multi-table databases, forms and reports, query processing, data import and export, and database-related programming. Prerequisite: CSCI105 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI223

**Routers and Switches I**

**(2,2) 3 alternate years**

Principles of Wide Area Networks, IQs, routers, routing protocols and configurations; hands-on training with industry-standard routing and switching equipment. Prerequisite: CSCI221 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI225

**Routers and Switches II**

**(2,2) 3 alternate years**

Routing protocols, virtual LANs, network management, design of LANs and WANs. Students completing this course will be prepared to take the CCNA certification exam. Prerequisite: CSCI223 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI248

**Network Operating Systems I**

**(2,2) 3**

An introduction to using and administering network operating systems. Students will also be introduced to virtualization of machines, as well as interaction between virtualized machines. Topics include: account setup, basic security, file and device sharing, and maintenance. Course topics will be presented in the context of different network operating systems. Prerequisite: CSCI221 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI263

**Managing Computer Security**

**(3,0) 3**

This course investigates the various security protection and recovery techniques available for networks and personal computers including security policies, procedures, and requirements necessary for protecting the integrity of information stored on networks, workstations, and other computer systems. Other topics include discussions on disaster recovery planning, emergency response teams, threat assessment, detection and remediation of a threat, standards for establishing a security framework, and operations security and production controls. Prerequisite: CSCI101 or 103 with a grade of C or better

*Source: Academic Catalog 2013-14*

# CSCI292

**Computer Networking Project**

**(4,0) 4**

This is a hands-on course where the student is assigned a project in a corporate network setting. The projects will vary each semester to allow students to implement their knowledge to create and maintain a real-world network system. Activities could include the wiring of the network, installing and maintaining users, installing and repairing workstations, maintaining a Novell or Microsoft network, monitoring an NDS tree, and other similar activities. The student is expected to spend at least 8-10 hours per week on the project including hours on site, doing research, and writing weekly report logs. Prerequisite: CSCI106 and 107, both with a grade of C or better, or CSCI163 and CSCI221, both with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI319

**Network Programming Using Java**

**(3,0) 3**

Overview of Java; applet development in Java; building graphical interfaces; threads and multi-threaded applications; and building client-server applications with Java. Prerequisite: CSCI121 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI333

**Systems Programming**

**(3,0) 3**

An introduction to systems-level programming and scripting using UNIX and Perl. UNIX overview and commands; Web servers, CGI, and integration of UNIX and Perl; programming in Perl, including lists, hashes, conditionals, loops, pattern matching, process and file management, and other topics. Prerequisites: CSCI121 and 221, both with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI348

**Network Operating Systems II**

**(2,2) 3**

A continuation of using and administering network operating systems. Students will also be introduced to virtualization of servers, as well as interaction between virtualized machines. Topics include: file system and network service management, remote access, security, printing, and disaster recovery. Course topics will be presented in the context of different network operating systems. Prerequisite: CSCI248 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI412

**UNIX Network Administration**

**(2,2) 3**

Network administration how to and issues for Linux. Installation of a Linux networked system, maintenance and upgrade of a Linux installation, security issues, common scripting languages, system admin tasks, NFS, and mail systems; other UNIXes. Prerequisites: CSCI221 and 281, both with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI422

**Network and Computer Security**

**(2,2) 3**

An advanced look at common computer and network exploitation techniques in use today. Course emphasis is on how exploits work (both the exploiter's perspective as well as the software faults that allow these exploits to exist), what can be done with the exploits, as well as mitigation and solution techniques for containing the damage to the administered systems. Prerequisites: CSCI121, 221, 333 and 412.

*Source: Academic Catalog 2013-14*

# CSCI418

**Senior Project I**

**(1,4) 3**

This course is the first part of the two-part sequence CSCI418/419. The student will begin a two-semester project by designing and implementing a software system, by creating or maintaining a network system, or by working on some other related computer project. The projects will vary each year to allow students to work on a state-of-the-art real-world system. Students in CSCI418 must take CSCI419 the following semester. Prerequisite: Permission of instructor.

*Source: Academic Catalog 2013-14*

# CSCI419

**Senior Project II**

**(1,4) 3**

The second of a two-part sequence, CSCI419 provides students with the skills necessary for completion of their project design from CSCI418. In this course, the student will implement the design of a software system created in Senior Project I (CSCI418). The projects will vary each year to allow students to implement their knowledge to create a real-world software system. In addition, the student will analyze numerous ethical considerations associated with being a computer professional. Prerequisite: CSCI418 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI428

**Computer Science Cooperative Education I**

**(3,0) 3**

A practicum in which students work in a supervised capacity (one-site) with industry. The student will spend a semester in a co-op position in some field of computer science (networks, application development, database administration, etc.). The student will develop a co-op project proposal that must be submitted to and approved by the computer science faculty. The co-op experience must be of a significant nature such that it serves as capstone computer science experience for the student. This is the first of a two-course sequence. Prerequisites: CSCI290 and permission of the computer science faculty.

*Source: Academic Catalog 2013-14*

# CSCI429

**Computer Science Cooperative Education II**

**(3,0) 3**

A continuation of CSCI428 where students work in a supervised capacity in industry in a field of computer science. This is the second of a two-course sequence. The focus of this course is to finish the cooperative experience in industry and prepare a final report on the two-semester experience. The student will write a final report on the co-op experience and defend that report to the computer science faculty in open forum. Prerequisite: CSCI428.

*Source: Academic Catalog 2013-14*

# CSCI438

**Computer Science Research Project I**

**(3,0) 3**

This is a senior-level course in which students are actively involved in a faculty-supervised and guided research project. Students develop a research plan for some portion of the project and implement that plan. In particular, the student will work to develop a proposal of the expected research goals and create a project timeline and budget. The student's faculty advisor and the computer science faculty must approve the plan. This is the first of a two-course sequence. Prerequisite: Senior status and permission of the computer science faculty.

*Source: Academic Catalog 2013-14*

# CSCI439

**Computer Science Research Project II**

**(3,0) 3**

This is a continuation of CSCI438 Computer Research Project I. Prerequisite: CSCI438.

*Source: Academic Catalog 2013-14*

# CSCI107

**Web Graphic Design and Development**

**(2,2) 3**

Apply graphic design, typography, color theory, and image composition to enhance a web site. Create web graphics using Adobe Photoshop and Microsoft Expression Design. Insert graphics into web pages and publish web sites using Adobe Dreamweaver and Microsoft Expresssion Web.

*Source: Academic Catalog 2013-14*

# CSCI207

**Developing Multimedia and Rich Interactive Web Sites**

**(2,2) 3**

Transform static web pages into rich media-based interactive web applications. Apply graphic design and marketing principles to design and produce audio and video components for both consumers and commercial web applications. Using Adobe Flash and Microsoft Silverlight, build rich interactive web applications. Publish web sites to a web server. Prerequisite: CSCI107 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI275

**Web Server Administration**

**(2,2) 3**

Install and configure a web server; identify the web server administrator role; monitor web server performance and log files; configure file transfer and email services; secure the server. Plan and configure an e-commerce web site. Prerequisites: CSCI221 and CSCI248, both with a C or better.

*Source: Academic Catalog 2013-14*

# CSCI325

**Developing Web Applications with JavaScript and PHP**

**(2,2) 3**

Transform static web sites into dynamic web sites using a combination of client and server-side web programs. Process and validate forms, build interactive web sites, manage web databases and publish web sites to a web server. Prerequisites: CSCI121, CSCI211 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI326

**Developing Web Applications with ASP.NET**

**(2,2) 3**

Create and publish web server and web database applications using the Microsoft ASP.net framework; Emphasis on improving performance, security, and isolating business logic from the user interface. Prerequisites: CSCI121, CSCI211 with a grade of C or better.

*Source: Academic Catalog 2013-14*

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# Computer Science: Bachelor of Science

## Program Description

This degree provides a solid background in computer science with supporting coursework in applied mathematics and business. Adding an appropriate minor field of study can complement the program, as well as give the graduate a competitive edge in the work force.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Computer Science
- Bachelor of Science Computer Science, Secondary Teaching

## Degree Requirements

### Bachelor of Science Computer Science

**Departmental Requirements (63 credits)**
**Departmental GPA must be 2.50 or higher**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI121 Principles of Programming 3
- CSCI122 Programing Tools & Techniques 3
- CSCI201 Data Structures and Algorithms 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI291 Computer Science Project 4
- CSCI312 File and Database Management 3
- CSCI315 Computer Organization & Architecture 3
- CSCI321 Computer Graphics 3
- CSCI333 Systems Programming 3
- CSCI334 Operating Systems Concepts 3
- CSCI341 Discrete Structures for Computer Science 4
- CSCI342 Advanced Programming Techniques 3
- CSCI418 Senior Project I 3
  **and**
- CSCI419 Senior Project II 3
  **or**
- CSCI428 Computer Science Co-operative Education I 3
  **and**
- CSCI429 Computer Science Co-operative Education II 3
  **or**

- CSCI438 Computer Science Research Project I 3
  **and**
- CSCI439 Computer Science Research Project II 3
- MATH131 College Trigonmetry 3
- MATH112 Calculus for Business & Life Science 4
  **or**
- MATH151 Calculus I 4
- MATH207 Prin. of Statistical Methods 3

**Other Requirements (11 credits)**

- ACTG132 Principles of Accounting I 4
- ACTG133 Principles of Accounting II 4
- BUSN121 Introduction to Business 3

**Free Electives (or minor) (12-17 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.50 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements**

## Bachelor of Science Computer Science, Secondary Teaching

**Departmental Requirements (53 credits)**
**Departmental GPA must be 2.70 or higher**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI106 Web Page Design and Development 3
- CSCI121 Principles of Programming 3
- CSCI122 Programing Tools and Techniques 3
- CSCI163 Troubleshooting and Repair of Personal Computers 3
- CSCI201 Data Structures and Algorithms 3
- CSCI211 Database Applications 3
- CSCI221 Computer Networks 3
- CSCI271 Network Hardware and Software 3
- CSCI281 Network Design and Implementation 3
- CSCI312 File and Database Management 3
- CSCI341 Discrete Structures of Computer Science 4
- CSCI418 Senior Project I 3
  **and**
- CSCI419 Senior Project II 3
  **or**
- CSCI428 Computer Science Co-operative Education I 3
  **and**
- CSCI429 Computer Science Co-operative Education II 3
  **or**
- CSCI438 Computer Science Research Project I 3

**and**

- CSCI439 Computer Science Research Project II 3
- MATH151 Calculus I 4
- MATH207 Principles of Statistical Methods 3

**Professional Educational Requirements and Education Cognates - see Secondary Education.**

**Teaching Minor (20 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is also required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

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Previous page: Bachelor (Four-Year Programs) ^ Top
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# CSCI291

**Computer Science Project**

**(4,0) 4**

This is a hands-on course where the student is assigned a project at a corporate site. The student is expected to spend at least 8-10 hours a week on the project. Topics for the project may include creating a substantial Web site, designing and implementing an application system for a user, modifying and updating an existing software system, or other related projects. The projects will vary each semester. Prerequisites: CSCI211 with a grade of C or better; CSCI201 with a grade of C or better, or current enrollment in CSCI201.

*Source: Academic Catalog 2013-14*

# CSCI312

**File and Database Management**

**(3,0) 3 alternate years**

An introduction to files and file processing, with an emphasis on non-sequential organizations for supporting multi-file databases. Creating interfaces to database systems from common programming language platforms. Prerequisites: CSCI121 and CSCI211, each with a minimum grade of C.

*Source: Academic Catalog 2013-14*

# CSCI315

**Computer Organization and Architecture**

**(3,0) 3 alternate years**

A hardware-oriented introduction to the structure of modern computer systems, emphasizing the role of, and interrelationships between, the various components. The evolution of modern computer systems. Memory organization, peripheral devices and their connectivity. Instruction sets, arithmetic and central processing unit structure. Control unit organization and operation. Alternative computer architectures. Prerequisite: CSCI201 with grade of C or better.

*Source: Academic Catalog 2013-14*

# CSCI321

**Computer Graphics**

**(3,0) 3 alternate years**

An introduction to the generation of graphical images by computer. Survey of common graphics devices. Generation of lines and curves. Representation of two-dimensional objects. Techniques for area filling. Scaling, rotation and translation in two dimensions. Rendering three-dimensional objects by projections. Scaling, rotating and translating in three dimensions. Hidden line and hidden surface detection and removal. Prerequisites: CSCI201, and either MATH112 or 151, all with a minimum grade of C.

*Source: Academic Catalog 2013-14*

# CSCI334

**Operating Systems Concepts**

**(3,0) 3 alternate years**

Definition and historical development of operating systems. Characteristics of batch, interactive and multiprogramming systems. File systems, processor and memory management. Communication, concurrency, deadlock and protection. Prerequisite: CSCI333 with a minimum grade of C.

*Source: Academic Catalog 2013-14*

# CSCI342

**Advanced Programming Techniques**

**(3,0) 3 alternate years**

Advanced data structures and programming techniques, including: divide and conquer, dynamic programming, greedy algorithms, graph algorithms, balanced trees. Emphasis will also be placed on the software development process, debugging and testing methodologies. Prerequisite: CSCI201 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH131

**College Trigonometry**

**(3,0) 3**

Basic theory of trigonometric functions and inverse trigonometric functions. Applications include trigonometric equations, plane trigonometry, vectors and complex numbers. Introduction to conic sections. Study of exponential functions and their connection to trigonometry functions, logarithmic functions and applications. Prerequisites: (1) Two years of high school algebra and equivalent/satisfactory score on ACT, COMPASS test or Placement Exam, or MATH102 with a grade of C or better. (2) One half-year of high school trigonometry with a grade of C or better is strongly recommended.

*Source: Academic Catalog 2013-14*

*Source: Academic Catalog 2013-14*

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# Conservation Biology: Bachelor of Science

## Program Description

The BS in Conservation Biology prepares students for careers whose goal is to solve a wide range of environmental challenges such as invasive species, altered landscapes, species extinctions, or the restoration of degraded aquatic and terrestrial ecosystems. Our selection of rigorous field based courses in watersheds, soils, forestry, ecology (general, fish, wildlife or plant), and organisms (mammalogy, ornithology, ichthyology, or entomology) offers a strong set of foundational courses in the natural sciences. combining this coursework with interdisciplinary courses and GIS technology adds the breadth needed to formulate sustainable solutions to local, regional and global conservation challenges. Electives allow students to tailor the program to their interests and career goals. Students may choose as a capstone experience, a summer semester internship working in a professional capacity in conservation biology or a senior thesis research project. Students will be prepared for careers or for graduate work in conservation biology or a broad range or related areas.

The Human Dimensions Concentration prepares students for careers in global, national and community conservation advocacy programs including environmental outreach and policy development and communication. This multi-disciplinary program combines a strong core in the biological sciences with classes in geographic information science, communications, business and economics, and political science. The program is flexible, allowing students to select classes that best match their educational and career goals. Students conclude their program by completing a conservation related service learning project for a conservation organization, unit of government, or business (e.g., land conservancies, Michigan Department of Environmental Quality, watershed organizations, zoos and aquariums).

**Available degrees** (see specific degree requirements further down on page):

- Bachelor of Science Conservation Biology
- Bachelor of Science Conservation Biology, Human Dimensions Concentration

## Degree Requirements

## Bachelor of Science Conservation Biology

**Major Requirements (84 - 85 credits)**

- BIOL126 Interpretation of Maps & Aerial Photos 2

- BIOL131 General Biology: Cells 4
- BIOL132 General Biology: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL203 Fundamentals of Natural Resources 3
- BIOL220 Genetics 4
- BIOL230 Introduction to Soil Science 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biometrics 3
- BIOL284 Principles of Forest Conservation 4
- BIOL286 Principles of Watersheds 3
- BIOL287 Conservation Biology 3
- BIOL299 Sophomore Seminar 1
- BIOL337 General Ecology 3
- BIOL420 Evolutionary Analysis 3
- BIOL470 Restoration Ecology 3
- BIOL499 Senior Seminar 1
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- EVRN131 Introduction to GIS and GPS 3
- EVRN231 Intermediate GIS 3
- EVRN311 Environmental Law 3
- INTD300 The Human Environment 3
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Science 4

**Global Perspective - Select 1 course from:**

- ECON307 Environmental Economics 3
- SOCY227 Population and Ecology 3
- POLI342 International Environmental Policy 3
- Study Abroad 3+

**Internship Option**

- INTD398 Planning Experiential  Learning Project 1
- BIOL497 Internship in Conservation Biology 3

**or**

**Research Option**

- BIOL399 Junior Seminar 1
- BIOL495 Senior Project 2

**Free Electives (13-14 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher.  A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core**

**Requirements.**

## Bachelor of Science Conservation Biology, Human Dimensions Concentration

**Major Requirements (84 - 85 Credits)**

- BIOL126 Intrepretation of Maps & Aerial Photos 2
- BIOL131 General Biology I 4
- BIOL132 General Biology II 4
- BIOL199 Freshman Seminar 1
- BIOL203 Fundementals of Natural Resources 3
- BIOL220 Genetics 4
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- BIOL499 Senior Seminar 1
- CHEM115 General Chemistry I 5
- EVRN131 Introduction to GIS and GPS 3
- EVRN231 Intermediate GIS 3
- EVRN311 Environmental Law 3
- INTD300 The Human Environment 3
- MATH111 College Algebra 3

**Marketing & Management* - 1 course from:**

- MGMT360 Management Concepts & Applications 3
- MRKT281 Marketing Principles & Strategies 3
- MRKT385 Services Marketing 3

**Political Science* - 1 course from:**

- POLI130 Introduction State & local Government 4
- POLI201 Public Administration 3

**Communications* - 1 course from:**

- COMM280 Understanding Mass Media 3
- COMM302 Argumentation & Advocacy 3
- COMM320 Public Relations 4
- COMM416 Communication in Leadership 3

**Global Perspective* - 1 course from:**

- ECON307 Environmental Economics 3
- SOCY227 Population and Ecology 3
- POLI342 International Environmental Policy 3
- Study Abroad 3+

***At least 2 of the designated electives must be 300 or 400 level**

**Internship Option**

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- BIOL497 Internship in Conservation Biology 3

**or**

**Research Option**

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- BIOL495 Senioor Project 2

**Free Electives (13 - 14 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

# BIOL126

**Interpretation of Maps and Aerial Photographs**

**(1,3) 2**

Introduction to use and interpretation of 1:24,000 USGS topographic maps. Topics covered include: determination and calculation of scale, map coordinate systems, projections, and locating features using the General Land Office Survey System. Local landforms will be interpreted from aerial photography at a variety of scales and correlated with map interpretations. Land use and cover will be determined using both black and white and color infrared photography. Pre- or corequisite: MATH102 or higher.

*Source: Academic Catalog 2013-14*

# BIOL203

**Fundamentals of Natural Resources**

**(3,0) 3**

This course will introduce students to the history of natural resource conservation and management, career opportunities within the field of natural resources, and interaction between humans and the environment. The course will focus extensively on basic concepts in human dimensions as they apply to natural resource conservation and management. Course topics include assessing social attitudes and values, social conflicts and conflict resolution, legal and regulatory framework of natural resource management, and the role of stakeholder groups in conservation and management. Prerequisite: ENGL111. Pre- or corequisite: COMM101.

*Source: Academic Catalog 2013-14*

# BIOL230

**Introduction to Soil Science**

**(3,3) 4**

A course dealing with the soil ecosystem as a natural resource and as an environmental medium. Beginning with factors involved in soil formation the course will survey soil physical, chemical, and organic properties and how they respond to disturbance. Soil reactions to wastes and wetland interactions will be discussed. Laboratories will focus on description of local soils and the use of soil survey information in making soil interpretations. Prerequisites: CHEM108 and CHEM109 or above; NSCI103 or BIOL132; BIOL126.

*Source: Academic Catalog 2013-14*

# BIOL284

**Principles of Forest Conservation**

**(2,4) 4**

An introduction to forest structure, function, and ecology. Important fundamenTals of conservation biology such as the effects of disturbance, fragmentation, and biodiversity on forest ecosystems will be emphasized. Students will master identification of tree and shrub species of the Eastern Upper Peninsula and perform commonly used techniques to evaluate the forest resource. The lab portion of the course is in the field and proper dress is required. In addition, one all-day field trip will be scheduled. Prequisites: BIOL132 or NSCI103; and EVRN126.

*Source: Academic Catalog 2013-14*

# BIOL286

**Principles of Watersheds**

**(3,0) 3**

Overview of the geomorphology, hydrology and biota of various watersheds, with emphasis on hydrographic methods, sampling techniques, land use and management principles. Prerequisites: MATH111.

*Source: Academic Catalog 2013-14*

# BIOL287

**Conservation Biology**

**(3,0) 3**

This course will provide a strong background in the field of conservation biology. The course will discuss patterns in, valuation of, and threats to biodiversity. The course will also examine tools and strategies for conserving biodiversity at the population and species levels and discuss the application of conservation biology in today's society. Specific topics include: (1) Principles of and issues in conservation; (2) Threats to biodiversity; (3) Methods and approaches to evaluate and mitigate threats; (4) Application of principles in the design of conservation reserves, restorations, and sustainable development. Prerequisites: BIOL131 and 132

*Source: Academic Catalog 2013-14*

# BIOL470

**Restoration Ecology**

**(3,0) 3**

This course will provide a broad overview of restoration of both terrestrial and aquatic ecosystems, including prairies, wetlands, lakes, and streams. Through lectures, field trips, and case study discussions, students will be introduced to ecological principles and techniques used to restore and rehabilitate ecosystems. Students also will be involved in identifying, designing, and evaluating local restoration projects in conjunction with local resource agencies. Prerequisite: BIOL337

*Source: Academic Catalog 2013-14*

# EVRN131

**Introduction to GIS and GPS**

**(2,2) 3**

This course provides a foundation in geographic information systems (GIS) such as data types, cartography, queries, classification, geoprocessing, basic editing, basic raster analysis and map overlay. The theory and operation of GPS receivers and data integration with GIS is covered in multi-week student initiated projects. Prerequisites: None.

*Source: Academic Catalog 2013-14*

# EVRN231

**Intermediate GIS**

**(1,3) 2**

This course will survey the rapidly growing GIS industry, consider many important principles guiding GIS use and development, and provide the student with hands-on experience. Emphasis will be on geospartial analysis techniques, geodatabase, system design, remote sensing, and provide an introduction to advanced topics. After successfully completing this course, students should come away with a clear understanding of GIS analyses, the issues affecting how a GIS is used (and misused), how to review GIS research, how GIS research is written, and an appreciation for how GIS can contribute to a wide variety of disciplines and research interests. Prerequisites: EVRN131 or equivalent.

*Source: Academic Catalog 2013-14*

# EVRN311

**Environmental Law**

**(3,0) 3 alternate years**

Study of the fundamental concepts of environmental law and ethics. Course includes a survey of the field of environmental ethics and a discussion of ethical issues, a review of the basic legal systems and research techniques, state and federal environmental statutes and codes of conduct for environmental professionals. Extensive use of case studies related to application of environmental law are used to illustrate ethical dilemmas and the approaches for resolving them. Prerequisite: junior standing.

*Source: Academic Catalog 2013-14*

*Source: Academic Catalog 2013-14*

# ECON307

**Environmental Economics**

**(3,0) 3**

This course examines the application of economic analysis to problems of air, water, forests, fisheries, energy, and soil use; economic approaches to valuing the environment; the benefits and costs of pollution control; and alternative policy approaches to environmental problems with emphasis on emissions trading. Prerequisite: ECON202.

*Source: Academic Catalog 2013-14*

# SOCY227

**Population and Ecology**

**(3,0) 3**

Study of the basic issue of the world's population increase and distribution in relation to natural resources, standards of living, political systems, changes in physical and cultural environments.

*Source: Academic Catalog 2013-14*

# POLI342

**International Environmental Policy**

**(3,0) 3**

This course is intended to familiarize students with the efforts of the international community to establish policy guidelines designed to begin the regulation of the global environment. The course covers basic concepts to international relations necessary to understand the general workings of the nation-state system. It then begins an exploration of significant historical international environmental issues and the ways in which these have been dealt with by the international community. The course further challenges students by investigating various alternative solutions for solving the myriad of global environmental problems faced by all of humankind in the new century.

*Source: Academic Catalog 2013-14*

*Source: Academic Catalog 2013-14*

# BIOL497

**Experiential Learning Project**

**3 or 6**

The Internship in Conservation Biology is a full semester/summer work experience. Interns will develop work goals, responsibilities, and outcomes with their agency supervisor and faculty mentor. Students will prepare formal communication components (workshop or oral presentation and a poster). The internship experience should be 12 weeks at 40 hours per week. Pre-requisite: INTD398

*Source: Academic Catalog 2013-14*

# POLI130

**Introduction to State and Local Government**

**(4,0) 4**

A study of the politics and organization of state and local governments, with an emphasis on specific policy issues such as education, criminal justice and economic development.

*Source: Academic Catalog 2013-14*

# POLI201

**Introduction to Public Administration**

**(3,0) 3**

This course provides an overview of the field of public administration. It examines the types of organizations, the relation of administration to politics and public management.

*Source: Academic Catalog 2013-14*

# CJUS101

**Introduction to Criminal Justice**

**(3,0) 3**

A survey of the evolution of criminal justice with particular emphasis on the development of western models of justice. Included will be the role of law enforcement, corrections, the courts and loss control.

*Source: Academic Catalog 2013-14*

# CJUS102

**Police Process**

**(3,0) 3**

Basic principles and techniques of administration which apply to criminal justice organizations. Emphasis on decision making, authority, human relations and communication within organizations.

*Source: Academic Catalog 2013-14*

# CJUS110

**Introduction to Corrections**

**(3,0) 3**

History and philosophy of correctional policy and need for correctional reform; correctional system from arrest through sentencing; correctional personnel and clients.

*Source: Academic Catalog 2013-14*

# CJUS130

**Client Relations in Corrections**

**(3,0) 3**

Meaning and functions of culture and discrimination, minorities in Michigan, affirmative action and attitude formation; ethics, values and professional responsiveness.

*Source: Academic Catalog 2013-14*

# CJUS140

**Correctional Client Growth and Development**

**(3,0) 3**

Emphasis on needs, identities and development of recipients of correctional services; to assist students in gaining insights into development of sensitivity to behavior and motivations of corrections clients. Specific problems of prisoners and intervention strategies are reviewed.

*Source: Academic Catalog 2013-14*

# CJUS220

**Institutional Corrections**

**(3,0) 3**

A survey of the history and philosophy of correctional institutions focusing on: The use of imprisonment as a mechanism of social control, custody versus treatment, rights of prisoners, prison and jail management, institutional training programs, examination of contemporary correctional institutions, prison and jail architecture, and prisoner society.

*Source: Academic Catalog 2013-14*

# CJUS240

**Community-Based Corrections**

**(3,0) 3**

A survey of the history, development, techniques and fundamentals of non-institutional correctional programs and services. Emphasis will be placed on the necessity of correctional programs to interact with other human service agencies within the community.

*Source: Academic Catalog 2013-14*

# CJUS250

**Correctional Law**

**(3,0) 3**

Survey of substantive and procedural correctional law including sentencing, probation, parole, imprisonment, fines and restitution, and prisoners rights. Case law method used, based on appellate court decisions which evolve from criminal defendant litigation and complex legal issues concerning American corrections.

*Source: Academic Catalog 2013-14*

# CJUS319

**Substantive Criminal Law**

**(3,0) 3**

Survey of substantive criminal law as a means of attaining socially desirable ends including protection of life and property. Deals with historical, philosophical concepts as well as case law. Prerequisite: CJUS101.

*Source: Academic Catalog 2013-14*

# CJUS321

**Ethical Issues in Public Safety**

**(3,0) 3**

Consideration of selected issues in public safety organizations. Emphasis on the role of practitioners and relations with the various publics. Students will be given moral dilemmas and will consider their individual value system. Prerequisites: CJUS101 and CJUS102.

*Source: Academic Catalog 2013-14*

# CJUS330

**Correctional Casework**

**(3,0) 3**

The history, standards and principles of correctional casework are presented; the roles, functions and goals of casework are discussed; the competencies and training required for effective casework are considered; and correctional clients - probation and parole selection and appraisal - are concentrated upon. Prerequisites: CJUS220, CJUS240, and junior or senior standing.

*Source: Academic Catalog 2013-14*

# CJUS355

**Juvenile Justice**

**(3,0) 3**

Criminological theories of the causes of juvenile delinquency and prevention strategies. The functions of the juvenile justice system including: Police, courts, detention and legal rights. The Canadian Young Offenders Act will also be studied. Prerequisites: CJUS101 and SOCY214.

*Source: Academic Catalog 2013-14*

# CJUS401

**Senior Seminar**

**(3,0) 3**

Seminar and independent study course with individual student guidance by faculty on selected research topics in criminal justice. Prerequisite: Senior standing.

*Source: Academic Catalog 2013-14*

# CJUS402

**Criminal Justice Internship**

**3-9**

Criminal justice internship with an agency. Credit is based on 34 hours of field work per credit hour. Students must make application by the ninth week of the previous semester. Prerequisite: Senior standing and permission of instructor.

*Source: Academic Catalog 2013-14*

# CJUS345

**Statistics and Design for Public Safety**

**(3,2) 4**

Introduction to research methodology and designs utilized in public safety. Includes sampling, descriptive statistics, inferential statistics, sources of error in presenting findings, and preparing and reading research reports. Prerequisites: Junior standing in criminal justice or fire science and MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# POLI211

**Political Science Research and Statistics**

**(4,0) 4**

An introduction to research methods and statistical applications in political science and public administration. Among other research methods, the course examines survey research, content analysis, experimental design and analysis of existing data. Introduces students to the basics of descriptive and inferential statistics, up through correlation and regression. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# PSYC210

**Statistics**

**(3,0) 3**

Introduction to basic statistical methods of analyzing psychological data. Emphasis is placed on statistical inference, e.g., t-tests, F-tests and selected non-parametric tests. This course provides students with basic statistical concepts and skills necessary for laboratory and survey work, and for understanding psychological literature, and introduces them to statistical analysis on the computer. MATH207 may be used in place of PSYC210 to meet the psychology major and minor requirements. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# SOCY302

**Statistics for Social Science**

**(4,0) 4**

The social foundation of statistical inference is discussed and elementary statistical concepts are introduced through numerical problems: Z scores, t-test, chi square, correlation, ANOVA, etc. Prerequisite: MA086 or equivalent/satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# POLI120

**Introduction to Legal Processes**

**(3,0) 3**

An introduction to the nature and characteristics of law as it operates in the United States: structure and function of the judiciary, process of litigation, influences on law, and impact and enforcement of judicial decisions.

*Source: Academic Catalog 2013-14*

# PSYC259

**Abnormal Psychology**

**(3,0) 3**

This course is a systematic investigation of the identification, dynamics and treatment of deviant and maladaptive behavior.

*Source: Academic Catalog 2013-14*

# SOCY214

**Criminology**

**(3,0) 3**

A study of the nature and causes of crime and the results of various attempts to reduce crime.

*Source: Academic Catalog 2013-14*

# CJUS202

**Canadian Criminal Law**

**(3,0) 3**

Survey of Canadian substantive and procedural criminal law including search and seizure, arrest, evidence and statutory and case law.

*Source: Academic Catalog 2013-14*

# CJUS197

**Physical Fitness for Public Safety**

**(0,3) 1**

This course provides physical fitness and skills necessary for the law enforcement and fire science certification students. Law enforcement students (MCOLES) take course both semesters of their senior year.

*Source: Academic Catalog 2013-14*

# CJUS201

**Firearms Training**

**(0,2) 1**

Emphasis on safe weapon handling, the fundamentals of good marksmanship, proper methods of cleaning and weapon nomenclature. A variety of weapons will be used. Students will have to provide their own targets and ammunition. Prerequisite: Criminal justice student, sophomore standing or permission of department chair.

*Source: Academic Catalog 2013-14*

# CJUS243

**Investigation**

**(3,0) 3**

Introduction to investigation and the techniques of forensic science with emphasis upon gathering and documenting information for determination of fact. Prerequisite: CJUS101.

*Source: Academic Catalog 2013-14*

# CJUS409

**Procedural Criminal Law**

**(3,0) 3**

Principles, duties and mechanics of criminal procedures as applied to important areas of arrest, search and seizure. Prerequisite: CJUS319.

*Source: Academic Catalog 2013-14*

# CJUS411

**Police Operations**

**(5,0) 5**

A capstone course for Michigan Commission on Law Enforcement Standards (MCOLES) Criminal Justice certification students. Court functions, domestic violence law and procedures, ethical issues, civil disputes, interpersonal relations, juvenile offenders and other related topics. Prerequisite: Senior Criminal Justice MCOLES student.

*Source: Academic Catalog 2013-14*

# CJUS444

**Criminalistics**

**(3,3) 4**

Criminalistic methodology and practice including crime scene techniques for specific offenses, collection and preservation of evidence, narcotics and dangerous drugs, fingerprinting, presentations, and other related topics. Contains MLEOTC mandated hours. Prerequisite: CJUS243.

*Source: Academic Catalog 2013-14*

# CJUS313

**Crisis Intervention and Deviant Behavior**

**(3,0) 3**

Survey of philosophy, theory and practice involved in the treatment of different crisis situations most commonly confronting the law enforcement officer in the performance of regular duties. Prerequisites: CJUS101 and CJUS102.

*Source: Academic Catalog 2013-14*

# CJUS406

**Advanced Canadian Jurisprudence**

**(3,0) 3**

Expands upon the material covered in CJUS202, Canadian criminal law, including trial tactics and procedures, sentencing, jurors, invasion of privacy and other current topics. Prerequisite: CJUS202.

*Source: Academic Catalog 2013-14*

# CJUS103

**Introduction to Terrorism and Homeland Security**

**(3,0) 3**

This course will provide learners with historical view of terrorism, its orgins, methodology, and ideology. It will also provide the learner with knowledge of specific events of the 20th century related to terrorism that have formed modern terrorism. Finally it will discuss the worldwide effort on deterring and discovering terrorist activites.

*Source: Academic Catalog 2013-14*

# CJUS203

**Cyberterrorism**

**(3,0) 3**

This course will examine the problem of both domestic and global Cyberterrorism/Cybercrimes. The recognition of various types of crimes committed using computers, the Internet, and other Electronic Devices. Learners will learn investigative techniques and legal issues as related to the investigation of Cybercrimes.

*Source: Academic Catalog 2013-14*

# CJUS204

**Domestic and International Terrorism**

**(3,0) 3**

This course will examine the history and modern trends of Domestic, International and Transnational Terrorism. This will include the profile of terrorist recruits, the structure and dynamics of terrorist organizations, and government sponsored terrorism. The motivation of various organizations and their methods of terrorist violence, as well as, their justification of violent acts will be discussed. Antiterrorism and Counterterrorism measures will be analyzed.

*Source: Academic Catalog 2013-14*

# CJUS303

**Critical Infrastructure Protection**

**(3,0) 3**

This course will examine the historical development of the United States modern infrastructures. The course will provide an in depth knowledge of the Critical Infrastructures and the current protection methods. The learner will then learn advanced protection techniques and vulnerability analysis skills utilized to protect the assets.

*Source: Academic Catalog 2013-14*

# CJUS325

**Homeland Security and Emergency Services**

**(3,0) 3**

This course will prepare all graduates from a variety of majors to understand how homeland security impacts the US political system as a whole, but especially from the standpoint of emergency response and preparedness. Investigates the impact of the federal homeland security apparatus on emergency response organizations at the state and local level. Includes a historical review of "homeland security" measures beginning in WWI and through WWII and the Korean War. Especially reviews the security situation during the Cold War. The course deals with the federal agencies usually not associated with homeland security, such as DEA, ATF, the military departments, FAA, CDC, the National Guard Bureau, and the DOD. Prerequisite: Junior standing. Students from other majors are encouraged to enroll with permission from instructor. Also listed as FIRE325.

*Source: Academic Catalog 2013-14*

# FIRE401

**Senior Seminar**

**(3,0) 3**

Seminar and independent study course with individual student guidance by faculty on selected research topics in fire science. Prerequisites: Senior standing.

*Source: Academic Catalog 2013-14*

# FIRE403

**Fire Science Internship**

**3-9**

Fire science internship with an agency. Credit is based on 34 hours of field work per credit hour. Students must make application by the ninth week of the previous semester. Prerequisites: FIRE220 and senior standing.

*Source: Academic Catalog 2013-14*

# FIRE101

**Introduction to Fire Science**

**(3,0) 3**

Survey of the history and philosophy of fire protection. Examines present fire protection problems and future challenges, public fire protection agencies, firefighting equipment and extinguishing agents. Special emphasis is placed on emergency responders' safety and hazardous material recognition.

*Source: Academic Catalog 2013-14*

# FIRE102

**Wildland and Rural Fire Control**

**(3,0) 3**

Class will provide the theory and practical instruction necessary to manage and control wildland fires. Prevention, back burns, grid references, fuels, firefighting methods and tactics are covered in the course. Select students may earn their "red card" which provides United States Forest Service certification.

*Source: Academic Catalog 2013-14*

# FIRE111

**Hazardous Materials**

**(3,0) 3**

Principles of combustion; examination of theoretical and practical aspects of combustion. Investigation of physical and chemical properties of substances which may harm responders, the general public and the environment.

*Source: Academic Catalog 2013-14*

# FIRE312

**Hazardous Materials Management**

**(3,3) 4**

Covers requirements of federal law dealing with hazardous incidents, waste management with reference to OSHA, NIOSH, NFPA, and ACGIH standards. This class can certify select students at the level of general hazard awareness, emergency response operations, and hazardous waste worker. Prerequisites: FIRE111 or CHEM116 and junior standing.

*Source: Academic Catalog 2013-14*

# CJUS206

**Law Enforcement/Loss Control Internship**

**(3,0) 3**

Field experience for correlation of theoretical knowledge with practice in participating law enforcement or loss control agencies. Prerequisite: Permission of the instructor or sophomore standing. Course may be elected twice for credit of six hours.

*Source: Academic Catalog 2013-14*

# CJUS212

**Loss Control**

**(3,0) 3**

Study of security, including historical, legal and philosophical framework for various phases of security operations in our society today.

*Source: Academic Catalog 2013-14*

# CJUS306

**Security Systems**

**(3,0) 3**

Overview of specialized areas of security in specific facilities with special attention given to management of security information. Prerequisite: CJUS212.

*Source: Academic Catalog 2013-14*

# CJUS341

**Fire Cause and Arson Investigation**

**(3,0) 3**

Determination of fire cause and origin and explosion causes. Prevention, documentation and legal aspects examined. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# FIRE206

**Fire Protection Systems, Equipment and Industrial Fire Protection**

**(3,0) 3**

Use and water supply needs of sprinkler and stand pipe systems and devices, fixed detection and control systems and devices, fire department testing, inspection and maintenance. Alarm centers, warning devices and safety considerations are covered along with fire flow calculations and risk assessment. Examination of fire and lifestyle hazards in business and industry. Emphasis on managing fire prevention and training private fire brigades. Prerequisites: FIRE101, 111, 204 and MATH086 or equivalent/satisfactory score on ACT or placement exam.

*Source: Academic Catalog 2013-14*

# FIRE301

**Code Enforcement Inspection and Fire Prevention**

**(3,0) 3**

An introduction to fire inspection procedures and inspection techniques as related to building construction, fire load, fire protection systems, plans and the storage of hazardous materials. A study of safety code enactment, formulations and its relation to fire prevention and public education efforts and responsibilities of the fire service. Prerequisites FIRE111, FIRE206 and junior standing.

*Source: Academic Catalog 2013-14*

# FIRE204

**Fire Protection Hydraulics and Pumps**

**(3,0) 3**

The application of mathematics and physics laws to properties of water, force, pressure and flow velocities. Emphasis: Applying principles of hydraulics to fire protection problems, use of water supply sources and needs; examines fire department apparatus testing, inspection and maintenance; deals with apparatus specifications and requirements. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or placement exam and FIRE101 or 102, or BIOL102, 140 or 286 as a pre- or corequisite.

*Source: Academic Catalog 2013-14*

# FIRE211

**Tactics and Strategy**

**(3,0) 3**

Utilization of manpower, equipment and apparatus on the fireground. Emphasis: Pre-fire planning, fire ground decision making. Implementing tactics and disaster planning. Students will use fire simulation programs and interactive technology to apply and implement the principles covered in didactic instruction. Prerequisite: Either FIRE101 or 102 and 204 as a pre- or corequisite.

*Source: Academic Catalog 2013-14*

# FIRE219

**Firefighter Essentials**

**(3,0) 3**

This course is the first part of a two class sequence; the second part of the sequence is FIRE220. This course will cover the principles of firefighting attack skills through the practical instruction and exercises as outlined by the Michigan Firefighters Training Council (MFFTC). This course introduces the student to the application of the principles of fire attack and strategy for Firefighter I certificate and portions of Firefighter II through the use of exercises and computer-generated simulations. Hazmat incident analysis and other major disaster case studies are used in this class. Prerequisites: FIRE101 and 111. Corequisites: FIRE197, 204, and 206. Completion of special medical examination.

*Source: Academic Catalog 2013-14*

# FIRE220

**Fire Science Certification**

**(3,3) 4**

An application of the principles of fire attack and strategy through the use of exercises and computer-generated simulations. Hazmat incident analysis and other major disaster case studies are used in this class. Prerequisites: FIRE101, FIRE111, FIRE197 and FIRE204. Corequisites: FIRE206 and FIRE211. Completion of specialized medical examination.

*Source: Academic Catalog 2013-14*

# FIRE197

**Physical Fitness for Public Safety**

**(0,3) 1**

This course provides physical fitness and skills necessary for the law enforcement and fire science certification students. Fire science students take the course semester before FIRE220.

*Source: Academic Catalog 2013-14*

# CHLD101

**Foundations of Early Childhood Education**

**(3,0) 3**

An introduction to the field of early childhood. Topics include its history, application of theories to curriculum, types of programs and issues in the field of child care. Observations of various early childhood settings will be required.

*Source: Academic Catalog 2013-14*

# CHLD105

**Child Guidance and Welfare**

**(3,0) 3**

Through readings, discussions, observations and interactions with children, the student will learn how to develop guidance strategies when working with children in an early childhood setting. Prerequisite: PSYC155 or 265.

*Source: Academic Catalog 2013-14*

# CHLD110

**Curriculum Development and Teaching Practices**

**(3,0) 3**

Developing curriculum and teaching practices based on the whole child's development: Cognitive, physical, social, emotional, and creative. Emphasis on planning play activities for learning centers. Observations of children in an early childhood setting will be required.

*Source: Academic Catalog 2013-14*

# CHLD111

**Infants and Toddlers:Developmentally Appropriate Practices**

**(3,0) 3**

Includes theories of emotional, physical, social and cognitive stages of development of children ages 0 to 36 months. The knowledge of these stages will be applied to matching developmentally appropriate teaching and caregiving practices. Issues in administering infant/toddler programs will also be discussed. Prerequisite: PSYC155 or 265.

*Source: Academic Catalog 2013-14*

# CHLD220

**Early Childhood Literature**

**(3,0) 3**

Readings in developmentally appropriate literature and related activities across the curriculum for young children, ages birth through kindergarten. Prerequisites: ENGL110 and COMM101.

*Source: Academic Catalog 2013-14*

# CHLD260

**Practicum I**

**(1,12) 4 credit/no credit**

The student will complete 12.5 hours weekly in an early childhood laboratory setting. Attendance at a weekly seminar is also required. Prerequisites: CHLD101 and 110 and permission of instructor.

*Source: Academic Catalog 2013-14*

# CHLD261

**Practicum II**

**(1,12) 4 credit/no credit**

The student will complete 12.5 hours weekly in an early childhood laboratory setting. Attendance at a weekly seminar is also required. Prerequisites: CHLD101 and 110 and permission of instructor.

*Source: Academic Catalog 2013-14*

# CHLD270

**Administration of Early Childhood Programs**

**(3,0) 3**

Knowledge of financial, legal, supervisory and administrative procedures used in operating an early childhood program will be gained through lectures, discussions, readings and activities. Prerequisite: CHLD260 or 261.

*Source: Academic Catalog 2013-14*

# CHLD340

**Practicum III: Field Experiences**

**(1,12) 4**

Students will gain hands-on experience and observational skills in a K-3 classroom. Students will attend individualized seminars, and complete 100 contact hours in the classroom with additional course requirements. Prerequisites: Permission of instructor and completion of CHLD260 and 261.

*Source: Academic Catalog 2013-14*

# CHLD420

**Emergent Literacy**

**(3,0) 3**

A methods class which facilitates understanding of the reading, writing, oral and listening development of the child from preschool to early elementary. Prerequisite: CHLD220 or ENGL335.

*Source: Academic Catalog 2013-14*

# CHLD430

**Directed Studies in Early Childhood Education**

**(4,0) 4**

Individual research study of a relevant topic of current trends and issues in early childhood. Topic will be defined jointly by student and instructor. Prerequisite: junior status.

*Source: Academic Catalog 2013-14*

# ARTS212

**Art for Elementary Teachers**

**(3, 0) 3**

This course is designed to provide an understanding of the philosophy, theories and contemporary issues of art education in kindergarten through sixth grade. Various art media will be explored by the student, and curriculum planning and evaluation will be discussed.

*Source: Academic Catalog 2013-14*

# HLTH104

**Nutrition for Early Childhood**

**(3,0) 3 alternate years**

Introduction to the function and metabolism of nutrients with special emphasis on the relationship between nutrition and childhood growth and development between 0-8. Lectures, discussion and community-based assignments will relate the body systems to the child's nutritional status, review recent developments in nutrition as they relate to childhood development, and provide basic nutrition education principles for adaptation in community settings.

*Source: Academic Catalog 2013-14*

# EMED181

**First Aid**

**(0.5,1.5) 1**

Basic course in first aid. Theoretical and practical experience in university laboratory.

*Source: Academic Catalog 2013-14*

# MUSC235

**Music for Elementary Teachers**

**(3,0) 3**

This course is designed to provide an understanding of the philosophy, theories and contemporary issues in music education in the kindergarten through sixth grade classrooms. The student will develop a practical knowledge of music skills and instructional techniques when planning a music curriculum for the elementary classroom.

*Source: Academic Catalog 2013-14*

# PSYC265

**Child and Adolescent Development**

**(3,0) 3**

Psychological development of the child through adolescence. Social, emotional and intellectual development are covered, with consideration of genetic, prenatal and postnatal influences. Prerequisite: PSYC101, 155 or EDUC150.

*Source: Academic Catalog 2013-14*

# PSYC301

**Exceptional Child and Adolescent**

**(3,0) 3**

The study of physically, intellectually and socially exceptional children and adolescents, including their characteristics and unique educational needs. Prerequisite: PSYC155 or 265.

*Source: Academic Catalog 2013-14*

# EGEE330

**Electro-Mechanical Systems**

**(3,3) 4 or (3,3,1) 4**

A study of three-phase circuits, electro-mechanical energy conversion, transformers, AC and DC machines, motor drives, and controlled converters. The laboratory activities include planning and conducting tests of electrical machines, and simulation with physical modeling software. Prerequisite: EGEE210 with a grade of C or better, EGNR140, and MATH152.

*Source: Academic Catalog 2013-14*

# EGEE475

**Power Electronics**

**(3,3) 4**

This course provides an introduction to electrical power processing. The general topics include various electronic power switching circuits including: AC-DC rectifiers, DC-DC converters and DC-AC inverters. Additional topics include applications of power switching circuits as well as characterisics of power semiconductor devices. Prerequisites: EGEE280, EGEE370, and MATH251.

*Source: Academic Catalog 2013-14*

# EGNR265

**C Programming**

**(3,0) or (3,0,1) 3**

An introductory course in "C" programming with an emphasis on structured programming techniques and on utilizing "C" to solve engineering-related problems. Topics include looping techniques, input and output to files, conditional flow of control, writing and utilizing functions, pointers, 1D and 2D arrays, and data storage. Prerequisites: MATH111 and MATH131 and sophomore standing.

*Source: Academic Catalog 2013-14*

# EGEM320

**Dynamics**

**(3,0) or (3,0,1) 3**

A study of theory and applications of dynamics and problem-solving techniques. Topics include position, velocity, and acceleration analysis of particles and rigid bodies. Newton's second law, work and energy and impulse and momentum are covered. Prerequisites: MATH152 and EGEM220.

*Source: Academic Catalog 2013-14*

# EGME225

**Mechanics of Materials I**

**(3,0) 3**

A study of stress analysis and measurements. Topics include axial, shear, torsion, bending stresses, axial strains, shear strains, Poisson's ratio, Hooke's law and the transformation of stresses and strains. Deflection of beams and buckling of columns are also treated. Prerequisite: EGEM220 with a grade of C or better. Pre- or corequisite: MATH152.

*Source: Academic Catalog 2013-14*

# EGME337

**Thermodynamics**

**(4,0) or (4,0,1) 4**

A study of the theory and applications of thermodynamics. Topics covered include: thermodynamic properties, heat, work, first and second Laws of thermodynamics, entropy, power and refrigeration cycles, gas mixtures, and an introduction to transport theory. Prerequisite: MATH152 or MATH112 and EGMT332.

*Source: Academic Catalog 2013-14*

# EGEE365

**Vehicle Instrumentation**

**(3,3) 4**

The course introduces instrumentation hardware and software that support the development, operation, and testing of vehicle systems. Topics include vehicle networks, data acquisition and control systems, modeling and simulation, and hardware adn sensors interfacing. Prerequisites: ENGEE210 and (EGNR265 or CSCI122)

*Source: Academic Catalog 2013-14*

# EGME310

**Vehicle Development & Testing**

**(1,2) 2**

A course providing a systematic overview of topics within the areas of automotive vehicle dynamics, component design, and testing. An introduction to gross vehicle dynamics is followed by a detailed study of specific vehicle subsystems, including both their design and their role in the overall vehicle behavior. Dynamic behaviors covered include acceleration, braking, cornering, ride, and load transfer. Subsystems considered include the brakes, steering system, suspension, tires, and drive train. Vehicle testing and benchmarking is also covered. Laboratory content includes an introduction to a commercial vehicle dynamics software package. Prerequisites: PHYS221 or PHYS231. Pre- or corequisites: EGEM220 or EGMT225.

*Source: Academic Catalog 2013-14*

# EGME415

**Vehicle Dynamics**

**(2,0) 2**

A study of vehicle dynamics, treating selected topics in automobile dynamics with more theoretical depth than EGME410, but also surveying heavy trucks, tracked and off-road vehicles (including terrain interaction), railway vehicles, and water-borne vessels. Dynamic modeling, as well as a thorough understanding of underlying physical phenomena, are emphasized. Prerequisites: EGEM320, EGNR340 and EGME310.

*Source: Academic Catalog 2013-14*

# EGET110

**Applied Electricity**

**(3,2) 4**

This course covers basic principles of DC and AC electricity. Topics include resistance, inductance, capacitance, series and parallel circuits, magnetic circuits, transformers and electrical motors. Laboratory exercises will reinforce the lecture material. Prerequisite: MATH111 and MATH131 each with a C or better.

*Source: Academic Catalog 2013-14*

# EGET175

**Applied Electronics**

**(3,2) 4**

An introduction to the operation of basic electronic devices including diodes, transistors and operational amplifiers. Topics include: Power supplies, amplifiers, frequency response and filter circuits. Laboratory exercises will reinforce the lecture material and introduce computer circuit analysis. Prerequisite: EGET110.

*Source: Academic Catalog 2013-14*

# EGME141

**Solid Modeling**

**(2,2) 3**

An application of standard solid modeling software to draw, dimension, and design mechanical parts and assemblies. Topics covered include: standard drafting techniques, orthographic projections, wireframe and solid methods, dimensioning, assemblies, and constraining. An introduction to animation of assemblies is also included. Pre- or Corequisite: MATH102.

*Source: Academic Catalog 2013-14*

# EGNR310

**Advanced Quality Engineering**

**(3,0) 3**

Provides an in-depth coverage of classical and modern methods of quality control and quality engineering. Topics include quality control principles and terminology, classical qualitative and quantitative quality control methods, including statistical process control procedures, and robust design methods as applied to product design and design of experiments, and an overview of quality management systems used in industry. Prerequisite: MATH207 or 308.

*Source: Academic Catalog 2013-14*

# EGRS365

**Programmable Logic Controllers**

**(2,3) 3**

An introduction to programmable logic controllers (PLC) with an emphasis on programming of the controller and operator interface. Standard PLC devices (bits, timers, counters etc.) and controller functions dealing with math, compare, moves, program flow, analog input, and high-speed counters will be covered in the course. Written and oral business communications are an integral part of the course. Co or prequisites: EGNR265 or EGEE125 or CSCI121 and sophomore status.

*Source: Academic Catalog 2013-14*

# EGRS380

**Robotics Technology**

**(2,0) 2**

This course will cover topics relative to robotics and robotics systems. Two- and three-dimensional kinematics, end effectors, active and passive collision systems, sensors, feedback devices, robotic safety, and principles of operation of applicable hardware will be studied. Prerequisites: MATH111 and MATH131 with grade of C or better, and PHYS221.

*Source: Academic Catalog 2013-14*

# EGRS381

**Robotics Technology Lab**

**(0,3) 1**

Laboratory exercises will provide hands-on examples in the use of industrial robots. Focus will be on learning a structured robotics programming language. Applications and projects will simulate industrial situations as well as emphasize system integration. Prerequisites: EGNR265. Corequisite: EGRS380.

*Source: Academic Catalog 2013-14*

# MGMT375

**Introduction to Supply Chain Management**

**(3,0) 3**

This course provides an overview of the supply chain function for an organization. The supply chain for any company is described as the continuous sequence of events and operations that add value to the firm. Topics will include purchasing and procurement, inbound and outbound logistics and transportation, operations and manufacturing planning and control, forecasting, quality control, enterprise resource planning and overall information system design for the firm. Prerequisite: BUSN211 or statistics equivalent.

*Source: Academic Catalog 2013-14*

# EGEE305

**Analog and Digital Electronics**

**(2,3) 3**

A study of digital electronics, electronic devices, and circuits for non-electrical engineering majors. Topics include discrete logic device, diodes, and amplifiers. Prerequisite: EGEE210 and PHYS232.

*Source: Academic Catalog 2013-14*

# EGME240

**Assembly Modeling and GD&T**

**(2,3) 3**

The course is a continuation of EGME141. Parametric modeling and design of assemblies by the use of solid models. Emphasis will be placed on animation of assemblies to display the functionality of assemblies. Prerequisites: EGME110, 141, and sophomore standing.

*Source: Academic Catalog 2013-14*

# EGME276

**Strength of Materials Lab**

**(0,3) 1**

Laboratory experiments covering topics in mechanics of materials and engineering materials. Theory from mechanics of materials and engineering materials will be covered through hands-on experiments. Pre- or corequisites: EGME225 or EGMT225 and EGME275.

*Source: Academic Catalog 2013-14*

# EGME338

**Fluid Mechanics**

**(2,0) 2**

A study of theory and applications of fluid statics and fluid dynamics. Topics covered include: Hydrostatic forces, buoyancy forces and stability, Bernoulli equations, dimensional analysis, flow in pipes, integral analysis of fluids, and introduction to pumps. Prerequisites: MATH151 or 112.

*Source: Academic Catalog 2013-14*

# EGMT225

**EGMT225 Statics and Strength of Materials**

**(4,0) 4**

Fundamental concepts of statics and strength of materials. Solutions of problems introducing forces, moments, normal stress, shear stress, bending stress and torsional stress. Theory and application of strain gages. Prerequisites: MATH111 and MATH131 each with a C or better and PHYS221.

*Source: Academic Catalog 2013-14*

# EGMT332

**EGMT332 Thermodynamics and Heat Transfer for Technologists**

**(4,0) 4**

This course provides an algebra-based coverage of topics in thermodynamics and heat transfer relevant to technologists in manufacturing and fire science. Thermodynamics topics include properties of substances, energy balances, combustion and thermochemistry, and heating and ventilation systems. Basic principles of conduction, convection, and radiation, and their application to practical problems are covered in the heat transfer portion of the course. Prerequisite: MATH111 or 140.

*Source: Academic Catalog 2013-14*

# EGRS215

**Introduction to Robotics**

**(1,2) 2**

An introduction and orientation to the field of robotics. Challenges in robotics manufacturing, design and structure of robotic systems, classification of robots, robot geometry, power sources, robotic control systems are covered in this course. The lab part of the course will provide an overview of robotics applications in industry through videos and hands-on experiences. Applied laboratory topics will cover basic programming concepts, structures, and applications using industrial robots. Prerequisites: MATH102 or equivalent.

*Source: Academic Catalog 2013-14*

# EGRS480

**Manufacturing Automation**

**(3,0) 3**

Study of the mathematical modeling of production concepts, analysis of automated flow lines, automated assembly systems, production economics, automated guided vehicles and materials requirement planning. Prerequisites: EGRS380, EGRS381 or EGRS382, and MATH112 or MATH151 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# EGRS481

**Manufacturing Automation Lab**

**(0,3) 1**

The first part of the laboratory work will focus on programming Fanuc robots using the Karel programming language. Industry-like applications and system integration projects will be assigned. The second part of the lab work will include the application of WITNESS discrete-event simulation software package to study and analyze manufacturing systems. Prerequistes: EGNR265 or CSCI121 either with a grade of C or better. Pre or co-requisite: EGRS480.

*Source: Academic Catalog 2013-14*

# MATH103

**Number Systems and Problem Solving for Elementary Teachers**

**(3,2) 4**

General notions of problem solving and number theory for elementary teachers including sets; funcitons; numeration systems and properties and operations of whole numbers, integers, fractions and decimals; and proportional reasoning. Prerequisite: Equivalent/satisfactory score on ACT, or Placement Exam, or MATH102 with a grade of C (2.00) or better.

*Source: Academic Catalog 2013-14*

# MATH104

**Geometry and Measurement for Elementary Teachers**

**(3,2) 4**

Basic notions of geometry for elementary teachers including constructions, congruence and similarity, motion geometry, symmetry and tessellations. Concepts of measurement, coordinate geometry, probability and data analysis. Prerequisite: Equivalent/satisfactory score on ACT, or Placement Exam, or MATH102 with a grade of C (2.00) or better.

*Source: Academic Catalog 2013-14*

# HIST321

**History of Michigan**

**(2,0) 2**

The History of Michigan is a survey course that will include an examination of the geology, geography, and history of the state. This course will also study the role of citizens, events, issues, and their impact on the development of Michigan as well as the larger developments in the United States during the Jacksonian Period, the Civil War Period, the Period of Rapid Industrialization and Urbanization, the Period of 1914 to 1945, the Period 1950 to the Present, the Period of Industrial Expansion and Decline, and the Post-Vietnam War Period of Globalization. The major political, economic, social, and cultural movements and developments of these historic periods will be examined.

*Source: Academic Catalog 2013-14*

# ENGL222

**English Grammar**

**(3,0) 3**

Introduction to the basic Standard English grammar, its vocabulary and its principles as these rules apply to the structure of the sentence and the production of the meaning.

*Source: Academic Catalog 2013-14*

# ENGL335

**Children’s Literature**

**(3,0) 3**

This course focuses on understanding the historical, cultural, and generic dimensions of children's literature, with emphasis on critical reading, literary analysis, and the selection and evaluation of texts for children and young adults. Pre- corequisites: ENGL111 or COMM101.

*Source: Academic Catalog 2013-14*

# ENGL180

**Introduction to Literary Studies**

**(3,0) 3**

This course introduces students to the theory and methodology of literary study, focusing on three questions: What is a literary text? How do we read a literary text? How do we write about a literary text? Addressing these questions requires students to examine the social and cultural contexts of literature and its aesthetic, rhetorical and ideological aspects. These considerations will help students judge literary value and examine their own literary assumptions. Requires one research project and critical essays using MLA style. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# EDUC350

**Integrating Technology into 21st Century Learning Environments**

**(2,1) 3**

This course explores instructional technology tools, educational media, theory, and practice with the goal of designing consummate learning experiences with seamless technology integration for all students. Application of technology and learning theory to planning for instruction is included, with specific focus on setting outcomes for learning. Prerequisites: Admission to the teacher education program, EDUC301.

*Source: Academic Catalog 2013-14*

# EDSE301

**Introduction to Special Education**

**(3,0) 3**

An introduction to the historical and legal bases of special education. Research based examination of the models, theories and philosophy of teaching students with disabilities. Prerequisites: admission to the School of Education. This course may NOT be repeated for credit.

*Source: Academic Catalog 2013-14*

# EDUC415

**General Instructional Methods**

**(2,0) 2**

This course provides opportunities to study and apply research-based instructional methodologies to facilitate effective learning with an emphasis on differentiation and authentic assessment. Fieldwork required. Prerequisites: Admission to the teacher education program, EDUC350.

*Source: Academic Catalog 2013-14*

# EDUC423

**Arts Methods for Classroom Teachers**

**(2,0) 2**

Elementary teacher candidates examine the knowledge, understanding, and application of the content, functions, and achievements of dance, music, theatre, and the visual arts to promote elementary students' ability to create, perform and respond in and through the arts. Candidates demonstrate their understanding that all students can learn the knowledge and skills that make up the arts.

*Source: Academic Catalog 2013-14*

# EDUC424

**Health/Physical Methods for Classroom Teachers**

**(2,0) 2**

Elementary teacher candidates demonstrate the knowledge, understanding, and application of research-based strategies to create opportunities for all students to develop critical knowledge, skills, and behaviors that contribute to life-long health. Candidates demonstrate knowledge and understanding through planning and appropriate implementation of effective past and current research-based human movement and physical activity strategies as central elements to foster active, life-long healthy lifestyles for all elementary students.

*Source: Academic Catalog 2013-14*

# EDUC460

**Classroom Management**

**(2,0) 2**

This course focuses on effective classroom management techniques essential to creating a positive, democratic learning environment. Exploration of management techniques and theories leads to a development of personal classroom management system to help students become responsible for their behaviors and choices. Prerequisite: EDUC415.

*Source: Academic Catalog 2013-14*

# EDSE302

**Communication and Community**

**(3,0) 3**

Developing effective communication between all participants in the educational community involved in the education of students with special needs. Topics include preparing and implementing IEPs and communication with parents, students and teachers. Prerequisite: EDSE301.

*Source: Academic Catalog 2013-14*

# EDSE320

**Introduction to Learning Disabilities**

**(4,0) 4**

An examination of the educational research, characteristics, diagnostic principles and practices related to teaching students with learning disabilities. Psychological theories (e.g. developmental, behavioral, and cognitive) of teaching students with learning disabilities and associated learning strategies are reviewed. Prerequisites: EDSE301, EDSE302.

*Source: Academic Catalog 2013-14*

# EDSE401

**Issues and Trends Impacting Learning Disabilities & Special Education**

**(3,0) 3**

Contemporary issues in the education of students with learning disabilities and other special needs will be explored. Policies and regulations, requirements and procedures for service, curriculum adaptation and modification, delivery models relating to placement, privacy, advocacy, and family education will be discussed. Prerequisite: EDSE302.

*Source: Academic Catalog 2013-14*

# EDSE403

**Assessment and Diagnosis**

**(3,0) 3**

An examination of the education research and best practices related to identification, assessment, instruction, accommodation, and implementation of special education programs. Legal responsibilities of the school in the areas of assessment, diagnosis, and diversity will also be addressed. Prerequisites: EDSE301, EDSE320.

*Source: Academic Catalog 2013-14*

# EDSE404

**Instruction and Technology: Preschool to Adult**

**(4,0) 4**

An examination of the research and best practices using assistive technologies to increase, maintain or improve the capabilities of students with disabilities. Prerequisites: EDSE320, EDSE403.

*Source: Academic Catalog 2013-14*

# EDSE480

**Student Teaching Seminar: Special Education**

**(1,0) 1**

A seminar for teacher candidates during a student teaching internship in a special education classroom. Corequisite: EDSE492. Prerequisites: EDSE320, EDSE403, and EDSE404, and admission to student teaching. The course may NOT be repeated for credit.

*Source: Academic Catalog 2013-14*

# EDSE492

**Internship/Supervised Student Teaching: Learning Disabilities**

**(8,0) 8**

Supervised student teaching internship in a special education classroom, focus on working with students with learning disabilities. Grading will be CR/NC. Corequisite: EDSE480. Prerequisites: EDSE320, EDSE403, EDSE404 and admission to student teaching. The course may NOT be repeated for credit.

*Source: Academic Catalog 2013-14*

# EVRN313

**Solid and Hazardous Waste**

**(3,0) 3 alternate years**

Identification and classification of solid and hazardous wastes, including discussion of storage and processing, collection and transportation, resource recovery and recycling and ultimate disposal. Topics on radiation, decay, health effects and sources of hazardous materials will also be covered. Prerequisite: MATH112 or equivalent.

*Source: Academic Catalog 2013-14*

# EVRN317

**Environmental Health Applications**

**(3,3) 4**

A systems approach addressing the factors that contribute to illness, injury, or death, and that affect the health status of individuals and populations. Topics include: environments within buildings, food sanitation, reacreation facilities, personal services, and community noise and control. The laboratory emphasizes methods of measuring and evaluating environmental health risks as well as field experience. Prerequisite: One semester of chemistry and NSCI103 or permission of instructor.

*Source: Academic Catalog 2013-14*

# EVRN341

**Environmental Chemistry I**

**(3,3) 4 alternate years**

A study of the environmental chemistry of the hydrosphere, atmosphere, lithosphere, and biosphere, the measurement and remediation of water and air quality problems, the toxicology of water and air pollutants, and the environmental aspects of energy use. Prerequisites: CHEM225, CHEM231 and NSCI103. Also listed as CHEM341.

*Source: Academic Catalog 2013-14*

# EVRN395

**Junior Seminar**

**(1,0) 1**

Literature searching, scientific writing, and oral presentation of scientific data. Students will be expected to listen to presentation of peers enrolled in EVRN/CHEM499 and develop a topic for their senior thesis. Prerequisite: Junior standing. Note: Also listed as CHEM395.

*Source: Academic Catalog 2013-14*

# EVRN425

**Environmental Systems Analysis**

**(3,3) 4 alternate years**

The basic approach and statistical concerns associated with conducting an environmental analysis, as required for an environmental impact analysis will be integrated with interpretation of data from actual situations. Students will learn how analysis of soil, water, air, plant communities, animal communities and organic tissue analysis can be combined to evaluate the environmental health of a specific site. Discussion of solid, liquid, and hazardous wastes from a macro- and microscopic approach will be included. Prerequisite: CHEM341. Pre- or corequisite: EVRN313.

*Source: Academic Catalog 2013-14*

# EVRN495

**Senior Project**

**(0,6) 2**

This is a practicum course in which students, under the guidance of a faculty mentor, conduct a scholarly project mutually agreed upon by the student and his/her faculty mentor. This course will be required for a degree certified by the American Chemical Society. This course may not be repeated for credit. Prerequisites: EVRN395 (also listed as CHEM395), CHEM231, and CHEM225. Dual listed as CHEM495.

*Source: Academic Catalog 2013-14*

# EVRN499

**Senior Seminar**

**(1,0) 1**

Required for seniors majoring in chemistry/environmental science. Students will present the results of their scholarly research. Students who have completed EVRN495/CHEM495 will be required to give poster and oral presentations to the Unviersity community as part of this class. Pre- or corequisite: EVRN395 (dual listed as CHEM495). Dual listed as CHEM499.

*Source: Academic Catalog 2013-14*

# GEOL411

**Hydrologic Systems: Surface and Groundwater**

**(3,3) 4 alternate years**

The study of hydrologic systems with an emphasis on land surface and groundwater hydrology. Topics include global climate and the hydrologic cycle, precipitation, snow processes, soil water flow, evapotranspiration, groundwater flow, groundwater-surface interactions, and steam hydraulics. Laboratory components will provide experience in hydrologic field techniques, numerical modeling, and independent research. Prerequisites: PHYS221 or 231.

*Source: Academic Catalog 2013-14*

# HLTH210

**Introduction to Health Care Concepts and Issues**

**(3,0) 3**

This course is an introduction to the health care system with analysis of the issues and trends affecting the provision of health care services. Health care topics reviewed will include both local and global issues. Required course for environ-mental health and healthcare and administration; may also be used as an elective course. Material supports accreditation criteria for enviromental health. Prerequisite: Sophomore standing.

*Source: Academic Catalog 2013-14*

# BIOL304

**The Human Environment**

**(3,0) 3**

Designed to assist the participant in understanding how the individual can become involved with solving environmental problems. Prerequisite: Junior Status.

*Source: Academic Catalog 2013-14*

# CHEM341

**Environmental Chemistry I**

**(3,3) 4 alternate years**

A study of the environmental chemistry of the hydrosphere, atmosphere, lithosphere, and biosphere, the measurement and remediation of water and air quality problems, the toxicology of water and air pollutants, and the environmental aspects of energy use. Prerequisites: CHEM225, CHEM231, and NSCI103. Also listed as EVRN341.

*Source: Academic Catalog 2013-14*

# EVRN325

**Geospatial Analysis**

**(2,3) 3 alternate years**

A project-centered course incorporating advanced GIS tools, GPS field work, and data sources for geospatial analysis. This class focuses on a wide range os issues relating to the raster data model, and Digital Elevation Data (DEM) and satellite imagery. The majority of the classwill be devoted to 1) surface derivatives, including slope, aspect, and drainage; 2) modeling; and 3) error and uncertainty. This is a hands-on course, and the student will use a variety of software tools to experience model development, analysis, and visualization. There will be a semester project and a number of mini-projects. Prerequisites: EVRN131 and a 200 level or higher course in statistics.

*Source: Academic Catalog 2013-14*

# EVRN345

**Advanced Spatial Analysis and Statistics**

**(3,3) 4**

Spatial statistics differ from traditional statistics in that space and spatial relationships are an integral and implicit component of analysis. The emphasis in this course is analyzing patterns, mapping clusters and identifying geographics distributions. Specific topics include point pattern analysis, spatial autocorrelation, spatial regression and kriging. Special emphasis will be placed on using the spatial analyst and 3-D analyst extensions tools for ArcGIS. Prerequisites: EVRN131 and a course in statistics.

*Source: Academic Catalog 2013-14*

# EVRN355

**GIS Programming and Applications**

**(3,3) 4**

This course expands the students' skills regarding object oriented programming and customization of GIS software to extend functionality and automative repetitive tasks. Emphasis will be placed on ArcObjects and object model diagrams. Prerequisites: CSCI105 and EVRN131.

*Source: Academic Catalog 2013-14*

# POLI301

**Policy Analysis and Evaluation**

**(4,0) 4**

Examines how public issues and problems are analyzed to assist in the development of public policies. Considers the process of evaluating public programs to determine whether they are to be expanded, cut back or continued at the current level. Prerequisite: Permission of Instructor.

*Source: Academic Catalog 2013-14*

# EXER105

**Program Development and Leadership**

**(3,0) 3**

Principles of leadership skills and styles are applied to various recreation settings with emphasis on group interaction and face-to-face leading. Programming fundamentals for effective leisure services delivery are explored and implemented. Also listed as RECS105.

*Source: Academic Catalog 2013-14*

# EXER295

**Practicum**

**(1-2,0) 1-2**

Practical experiences that explore various types of work setting in exercise science, working under specialist in the various chosen areas of interest. May be repeated for a total of four credits. Prerequisite: Permission of instructor.

*Source: Academic Catalog 2013-14*

# EXER390

**Recreation Leader Apprenticeship**

**(1,0) 1**

Practical experience in learning to teach and lead various recreation experiences. Students serve with qualified instructors. Prerequisite: Basic skills and knowledge of activity and instructor permission. May be repeated for a total of three credits.

*Source: Academic Catalog 2013-14*

# EXER481

**Professional Development Seminar**

**(1,0) 1**

Opportunities for students to refine personal and professional goals and initiate preparation of resumes and interviewing skills. Career planning and placement will be emphasized as well as internship evaluation. Seminar format. Prerequisite: Senior status required.

*Source: Academic Catalog 2013-14*

# EXER496

**Selected Research Topics**

**(1-3,0) 1-3**

Student carries out approved project(s) of his/her own initiative. Prerequisites: Junior standing and instructor permission.

*Source: Academic Catalog 2013-14*

# PSYC385

**Health Psychology**

**(3,0) 3**

This course covers psychoneuroimmunology and stress as they impact on human health and disease as well as psychological interventions which promote physical well being and healing. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# EXER434

**Neurological Basics of Motor Learning**

**(3,0) 3**

An overview of how the neurological system integrates external stimuli and internal processes in the effective control of movement. Introduced are control systems, attention processes, memory, and the role of feedback and practice on motor learning. Prerequisites: BIOL122, EXER344 and 362.

*Source: Academic Catalog 2013-14*

# EXER440

**Exercise Physiology Seminar**

**(2,0) 2**

Examines current issues in the field and students will prepare and present advanced physiological concepts related to special topics.

*Source: Academic Catalog 2013-14*

# EXER446

**Exercise Prescription and Testing for Special Populations**

**(3,0) 3**

This course provides a framework for developing exercise programs for individuals with disease, disabilities, or special health issues. The course will focus on exercise prescription through management of problems created by disease of the cardiovascular, pulmonary, metabolic, musculoskeletal, neuromuscular, and immunological systems. It includes a review of the basic principles of exercise testing and exercise prescription and builds on that foundation. Also covered are methods for assessment of functional capacity of individuals with the most common health conditions presented to exercise scientists. This course fits with the new Registry for Clinical Exercise Physiologists and the American College of Sports Medicine guidelines and will provide students with the necessary skills and knowledge for employment in a clinical setting. Prerequisites: EXER358 and 444.

*Source: Academic Catalog 2013-14*

# FINC443

**Insurance**

**(4,0) 4**

A study of the financial, legal and social aspects of the insurance industry with emphasis on risk and actuarial analysis, insurance institutions and operations, insurance contracts and policies including life, annuity, health, property, liability, group, business and governmental coverages. Financial planning worksheets are utilized to appropriate policy selection. Prerequisites: BUSN350 and MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# FINC446

**Financial Analysis and Policy**

**(4,0) 4**

An analytical study of long- and short-term financial policy and strategy through case problems. Selected readings in financial theory supplement the case studies. Prerequisite: FINC341.

*Source: Academic Catalog 2013-14*

# FINC448

**Investment Strategy**

**(4,0) 4**

A study of investment media and securities markets, risk and return analysis, valuation theory, portfolio construction and investment mechanics. Prerequisite: FINC341.

*Source: Academic Catalog 2013-14*

# ECON407

**Introductory Econometrics**

**(3,0) 3**

This course provides an introduction to the theory and use of regression analysis to solve problems in economics. The classical regression model is developed and extended to multiple regression. Topics include data problems, model specification, multicollinearity, goodness of fit, qualitative independent variables, hetroscedasticity, serial correlation, qualitative and limited dependent variables, and forecasting. Prerequisites: BUSN211 or MATH207, ECON201, 202, MATH112 or 151.

*Source: Academic Catalog 2013-14*

# FINE405

**Independent Project**

**(3,0) 3**

Under the direction of an appropriate supervisor, the fine arts studies student will prepare and create a project within the scope of the student's principal continuations. The project will normally integrate or synthesize aspects of the fine arts; however, its precise nature will be a matter for discussion and approval by the faculty supervisor. The project will be concluded by an appropriate presentation and written report. Prerequisites: fine arts studies major and senior standing. Must be taken both fall and spring semesters for a total of six credits.

*Source: Academic Catalog 2013-14*

# DANC305

**Dance History**

**(3,0) 3**

Focus on dance chronologically throughout the world during early lineage based societies, the Middles Ages in Asia and Europe, the Renaissance, and dance in America. Theatrical dance genres, ballet, modern, tap, jazz and musical theatre will be viewed, reviewed and discussed as well as personal views of dance in contemporary society. Prerequiste: students with a strong interest in dance along with a dance background in ballet, or modern dance is recommended.

*Source: Academic Catalog 2013-14*

# FINC245

**Principles of Finance**

**(3,0) 3**

An introduction to the principles of business finance. Topics include math of finance, working capital management, financial planning and forecasting, debt and leasing, common and preferred stock, leverage and capital structure, capital budgeting, cost of capital. Students with credit in FINC341 may not enroll in this course. Prerequisites: ACTG132, 230, or OFFC119, and MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# DANC101

**Ballet I**

**(0,3) 1**

An introduction to the art of classical ballet, its traditions, history and vocabulary. Class will include barre exercises, center floor work, exercises in strength and flexibility. A final exam of performance will be given at the end of the semester. This course may be repeated twice for credit.

*Source: Academic Catalog 2013-14*

# DANC201

**Ballet II**

**(0,3) 1**

A continuation of the art of classical ballet. Steps, exercises and combinations are done at an accelerated pace. Movements are more technical and intricate. Pre- pointe and pointe work can be done. Performance will be given at the end of the semester. Prerequisites: Ballet I, or previous ballet training, and instructor permission. This course may be repeated twice for credit.

*Source: Academic Catalog 2013-14*

# DANC301

**Ballet III**

**(0,3) 1**

A continuation of the art of classical ballet. Steps, exercises and combinations are done at a more accelerated pace. Movements are more technical and intricate. Pointe and pre-pointe work will be done in this class. Performance guaranteed. Prerequisite: DANCE101 and DANCE102, or permission of instructor. This course may be repeated once for credit.

*Source: Academic Catalog 2013-14*

# DANC125

**Modern Dance I**

**(0,3) 1**

Modern dance will introduce students to dance through the exploration of freedom of movement and self expression. Class will include warm-up exercises, dance combinations, experiments in creativity and choreography and exercises in flexibility and strength to prepare the body to move more efficiently. To familiarize students with the history and variety of modern dance. This course may be repeated once for credit.

*Source: Academic Catalog 2013-14*

# DANC225

**Modern Dance II**

**(0,3) 1**

A more concentrated and vigorous study of modern dance. Exploration of freedom of movement, creative self-expression, trust and partner work. Modern dance techniques and movements will be honed. Students will be responsible for researching past works and modern dancers. Students will be expected to create individual as well as group pieces. Prerequisite: DANC125 or permission of instructor. This course may be repeated once for credit.

*Source: Academic Catalog 2013-14*

# DANC120

**Jazz Dance I**

**(0,3) 1**

Introduction of jazz dance; its history and development as a performing art. Basic principals, steps and combinations. Prerequisite: no previous dance training necessary. This course may be repeated once for credit.

*Source: Academic Catalog 2013-14*

# DANC130

**Scottish Highland Dance**

**(0,3) 1**

Introduction to basic movements, steps and terminology of Highland dance. Emphasis on fundamentals of footwork and introduction to the history and cultural background of Scottish dance. Dances will include the Highland Fling and Sword Dance along with Scottish Country dances. Students will be given opportunities to perform and compete. No previous dance training is necessary. This course may be repeated once for credit.

*Source: Academic Catalog 2013-14*

# RECA173

**Social Dance**

**(0,2) 1**

This course is designed to provide participants with a broad range of dancing patterns and rhythmic skills. Through social interaction, the following social dances will be learned: Mixers, round dance, square dance and ballroom dance.

*Source: Academic Catalog 2013-14*

# DANC110

**Dance Company**

**(0,2) 1**

The Dance Company class will meet each week to work on technique in a variety of dance styles, choreograph and rehearse in preparation for outreach programs and performance. The goal of this course is to produce high quality, pre-professional level performance and to serve the community, both on and off campus by providing performances that are entertaining and educational. Prerequisites: A minimum of 2 years dance training and instructor's permission. Course may be repeated for a maximum of 8 credits.

*Source: Academic Catalog 2013-14*

# DANC220

**Musical Theatre Tap/Jazz**

**(0,3) 1**

Introduction to dance appropriate for use in Musical Theatre. Dance to support musical storyline. Several styles of jazz technique along with modern concepts, basic steps, terminology, combination, turns and leaps. Beginning tap: basic steps, patterns, turns and combinations. This course may be repeated twice for credit.

*Source: Academic Catalog 2013-14*

# DANC310

**Choreography**

**(1,4) 3**

Choreography is the art of making dances. As a result of a semester filled with reading, reflection, experimenting, examining and sharing dance, students will create multiple short dances and a final project. Students may be responsible for producing a student dance concert to showcase their work. Prerequiste: At least two years of previous dance training in ballet, or modern dance is highly recommended, and permission of instructor.

*Source: Academic Catalog 2013-14*

# DANC401

**Senior Thesis**

**1-4 4**

A final project sumitted by senior students. Course credits will be determined by the magnitude of the project. Prerequisites: Student should be pursuing a dance minor, or have completed at least 3 years of dance technique, courses in Choreography, Dance History, and at least 2 semesters of Dance Company with a minimum of 4 formal performances. Permission of Instructor. This course may be repeated for a total of 4 credits.

*Source: Academic Catalog 2013-14*

# DANC205

**Creative Movement for Elementary Educators**

**(1,4) 3**

Exploration of movement as a means to improve communication, body/kinetic awareness, creative expression, self-confidence, self-esteem and perceptual motor development. Focus on teaching, creativity, and lesson planning with elementary school students. Prerequisite: Student should have an interest in working with young children. No previous dance experience is necessary.

*Source: Academic Catalog 2013-14*

# DANC210

**Movement for Actors**

**(1,4) 3**

An active study in the principles and techniques of stage form, style, and projection necessary for actors or dancers. Helping actors/dancers to move more efficiently on stage. Emphasis on the breath, tension and relaxation, improvisation, body alignment and movement skills including the elements of dance, movement qualities, posture, and physical exercise to help the body move effectively beyond physical constraints. Prerequisite: Strong interest in theatre, or dance recommended.

*Source: Academic Catalog 2013-14*

# THEA101

**Acting I**

**(3,0) 3**

This course is designed to provide an introduction into the basics of stage acting. The students will gain basic skills in acting, character development, improvisation, projection, pacing, movement, and breathing, as well as a working vocabulary of theatre terms.

*Source: Academic Catalog 2013-14*

# THEA201

**Acting II**

**(3,0) 3**

This course builds upon the skills of Acting I, with emphasis on script analysis, scene work, and character development. Students will become familiar with basic approaches to realistic acting and will become more familiar with Stanislavski's method and the Meisner system. Prerequisite: THEA101.

*Source: Academic Catalog 2013-14*

# MUSC140

**Choir**

**(0,3) 1**

Rehearsal and performance of representative literature for mixed choir in both classical and contemporary styles of choral music. May be repeated for a total of eight credits.

*Source: Academic Catalog 2013-14*

*Source: Academic Catalog 2013-14*

# ARTS109

**Principles of Design and Color**

**(3,0) 3**

This course acquaints students with the various possibilities of working with two-dimensional design. Using graphite, marker, collage and basic print making/stamping techniques, participants will explore line, form, shape, texture, color and the use of negative and positive space. In addition to in-class assignments, participants will be required to research, complete and present a major piece in two-dimension at the end of the semester. Prerequisite: none. Equivalent to FINE151 + VISA1516 for BRIDGE.

*Source: Academic Catalog 2013-14*

# ARTS110

**Fundamentals of Drawing**

**(3,0) 3**

This course will introduce the participant to basic drawing techniques, focusing upon the use of predominantly dry media such as graphite, charcoal, colored clays and chalks. Students will be required to work in-studio on a number of projects (still life, object drawings, texture, tone and line explorations), working toward the creation of a portfolio of drawings for final submission. Prerequisite: none. Equivalent to FINE150+ VISA1506 for BRIDGE.

*Source: Academic Catalog 2013-14*

# ARTS111

**Introduction to Painting Media and Techniques**

**(3,0) 3**

The course focuses on painting as a process of self-expression. Participants will be introduced to the use of acrylics, watercolors and water-soluble oils. An introduction to Itten's color theories and basic compositional styles will help ground participants in their exploration of the media offered. Brush handling, mixed-media techniques, and the use of in-studio still-life arrangements will be highlighted. Prerequisite: ARTS109. Equivalent to FINE155 + VISA 2556 for BRIDGE.

*Source: Academic Catalog 2013-14*

# ARTS211

**Mixed Media Explorations**

**(3,0) 3**

Students will be invited to work hands-on in an open studio environment, examining the development of their own visual language in relation to the media and methodologies presented. Participants will be invited to draw from personal experiences as well as from their environment as catalysts for art making. All will be encouraged to work with acrylics, watercolors, water-based oils, drawing media, photographs/laser copies, found materials, etc. At the end of the course, participants will be required to present a brief seminar with essay. Prerequisites: ARTS109. Equivalent to FINE178 + VISA2786 for BRIDGE.

*Source: Academic Catalog 2013-14*

# JOUR220

**Photojournalism**

**(3,0) 3**

Fundamentals of 35mm camera operations with emphasis on creative and professional applications. Weekly assignments and critique. Student required to have a camera with manual controls (shutter speed and aperture setting). Assignments in color negative film (color prints) processed commercially. No prerequisites.

*Source: Academic Catalog 2013-14*

# ENGL231

**American Literature I**

**(3,0) 3**

This course is a chronological study of American literature from the colonial writers through the Romantic period, ending with the Civil War. Prerequisite: ENGL180.

*Source: Academic Catalog 2013-14*

# ENGL232

**American Literature II**

**(3,0) 3**

This course is a chronological study of American literature from the Civil War through the present, covering the Age of Realism and the development of twentieth century literature. Prerequisite: ENGL180.

*Source: Academic Catalog 2013-14*

# ENGL233

**English Literature I**

**(3,0) 3**

Students will read and discuss selected works from the Old English period to the beginning of the eighteenth century. Emphasis will be placed on major writers and works, evaluated in their historical context. Prerequisite: ENGL180.

*Source: Academic Catalog 2013-14*

# ENGL234

**English Literature II**

**(3,0) 3**

Students will read and discuss selected works from the eighteenth century to the twentieth century. Emphasis will be placed on major writers and works, evaluated in their historical context. Prerequisite: ENGL180.

*Source: Academic Catalog 2013-14*

# ENGL310

**Advanced Writing**

**(3,0) 3**

An exploration of the theory and practice of writing as it relates to the production of text, ENGL310 places emphasis on developing a conscious approach to writing. The course is designed to assist students in gaining control over the choices that create a coherent, precise, cohesive and professional text. This course may be taught on a tutorial basis. Prerequisites: a grade of C or higher in ENGL111 and junior standing.

*Source: Academic Catalog 2013-14*

# JOUR211

**Newswriting**

**(3,0) 3**

Gathering, processing and writing news and opinions on current matters using professional standards and formats in print and broadcast news and public relations. Prerequisite: COMM280.

*Source: Academic Catalog 2013-14*

# JOUR310

**Editing and Production**

**(3,0) 3**

Focuses on news editing, headline writing, newspaper design and layout as well as newsroom management. Prerequisite: JOUR211.

*Source: Academic Catalog 2013-14*

# ENGL221

**Introduction to Creative Writing**

**(3,0) 3**

Writing and discussion of art forms such as poetry, fiction and drama consistent with the student's individual interests. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# ENGL301

**Creative Prose Writing**

**(3,0) 3**

This course is a workshop for the study and practice of prose fiction, creative non-fiction, and other prose forms, and requires the completion of a final portfolio. Prerequisite: ENGL221.

*Source: Academic Catalog 2013-14*

# ENGL302

**Poetry Writing**

**(3,0) 3**

This course is a workshop for the study and practice of poetry, and requires the completion of a final portfolio. Prerequisite: ENGL221.

*Source: Academic Catalog 2013-14*

# ENGL303

**Performance Writing**

**(3,0) 3**

This course is a workshop for the study and practice of writing for performance, including plays, film scripts, and other performance genres, and requires the completion of a final portfolio. Prerequisite: ENGL221.

*Source: Academic Catalog 2013-14*

# ENGL320

**Responding to Writing**

**(3,0) 3**

A course in the theory and practice of effective writing with emphasis on evaluating and responding to writing across the disciplines. Recommended for writing ombudsmen, tutors, education students and other interested students. Course includes rhetorical and linguistic theory, current research on writing as process, theory and practice of responding to student writing, computer-assisted writing and revision, tutorial strategies and characteristics of writing in various disciplines. A strong theoretical framework with student paper examples from interdisciplinary fields.

*Source: Academic Catalog 2013-14*

# ENGL321

**Rhetoric and Composition Theory**

**(3,0) 3**

A course in the theory of rhetoric and composition. The course takes an historical approach, tracing the growth, uses and transformations of rhetoric from the classical period to the present day, highlighting the major underlying cultural forces which fostered change in rhetoric and fueled the development of composition theory. Emphasis is upon modern rhetoric and composition theory. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# ENGL409

**Advanced Writing Workshop**

**(3,0) 3**

This course is a workshop for advanced level writing in a variety of genres, with emphasis on students doing sustained work in a chosen genre, and requires the completion of a final portfolio. Prerequisites: Two courses from ENGL301, 302, or 303.

*Source: Academic Catalog 2013-14*

# ENGL420

**History of the English Language**

**(3,0) 3**

Origin and development of the English language, including its relationship to other Indo-European languages, the history and structure of Old and Middle English, and the rise of modern English. Prerequisites: ENGL222, 233, 234.

*Source: Academic Catalog 2013-14*

# ENGL421

**History of Literary Criticism**

**(3,0) 3**

An investigation of the history of critical theory to include classicism, neoclassicism, romanticism, the New Critics and contemporary critical trends. Prerequisite: Either ENGL233 and ENGL234 or ENGL231 and ENGL232.

*Source: Academic Catalog 2013-14*

# ENGL480

**Creative Writing Portfolio**

**(3,0) 3**

This is a senior-level capstone class requiring students to complete a book-length, unified collection of creative workin chosen genres, working with the instructor on an independent study basis. Prerequisite: ENGL409.

*Source: Academic Catalog 2013-14*

# JOUR410

**Broadcast Newswriting**

**(2,3) 3**

Designed to improve students' broadcast newswriting skills from the fundamental level of those developed in COMM280. Upon completion of this course, the student will be familiar with the process by which broadcast news is reported, written and performed on the air. Prerequisite: COMM280.

*Source: Academic Catalog 2013-14*

# JOUR411

**Broadcast Editing and Production**

**(2,3) 3**

Designed to build upon the broadcast reporting, writing and performing skills developed in JOUR410. Students will become familiar with production of newscasts, public affairs documentaries, the role of the producer in modern radio, the function and operation of the console, tape recording and playback units, microphones and sound, splicing and dubbing, achieving effects and news-oriented talk shows. Prerequisite: JOUR410.

*Source: Academic Catalog 2013-14*

# FIRE201

**Fire Protection Construction Concepts**

**(3,0) 3**

Impact of building construction concepts and methods on firefighting tactics and strategy, decision making and safety. Presentation of the ramifications of hostile fire on construction and building materials.

*Source: Academic Catalog 2013-14*

# FIRE315

**Company Level Supervision and Management**

**(3,0) 3**

This course is intended to provide a comprehensive overview of supervision and administration skills necessary to function as a company officer, which would include but not be limited to planning, budgeting, time management, training, emergency incident command, and facility maintenance and care. Pre- or corequisites: FIRE101, FIRE111, FIRE204, FIRE206 and FIRE211.

*Source: Academic Catalog 2013-14*

# FIRE402

**Fire Service and the Law**

**(3,0) 3**

Capstone course. Introduces the judicial system in which the fire service operates. Covers civil action, liability, labor, prevention, safety (OSHA), and environmental law. Prerequisite: Senior level standing.

*Source: Academic Catalog 2013-14*

*Source: Academic Catalog 2013-14*

# FIRE309

**Fire-Related Human Behavior**

**(3,0) 3**

This course will provide students the knowledge to understand how humans behave in fire and emergency situations, and how that behavior is integrated into life safety systems development and design. Students will study past and present research on human behavior, life safety models, building design, and life safety education. Students will develop an understanding how to analyze possible outcomes as it relates to human survivability in fire and emergency situations. Pre- or Co-requisites: FIRE101, FIRE206, and FIRE301, or permission of instructor.

*Source: Academic Catalog 2013-14*

# FIRE325

**Homeland Security and Emergency Services**

**(3,0) 3**

This course will prepare all graduates from a variety of majors to understand how homeland security impacts the US political system as a whole, but especially from the standpoint of emergency response and preparedness. Investigates the impact of the federal, homeland security apparatus on emergency response organizations at the state and local level. Includes a historical review of "homeland security" measures beginning in WWI and through WWII and the Korean War. Especially reviews the security situation during the Cold War. The course deals with the federal agencies usually not associated with homeland security, such as DEA, ATF, the military departments, FAA, CDC, the National Guard Bureau, and the DOD. Prerequisite: Junior standing. Students from other majors are encouraged to enroll with permission of instructor. Also listed as CJUS325.

*Source: Academic Catalog 2013-14*

# BIOL333

**Fish Ecology**

**(3,0) 3**

A study of the relationship of fishes to their physical, chemical and biological environments in natural and perturbed aquatic ecosystems with an emphasis on response and adaptation at the organism, population and community levels. Various types of aquatic ecosystems will be examined with respect to habitat accommodations of fish and the impact of human activities. Includes ecological principles as applied to important sport, commercial and forage fish species. Prerequisite: BIOL310.

*Source: Academic Catalog 2013-14*

# BIOL345

**Limnology**

**(2,4) 4**

An investigation of the principles of freshwater ecosystems with an emphasis on lakes. The physics and chemistry of natural systems are presented, as well as a survey of the dominant biota and their ecological interactions. Prerequisites: BIOL250 and CHEM115.

*Source: Academic Catalog 2013-14*

# BIOL372

**Freshwater Fish Culture**

**(2,3) 3**

Instruction in water quality monitoring, production systems, feeding and nutrition, disease identification and management, and reproduction principles of freshwater fishes used for recreational and commercial fisheries management, bait and food products. Students will learn propagation and rearing techniques for important fishes, particularly those with recreational or commercial value. Prerequisites: BIOL280 and 310.

*Source: Academic Catalog 2013-14*

# BIOL389

**Internship in Biology**

**3-4 3-4**

A variable credit practicum course in which the students will perform research and/or gain work experience under the direction of a faculty mentor and a qualified supervisor. Students are expected to spend a minimum of 45 hours in an approved work setting for each credit earned. The course may be repeated once for a maximum of eight credits. Student interns will be required to write weekly updates or journal entries to be submitted to their LSSU faculty mentor for evaluation of what the student has learned. Prerequisites: 2.50 GPA in major and permission of faculty mentor or department chair.

*Source: Academic Catalog 2013-14*

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# Fisheries and Wildlife Management: Bachelor of Science

## Program Description

Fisheries and Wildlife Management programs place a strong emphasis on understanding the relationship between organisms and their habitats by blending a conceptual understanding of fish and wildlife ecology and population dynamics with practical skills obtained during laboratory and field exercises. Students graduating from this rigorous, applied curriculum can meet the qualifications of state and federal natural resource management agencies as technicians and biologists.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Fisheries and Wildlife Management
- Bachelor of Science Fisheries and Wildlife Management, Fisheries Management Concentration
- Bachelor of Science Fisheries and Wildlife Management, Wildlife Management Concentration

## Degree Requirements

### Bachelor of Science Fisheries and Wildlife Management

**Fisheries & Wildlife Core Requirements**

- BIOL131 General Biology I: Cells 4
- BIOL132 General Biology II: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL202 Field Botany 3
  **or**
- BIOL284 Forestry 4
- BIOL203 Fundamentals of Natural Resources 3
- BIOL220 Genetics 4
- BIOL243 Vertebrate Anatomy 4
  **or**
- BIOL330 Animal Physiology 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biometrics 3
- BIOL299 Sophomore Seminar 1
- BIOL310 Ichthyology 3
- BIOL311 Mammology 3
- BIOL312 Ornithology 3

- BIOL330 Animal Physiology 4
- BIOL333 Fish Ecology 3
- BIOL337 General Ecology 3
- BIOL339 Wildlife Ecology 3
- BIOL345 Limnology 3
- BIOL399 Junior Seminar 1
- BIOL432 Fisheries Management 3
- BIOL439 Wildlife Management 3
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1
- BIOL Electives 3
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 4
- CHEM225 Organic Chemistry I 4
  **or**
- PHYS221 Principles of Physics I 4
- EVRN131 Introduction to GIS and GPS 2
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Sciences 4

**Free Electives - 10-11 credits**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Fisheries and Wildlife Management, Fisheries Management Concentration

**Fisheries & Wildlife Core Requirements**

- BIOL131 General Biology I: Cells 4
- BIOL132 General Biology II: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL203 Fundamentals of Natural Resources 3
- BIOL220 Genetics 4
- BIOL243 Vertebrate Anatomy 4
  **or**
- BIOL330 Animal Physiology 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biometrics 3
- BIOL299 Sophomore Seminar 1
- BIOL310 Ichthyology 3
- BIOL333 Fish Ecology 3
- BIOL337 General Ecology 3

- BIOL345 Limnology 3
- BIOL372 Freshwater Fish Culture 3
- BIOL399 Junior Seminar 1
- BIOL432 Fisheries Management 3
- BIOL475 Aquatic Entomology 3
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1
- BIOL Electives 8
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 4
- CHEM225 Organic Chemistry I 4
  **or**
- PHYS221 Principles of Physics I 4
- EVRN131 Introduction to GIS and GPS 2
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Sciences 4

**Human Dimensions - 3 credits from:**

- ECON307 Environmental Economics 3
- EVRN311 Environmental Law 3
- INTD300 The Human Environment 3
- POLI342 International Environmental Policy 3

**Free Electives - 12 credits**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Fisheries and Wildlife Management, Wildlife Management Concentration

**Fisheries & Wildlife Core Requirements**

- BIOL126 Interpretation of Maps and Aerial Photography 2
- BIOL131 General Biology I: Cells 4
- BIOL132 General Biology II: Organisms 4
- BIOL199 Freshman Seminar 1
- BIOL202 Field Botany 3
- BIOL203 Fundamentals of Natural Resources 3
- BIOL220 Genetics 4
- BIOL243 Vertebrate Anatomy 4
- **or**

- BIOL330 Animal Physiology 4
- BIOL250 Quantitative Biology 3
- BIOL280 Biometrics 3
- BIOL284 Principles of Forestry 4
- BIOL299 Sophomore Seminar 1
- BIOL311 Mammology 3
- BIOL312 Ornithology 3
- BIOL337 General Ecology 3
- BIOL339 Wildlife Ecology 3
- BIOL399 Junior Seminar 1
- BIOL439 Wildlife Management 3
- BIOL495 Senior Project 2
- BIOL499 Senior Seminar 1
- BIOL Electives 3
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 4
- EVRN131 Introduction to GIS and GPS 2
- MATH111 College Algebra 3
- MATH112 Calculus for Business & Life Sciences 4

**Physical Science* - 3-4 credits from:**

- BIOL230 Introduction to Soil Science 4
- BIOL286 Principles of Watersheds 3
- PHYS221 Principles of Physics I 4

**Policy/Admin/Law - 9 credits from:**

- BIOL287 Conservation Biology 2
- ECON307 Environmental Economics 3
- EVRN311 Environmental Law 3
- INTD300 The Human Environment 3
- POLI342 International Environmental Policy 3

**Free Electives - 10 credits**

*Students considering graduate school should select PHYS221

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# BIOL339

**Wildlife Ecology**

**(3,0) 3**

A quantitative analysis of the ecology and management of wildlife populations. Theories of population dynamics and distribution are presented. Community interactions including competition, predation, and herbivory, are explored in detail. Prerequisites: BIOL250, 280 and 337.

*Source: Academic Catalog 2013-14*

# BIOL432

**Fisheries Management**

**(2,3) 3**

A course covering the history, theory and practice of fisheries management with an emphasis on basic strategies used in effective management of fish populations in freshwater ecosystems. Students will learn methods of collection and synthesis of data regarding fish population dynamics and manipulation, habitat modification, and human management to achieve specific fisheries management goals and objectives. Prerequisites: BIOL280, 333 and 345.

*Source: Academic Catalog 2013-14*

# BIOL439

**Wildlife Management**

**(2,3) 3**

The application of ecological principles to develop practical wildlife management strategies to preserve, enhance or create viable wildlife habitats and populations. Students will have the opportunity to observe and practice standard field and laboratory techniques. Prerequisites: BIOL311 or BIOL312 and BIOL339.

*Source: Academic Catalog 2013-14*

# CHEM310

**Applied Spectroscopy**

**(3,3) 4**

General principles of spectroscopy will be explored including underlying principles and theory, data acquisition and processing coupled with spectral interpretation. Different spectroscopic methods used for the structural determination of organic molecules and in chemical research are described including mass spectrometery (MS), ultraviolet and visible spectroscopy (UV-Vis), infra-red spectroscopy (IR), atomic spectroscopy, fluorescence spectroscopy, and both one-dimensional and two-dimensional 1H and 13C nuclear magnetic resonance (NMR) spectroscopy. Prerequisite: CHEM226 and CHEM261. (Alternate Years)

*Source: Academic Catalog 2013-14*

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# Geology: Bachelor of Science

## Program Description

Geology examines the dynamic Earth and its physical, chemical and biologic history. It involves the study of changes that are taking and have taken place and the forces that cause these changes. For example, geologists interpret the movements of the continents over geologic time and the formation of mountains, volcanoes and other features of the Earth's surface. Geologists attempt to understand our physical environment from which we derive most of the natural resources essential to civilization. They investigate the processes that led to the formation of mineral deposits, and oil, gas and coal. They also study environmental change throughout the history of the Earth and how those changes and the development of life are related. Geologists attempt to predict natural disasters such as earthquakes, volcanic eruptions, and landslides, and they are very active in modeling groundwater flow to develop water reserves for municipalities and to protect groundwater from contamination. Geologists study the natural world and apply their knowledge to achieve harmony between the human race and its environment.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Geology
- Bachelor of Science Geology, Environmental Geology Concentration

## Degree Requirements

### Bachelor of Science Geology

**Geology (60 credits)**

- GEOL121 Physical/Historical Geology I 4
- GEOL122 Physical/Historical Geology II 4
- GEOL218 Structural Geology and Tectonics 5
- GEOL223 Mineralogy and Petrology 5
- GEOL315 Geoenvironmental Systems 5
- GEOL318 Tectonic Systems 5
- GEOL323 Geochemical Systems 4
- GEOL325 Clastic Systems 4
- GEOL380 Introduction to Field Geology 3
- GEOL411 Hydrologic Systems: Surface and Groundwater 4
- GEOL431 Geophysical Systems 5
- GEOL445 Carbonate Systems 5
- GEOL450 Geology Seminar I 2
- GEOL451 Geology Seminar II 2

- GEOL480 Advanced Field Geology 3

**Support Courses (28-31 credits)**

- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5
- PHYS221 Elements of Physics I* 4
- PHYS222 Elements of Physics II* 4
- MATH112 Calculus for Business and Life Sciences* 4
- MATH111 College Algebra* 3
  **or**
- MATH140 Precalculus Mathematics* 5

***and***

- MATH207 Principles of Statistical Methods 3
  **or**
- MATH308 Probability and Mathematical Statistics 3
  **or**
- BUSN211 Business Statistics 3

**Students with adequate preparation in mathematics are advised to take MATH151 and MATH152 in place of MATH111 or MATH140 and MATH112 and to take PHYS231-PHYS232 in place of PHYS221-PHYS222.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Geology, Environmental Geology Concentration

**Total Program Requirements Plus Distributed Electives (95 credits)**

**Program Requirements (78-80 credits)**

- GEOL121 Physical & Historical Geology I 4
- GEOL122 Physical & Historical Geology II 4
- GEOL218 Structural Geology and Tectonics 5
- GEOL223 Mineralogy and Petrology 5
- GEOL315 Geoenvironmental Systems 5
- GEOL380 Introduction to Field Geology 3
- GEOL411 Hydrologic Systems: Surface and Groundwater 4
- GEOL431 Geophysical Systems 5
- GEOL450 Geology Seminar I 2
- GEOL451 Geology Seminar II 2
- GEOL480 Advanced Field Geology 3
- CHEM115 General Chemistry I 5
- CHEM116 General Chemistry II 5

- CHEM225 Organic Chemistry I 4
- CHEM226 Organic Chemistry II 4
- PHYS221 Elements of Physics I* 4
- PHYS222 Elements of Physics II* 4
- MATH112 Calculus for Business and Life Sciences* 4
- MATH111 College Algebra* 3
  **or**
- MATH140 Precalculus Mathematics* 5

***and***

- MATH207 Principles of Statistical Methods 3
  **or**
- MATH308 Probability and Mathematical Statistics 3
  **or**
- BUSN211 Business Statistics 3

**Distributed Electives (17 credits min)**

*Select electives to equal total of 95 credits*

- BIOL230 Introduction to Soil Science 4
- CHEM231 Quantitative Analysis 4
- CHEM332 Instrumental Analysis 4
- CHEM341 Environmental Chemistry 4
- EVRN131 Introduction to GIS and GPS 2
- FIRE312 Hazardous Material Management 4
- GEOL325 Clastic Systems 4
- GEOL445 Carbonate Systems 5
- GEOL490 Research Topics in Geology 1-4
- NSCI103 Environmental Science 3

**Students with adequate preparation in mathematics are advised to take MATH151 and MATH152 in place of MATH111 or MATH140 and MATH112 and to take PHYS231-PHYS232 in place of PHYS221-PHYS222.*

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# GEOL218

**Structural Geology and Tectonics**

**(3,6) 5**

A study of the deformation of the Earth through a project-centered approach that focuses on actual tectonic problems. Emphasis will be placed on descriptive, kinematic and dynamic analysis of geologic structures, deformation mechanisms and the evolution of each in the context of the regional and global geology. Prerequisite: GEOL122.

*Source: Academic Catalog 2013-14*

# GEOL223

**Mineralogy and Petrology**

**(3,6) 5**

A laboratory course emphasizing hand-sample techniques for identification of minerals and rocks. Major topics include: physical properties, crystalline structure, and chemical composition of minerals, classificiation of minerals and rocks; origins of igneous, sedimentary and metamorphic rocks; plate tectonic occurrence of minerals and rock assemblages; and societal and economic significance of minerals and rocks. Prerequisite: GEOL121 or NSCI102. Pre- or corequisites: GEOL122 and CHEM115.

*Source: Academic Catalog 2013-14*

# GEOL315

**Geoenvironmental Systems**

**(3,6) 5 alternate years**

The study of environmental issues in a geological context through local and regional field projects. Projects will examine issues such as flooding, shoreline erosion, slope stability, groundwater resources and contamination, and the environmental impact of mineral and energy resource extraction. Emphasis will be placed on the evaluation of environmental issues through the application of geological and geophysical field data such as collecting and analyzing sediments, bedrock and sediment mapping, and well log analysis. Prerequisites: GEOL218 and GEOL223.

*Source: Academic Catalog 2013-14*

# GEOL318

**Tectonic Systems**

**(3,6) 5 alternate years**

Study of tectonic process and how these processes affect the earth and its evolution with time. A variety of modern and ancient tectonic settings will be studied through projects and case studies. The deformational, geochemical, sedimentological and geophysical characteristics of individual tectonic settings will be evaluated and their evolution with time will be analyzed. Weekend field trips may be required. Prerequisites: GEOL218 and 223.

*Source: Academic Catalog 2013-14*

# GEOL323

**Geochemical Systems**

**(2,6) 4 alternate years**

The study of high-temperature igneous, metamorphic, and hydrothermal processes in the context of their global tectonic settings. Topics include the origin and evolution of magmas, igneous crystallization and emplacement processes, hydrothermal reactions and ore deposits, the thermodynamics of metamorphic reactions, and tectonic environments in which these processes occur. A pre-semester one-week field trip and weekend field trips may be required. Prerequisites: GEOL218 and GEOL223.

*Source: Academic Catalog 2013-14*

# GEOL325

**Clastic Systems**

**(2,6) 4 alternate years**

The study and interpretation of siliciclastic sediments and environments based on stratigraphic principles. Topics include clastic transport and fluid flow, sedimentary structures, lithostratigraphy, facies recognition and relationships, depositional models, diagenesis, stratigraphic diagrams and maps, and tectonics and sedimentation. A pre-semester one-week field trip and weekend field trips may be required. Prerequisites: GEOL218 and GEOL223.

*Source: Academic Catalog 2013-14*

# GEOL380

**Introduction to Field Geology**

**(0,9) 3**

Introduction to field methods in geology including measurement of sections, mapping techniques, and field interpretation of outcrops. A variety of geologic provinces and environments will be examined. A supply and travel fee will be charged. Prerequisites: GEOL218 and GEOL223.

*Source: Academic Catalog 2013-14*

# GEOL431

**Geophysical Systems**

**(3,6) 5 alternate years**

The study of geologic, geophysical, and environmental problems using magnetic, electromagnetic, resistivity, gravity, and seismic geophysical techniques. Projects will involve geophysical and geologic survey design, data collection, data processing, and data interpretation and will require the integration of geophysical and geological data to solve problems. A pre-semester one-week field trip and weekend field trips may be required. Prerequisite: GEOL218. Pre- or corequisites: MATH112 or MATH151 and PHYS221 or PHYS231.

*Source: Academic Catalog 2013-14*

# GEOL445

**Carbonate Systems**

**(3,6) 5 alternate years**

The study and interpretation of carbonate sediments and environments based on stratigraphic principles. Topics include biostratigraphy, facies characteristics and relationships, depositional models, diagenesis, stratigraphic diagrams and maps, and invertebrate paleontology. Weekend field trips may be required. Prerequisites: GEOL122, GEOL218 and one GEOL course at the 300 level or above.

*Source: Academic Catalog 2013-14*

# GEOL450

**Geology Seminar I**

**(1,3) 2 alternate years**

Study, discussion, and laboratory experience in specialized topics in geology. Students will collect and compile information, write papers, make presentations, and lead discussions. Prerequisite: Two GEOL courses at the 300 level or above.

*Source: Academic Catalog 2013-14*

# GEOL451

**Geology Seminar II**

**(1,3) 2 alternate years**

Study, discussion, and laboratory experience in specialized topics in geology. Students will collect and compile information, write papers, make presentations, and lead discussions. Prerequisite: Two GEOL courses at the 300 level or above.

*Source: Academic Catalog 2013-14*

# GEOL480

**Advanced Field Geology**

**(0,9) 3 alternate years**

Three weeks of advanced field methods in geology including field mapping of deformed rocks, construction of cross sections, and interpretation of depositional and deformational histories. A variety of geologic provinces and environments will be examined. A supply and travel fee will be charged. Prerequisites: GEOL380 and one additional GEOL course at the 300 level or above.

*Source: Academic Catalog 2013-14*

# GEOL490

**Research Topics in Geology**

**(1-4,0) 1-4**

Special studies and/or research in geology for individuals or small seminar groups. Course content to be arranged with instructor and with approval of the school chair. This course may be repeated for a maximum of eight credits. Prerequisites: Junior standing or higher.

*Source: Academic Catalog 2013-14*

# HIST496

**Historical Methods**

**(2,0) 2 Fall**

Survey emphasizing research aids and techniques and historical analysis. Readings, discussions and written exercises introduce students to problems, methods and techniques of historical research. Discussion of and practice in main techniques of historical method, including bibliography and documentation. Prerequisites: Senior standing and pursuit of a major or minor in history.

*Source: Academic Catalog 2013-14*

# HIST497

**Senior Seminar in History**

**(0-6) 2 Spring**

Students will complete a historical research project under the supervision of a faculty member; at end of term participants make oral presentation at seminar for other students and invited guests, and submit the final paper. Prerequisite: HIST496 and instructor permission.

*Source: Academic Catalog 2013-14*

# GEOG321

**Geography of Europe and Great Britain**

**(4,0) 4 alternate years**

A study of the physical, cultural and economic interdependence of the western European community. Special emphasis will be placed upon the role of the EEC in world economic development. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# GEOG322

**Geography of South America, Central America and the Caribbean Region**

**(4,0) 4 alternate years**

The study of the geographical features and cultural history of the major regions in South America, Central America and the Caribbean with special concern for their 20th century development. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# GEOG323

**Geography of East and Southeast Asia**

**(4,0) 4 alternate years**

The study of the geography of Japan, China, Korea, Southeast Asia and India with special emphasis on the impact of the major religions, regional rivalries and 20th century development. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# GEOG325

**Regional Geography of North America**

**(4,0) 4 alternate years**

The study of the physical, cultural and economic development of various regions of Canada and the United States with special emphasis on the development of regional characteristics and cultural traditions. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# GEOG360

**Historical Geography of Eastern North America**

**(4,0) 4 alternate years**

A study of the impact of the physical features upon the historical development of eastern Canada and the eastern regions of the United States. Special attention will be given to the western migration patterns. Prerequisite: Junior standing.

*Source: Academic Catalog 2013-14*

# EGME110

**Manufacturing Processes**

**(2,3) 3**

An introduction to basic manufacturing processes. Both theory and applications of various processes are covered in lecture and laboratory. Topics include: machining processes, welding and related processes, metal forming processes, and plastic forming processes. Included in machining processes is a limited scope computer aided design and computer numerical control project. The topics of measuring instruments and laboratory safety will also be addressed in the lecture and laboratory. Completion of a high school trigonometry course is expected for enrollment. Co-requisite or Prerequisite: EGME141 and MATH111 (or equivalent/satisfactory score on ACT/SAT, or Placement Exam) or Permission of Instructor.

*Source: Academic Catalog 2013-14*

# EGME312

**CAM with CNC Applications**

**(1,5) 3**

Writing CNC programs in machine codes, and the setup and trial runs to produce parts from these programs. Simulation of CNC machining processes to predict tool paths and cycle times. Computer-aided manufacturing (CAM) topics and applications of CAM software will also be covered. Prerequisites: EGME110, EGME141.

*Source: Academic Catalog 2013-14*

# EGNR496

**Senior Directed Project**

**(1,6) 3**

This course is designed to allow industrial technology majors the opportunity to implement a project while working collaboratively with engineering and engineering technology students. Students will be expected to use the skills and knowledge from previous course work. Project outcomes should relate to the student's individual areas of study and represent a synthesis of the previous learning under the supervision of a faculty member. Prerequisites: Approval of the department chair, senior status, and expected graduation on or before December of the following calendar year.

*Source: Academic Catalog 2013-14*

# MGMT471

**Production/Operations Management**

**(3,0) 3**

An introduction to the design and analysis of operational systems in manufacturing and service industries. Topics include manufacturing strategy, planning and control, forecasting, just in time systems, inventory models, product/process design, scheduling and simulation. Some mathematical models will be used. Emphasis will be on the role of operations within an organization and the formulation and solution of operational problems. Prerequisites: BUSN211 and MGMT360 or equivalents.

*Source: Academic Catalog 2013-14*

# ENGL236

**Literature and Culture**

**(3,0) 3**

Students will examine English-language texts from a variety of cultures, including American minorities and other underrepresented cultures. Students will observe the way in which culture is presented in the texts and how culture can help to shape the texts. Corequisite ENGL111.

*Source: Academic Catalog 2013-14*

# ENGL340

**Genre Studies**

**(3,0) 3**

This course focuses on an understanding of the formal characteristics, critical interpretation, and the history and development of a single literary genre, including but not limited to the novel, the short story, drama or poetry. Pre-/corequisites: ENGL231/2 or ENGL233/4. Variable topics: may be repeated twice for credit.

*Source: Academic Catalog 2013-14*

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# Elementary Education: Bachelor of Arts/Science

## Program Description

The Elementary Education program is highlighted by in-depth study in a subject major or dual minors, extended field experience in elementary school settings, and focused development of the knowledge and skills critical for effective teachers.

Elementary-level teacher certification in Michigan permits individuals to teach in self-contained classrooms at grade K - 8, and in all subjects at grades K -5. Individuals may also qualify to teach the subjects of their academic major or minors in grades 6 - 8.

Students begin their studies with a focus on general education requirements, and an academic major or two academic minors. They complete the initial professional education coursework in their sophomore year, and apply for formal admission to the program at the end of that year. By that time, they will have also passed the Michigan Test for Teacher Certification Basic Skills test.

Upper level professional education coursework, along with the completion of the major or minors, is the focus for the junior and senior years. Student teaching, a semester-long culminating experience, may be completed in the spring of the fourth year or fall of the fifth year, depending on the individual student's progress through the program. Generally, this student teaching experience will be in the Eastern Upper Peninsula or in Sault Ste. Marie, Ontario. The Michigan Test for Teacher Certification Elementary Education tests must be passed prior to beginning student teaching.

**Note:** Candidates who pass the Michgian Test for Teacher Certification in their major or minors meet the requirements of the No Child Left Behind Act and are considered "highly qualified" for the subject areas of the endorsements shown on their Michigan teaching certificates.

## Degree Requirements

**The components of the Elementary Education Bachelor of Arts/Sciences programs are:**

**Subject Area Preparation -** Students may complete either of the following options:

- **An academic major** in either Language Arts or Mathematics (see requirements in this catalog for these teaching majors)

**or**

- **Two academic minors**, one in Language Arts and one in Mathematics (see the requirements in this catalog for these teaching minors)

**Elementary Planned Program (49 credits)**

- MATH103 Number Systems & Problem Solving 4
- MATH104 Geometry & Measurement 4
- MATH207 Principles of Statistical Methods 3
- BIOL104 Survey of General Biology 4
- NSCI101 Conceptual Physics 4
- NSCI102 Introduction to Geology 4
- POLI110 American Government 4
- GEOG201 World Regional Geography 4
- HIST131 United States History I 4
- HIST321 History of Michigan 2
- ENGL222 English Grammar 3
- ENGL335 Children's Literature in the Classroom 3
- ENGL180 Introduction to Literary Studies 3
- CHLD420 Emergent Literacy 3

**Professional Education Sequence (47 credits)**

- EDUC250 Student Diversity & Schools 4
- EDUC301 Learning Theory and Teaching Practice 3
- EDUC330 Reading in the Elementary Classroom 3
- EDUC350 Integrating Technology into 21st Learning Environments 3
- EDSE301 Introduction to Special Education 3
- EDUC410 Corrective Reading in the Classroom 3
- EDUC411 Elementary Language Arts and Methods Across the Curriculum 3
- EDUC415 General Instructional Methods 2
- EDUC420 Math Methods for Elementary Teachers 2
- EDUC421 Science Methods for Elementary Teachers 2
- EDUC422 Social Studies Methods for Elementary Teachers 2
- EDUC423 Arts Methods for Classroom Teachers 2
- EDUC424 Health/Physical Education Methods for Classroom Teachers 2
- EDUC460 Classroom Management 2
- EDUC480 Directed Teaching Seminar 2
- EDUC492 Directed Teaching 10

**Formal admission to the Elementary Education program, qualification for student teaching, and successful completion of the program requires:**

- Completion of the Professional Education Sequence courses with a grade of B- (2.70) or higher.
- Completion of all required courses in the education cognates, teaching major or teaching minors with a GPA of 2.70 or higher and no grade below a C (2.00).
- Completion of the elementary planned program with a GPA of 2.70 or

higher and no grade below a C (2.00).

- Completion of the General Education Core Requirements with a gpa of 2.00 or higher.
- Passing scores on all required Michigan Test for Teacher Certification tests.

The Elementary Education program undergoes periodic review, evaluation, and alignment with the Michigan Department of Education standards. Since program approval and renewal cycles vary, individuals should contact the School of Education regularly to confirm the current requirements of each program component. Graduates must meet the standards that are in place at the time of completion of their programs, in order to be recommended to the Department of Education for teacher certification.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

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# ENGL404

**Literature Before 1800 (Topic)**

**(3,0) 3**

This course examines a period, movement, theme, or issue in English or American literature before 1800. Emphasis is on ciritical analysis of works of literature, and an understanding of the role of history, society, and culture including, as relevant, cross-cultural affects, on literary production. Course may be repeated for a maximum of nine credits, when topic varies. Prerequisites: ENGL231 or ENGL233.

*Source: Academic Catalog 2013-14*

# ENGL408

**Literature After 1800 (Topic)**

**(3,0) 3**

This course examines a period, movement, theme, or issue in English and/or American literature after 1800. Emphasis is on critical analysis of works of literature, and an understanding of the role of history, society, and culture including, as relevant, cross-cultural affects, on literary production. Course may be repeated for a maximum of nine credits, when topic varies. Prerequisites: ENGL232 or ENGL234.

*Source: Academic Catalog 2013-14*

# ENGL490

**Senior Thesis**

**(3,0) 3**

Senior thesis is a sustained exploration of a literary composition or language topic. Students will undertake an independent research project under the direction of a chosen instructor and develop it into a major paper. Prerequisites: English major and senior standing.

*Source: Academic Catalog 2013-14*

# ENGL235

**Survey of Native Literature of North America**

**(3,0) 3**

Students will examine various types of Native American literatures, including traditional stories, non-fiction, fiction and poetry from authors of numerous different nations. A variety of themes, including Native American identity and the role of culture in literature, will be covered. Corequisite: ENGL111 (also listed as NATV235).

*Source: Academic Catalog 2013-14*

# ENGL223

**Creative Writing II**

**(3,0) 3**

Through writing and discussion, students will study and practice more advanced elements of poetry, prose, and drama. Prerequisite: ENGL221.

*Source: Academic Catalog 2013-14*

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# Mathematics: Bachelor of Science

## Program Description

**Mathematics:**

Many who major in the field of mathematics combine those studies with education courses and obtain employment as teachers. People with mathematics degrees are found in a broad range of occupations where quantitative skills are needed; one of the largest employers of mathematics is the National Security Agency. Often a minor field of study (such as computer science) provides the supporting credential for entry-level jobs.

**Actuarial and Business Applications:**

The actuarial and business applications concentration combines mathematical knowledge with quantitative business applications. The result is a very marketable degree that provides many exciting career opportunities for graduates. A student should be prepared to take the first actuarial examination in the spring of his/her junior year and the second examination the following spring. A student choosing this emphasis will complete a minor in accounting-finance.

**Teaching Certification:**

A completion of professional education coursework, including a semester of student teaching, prepares students for elementary or secondary teacher certification in Michigan and Ontario.

**Graduate School:**

An undergraduate mathematics major with emphasis on abstraction, together with an analytical approach to problem solving, continues to provide strong preparation for graduate work in diverse fields — especially when combined with a minor in the related field.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Mathematics
- Bachelor of Science Mathematics, Elementary Teaching
- Bachelor of Science Mathematics, Secondary Teaching
- Bachelor of Science Mathematics, Actuarial and Business Applications Concentration

## Degree Requirements

## Bachelor of Science Mathematics

**Departmental Requirements: (55 credits)**

- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH251 Calculus III 4
- MATH215 Fundamental Concepts of Mathematics 3
- MATH216 Discrete Mathematics and Problem Solving 3
- MATH261 Intro. to Numerical Methods 3
- MATH305 Linear Algebra 3
- MATH308 Probability and Mathematical Statistics 3
- MATH309 Applied Statistics 4
- MATH310 Differential Equations 3
- MATH341 Abstract Algebra I 3
- MATH351 Graph Theory 3
- MATH401 Mathematical Modeling 3
- MATH411 Advanced Calculus 3
- MATH490 Research Topics in Mathematics 3

**Choose any two (2) of the following (6 credits)**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI121 Principles of Programming 3

**Other Requirements (4 credits)**

- PHYS231 Applied Physics for Engineers and Scientists I 4

**Free Electives or Academic Minor (32-36 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Mathematics, Elementary Teaching

In this program, students will complete a teaching major in mathematics and a planned program in the other three academic areas essential to elementary school teaching: language arts, natural science and social science. The planned program is explained in the Elementary Education section of this catalog.

The program also includes general education requirements and a professional education sequence. Students take the first two teacher education courses (EDUC150 and EDUC250) and then apply for formal admission to the Teacher

Education Program.

**Degree Requirements:**

**Mathematics Requirements (37 hours)**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- MATH103 Number Systems and Problem Solving 4
- MATH104 Geometry & Measurement 4
- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH215 Fundamental Concepts of Math 3
- MATH305 Computational Linear Algebra 3
- MATH308 Probability and Mathematical Statistics 3
  **or**
- MATH207 Principles of Statistical Methods 3
- MATH321 History of Mathematics 3
- MATH325 College Geometry 3

**For information regarding the Professional Education Sequence, Education Cognates, and Elementary Planned Program, see Elementary Education.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

## Bachelor of Science Mathematics, Secondary Teaching

In this program, students will complete a major in mathematics tailored to the needs of a secondary teacher and a minor in a "teachable field." Computer science courses are included, and students work extensively with computer and calculator technology as it applies to classroom teaching.

This program also includes general education requirements and a professional education sequence. Students take the first two teacher education courses (EDUC150 and EDUC250) and then apply for formal admission to the Teacher Education Program.

Graduates earn a bachelor's degree, which includes a semester of student teaching, in order to become certified to teach.

**Degree Requirements:**

**Mathematics Requirements (42 credits)**

- MATH151 Calculus I 4
- MATH152 Calculus II 4

- MATH207 Principles of Statistical Methods 3
- MATH215 Fundamental Concepts of Math 3
- MATH216 Discrete Mathematics and Problem Solving 3
- MATH251 Calculus III 4
- MATH305 Computational Linear Algebra 3
- MATH310 Differential Equations 3
- MATH321 History of Mathematics 3
- MATH325 College Geometry 3
- MATH341 Abstract Algebra I 3
- MATH401 Mathematical Modeling 3

**Complete one methods course from the following:**

- EDUC442 Secondary Math Methods 3
- EDUC452 Directed Study Math Methods 3

**Cognate**

- CSCI105 Intro. to Computer Programming 3
  **or**
- CSCI121 Prin. of Computer Programming 3

**Teaching Minor (21-22 credits)**

**Professional Education Sequence and Education Cognates- see Secondary Education.**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.70 or higher. A gpa of 2.70 or higher is required in your Major, and a gpa of 2.00 or higher is required in your General Education Core Requirements.**

## Bachelor of Science Mathematics, Actuarial and Business Applications Concentration

**Departmental Requirements: (52 credits)**

- MATH151 Calculus I 4
- MATH152 Calculus II 4
- MATH251 Calculus III 4
- MATH215 Fundamental Concepts of Mathematics 3
- MATH216 Discrete Mathematics and Problem Solving 3
- MATH305 Linear Algebra 3
- MATH308 Probability and Mathematical Statistics 3
- MATH309 Applied Statistics 4
- MATH310 Differential Equations 3
- MATH341 Abstract Algebra I 3
- MATH351 Graph Theory 3

- MATH401 Mathematical Modeling 3
- MATH411 Advanced Calculus 3
- MATH490 Research Topics in Mathematics 3

**Choose any two (2) of the following (6 credits)**

- CSCI103 Survey of Computer Science 3
- CSCI105 Intro. to Computer Programming 3
- CSCI121 Principles of Programming 3

**Other Requirements (7 credits)**

- ECON201 Principles of Macroeconomics 3
- FINC341 Managerial Finance 4

A student choosing this emphasis will complete a minor in accounting-finance (24 credits).

**Free Electives (11-15 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# MATH216

**Discrete Mathematics and Problem Solving**

**(3,0) 3**

Selected topics from discrete mathematics including fundamental counting principles, recurrence relations and an introduction to graph theory. A strong emphasis is placed on fundamental problem-solving techniques. Prerequisite: MATH215 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH261

**Introduction to Numerical Methods**

**(3,0) 3 alternate years**

Floating point representation of numbers and floating point arithmetic. Survey of numerical methods for solving a wide variety of common mathematical problems, including solution of a single non-linear equation, solution of a system of linear equations, matrix inversion, numerical integration, function approximation, interpolation. Emphasis will be on the actual computer implementation of common algorithms for solving these problems. Prerequisites: CSCI105 or 121 with a grade of C or better and MATH152 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH305

**Linear Algebra**

**(3,0) 3 alternate years**

An introduction to matrix algebra, vector spaces and linear transformation, including applications to the natural and social sciences. Prerequisites: MATH112 or 151 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH309

**Applied Statistics**

**(4,0) 4 alternate years**

A continuation of MATH308 including estimation of parameters, testing hypotheses, nonparametric methods, analysis of variance, multiple regression and an introduction to statistical software packages. Prerequisite: MATH308 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH341

**Abstract Algebra I**

**(3,0) 3 alternate years**

An introduction to congruencies, groups, subgroups, quotient groups, fundamental homomorphism theorems, Sylow theorems. Prerequisite: MATH215 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH351

**Graph Theory**

**(3,0) 3 alternate years**

Selected topics in graph theory, including connectivity, matchings, edge and vertex colorings, networks and tournaments. Prerequisite: MATH216 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH401

**Mathematical Modeling**

**(3,0) 3 alternate years**

Selected applications of mathematics in such areas as biology, economics, social science and engineering are discussed. The construction of a mathematical model used to study a real situation will be stressed, as well as interpretation of mathematical results in that context. Prerequisites: junior/senior standing, a course in computer programming, and mathematical maturity at the level of MATH305, 308 or 310 with a minimum grade of C.

*Source: Academic Catalog 2013-14*

# MATH411

**Advanced Topics in Calculus**

**(3,0) 3 alternate years**

An extension of the calculus in one, two, and three dimensions leading to the formulation and solution (in simple cases) of the partial differential equations of mathematical physics. Differential and integral calculus of vectors, divergence, curl, line, surface and volume integrals, Green's divergence and Stokes' theorems, heat and wave equations, Fourier series, orthogonal sets, boundary value problems, separation of variables. Prerequisite: MATH251 and 310 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH490

**Individualized Research Topics in Mathematics**

**(1-4,0) 1-4**

Special studies and/or research in mathematics for individuals or small seminar groups. Course content to be arranged with instructor and with approval of the department head. This course may be repeated for a maximum of nine credits. Prerequisite: Junior standing or higher and Permission of Instructor.

*Source: Academic Catalog 2013-14*

# MATH321

**History of Mathematics**

**(3,0) 3**

Selected topics in the development of mathematics from the time of the ancient Babylonians and Egyptians to the 20th century. Prerequisites: MATH112 or 151 with a grade of C or better, and MATH215 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# MATH325

**College Geometry**

**(2,2) 3 alternate years**

Selected topics in geometry, including some or all of the following: Modern elementary geometry, transformations, Euclidean constructions, dissection theory, projective geometry, introduction to non-Euclidean geometry, and problems in foundations of geometry. Prerequisites: MATH152 and 215 with a grade of C or better.

*Source: Academic Catalog 2013-14*

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# Elementary Education: Bachelor of Arts/Science

## Program Description

The Elementary Education program is highlighted by in-depth study in a subject major or dual minors, extended field experience in elementary school settings, and focused development of the knowledge and skills critical for effective teachers.

Elementary-level teacher certification in Michigan permits individuals to teach in self-contained classrooms at grade K - 8, and in all subjects at grades K -5. Individuals may also qualify to teach the subjects of their academic major or minors in grades 6 - 8.

Students begin their studies with a focus on general education requirements, and an academic major or two academic minors. They complete the initial professional education coursework in their sophomore year, and apply for formal admission to the program at the end of that year. By that time, they will have also passed the Michigan Test for Teacher Certification Basic Skills test.

Upper level professional education coursework, along with the completion of the major or minors, is the focus for the junior and senior years. Student teaching, a semester-long culminating experience, may be completed in the spring of the fourth year or fall of the fifth year, depending on the individual student's progress through the program. Generally, this student teaching experience will be in the Eastern Upper Peninsula or in Sault Ste. Marie, Ontario. The Michigan Test for Teacher Certification Elementary Education tests must be passed prior to beginning student teaching.

**Note:** Candidates who pass the Michgian Test for Teacher Certification in their major or minors meet the requirements of the No Child Left Behind Act and are considered "highly qualified" for the subject areas of the endorsements shown on their Michigan teaching certificates.

## Degree Requirements

**The components of the Elementary Education Bachelor of Arts/Sciences programs are:**

**Subject Area Preparation -** Students may complete either of the following options:

- **An academic major** in either Language Arts or Mathematics (see requirements in this catalog for these teaching majors)

**or**

- **Two academic minors**, one in Language Arts and one in Mathematics (see the requirements in this catalog for these teaching minors)

**Elementary Planned Program (49 credits)**

- MATH103 Number Systems & Problem Solving 4
- MATH104 Geometry & Measurement 4
- MATH207 Principles of Statistical Methods 3
- BIOL104 Survey of General Biology 4
- NSCI101 Conceptual Physics 4
- NSCI102 Introduction to Geology 4
- POLI110 American Government 4
- GEOG201 World Regional Geography 4
- HIST131 United States History I 4
- HIST321 History of Michigan 2
- ENGL222 English Grammar 3
- ENGL335 Children's Literature in the Classroom 3
- ENGL180 Introduction to Literary Studies 3
- CHLD420 Emergent Literacy 3

**Professional Education Sequence (47 credits)**

- EDUC250 Student Diversity & Schools 4
- EDUC301 Learning Theory and Teaching Practice 3
- EDUC330 Reading in the Elementary Classroom 3
- EDUC350 Integrating Technology into 21st Learning Environments 3
- EDSE301 Introduction to Special Education 3
- EDUC410 Corrective Reading in the Classroom 3
- EDUC411 Elementary Language Arts and Methods Across the Curriculum 3
- EDUC415 General Instructional Methods 2
- EDUC420 Math Methods for Elementary Teachers 2
- EDUC421 Science Methods for Elementary Teachers 2
- EDUC422 Social Studies Methods for Elementary Teachers 2
- EDUC423 Arts Methods for Classroom Teachers 2
- EDUC424 Health/Physical Education Methods for Classroom Teachers 2
- EDUC460 Classroom Management 2
- EDUC480 Directed Teaching Seminar 2
- EDUC492 Directed Teaching 10

**Formal admission to the Elementary Education program, qualification for student teaching, and successful completion of the program requires:**

- Completion of the Professional Education Sequence courses with a grade of B- (2.70) or higher.
- Completion of all required courses in the education cognates, teaching major or teaching minors with a GPA of 2.70 or higher and no grade below a C (2.00).
- Completion of the elementary planned program with a GPA of 2.70 or

higher and no grade below a C (2.00).

- Completion of the General Education Core Requirements with a gpa of 2.00 or higher.
- Passing scores on all required Michigan Test for Teacher Certification tests.

The Elementary Education program undergoes periodic review, evaluation, and alignment with the Michigan Department of Education standards. Since program approval and renewal cycles vary, individuals should contact the School of Education regularly to confirm the current requirements of each program component. Graduates must meet the standards that are in place at the time of completion of their programs, in order to be recommended to the Department of Education for teacher certification.

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU general education core requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

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# Secondary Education: Bachelor of Arts/Science

## Program Description

The Secondary Education program is highlighted by in-depth study in a subject major and a subject minor, extended field experience in secondary school settings, and focused development of the knowledge and skills critical for effective teachers. The program leads to a bachelor of arts or a bachelor of science degree in the student's major area.

Secondary-level teacher certification in Michigan permits individuals to teach the subject areas, in which they hold endorsements, at grades 6-12. The subject majors and minors provide the required coursework for the related endorsements. Completing the courswork and passing the corresponding Michigan Test for Teacher Certification subject test enable graduates to meet the requirements of No Child Left Behind and to be highly qualified in their subject areas.

Subject major and minor options are listed below. Specfiic requirements for these are found in the appropriate sections of this catalog.

| **Majors** | **Minors** |
|---|---|
| Chemistry | Chemistry |
| Computer Science | Computer Science |
| Mathematics | Mathematics |
| Physical Science | |

Students begin their studies in the secondary education program with a focus on general education requirements, an academic major and an academic minor. They complete the initial professional education coursework in their sophomore year, and apply for formal admission to the program at the end of that year. By that time, they will have also passed the Michigan Test for Teacher Certification Basic Skills test.

Upper level professional education coursework, along with the completion of the major and minor, is the focus for the junior and senior years. Student teaching, a semester-long culminating experience, may be completed in the spring of the fourth year or the fall of the fifth year, depending on the individual student's progress through the program. Generally, this student teaching experience will be in the Eastern Upper Peninsula or in Sault Ste. Marie, Ontario. The Michigan Test for Teacher Certification subject test in the major must be passed prior to beginning student teaching.

## Degree Requirements

**The components of the Secondary Education: Bachelor of Arts/Sciences programs are:**

**Academic Major:** Choose one from the above (see requirements under the subject area in this catalog)

**Academic Minor:** Choose one from list above (see requirements in the Minors section of this catalog)

**Professional Education Sequence**

- EDUC250 Student Diversity & Schools 4
- EDUC301 Learning Theory and Teaching Practice 3
- EDSE301 Introduction to Special Education 3
- EDUC350 Integrating Technology into 21st Century Learning Environments 3
- EDUC415 General Instructional Methods 2
- EDUC440 Reading in the Content Area 3
- EDUC44X or EDUC45X Methods in major and in minor (minimum credits) 3
- EDUC460 Classroom Management 2
- EDUC480 Directed Teaching: Seminar 2
- EDUC492 Directed Teaching 10

**Education Cognates (3 credits)**

- MATH207 Principles of Statistical Methods 3

**Formal admission to the program, qualification for student teaching, and successful completion of the program requires:**

- Completion of the Professional Education Sequence courses with a grade of B- (2.70) or higher
- Completion of all required courses in the education cognates, teaching major or teaching minors with a GPA of 2.70 or higher and no grade below a C (2.00).
- Completion of the General Education Core Requirements with a gpa of 2.00 or higher.
- Passing scores on all required Michigan Test for Teacher Certification tests.

The Secondary Education program undergoes periodic review, evaluation, and alignment with the Michigan Department of Education standards. Since program approval and renewal cycles vary, individuals should contact the School of Education regularly to confirm the current requirements of each program component. Graduates must meet the standards that are in place at the time of completion of their programs, in order to be recommended to the Department of Education for teacher certification.

**General Education:** All bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different

languages will not meet this requirement.

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# EGME339

**Fundamentals of Fluid Mechanics**

**(1,0) 1**

A study of the theory and fundamentals of fluid mechanics. Topics covered include: differential analysis of fluids, potential flow, open-channel flow, introduction to gas dynamics, and introduction to computational fluid dynamics (CFD). Prerequisites: EGME338. Pre- or corequisites: MATH310 and MATH251.

*Source: Academic Catalog 2013-14*

# EGME350

**Machine Design**

**(3,3) 4**

Design and selection of machine components and power transmission units. Selected topics in load, stress, and deflection analysis in more depth than EGME225, notably (but not exclusively) torsion of thin-walled sections, thick-walled pressure vessels, interference fits, buckling problems by eigenvalue analysis, and Castigliano's theorems. Deterministic and stochastic theories of static failure, dynamic loading, and fatigue. Performance analyses of machine components, such as shafts, bearings, gears, worms, fasteners, and belt/chain drives. Laboratory covers finite element analysis using commercial software, and involves a major group design project. Prerequisites: EGME141, 225, 275, and 276. Pre-or Corequisite: MATH310.

*Source: Academic Catalog 2013-14*

# EGME431

**Heat Transfer**

**(3,0) 3 or (3,0,1) 3**

Theory and applications of heat transfer, Steady-state and transient conduction, forced convection, natural convection, radiation. Analysis of heat exchangers, boiling and condensation, introduction to numerical methods in heat transfer. Prerequisites: EGME337, 339 and EGNR265 or EGNR140.

*Source: Academic Catalog 2013-14*

# EGME432

**Thermal and Fluids Lab**

**(0,3) 1**

Practical applications of thermodynamics, fluid mechanics, and heat transfer. Hands-on training in the operation of thermodynamic components, power generation systems, and fluid mechanical devices. Experimentation in heat transfer. Includes a major project in the area of power generation and dissipation. Prerequisites: EGME337 and 338. Pre- or corequisite: EGME431.

*Source: Academic Catalog 2013-14*

# EGME425

**Vibrations and Noise Control**

**(3,2) 4 or (3,2,1) 4**

An introductory course on vibrations analysis, noise control, and acoustics. The vibrations portion includes the theory of discrete and continuous vibrating systems, and such applications as vibration mitigation, machinery vibrations, and rotor dynamics. The noise control/acoustics portion includes the theory of airborne sound, sound fields in bounded spaces, an overview of human hearing, and noise mitigation. Measurement techniques and signal analysis are covered in the laboratory segment. Prerequisites: EGME225, EGEM320, EGNR340, MATH251 and 310.

*Source: Academic Catalog 2013-14*

# BIOL206

**Medical Laboratory Practices**

**(2,0) 2**

Covers fundamental principles of medical laboratory science including safety, specimen handling, measurement, common calculations, organization of the medical laboratory, automation, and quality control. Prerequisites: MATH111, CHEM115, BIOL131.

*Source: Academic Catalog 2013-14*

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# Nursing: Bachelor of Science

## Program Description

Professional nursing blends a unique body of knowledge from the sciences, social sciences and humanities with a compassionate heart and a sensitive spirit to provide holistic care to those in need.

The School of Nursing offers two curricular tracks to the bachelor of science degree in nursing; the four-year, pre-licensure program and the two-year, completion program for the registered nurse. The programs provide you with the opportunity to acquire knowledge, values and skills necessary for the practice of professional nursing.

Course requirements provide liberal backgrounds in physical science, social science and humanities. This curriculum provides a solid basis for the variety of roles in nursing practice. The nursing curriculum provides an interdisciplinary major and, therefore, does not require a minor to meet graduation requirements. These nursing programs are approved by the Michigan Board of Nursing and the BSN program is accredited by the National League for Nursing Accrediting Commission.*

**National League for Nursing Accrediting Commission*
*3343 Peachtree Rd. N.E. Suite 500*
*Atlanta, GA 30326.*
*Telephone: 404-975-5000*

### Mission Statement

To graduate outstanding students who are ready and able to provide professional nursing services using theory and evidence based practice.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Science Nursing
- Bachelor of Science Nursing, Pre-Licensure Program
- Bachelor of Science Nursing, Post-Licensure Completion Program, Completion Program for RN Students

## Degree Requirements

### Bachelor of Science Nursing, Pre-Licensure Program

**Pre-Nursing Entrance Requirements:**

To qualify as a pre-nursing major, applicants must satisfy University admission requirements described in the admission section of the Catalog.

For students with college-level achievement, the opportunity will be offered, by means of examination, to obtain course credit or placement into an advanced course.

High school academic subjects include a minimum of one unit of biology, one of chemistry, three of English and two of algebra. Additional science and mathematics courses are highly recommended.

Students complete one year in pre-nursing before making application to the School of Nursing for admission to the nursing major. Admission is based upon 1) completing a current application in its entirety by the deadline of each semester, 2) successful completion of selected pre-nursing courses, 3) academic achievement, 4) a negative criminal background report, 5) passing of a physical examination done at the Health CARE Center, and 6) completion of TEAS and Critital Thinking ATI tests with passing score, and 7) verification of CPR training.

It is recommended that students be able to demonstrate computer literacy — basic word processing, library and Internet searches. Mathematics competency is required prior to the sophomore year. Entrance into nursing requires a grade point average of 2.7 or above in core pre-nursing and nursing courses. A maximum of 24 students will be accepted for each fall and spring semester.

**Required academic courses are separated into three groups:**

1. Nursing support courses - anatomy and physiology, microbiology, applied chemistry, mathematics, psychology, sociology, nutrition, pharmacology, pathophysiology, informatics in the health sciences, health issues of aging populations, multicultural approach to health care and statistics).
2. General education requirements (English, humanities and speech).
3. Nursing courses

**Progression Requirements in Nursing:**

A grade of C or above is required in all courses. A grade of D in other general education or elective courses is accepted.

Transfer credit will be granted on an individual basis. Only those courses with a grade of C or better are transferable. Credits for baccalaureate nursing courses and pharmacology are transferable for five years.

Time requirement for program completion is four academic years; however, completion may require more than four years for students who cannot maintain the high credit load each semester. Progression and readmission policies are detailed in the Nursing Student Handbook.

Students are responsible for transportation to and from clinical agencies, as well as all additional costs incurred by enrollment in the nursing program. Costs, academic and general information are listed in the Nursing Student Handbook and viewable on-line.

**Licensure:**

Graduates of this program are eligible to write the NCLEX-RN examination administered by the Michigan Board of Nursing for licensure as a registered nurse (R.N.). Canadian students must pass the NCLEX-RN examination prior to applying for licensure in Ontario. The Michigan Board of Nursing may deny a graduate the opportunity to take the licensure examination on the basis of conviction for a crime or substance abuse. The Immigration Service may deny a visa for entry to Ontario on the basis of a conviction for a crime or for substance abuse. Applicants

with a history of a conviction or substance abuse should consult with the School of Nursing associate dean and direct questions to the Michigan Board of Nursing and the Immigration Service prior to considering entry in the program.

**Nursing (64 credits)**

- NURS211 Intro. to Professional Nursing 3
- NURS212 Health Appraisal 4
- NURS213 Fundamentals of Nursing 6
- NURS325 Nursing of Childbearing Families 5
- NURS326 Nursing of Children & Families 5
- NURS327 Adult Nursing I 8
- HLTH328 Multicultural Approaches to Health Care 3
- HLTH352 Health Issues of Aging Populations 3
- NURS431 Adult Nursing II 8
- NURS432 Nursing of Populations 5
- NURS433 Community Mental Health Nursing 5
- NURS434 Nursing Research 3
- NURS435 Management in Nursing 4
- NURS436 Nursing Issues 2

**Support Courses (42 credits)**

- BIOL121 Human Anatomy & Physiology I* 4
- BIOL122 Human Anatomy & Physiology II* 4
- BIOL223 Clinical Microbiology 3
- CHEM104 Life Chemistry I* 3
- CHEM105 Life Chemistry II 4
- HLTH208 Principles of Human Nutrition 3
- HLTH209 Pharmacology 3
- HLTH232 Pathophysiology 3
- HLTH235 Healthcare Informatics 2
- MATH207 Principles of Statistical Methods 3
- PSYC101 Introduction to Psychology* 4
- PSYC155 Lifespan Development* 3
- SOCY101 Introduction to Sociology* 3

**General Electives (3 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

**Prerequisite courses for entrance to the program.*

## Bachelor of Science Nursing, Post-Licensure Completion Program, Completion Program for RN Students

**Entrance Requirements:**

To qualify for admission to the RN completion program, applicants must satisfy University admission requirements as described in the admission section of the Catalog. (This information is also included in the Viewbook).

For students with college-level achievement, the opportunity will be offered, by means of examination, to obtain course credit or placement into an advanced course.

Applicants must be graduates of state- or provincial-approved associate's degree or diploma nursing programs with a minimum cumulative grade point average of 2.7 in all nursing, nursing support and English courses. Nursing support courses include: chemistry, mathematics, anatomy and physiology, microbiology, statistics, nutrition, pharmacology, pathophysiology, computer applications in health sciences, psychology and sociology courses. Credit may be granted for nutrition and pharmacology upon writing the required NLN tests and achieving scores at the 50th percentile or above. NLN tests may be repeated once; students must enroll in the course if not successful on second writing. Credit by departmental exam is also available to students upon request.

**Required Admission Credentials:**

Submit to Admissions Office: standard LSSU Application for Admission; transcripts from previous nursing school(s) and college(s). Submit to School of Nursing: copy of current Michigan or Ontario professional nursing license and immunization records. All credentials must be on file preceding semester of entry.

**Transfer Credits:**

Transfer credits may be granted on an individual basis for equivalent general education and support courses. Only those courses with a grade of C or better may be transferred. A maximum of 32 semester hours credit in basic nursing courses may be transferred. Credit for pharmacology courses is acceptable for five years.

Time required for completion will be two years including two summers.

Progression and readmission policies are detailed in the Nursing Student Handbook.

Students are responsible for transportation to clinical agencies and all additional costs incurred by enrollment in the nursing program. Costs, academic and general information are listed in the Nursing Student Handbook.

The RN completion program is offered on a part-time basis at the LSSU Regional Centers in Petoskey and Escanaba. For further course information contact the main campus School of Nursing at 906-635-2288, the Petoskey Regional Center at 231-348-6623 or the Escanaba Regional Center at 906-217-4123.

**Nursing (63 credits)**

- NURS325 Nursing of Childbearing Families 5
- NURS326 Nursing of Children & Families 5
- NURS327 Adult Nursing I 8
- NURS328 Multicultural Approach to Health Care 3

- NURS352 Health Issues of Aging Populations 3
- NURS360 Professional Nursing Concepts 4
- NURS363 Comprehensive Health Appraisal 3
- NURS365 Family Nursing Theory 3
- NURS431 Adult Nursing II 8
- NURS432 Nursing of Populations 5
- NURS433 Community Mental Health Nursing 5
- NURS434 Nursing Research 3
- NURS435 Management in Nursing 4
- NURS436 Contemporary Issues in Nursing 2
- NURS437 Professional Nursing Leadership 2

**Health Sciences (11 credits)**

- HLTH208 Principles of Human Nutrition* 3
- HLTH209 Pharmacology* 3
- HLTH232 Pathophysiology 3
- HLTH235 Healthcare Informatics 2

**Other Disciplines (28 credits)**

- BIOL121 Human Anatomy & Physiology I* 4
- BIOL122 Human Anatomy & Physiology* 4
- BIOL223 Clinical Microbiology* 3
- CHEM104 Life Chemistry I* 3
- CHEM105 Life Chemistry II 4
- MATH207 Principles of Statistical Methods 3
- PSYC101 Introduction to Psychology* 4
- SOCY101 Introduction to Sociology* 3

**General Electives (6 credits)**

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 125 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

**Credit by departmental exam (or NLN examination, passing at a 50 percentile or higher) is also available to students upon request. For further information, contact the main campus School of Nursing at 906-635-2288, the Petoskey Regional Center at 231-348-6623 or the Escanaba Regional Center at 906-217-4123.*

**Prerequisite courses for entrance to the program.*

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Previous page: Bachelor (Four-Year Programs) ^ Top
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# NURS211

**Introduction to Professional Nursing**

**(3,0) 3**

This course introduces the student to a theoretical foundation for professional nursing practice. It focuses on nursing's historical origin, and its development throughout the years to present. Concepts discussed include nursing and related theories, the nursing process, legal/ethical issues and other topics relevant to the practice of professional nursing. Prerequisite: permission of dean or instructor only.

*Source: Academic Catalog 2013-14*

# NURS213

**Fundamentals of Nursing**

**(3,9) 6**

This course provides a theoretical and clinical foundation upon which science is applied to clients experiencing common health stressors. Emphasis is placed upon collecting relevant data, formulating nursing diagnosis based on the data, implementation of both appropriate nursing interventions and related psychomotor nursing skills. Responsibilities as a health team member who displays caring behaviors and as a self-directed learner are also considered. Prerequisites: NURS211, 212, and HLTH208. Pre- or corequisites: HLTH232, 209 and BIOL223.

*Source: Academic Catalog 2013-14*

# NURS325

**Nursing of Childbearing Families**

**(3,6) 5**

Theoretical and clinical foundation for application of the nursing process in caring for childbearing families. Focus on: norms and complications of the childbirth experience with application of strategies to promote health and prevent complications related to pregnancy and childbirth. Prerequisites: HLTH352 and NURS327. Corequisite: NURS326. Pre-or Corequisite: NURS/HLTH328.

*Source: Academic Catalog 2013-14*

# NURS326

**Nursing of Children and Families**

**(3,6) 5**

Theoretical and clinical foundation for application of nursing process in caring for children and their families. Emphasis: health promotion, maintenance and restoration with application of principles and concepts related to growth and development, family theory, environmental influences on health and the nursing process. Prerequisites: HLTH352, NURS327; Corequisite: NURS325. Pre- or Corequisite: NURS/HLTH328.

*Source: Academic Catalog 2013-14*

# NURS327

**Adult Nursing I**

**(4,12) 8**

Combined class and clinical experiences that apply the concepts of nursing and related theories to the care of the adult client with common health alterations in each of the basic human need areas. Nursing clinical experiences are in primary, secondary and tertiary care settings for adult clients. Prerequisites of NURS213 (or 222), HLTH209, BIOL223. Corequisite of HLTH/NURS352.

*Source: Academic Catalog 2013-14*

# HLTH352

**Health Issues of Aging Populations**

**(3,0) 3**

This course is designed to assist students from a variety of disciplines to gain a greater understanding of health-related issues that are associated with advancing age. In addition to exploring physiological and psychological changes experienced by our elderly clients, students will learn how they can adapt their work strategies to work more effectively for the elderly clients that they serve. Prerequisite: PSYC155 and junior level status. Also listed as NURS352.

*Source: Academic Catalog 2013-14*

# NURS431

**Adult Nursing II**

**(4,12) 8**

This is a theory and clinical laboratory course focusing on application of the nursing process in care of the adult client with multiple health stressors. Basic human needs theory and concepts of stress/adaptation, health promotion, health maintenance, health restoration and teaching-learning are applied. The student collaborates with the health team and applies theory and principles of leadership and management in providing care in secondary and tertiary care settings. Prerequisites: HLTH328, 352, and NURS325, 327 and 326. Corequisite: NURS435.

*Source: Academic Catalog 2013-14*

# NURS432

**Nursing of Populations**

**(3,6) 5**

This is a theory and clinical course applying the nursing process to populations. Content includes application of public health nursing principles, levels of prevention, epidemiology and health education. Expands the role of the nurse as a teacher, collaborator and advocate. Examines the effect of health care delivery trends and issues on the health of populations. For Pre Licensure BSN majors, prerequisites: HLTH328, 352, and NURS325, 327 & 326. For Post Licensure majors, prerequisites are: NURS363 and 365.

*Source: Academic Catalog 2013-14*

# NURS433

**Community Mental Health Nursing**

**(3,6) 5**

Theoretical and clinical foundation in mental health nursing. Emphasis is on the use of the therapeutic relationship and communication skills to help clients cope with stressors of life experiences. Nursing, human needs theory and stress adaptation theory are used to help the client achieve optimum level of mental health. Clinical experiences are provided in both the community and in the acute care settings. Prerequisites: HLTH328, 352 and NURS325, 326, 327.

*Source: Academic Catalog 2013-14*

# NURS434

**Nursing Research**

**(3,0) 3**

This course develops appraisal skills of nursing and related research. It will enable students to think critically and ethically about providing the best possible care to clients based on evidence. Assignments and class discussion emphasize application of current research to a variety of dimensions including human beings, health, nursing and environment. Prerequisites: HLTH328, 352, and NURS325, 327 and 326, MATH207 or PSYC210.

*Source: Academic Catalog 2013-14*

# NURS435

**Management in Nursing**

**(4,0) 4**

Analysis of the leadership and management roles in professional nursing; focus is leadership/management theories basic to the planning, organizing, directing and controlling of nursing services in health care settings. Includes concepts of nursing model integration in management, communications, decision making and conflict resolution, resource management, legal and ethical responsibilities, employee relations, health care system design, systems appraisal, and case management. Students will formulate a personal nursing management/leadership philosophy. For Pre Licensure BSN majors, prerequisites are: HLTH328, 352 and NURS325, 327, 326. Co-requisite: NURS431.

*Source: Academic Catalog 2013-14*

# NURS436

**Contemporary Issues in Nursing**

**(2,0) 2**

Course analyzes contemporary and future issues involving the professional nurse. The course further explores role socialization from nursing student to BSN-prepared nurse. Course reviews the legal responsibilities and professional regulation of nursing practice. Selected social, ethical, political, economic and legal issues will be examined. For Pre Licensure BSN majors, prerequisites are: HLTH328, 352 and NURS325, 327, 326. For Post Licensure majors (RN-BSN), prerequisite is NURS360.

*Source: Academic Catalog 2013-14*

# BIOL223

**Clinical Microbiology**

**(3,0) 3**

A basic course in microbiology dealing with the study of microorganisms and pathogens in humans. A survey of viruses, molds and bacteria. Their morphology and growth characteristics will be discussed along with the physical and chemical means to control pathogenic microorganisms causing human infections. Prerequisites: CHEM105 and BIOL122. Does not apply towards a major or minor in biology.

*Source: Academic Catalog 2013-14*

# HLTH208

**Principles of Human Nutrition**

**(3,0) 3**

Fundamentals of human nutrition and nutrition therapy are presented in relation to human body function in wellness and illness. With a special focus across the lifespan, content from this course begins to build a foundation for the interpretation of diet regimes and diet formulations for patients with nutritional needs. This course is required for all nursing students. Prerequisites: BIOL122 or BIOL105 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# HLTH235

**Healthcare Informatics**

**(2,0) 2**

The purpose of this course is to gain a basic understanding of nursing informatics and its application to education, research and practice in health care professions. Topics include computer literacy skills, information literacy, and overall informatics competencies. Competencies taught will meet the American Nurses Association Scope and Standards of Nursing Informatics Practice (ANA, 2001) for beginning nurses. Prerequisites: Admission into Nursing program and basic computer skills.

*Source: Academic Catalog 2013-14*

# NURS328

**Multicultural Approaches to Health Care**

**(3,0) 3**

This course explores values, beliefs and practices related to health behaviors in a variety of culturally diverse groups. Methods for fostering culturally sensitive care are explored. Content includes communication, biological and nutritional considerations, assessment techniques and alternative/complementary health practices. Prerequisite: SOCY101. Also listed as HLTH328.

*Source: Academic Catalog 2013-14*

# NURS352

**Health Issues of Aging Populations**

**(3,0) 3**

This course is designed to assist students from a variety of disciplines to gain a greater understanding of health-related issues that are associated with advancing age. In addition to exploring physiological and psychological changes experienced by our elderly clients, students will learn how they can adapt their work strategies to work more effectively for the elderly clients that they serve. Prerequisites: PSYC155 and junior level status. Also listed as HLTH352.

*Source: Academic Catalog 2013-14*

# NURS360

**Professional Nursing Concepts**

**(4,0) 4**

This four-credit course is the transitional course into professional nursing for the practicing registered nurse. Course emphasis: concepts of professional nursing, nursing and other related theories, health promotion, using research in nursing practice, impact of technology on profession, and economics related to nursing care. Includes: the history of nursing, ethics, culture, and critical thinking are interwoven in the exploration of concepts. Prerequisite: Permission of dean or instructor only. For Post Licensure majors (RN-BSN) only.

*Source: Academic Catalog 2013-14*

# NURS363

**Comprehensive Health Appraisal**

**(2,3) 3**

Application of theories from nursing and related fields to appraise health of the individual throughout the lifespan. Emphasis is on comprehensive history taking, physical assessment skills and assessment of findings. For Post Licensure majors (RN-BSN) only. Pre- or corequisite: NURS360.

*Source: Academic Catalog 2013-14*

# NURS365

**Family Nursing Theory**

**(3,0) 3**

Theoretical concepts of family development, structure and dynamics are presented. Factors influencing family health care are examined. Strategies are developed to enhance healthy family functioning. For Post Licensure majors (RN-BSN) only. Pre- or corequisites: SOCY101 and NURS360.

*Source: Academic Catalog 2013-14*

# NURS437

**Professional Nursing Leadership**

**(1,3) 2**

This is a seminar and clinical course where the student is expected to synthesize the roles of professional nursing in a variety of settings. Collaborative and leadership aspects of professional nursing are emphasized by the students planning their experience with the faculty member and preceptor. Integration of ethics, research, change, caring, advocacy, and approaches to ensure quality care in nursing practice are expected. For Post Licensure majors (RN-BSN) only. Prerequisites: NURS432, 434, 435.

*Source: Academic Catalog 2013-14*

# RECS101

**Introduction to Recreation and Leisure Services**

**(3,0) 3**

Overview of philosophy, history, theory, programs, professional leadership and organizations, economics and leisure service delivery systems.

*Source: Academic Catalog 2013-14*

# RECS105

**Program Development and Leadership**

**(3,0) 3**

Principles of leadership skills and styles are applied to various recreation settings with emphasis on group interaction and face-to-face leading. Programming fundamentals for effective leisure services delivery are explored and implemented. Also listed as EXER105.

*Source: Academic Catalog 2013-14*

# RECS262

**Outdoor Recreation**

**(3,0) 3**

This course will introduce the student to a variety of topics and content areas related to outdoor recreation. These topics will include outdoor education, organized camping and adventure education. Also included will be an opportunity to become familiar with outdoor living skills. Prerequisite: RECS105.

*Source: Academic Catalog 2013-14*

# RECS295

**Practicum**

**(1-2,0) 1-2**

Practical experiences designed to provide the student with various types of recreation programs. The student will work under a site supervisor specialized in that particular area of the student's interest. One credit hour for every 45 hours of practical experience. May be repeated for up to four credits. Prerequisite: Instructor permission

*Source: Academic Catalog 2013-14*

# RECS360

**Facilitation and Interpretation Techniques**

**(2,2) 3**

This course is designed to serve recreation students who are interested in facilitating outdoor or adventure based programs, and/or become interpreters in and outdoor or parks environment. The course will expose the student to a wide variety of facilitation/interpretation methodologies. The student will be involved in both learning and practicing these techniques. Examples of these techniques would include such things as: utilization of the metaphor, and Haiku. This class will also travel to different outdoor facilities, such as outdoor education centers and state historical sites. This will enable the students to facilitate experiences in an environment unavailable to LSSU (example, a High Ropes Course) and to interface with individuals who provide facilitation and interpretation as a part of their professional responsibilities. Prerequisites; RESC105, RECS262.

*Source: Academic Catalog 2013-14*

# RECS362

**Land Management for Recreation Purposes**

**(3,0) 3**

This course is designed to meet the needs of the student pursuing a parks and recreation degree. Provides insight and understanding for problems inherent to managing recreation lands for optimum use and minimum impact. Also, for recreation majors in outdoor recreation option. Prerequisites: RECS101 and 262, or NSC I103 and EVRN131.

*Source: Academic Catalog 2013-14*

# RECS365

**Expedition Management**

**(2,2) 3**

Intensive study of performance, programming, leadership and management skills involved in conducting wilderness and back country recreation programming. The student will become aware of various theoretical support structures and paradigms associated with adventure education and the values associated with the use of outdoor programming as a therapeutic intervention modality. Course content includes: Initiating and programming wilderness/back country experiences, group dynamics and outdoor living skills. A ten-day outing is required immediately upon completion of the semester. Prerequisite: RECS262.

*Source: Academic Catalog 2013-14*

# RECS390

**Recreation Leader Apprenticeship**

**(1,0) 1**

Practical experience in learning to teach and lead various recreation experiences. Students serve with qualified instructors. Prerequisite: Basic skills and knowledge of activity and instructor permission. May be repeated for a total of three credits.

*Source: Academic Catalog 2013-14*

# RECS397

**Recreation Studies Junior Research Seminar**

**(1,0) 1**

Introduces the concepts, purpose, methods and function of scholarly research and scientific inquiry. Prerequisites: junior standing, and majoring in recreation management or parks and recreation.

*Source: Academic Catalog 2013-14*

# RECS435

**Research in Recreation and Leisure Sciences**

**(3,0) 3**

This course will serve as a culminating educational component for the student majoring in therapeutic recreation and recreation management. The course will focus in part on current problems and issues in therapeutic recreation and will also have a major emphasis on developing an original research project. Prerequisites: RECS397 and MATH207, or PSYC210 or comparable statistics course.

*Source: Academic Catalog 2013-14*

# RECS437

**Recreation Studies Senior Research Seminar**

**(1,0) 1**

The focus of this course is to provide instruction and experience relative to data analysis and presentation methodologies affiliated with conducting research. The students will apply the procedures and methodologies discussed in class directly to their research projects. Prerequisite: RECS435.

*Source: Academic Catalog 2013-14*

# RECS481

**Professional Development Seminar**

**(1,0) 1**

Opportunities for students to refine personal and professional goals and initiate preparation of resumes and interviewing skills. Career planning and placement will be emphasized as well as internship evaluation. Seminar format. Prerequisite: Senior status required.

*Source: Academic Catalog 2013-14*

# RECS482

**Administration of Recreation and Leisure Services**

**(4,0) 4**

This course will emphasize organizational patterns and administration problems encountered in operating various types of recreation departments and agencies. Additional content will include budgeting, fund raising, grant writing, personnel management and public relations. Prerequisites: RECS105 and junior standing.

*Source: Academic Catalog 2013-14*

# RECS492

**Internship**

**2-6**

This is a comprehensive practical application of the student's formal academic preparation. Prerequisites: Completion of 20 of the 25 hours of departmental core requirements and junior or senior standing and instructor permission.

*Source: Academic Catalog 2013-14*

# BIOL107

**Field Biology**

**(2,3) 3**

Introduction to organisms and their environmental interactions and conservation concerns with emphasis on Eastern UP. Lab consists primarily of field experiences. Not open to biology majors. Prerequisite: ENGL091 or equivalent.

*Source: Academic Catalog 2013-14*

# BIOL240

**Natural History of the Vertebrates**

**(3,0) 3**

A survey course covering the taxonomy, phylogeny and ecology of vertebrates with an emphasis on North American taxa. Prerequisite: BIOL107 or 132.

*Source: Academic Catalog 2013-14*

# ACTG230

**Fundamentals of Accounting**

**(4,) 4**

This course is designed to give non-business majors an understanding of the accounting process and the knowledge to read, understand, and use financial statements and reports in making decisions. The emphasis is on the use, rather than the generation, of accounting information. This course is not open to business majors.

*Source: Academic Catalog 2013-14*

# OFFC119

**Computerized Accounting Procedures**

**(4,0) 4**

Accounting experiences common to small business or professional offices; development of basic principles underlying accounting procedures; techniques and records used in analyzing, classifying, recording and summarizing transactions; accounting procedures applied to a computer simulation for small businesses. May not be taken for credit following successful completion of ACTG132.

*Source: Academic Catalog 2013-14*

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# Political Science: Bachelor of Arts/Science

## Program Description

Political science is the systematic study of government, politics and public policy. It is one of a number of liberal arts majors that prepare students for a broad range of career opportunities.

Political science majors choose one of three tracks or concentrations: general political science, pre-law or public administration. Each concentration provides a combination of knowledge and skills especially appropriate for those with particular career goals. However, choosing one concentration over the others does not limit you to a particular career path — each of the tracks provides a solid grounding in political science and a broad liberal arts background.

General education requirements and sufficient elective credits must be completed so that at least 124 semester credits have been earned.

Other Qualifications — Graduate degrees are required for some positions; thus, a law degree is required for work as an attorney and a Ph.D. is required for appointment to permanent teaching and research positions in colleges and universities.

**Available degrees** (see specific degree requirements further down the page):

Bachelor of Arts/Science Political Science-General
Bachelor of Arts/Science Political Science-Pre-Law
Bachelor of Science Political Science-Public Administration

## Degree Requirements

### Bachelor of Arts/Science Political Science--General

The general political science concentration is designed to provide a broad education in political science. It is most appropriate for students who plan to attend graduate school in political science and for those with an interest in government and politics who wish to get a broad, liberal education. Students who continue their education in graduate school most often pursue careers as professors, researchers, consultants or government officials. Students who do not pursue graduate study choose from a wide variety of career options in government, politics, teaching, journalism and business.

**Political Science Courses**

- POLI110 Introduction to American Government and Politics 4
- POLI211 Political Science Research and Statistics 4

**A minimum of one course in each of four political science fields, and two courses in one of the fields:**

- American Politics (POLI325, POLI364, POLI367, POLI467) 3-4
- Comparative Politics (POLI160, POLI331, POLI334, POLI335, POLI340) 3-4
- International Relations (POLI241, POLI411, POLI413, POLI420) 3-4
- Political Philosophy (POLI351, POLI352) 4
- POLI491 Senior Seminar I 4
- POLI492 Senior Seminar II 4
- Additional political science electives to reach 42 credits 10-13

**A minimum of 21 credits must be at the 300/400 level, with at least nine of these at the 400 level.**

**General Political Science Cognates**

- COMM302 Argumentation and Advocacy 3 **or**
  COMM320 Public Relations 4
- CSCI101 Intro. to Microcomputer Applications 3
- ECON201 Principles of Macroeconomics 3
- ENGL310 Advanced Writing 3 **or**
  ENGL221 Creative Writing 3
- HIST Full-year history sequence (usually HIST101-HIST102 or HIST131-HIST132) 8
- PHIL204 Introduction to Philosophy 3 **or**
  PHIL205 Logic 3

**Complete one of the following (Bachelor of Arts or Bachelor of Science Cognates):**

**Bachelor of Arts Cognates (8 credits)**

One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**Bachelor of Science Cognates (A minimum of 9 credits from the following)**

- ECON202 Principles of Microeconomics 3
- PSYC101 Introduction to Psychology 4
- SOCY101 Introduction to Sociology 3
- SOCY213 Introduction to Anthropology 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Arts/Science Political Science--Pre-Law

The pre-law concentration is designed to provide students interested in legal careers with a planned curriculum that prepares them especially well for law school and for careers in law. Students who choose this option are often interested in careers as attorneys, prosecutors or judges. It should be noted that this is not a mandatory pre-law curriculum; it is a curriculum for pre-law students who have a special interest in government and politics.

**Political Science Courses**

- POLI110 Introduction to American Government and Politics 4
- POLI120 Introduction to Legal Processes 3
- POLI130 Introduction to State and Local Government 4
- POLI211 Political Science Research and Statistics 4
- POLI222 Introduction to the Legal Profession 3

**A minimum of one course in each of three political science fields:**

- Comparative Politics (POLI160, POLI331, POLI334, POLI335, POLI340) 3-4
- International Relations (POLI241, POLI411, POLI413, POLI420) 3-4
- Political Philosophy (POLI351, POLI352) 4
- POLI467 Constitutional Law and Civil Liberties 4
- POLI491 Senior Seminar I 4
- POLI492 Senior Seminar II 4
- Additional political science electives to reach 42 credits 0-2

**A minimum of 21 credits must be at the 300/400 level. (At least nine of these credits must be at the 400 level.)**

**Pre-Law Cognates**

- ACTG230 Fundamentals of Accounting (or ACTG132 or OFFC119) 4
- COMM302 Argumentation and Advocacy 3
- CSCI101 Intro. to Microcomputer Applications 3
- ENGL310 Advanced Writing 3

  or
- ENGL221 Creative Writing 3
- HIST Full-year history sequence (usually HIST101-HIST102 or HIST131-HIST132) 8
- LAWS102 Legal Research and Case Analysis 3
- LAWS202 Legal Writing and Analysis 3
- PHIL205 Logic 3

**Two law courses from the following:**

- LAWS Any legal Assistant courses 2-4
- CJUS202 Canadian Criminal Law 3
- CJUS319 Substantive Criminal Law 3
- CJUS406 Advanced Canadian Jurisprudence 3
- CJUS409 Procedural Criminal Law 3
- BUSN350 Business Law I 3
- BUSN355 Business Law II 3

**Complete one of the following (Bachelor of Arts or Bachelor of Science Cognates):**

**Bachelor of Arts Cognates (8 credits)**

One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**Bachelor of Science Cognates (A minimum of 9 credits from the following)**

- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- PSYC101 Introduction to Psychology 4
- SOCY101 Introduction to Sociology 3
- SOCY213 Introduction to Anthropology 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Political Science--Public Administration

The public administration concentration is most appropriate for students who plan to work in an administrative capacity in public agencies or nonprofit organizations with public missions. Students who choose this option are preparing for careers of public service. Such careers may be pursued through positions in government agencies at the local, state or provincial, and national levels. Other positions may be found in nonprofit organizations involved in public concerns, such as Common Cause, the Environmental Defense Fund, and the Michigan Health Council. Some of these careers of public service may be pursued with only a bachelor's degree. Others may require completion of a master's degree in public administration or a related field.

**Political Science Courses**

- POLI110 Introduction to American Government and Politics 4
- POLI130 Introduction to State and Local Government 4
- POLI201 Introduction to Public Administration 3
- POLI211 Political Science Research and Statistics 4
- POLI301 Policy Analysis and Evaluation 4
- POLI401 Principles of Public Administration 3

**A minimum of one course in each of three political science fields:**

- Comparative Politics (POLI160, POLI331, POLI334, POLI335, POLI340) 3-4

- International Relations (POLI241, POLI411, POLI413, POLI420) 3-4
- Political Philosophy (POLI351, POLI352) 4
- POLI491 Senior Seminar I 4
- POLI492 Senior Seminar II 4
- POLI499 Public Administration Internship 3

**Public Administration Cognates**

- ACTG230 Fundamentals of Accounting (or ACTG132 or OFFC119) 4
- COMM302 Argumentation and Advocacy 3 **or**
- COMM320 Public Relations 4
- CSCI101 Introduction to Microcomputer Applications 3
- ECON201 Principles of Macroeconomics 3
- ECON305 Public Finance 3
- ENGL310 Advanced Writing 3 **or**
- ENGL221 Creative Writing 3
- HIST Full-year history sequence (usually HIST101-HIST102 or HIST131-HIST132) 8
- MGMT360 Management Concepts & Applications 3
- MGMT365 Human Resource Management 3
- PSYC228 Organizational Behavior 3 **or**
- SOCY313 Work and Organization 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# Political Science: Bachelor of Arts/Science

## Program Description

Political science is the systematic study of government, politics and public policy. It is one of a number of liberal arts majors that prepare students for a broad range of career opportunities.

Political science majors choose one of three tracks or concentrations: general political science, pre-law or public administration. Each concentration provides a combination of knowledge and skills especially appropriate for those with particular career goals. However, choosing one concentration over the others does not limit you to a particular career path — each of the tracks provides a solid grounding in political science and a broad liberal arts background.

General education requirements and sufficient elective credits must be completed so that at least 124 semester credits have been earned.

Other Qualifications — Graduate degrees are required for some positions; thus, a law degree is required for work as an attorney and a Ph.D. is required for appointment to permanent teaching and research positions in colleges and universities.

**Available degrees** (see specific degree requirements further down the page):

Bachelor of Arts/Science Political Science-General
Bachelor of Arts/Science Political Science-Pre-Law
Bachelor of Science Political Science-Public Administration

## Degree Requirements

### Bachelor of Arts/Science Political Science--General

The general political science concentration is designed to provide a broad education in political science. It is most appropriate for students who plan to attend graduate school in political science and for those with an interest in government and politics who wish to get a broad, liberal education. Students who continue their education in graduate school most often pursue careers as professors, researchers, consultants or government officials. Students who do not pursue graduate study choose from a wide variety of career options in government, politics, teaching, journalism and business.

**Political Science Courses**

- POLI110 Introduction to American Government and Politics 4
- POLI211 Political Science Research and Statistics 4

**A minimum of one course in each of four political science fields, and two courses in one of the fields:**

- American Politics (POLI325, POLI364, POLI367, POLI467) 3-4
- Comparative Politics (POLI160, POLI331, POLI334, POLI335, POLI340) 3-4
- International Relations (POLI241, POLI411, POLI413, POLI420) 3-4
- Political Philosophy (POLI351, POLI352) 4
- POLI491 Senior Seminar I 4
- POLI492 Senior Seminar II 4
- Additional political science electives to reach 42 credits 10-13

**A minimum of 21 credits must be at the 300/400 level, with at least nine of these at the 400 level.**

**General Political Science Cognates**

- COMM302 Argumentation and Advocacy 3 **or**
  COMM320 Public Relations 4
- CSCI101 Intro. to Microcomputer Applications 3
- ECON201 Principles of Macroeconomics 3
- ENGL310 Advanced Writing 3 **or**
  ENGL221 Creative Writing 3
- HIST Full-year history sequence (usually HIST101-HIST102 or HIST131-HIST132) 8
- PHIL204 Introduction to Philosophy 3 **or**
  PHIL205 Logic 3

**Complete one of the following (Bachelor of Arts or Bachelor of Science Cognates):**

**Bachelor of Arts Cognates (8 credits)**

One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**Bachelor of Science Cognates (A minimum of 9 credits from the following)**

- ECON202 Principles of Microeconomics 3
- PSYC101 Introduction to Psychology 4
- SOCY101 Introduction to Sociology 3
- SOCY213 Introduction to Anthropology 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Arts/Science Political Science--Pre-Law

The pre-law concentration is designed to provide students interested in legal careers with a planned curriculum that prepares them especially well for law school and for careers in law. Students who choose this option are often interested in careers as attorneys, prosecutors or judges. It should be noted that this is not a mandatory pre-law curriculum; it is a curriculum for pre-law students who have a special interest in government and politics.

**Political Science Courses**

- POLI110 Introduction to American Government and Politics 4
- POLI120 Introduction to Legal Processes 3
- POLI130 Introduction to State and Local Government 4
- POLI211 Political Science Research and Statistics 4
- POLI222 Introduction to the Legal Profession 3

**A minimum of one course in each of three political science fields:**

- Comparative Politics (POLI160, POLI331, POLI334, POLI335, POLI340) 3-4
- International Relations (POLI241, POLI411, POLI413, POLI420) 3-4
- Political Philosophy (POLI351, POLI352) 4
- POLI467 Constitutional Law and Civil Liberties 4
- POLI491 Senior Seminar I 4
- POLI492 Senior Seminar II 4
- Additional political science electives to reach 42 credits 0-2

**A minimum of 21 credits must be at the 300/400 level. (At least nine of these credits must be at the 400 level.)**

**Pre-Law Cognates**

- ACTG230 Fundamentals of Accounting (or ACTG132 or OFFC119) 4
- COMM302 Argumentation and Advocacy 3
- CSCI101 Intro. to Microcomputer Applications 3
- ENGL310 Advanced Writing 3

  or
- ENGL221 Creative Writing 3
- HIST Full-year history sequence (usually HIST101-HIST102 or HIST131-HIST132) 8
- LAWS102 Legal Research and Case Analysis 3
- LAWS202 Legal Writing and Analysis 3
- PHIL205 Logic 3

**Two law courses from the following:**

- LAWS Any legal Assistant courses 2-4
- CJUS202 Canadian Criminal Law 3
- CJUS319 Substantive Criminal Law 3
- CJUS406 Advanced Canadian Jurisprudence 3
- CJUS409 Procedural Criminal Law 3
- BUSN350 Business Law I 3
- BUSN355 Business Law II 3

**Complete one of the following (Bachelor of Arts or Bachelor of Science Cognates):**

**Bachelor of Arts Cognates (8 credits)**

One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**Bachelor of Science Cognates (A minimum of 9 credits from the following)**

- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- PSYC101 Introduction to Psychology 4
- SOCY101 Introduction to Sociology 3
- SOCY213 Introduction to Anthropology 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Political Science--Public Administration

The public administration concentration is most appropriate for students who plan to work in an administrative capacity in public agencies or nonprofit organizations with public missions. Students who choose this option are preparing for careers of public service. Such careers may be pursued through positions in government agencies at the local, state or provincial, and national levels. Other positions may be found in nonprofit organizations involved in public concerns, such as Common Cause, the Environmental Defense Fund, and the Michigan Health Council. Some of these careers of public service may be pursued with only a bachelor's degree. Others may require completion of a master's degree in public administration or a related field.

**Political Science Courses**

- POLI110 Introduction to American Government and Politics 4
- POLI130 Introduction to State and Local Government 4
- POLI201 Introduction to Public Administration 3
- POLI211 Political Science Research and Statistics 4
- POLI301 Policy Analysis and Evaluation 4
- POLI401 Principles of Public Administration 3

**A minimum of one course in each of three political science fields:**

- Comparative Politics (POLI160, POLI331, POLI334, POLI335, POLI340) 3-4

- International Relations (POLI241, POLI411, POLI413, POLI420) 3-4
- Political Philosophy (POLI351, POLI352) 4
- POLI491 Senior Seminar I 4
- POLI492 Senior Seminar II 4
- POLI499 Public Administration Internship 3

**Public Administration Cognates**

- ACTG230 Fundamentals of Accounting (or ACTG132 or OFFC119) 4
- COMM302 Argumentation and Advocacy 3 **or**
- COMM320 Public Relations 4
- CSCI101 Introduction to Microcomputer Applications 3
- ECON201 Principles of Macroeconomics 3
- ECON305 Public Finance 3
- ENGL310 Advanced Writing 3 **or**
- ENGL221 Creative Writing 3
- HIST Full-year history sequence (usually HIST101-HIST102 or HIST131-HIST132) 8
- MGMT360 Management Concepts & Applications 3
- MGMT365 Human Resource Management 3
- PSYC228 Organizational Behavior 3 **or**
- SOCY313 Work and Organization 3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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# POLI325

**Politics and Media**

**(3,0) 3**

Examines the impact of electronic and print media on contemporary American politics. Evaluates proposals for changing the method and role of media coverage of government and politics. Prerequisites: POLI110 and junior standing.

*Source: Academic Catalog 2013-14*

# POLI364

**Political Parties, Interest Groups and Public Opinion**

**(3,0) 3**

Examines the roles of political parties and interest groups in the American political system, especially in elections and lobbying activities. The formation and uses of public opinion are also analyzed. Prerequisite: POLI110.

*Source: Academic Catalog 2013-14*

# POLI367

**Congress and the Presidency**

**(4,0) 4**

Examines the legislative and executive branches of government as parts of the policy-making process. Prerequisite: POLI110.

*Source: Academic Catalog 2013-14*

# POLI467

**Constitutional Law and Civil Liberties**

**(4,0) 4**

Principles of the American Constitution: separation of powers, federalism, the powers of the national and state governments, and limitations on the exercise of these powers as well as principles of the American Constitution respecting civil rights and liberties, The Bill of Rights, equal protection of the laws, citizenship and suffrage, and limitations on the exercise of those rights. Prerequisite: POLI120 or its equivalent.

*Source: Academic Catalog 2013-14*

# POLI331

**Comparative Politics of Western Europe and Russia**

**(4,0) 4**

Institutions and functioning of government in major European states, such as Great Britain, France, Germany and Russia. Prerequisite: POLI110.

*Source: Academic Catalog 2013-14*

# POLI335

**European Union Politics**

**(4,0) 4**

The primary aim of this course is to provide in-depth knowledge of the institutions and politics of the European Union. The course provides a general overview of the "State of the Union" from an empirical (rather than theoretical) perspective. We shall use articles from the comparative and international politics literature, along with some legal materials to make sense of the institutional and policy issues facing the European Union. It should be emphasized that no knowledge of international legal processes is needed for the course. Prerequisite: POLI110.

*Source: Academic Catalog 2013-14*

# POLI340

**Politics in Multicultural Societies**

**(3,0) 3**

An examination of nationalism and other forms of political conflict arising from ethnic, racial, linguistic and religious differences in comparative perspective. Prerequisites: POLI110 or 160 and junior standing.

*Source: Academic Catalog 2013-14*

# POLI411

**U.S. Foreign Policy**

**(3,0) 3**

A study of the formulation and conduct of American foreign policy. Analysis of relevant factors, institutions which influence the formulation and conduct of policy; and an examination of selected foreign policies. Prerequisite: POLI110.

*Source: Academic Catalog 2013-14*

# POLI413

**The International Legal Order**

**(4,0) 4**

The primary objective of this course is to explore the reasons for the emergence of the international legal order as a crucial constraint on the freedom of action of national governments; that is, to understand the impact of the international legal order on contemporary international relations. It also seeks to introduce the substance of international law in selected issue-areas, and to provide an overview of the nature of international legal reasoning. Throughout the course, we shall emphasize the interaction of law and politics, and of national and transnational legal processes. Prerequisite: POLI110.

*Source: Academic Catalog 2013-14*

# POLI420

**Politics of the World Economy**

**(4,0) 4**

Power conflict at the international economic level and its impact on the politics of various nations, states, regions and interests. Prerequisites: POLI110 or 160, and junior standing, as well as either ECON201 or 202. POLI241 recommended but not required.

*Source: Academic Catalog 2013-14*

# POLI351

**Political Philosophy I**

**(4,0) 4**

An examination of political philosophy from the ancient Greeks through the Reformation, concentrating on Plato, Aristotle, Augustine, Aquinas and Machiavelli. Prerequisites: POLI110 and junior or senior standing.

*Source: Academic Catalog 2013-14*

# POLI352

**Political Philosophy II**

**(4,0) 4**

An examination of political philosophy from the seventeenth century to the twentieth century, concentrating on Hobbes, Locke, Rousseau, Hume, Burke, Bentham, Mill, Hegel, and Marx. The course includes analysis of the period's main ideologies: Conservatism, liberalism, socialism, communism, anarchism, fascism and national socialism. Prerequisites: POLI110 and junior or senior standing.

*Source: Academic Catalog 2013-14*

# POLI491

**Senior Seminar I**

**(4,0) 4**

The first course in a capstone sequence required of all political science majors. The course examines the history of political science and public administration and reviews contemporary approaches and recent research. Students prepare a research proposal to be carried out in POLI492. Prerequisites: Political science major and senior standing.

*Source: Academic Catalog 2013-14*

# POLI492

**Senior Seminar II**

**(4,0) 4**

Completion of the research project begun in POLI491. Students will make oral presentations of their project results at the end of the course to other students, faculty and invited guests. Prerequisite: POLI491.

*Source: Academic Catalog 2013-14*

# PHIL204

**Introduction to Philosophy**

**(3,0) 3**

A study of selected philosophical problems and of methods and ways to answer them. Prerequisite: ENGL111.

*Source: Academic Catalog 2013-14*

# POLI222

**Introduction to the Legal Profession**

**(3,0) 3**

Students will become familiar with how the law functions, how the legal profession has evolved, how to prepare for and apply to law school, how law schools differ from college (including development of various methods and techniques to study the law). In addition, students will become aware of the legal profession and its demands, opportunities, options and trends. Prerequisites: POLI110, sophomore standing and/or permission of instructor. Also listed as LAWS222.

*Source: Academic Catalog 2013-14*

# LAWS102

**Legal Research and Case Analysis**

**(3,0) 3**

Introduction to the law library and its use. Students will develop research techniques and skills in using encyclopedias, treatises, digests, case reporters, looseleaf services, annotated reports, legal periodicals, legislation, legislative history, administrative materials, shepardization and citation of legal authorities. Students will also develop skills in analyzing, evaluating and synthesizing court opinions and statutory law.

*Source: Academic Catalog 2013-14*

# LAWS202

**Legal Writing and Analysis**

**(3,0) 3**

Introduction to legal writing styles and skills. Through review and preparation of legal documents, students will become acquainted with basic principles, style, organization and structure of certain legal documents which shall include letter writing, preparation of memorandum of law and an appellate brief. Research skills and analysis of court opinions will be further refined. Prerequisites: LAWS102 and 125.

*Source: Academic Catalog 2013-14*

# POLI401

**Principles of Public Administration**

**(3,0) 3**

Examines major issues and methods in public administration. Analysis of specific public policy issues. Prerequisite: Advanced standing.

*Source: Academic Catalog 2013-14*

# POLI499

**Political Science/Public Administration Internship**

**(1,9 - 27) 3-9**

Students arrange, with the assistance and approval of the instructor, a supervised work experience in a governmental, community or nonprofit organization. Students perform professional tasks under the supervision of agency personnel. The students' review and evaluation of the work experience is under the direction of the instructor. Permission of the instructor required by the seventh week of the preceding semester. Course may be repeated to a maximum of nine credits.

*Source: Academic Catalog 2013-14*

# ECON305

**Public Finance**

**(3,0) 3**

The economics of public finance, including taxation, public expenditures and fiscal policy. Rationale and objectives of government activity in a market system; distribution of tax burden; income redistribution effects of taxation and expenditure programs. Prerequisite: ECON201 or 202.

*Source: Academic Catalog 2013-14*

# PSYC228

**Organizational Behavior**

**(3,0) 3**

An introduction to the theories, principles and practices of organizational behavior within the workplace. May be used for sociology credit.

*Source: Academic Catalog 2013-14*

# SOCY313

**Work and Organization**

**(3,0) 3**

Development and structure of the workplace; includes contemporary trends in formal organization and management styles, changing career patterns, sources of conflict and some cross-cultural comparisons. Prerequisite: Junior standing or three hours of sociology.

*Source: Academic Catalog 2013-14*

# PSYC212

**Experimental Psychology**

**(3,2) 4**

An examination of the basic research methods employed in the social sciences with emphasis on the experiment. Topics: Epistemology, laboratory experiments, field experiments, survey construction, correlational research. Students will each participate as a subject and an experimenter, collect data, analyze data, and write a laboratory report according to the editorial style of the American Psychological Association. Laboratory assignments require use of computer applications for experimental purposes, including running experiments and collecting data, analyzing results, creation of appropriate figures, and communication of results in text and oral presentations with slides. Prerequisites: PSYC101 and either PSYC210 or MATH207.

*Source: Academic Catalog 2013-14*

# PSYC311

**Learning and Motivation**

**(3,0) 3**

An introduction to the theory and research of learning. Factors are examined that influence the acquisition and performance of behaviors in classical and instrumental learning paradigms. Prerequisite: PSYC212.

*Source: Academic Catalog 2013-14*

# PSYC357

**Personality Theory**

**(3,0) 3**

This course surveys the major psychological theories used to conceptualize, treat and research personality issues. Prerequisite: 12 hours of psychology.

*Source: Academic Catalog 2013-14*

# PSYC396

**Tests and Measurements**

**(3,0) 3**

This course has two parts. Part one covers measurement theory, the properties of the normal curve, reliability, validity and measurement statistics. Part two reviews major tests used by researchers, educators, clinicians, counselors, addictions counselors and industrial psychologists. Prerequisite: SOCY302 or PSYC210 or MATH207 or equivalent.

*Source: Academic Catalog 2013-14*

# PSYC456

**History and Systems of Psychology**

**(3,0) 3**

An examination of persons, events, theories, schools and systems that influenced and define contemporary psychology. Prerequisite: PSYC311.

*Source: Academic Catalog 2013-14*

# PSYC457

**Cognition**

**(3,0) 3**

A survey of recent findings on cognition in humans. Topics include learning, memory, problem solving, language and complex perceptual processes. Prerequisite: PSYC311.

*Source: Academic Catalog 2013-14*

# PSYC459

**Physiological Psychology**

**(3,0) 3**

This course is an introduction to the neurophysiological structures of the brain and their functions as regulators of animal and human behavior. Prerequisite: PSYC311.

*Source: Academic Catalog 2013-14*

# PSYC495

**Senior Research Practicum**

**(0,3) 3**

A practicum under the guidance of a faculty mentor. The student will conduct an empirical research project based on the proposal submitted by the student in PSYC498. Prerequisite: PSYC498. Corequisite: PSYC499.

*Source: Academic Catalog 2013-14*

# PSYC498

**Senior Research I**

**(3,0) 3**

The study of methods employed in gathering data for research purposes including direct observational techniques and self-report measures. Students will also learn to use the computer to gather data, analyze data and present data graphically; and will develop a research prospectus. Prerequisites: PSYC210, 212 and 311.

*Source: Academic Catalog 2013-14*

# PSYC499

**Senior Research II**

**(1,0) 1**

Issues in the development and implementation of an empirical research project, including design, statistical analyses, ethical review, and modes of presentation. Prerequisite: PSYC498. Corequisite: PSCY495.

*Source: Academic Catalog 2013-14*

# PSYC217

**Social Psychology**

**(3,0) 3**

Topics include attitude formation and change, interpersonal attraction, aggression, altruism, conformity and environmental psychology.

*Source: Academic Catalog 2013-14*

# SOCY238

**Social Psychology**

**(3,2) 4**

This course examines the social nature of humans, exploring both the influence of social structures upon behavior and the process by which people create social structures; explains symbolic interactionist theory; and introduces qualitative research methods which are applied in a field study conducted by the student. Prerequisite: SOCY101 with a grade of C or better, ENGL110, with a grade of C or better.

*Source: Academic Catalog 2013-14*

# SOCY301

**Social Research Methods**

**(3,0) 3**

Identification of research problems, concepts and theoretically derived hypothesis; Review of principle methods of experimental design, survey and field research and unobtrusive analysis. Prerequisite: Junior Status or Permission of Instructor.

*Source: Academic Catalog 2013-14*

# SOCY310

**Development of Sociological Theory**

**(3,0) 3**

A critical analysis of the contributions to sociological theory by Comte, Spencer, Marx, Durkheim, Pareto, Weber and others. Prerequisite: SOCY238.

*Source: Academic Catalog 2013-14*

# SOCY311

**Contemporary Sociological Theory**

**(3,0) 3**

Critical analysis of major sociological theories of the 20th and 21st centuries. Prerequisite: SOCY238.

*Source: Academic Catalog 2013-14*

# SOCY399

**Sociology Junior Seminar**

**(1,0) 1**

Students will develop a proposal for their senior project through lecture and discussion, mentoring by seniors, and collaboration with colleagues. Prerequisites: SOCY238, 304, 302, and SOCY/SOWK202.

*Source: Academic Catalog 2013-14*

# SOCY401

**Sociology Seminar I**

**(1,0) 1**

Meetings provide instruction for the senior project covering locating sources, moving from theory to research, constructing a review of literature and designing methods. Prerequisite: SOCY399.

*Source: Academic Catalog 2013-14*

# SOCY495

**Senior Project I**

**(0,6) 2**

In this practicum, under the guidance of a Sociology faculty member, the student prepares a review of literature and research plan for an independent research project in Sociology. Prerequisite: SOCY399.

*Source: Academic Catalog 2013-14*

# SOCY402

**Sociology Seminar II**

**(1,0) 1**

Class meetings provide instruction for the senior project, focusing upon designing and conducting research, analyzing data, completing final report, preparing poster and formal presentation. Prerequisites: SOCY401 and 495.

*Source: Academic Catalog 2013-14*

# SOCY496

**Senior Project II**

**(0,6) 2**

In this practicum, under the guidance of a Sociology faculty member, the student refines the research plan prepared in SOCY495, gathers data, completes an analysis, writes up the findings, presents the study in a public forum and prepares a poster. Prerequisites: SOCY401 and 495.

*Source: Academic Catalog 2013-14*

# SOWK110

**Introduction to Social Work**

**(3,0) 3**

A general introduction and overview of the social work profession including its philosophy, values, professional roles, current trends and models in different practice settings (i.e. public welfare, child and family services, mental health, medical settings, etc.).

*Source: Academic Catalog 2013-14*

# SOWK250

**Social Work Practicum**

**(1,9-27) 3-9**

This course provides a field placement opportunity for students to practice skills and use knowledge gained from courses in skill minors. Prerequisite: Permission of instructor. Credit/No credit grade.

*Source: Academic Catalog 2013-14*

# SOWK310

**Clinical Practice and Diagnosis**

**(3,0) 3**

Student will learn skills in developing psychosocial history, treatment plans, becoming familiar with diagnostic criteria and categories, and appreciating the uses and limitations of various diagnostic schemes. Prerequisite: PSYC201.

*Source: Academic Catalog 2013-14*

# SOWK344

**Social Welfare Systems**

**(3,0) 3**

Analysis of social welfare systems in the U.S. including history, philosophy, cross-cultural comparisons, and current issues. Prerequisites: Junior standing or completion of SOWK110 or completion of HMSV204

*Source: Academic Catalog 2013-14*

# SOWK480

**Grantwriting**

**(3,0) 3**

This course gives advanced students experience in the research, writing and planning skills involved in preparing grant proposals for human service problems.

*Source: Academic Catalog 2013-14*

# SPAN261

**Second-Year Spanish I**

**(3,1) 3 fall**

Intensive review of grammar and further vocabulary development. Emphasis on composition and conversation based on the reading of Spanish texts and newspapers. Prerequisite: SPAN162 or equivalent.

*Source: Academic Catalog 2013-14*

# SPAN262

**Second-Year Spanish II**

**(3,1) 3 spring**

Conducted as much as possible in Spanish with the primary aim of dealing fluently with basic conversation situations. Prerequisite: SPAN261 or equivalent.

*Source: Academic Catalog 2013-14*

# SPAN361

**Advanced Spanish Grammar**

**(3,0) 3**

Acquisition of advanced skills in composition, grammar, reading and conversation, using media and readings related to the Hispanic world. Corequisite: SPAN262 or equivalent.

*Source: Academic Catalog 2013-14*

# SPAN362

**Advanced Spanish Composition**

**(3,0) 3**

This course is designed to improve writing skills in Spanish through extensive and intensive reading of Spanish and Spanish-American fiction. Prerequisite: SPAN262. Corequisite: SPAN361.

*Source: Academic Catalog 2013-14*

# LING403

**Language Acquisition and Foreign Language Teaching**

**(3,0) 3**

Introduction to theories of language and language acquisition as applied to current language teaching methods and classroom practices. This course is a requirement for both the Spanish teaching major and the Spanish teaching minor. The class will be taught in English, but students will use a foreign language of their choice in teaching presentations. Prerequisites: SPAN361 and SPAN362 or FREN351 and FREN352.

*Source: Academic Catalog 2013-14*

# SPAN165

**Spanish for Public Safety**

**(4,1) 4 on demand**

A continuation of SPAN161, with emphasis on vocabulary relevant to work in criminal justice. Prerequisite: SPAN161 or equivalent.

*Source: Academic Catalog 2013-14*

# SPAN301

**Study Abroad**

**(8,0) 8 summer**

Students admitted by the faculty of the Spanish Department will take a variety of classes at an accredited institution in a Spanish-speaking country. Students will spend a minimum of 30 hours per week in class. They will also be required to visit sites for archaeological, historical and cultural importance. The students' work and progress will be monitored and evaluated by the LSSU Spanish Department in cooperation with the foreign institution. Prerequisite: Students must have completed a minimum of two courses of Spanish at LSSU and obtain the professor's permission. *Credit for this course may be applied to fulfill the requirements for a Spanish major or a Spanish minor. This course cannot be repeated.

*Source: Academic Catalog 2013-14*

# SPAN368

**Selected Topics in Conversation**

**(2,0) 2**

Class assignments and readings provide the basis for in-class discussion at post-intermediate level. Students will be given the opportunity to practice vocabulary and grammar structures in life-like situations and contexts. Prerequisites: SPAN361 and 362.

*Source: Academic Catalog 2013-14*

# SPAN380

**Survey of Spanish-American Literature I**

**(3,0) 3**

Class is a survey course of Spanish-American literature from the Spanish Conquest to 1880. It will cover readings from diverse genres and periods, beginning with an examination of precolumbian indigenous texts and ending with an overview of the development of modernismo. Prerequisites: SPAN361 and 362.

*Source: Academic Catalog 2013-14*

# SPAN381

**Survey of Spanish-American Literature II**

**(3,0) 3**

Elective survey course of Spanish-American literature from 1880 to present day. It will cover readings from diverse genres and periods, beginning with an examination of modernismo, and culminating with selections from prominent recent literary works. Prerequisites: SPAN361 and 362.

*Source: Academic Catalog 2013-14*

# SPAN401

**The Spanish Novel**

**(3,0) 3**

The class will focus on the study of selected 19th and 20th Century Spanish peninsular novels. Theme and content of course may vary from semester to semester. With the instructor's permission, this course may be repeated, and students may acquire up to six hours of credit for SPAN401. Prerequisites: SPAN361 and 362.

*Source: Academic Catalog 2013-14*

# SPAN402

**The Spanish-American Novel**

**(3,0) 3**

This class will focus on the study of selected Spanish-American novels. Theme and content of course may vary from semester to semester. With the instructor's permission, this course may be repeated, and students may acquire up to six hours of credit for SPAN402. Prerequisites: SPAN361 and 362.

*Source: Academic Catalog 2013-14*

# SPAN410

**Spanish-American Civilization**

**(3,0) 3**

This course will focus on the study of the history and culture of Spanish-America. The textbook will be supplemented with additional collateral readings; students will prepare both oral and written reports in Spanish on various assigned topics throughout the semester. Prerequisites: SPAN361 and 362.

*Source: Academic Catalog 2013-14*

# SPAN411

**Spanish Civilization**

**(3,0) 3**

This course will focus on the study of the history and culture of Spain. The textbook will be supplemented with additional collateral readings; students will prepare both oral and written reports in Spanish on various assigned topics throughout the semester. Prerequisites: SPAN361 and 362.

*Source: Academic Catalog 2013-14*

# SPAN412

**Hispanic Literature of the Southwest**

**(3,0) 3**

This course will examine the post-WWII development of Chicano culture in the southwestern United States as reflected through literature and the fine arts. Students will read a broad spectrum of popular Mexican-American literary works from 1945 to present day. Prerequisites: SPAN361 and 362.

*Source: Academic Catalog 2013-14*

# SPAN490

**Topics in Hispanic Literature**

**(1-4,0) 1-4**

The content of this elective course will vary from semester to semester. Students may repeat SPAN490 once, and in so doing, acquire up to six hours credit for their degree plan with this class. Areas of study will include, but not be limited to, specific genres, periods, authors and literary movements. Prerequisites: SPAN361 and 362.

*Source: Academic Catalog 2013-14*

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# Sport and Recreation Management: Bachelor of Arts/Science

## Program Description

The bachelor of science/bachelor of arts in sport and recreation management is a professional degree which focuses on leading, planning, managing and directing athletic, recreation and leisure opportunities for all ages of clientele, in a variety of public, private and commercial settings. A business minor is included in the degree to enhance management knowledge and skills. Career specialization can be achieved through additional minors or concentrations. A bachelor of arts includes eight hours of foreign language requirements.

A one-semester internship is required for both the bachelor of science and bachelor of arts degrees.

**Available degrees** (see specific degree requirements further down the page):

- Bachelor of Arts Sport and Recreation Management
- Bachelor of Science Sport and Recreation Management

## Degree Requirements

### Bachelor of Arts Sport and Recreation Management

**Program Requirements (33 credits)**

- RECS101 Introduction to Recreation and Leisure Services 3
- RECS105 Program Development & Leadership 3
- RECS270 Sports Management 3
- RECS295 Practicum 1
- RECS375 Commercial Recreation 3
- RECS390 Recreation Leader Apprenticeship 1
- RECS397 Recreation Studies Junior Research Seminar 1
- RECS435 Research in Recreation and Leisure Sciences 3
- RECS437 Recreation Studies Senior Research Seminar 1
- RECS450 Philosophy of Leisure and Human Performance 3
- RECS481 Professional Development Seminar 1
- RECS482 Administration of Recreation and Leisure Services 4
- RECS492* Internship 6

**It is recommended that RECS492 be completed during the summer of the student's senior year.*

**Business Requirements (25 credits)**

- ACTG132 Principles of Accounting I 4
  **or**
- OFFC119 Computerized Accounting Procedures 4
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC245 Principles of Finance 3
- MRKT281 Marketing Principles and Strategy 3
- MGMT360 Principles of Management 3

**Cognate Requirements (19 credits)**

- BIOL105 Functions of the Human Body 4
- EMED181 First Aid 1
- HMSV480 Grantwriting 3
- Foreign Language 8
- PSYC210 Statistics 3

**School Electives (12 credits)**

- EXER140 Health and Fitness 3
- EXER141 Introduction to Movement 3
- EXER230 Athletic Injury and Illness Prevention 3
- EXER234 Preventative Taping Techniques 1
- EXER248 Psychology of Sport and Performance and Coaching 3
- RECS212 Instructional Methods in Adapted Aquatics 2
- RECS220 Methods in Arts & Crafts 3
- RECS262 Outdoor Recreation 3
- RECS280 Readiness in Games, Activities and Sports 3
- RECS295 Practicum 1-3
- RECS320 Dance and Rhythmic Activities for Recreation 3
- RECS344 Adapted Sports and Recreation 3
- RECS362 Land Management for Recreation Purposes 3
- RECS365 Expedition Management 3
- RECS367 National Parks, National Monuments and National Culture 3
- RECS370 Recreation for the Elderly 3
- RECS390 Recreation Leader Apprenticeship 1
- RECS496 Selected Research Topics 1-3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**Bachelor of Arts degree (8 credits):** One year of a modern language other than English. If taken at LSSU, this would be CHIN151-CHIN152 or CHIN251-CHIN252; FREN151-FREN152 or FREN251-FREN252; NATV141-NATV142 or NATV201-NATV202; or SPAN161-SPAN162. One-half year of two different languages will not meet this requirement.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

## Bachelor of Science Sport and Recreation Management

**Program Requirements (33 credits)**

- RECS101 Introduction to Recreation & Leisure Services 3
- RECS105 Program Development & Leadership 3
- RECS270 Sports Management 3
- RECS295 Practicum 1
- RECS375 Commercial Recreation 3
- RECS390 Recreation Leader Apprenticeship 1
- RECS397 Recreation Studies Junior Research Seminar 1
- RECS435 Research in Recreation and Leisure Sciences 3
- RECS437 Recreation Studies Senior Research Seminar 1
- RECS450 Philosophy of Leisure and Human Performance 3
- RECS481 Professional Development Seminar 1
- RECS482 Administration of Recreation and Leisure Services 4
- RECS492* Internship 6

**It is recommended that RECS492 be completed during the summer of the student's senior year.*

**Business Requirements (25 credits)**

- ACTG132 Principles of Accounting I 4
  **or**
- OFFC119 Computerized Accounting Procedures 4
- BUSN231 Business Communications 3
- BUSN350 Business Law I 3
- ECON201 Principles of Macroeconomics 3
- ECON202 Principles of Microeconomics 3
- FINC245 Principles of Finance 3
- MRKT281 Marketing Principles and Strategy 3
- MGMT360 Principles of Management 3

**Cognate Requirements (17-19 credits)**

- BIOL105 Function of the Human Body 4
- EMED181 First Aid 1
- HMSV480 Grantwriting 3
- POLI130 Intro. to State & Local Government 4
  **or**
- POLI160 Intro. to Canadian Government 3
- PSYC101 Introduction to Psychology 4
  **or**
- PSYC155 Lifespan Development 3
- PSYC210 Statistics 3

**School Electives (12 credits)**

- EXER140 Health and Fitness 3
- EXER141 Introduction to Movement 3
- EXER230 Athletic Injury and Illness Prevention 3
- EXER234 Preventitive Taping Techniques 1
- EXER248 Psychology of Sport and Performance and Coaching 3
- RECS212 Instructional Methods in Adapted Aquatics 2
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- RECS496 Selected Research Topics 1-3

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Core Requirements, or have earned the MACRAO Stamp (Michigan Community College transfer students), or have completed the general education certification (Sault College transfer students), or have already earned a bachelor's degree (honors bachelor degree from a Canadian University).

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.00 or higher is also required in your Major, as well as in your General Education Core Requirements.**

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Previous page: Bachelor (Four-Year Programs) ^ Top
Next page: Associate (Two-Year Programs)

# RECS270

**Sports Management**

**(3,0) 3 alternate years**

This course will provide philosophies, organization techniques and administration principles for youth sports, officiating, intramurals, organized athletics and recreational sports. Issues on assessment, design, implementation, and evaluation for sports programs in today's society will be explored. Investigation of appropriate resources, professional organization's impact, training methods, certification processes and gender issues will be highlighted.

*Source: Academic Catalog 2013-14*

# RECS375

**Commercial Recreation**

**(3,0) 3 alternate years**

An introduction to the scope, characteristics and management aspects of the commercial recreation industry. Substantial coverage of entrepreneurial strategies, economic concepts applied to commercial recreation, steps for creating feasibility studies, and operation management. An in-depth study of specific commercial recreation programs including travel, tourism, hospitality, club, and the entertainment industry will be included with emphasis on present and future trends and career opportunities. Prerequisites: RECS105 or BUSN121, ACTG230, ECON202 and FINC245.

*Source: Academic Catalog 2013-14*

# RECS450

**Philosophy of Human Performance and Leisure**

**(3,0) 3**

A study of the origins and development of leisure behavior, sport, athletics and personal fitness across cultures. Ethical issues such as violence, opportunity, exploitation, role models and equity will be examined. Prerequisites: EXER262 or RECS101 and junior status. Also listed as EXER450.

*Source: Academic Catalog 2013-14*

# RECS212

**Instructional Methods in Adapted Aquatics**

**(1,2) 2 alternate years**

Based on American Red Cross adapted aquatics guidelines, the course is designed to help students develop skills used when planning, implementing, instructing, and evaluating water activity programs for those with a disability. Current water safety instructors (WSI) may become American Red Cross certified as adapted aquatics instructors. People who do not have a WSI may become American Red Cross certified adapted aquatics aides.

*Source: Academic Catalog 2013-14*

# RECS220

**Methods in Arts and Crafts**

**(3,0) 3 alternate years**

A variety of arts and crafts media are studied and applied to specific recreation settings with concentration on leading and programming. Prerequisites: RECS101 and 105.

*Source: Academic Catalog 2013-14*

# RECS280

**Readiness in Games, Activities and Sports**

**(3,0) 3 alternate years**

This course will focus on the selection and implementation of games, activities and sports which are age-appropriate for the clientele being served. Psychological, sociological, emotional and physiological readiness will be studied as it relates to implementation, modification and presentation of games, activities, and sports to various age groups. Both positive and negative outcomes will be identified.

*Source: Academic Catalog 2013-14*

# RECS320

**Dance and Rhythmic Activities for Recreation**

**(3,0) 3 alternate years**

Study of dance in social and therapeutic settings; developing skills to lead programs and adapt a variety of rhythmic activities for individuals and groups: Creative movement, improvisation, variety of social dance, historical significance to actual implementation. Prerequisites: RECS101 and 105.

*Source: Academic Catalog 2013-14*

# RECS344

**Adapted Sports and Recreation**

**(3,0) 3**

A study of specialized recreational and athletic opportunities available to individuals with illnesses and disabilities. Related associations, equipment, rules and classifications, resources and research will be encountered for a wide range of activities and conditions. When available, practical opportunities will be included as part of the learning process. Prerequisite: junior standing.

*Source: Academic Catalog 2013-14*

# RECS367

**National Parks, National Monuments and National Culture**

**(3,0) 3 alternate years**

This course will focus on the historical development of national parks and the affiliated National Land Ethic. Included in the presentation will be a study of the social, cultural, aesthetic and economic history which fostered the development of a national attitude that favored the "national park" concept. The course will also emphasize the emergence of national parks in this country as a representative of our national cultural history. The course will trace the historical development of a land ethic. It will also trace an emerging aesthetic awareness of land among people who arrived to this continent from Central Europe during the 1600s. This Central European land ethic will be compared to the land ethic of Native Americans. Both of these will be traced through this country's history and will serve as a basis for anticipating future land management trends and issues.

*Source: Academic Catalog 2013-14*

# RECS370

**Recreation for the Elderly**

**(3,0) 3 alternate years**

Geared to individuals who will be working with senior citizens in recreation programs, hospitals, nursing homes and family members. The aging process will be studied from the perspective that sound principles will be applied to leading and programming for this growing segment of our population. Prerequisites: RECS101, 105 and 200-level recreation electives; or NURS290 and HLTH352.

*Source: Academic Catalog 2013-14*

# RECS496

**Selected Research Topics**

**(1-3,0) 1-3**

Student carries out approved project(s) of his/her own initiative. Prerequisite: junior standing and instructor permission.

*Source: Academic Catalog 2013-14*

# CJUS384

**International and Comparative Criminal Justice Systems**

**(3,0) 3**

A survey of selected world criminal justice systems including police, courts, and corrections. Cross-national and cross-cultural criminality from several perspectives will be examined as will the globalization of crime.

*Source: Academic Catalog 2013-14*

# NSCI105

**Physical Geography: Earth, Sun and Weather**

**(3,1) 3**

Study of the physical properties of the earth's surface as they relate to weather and climate. Credit for both GEOG108 and NSCI105 not permitted.

*Source: Academic Catalog 2013-14*

# NSCI107

**Physical Geography: Landforms and Soils**

**(3,1) 3**

Study of the physical properties of the earth's surface as they relate to landforms and soils. Credit for both GEOG106 and NSCI107 not permitted.

*Source: Academic Catalog 2013-14*

# EMED190

**Prehospital Emergency Care and Crisis Intervention I**

**(3,3) 4**

Techniques of emergency medical care needed by the emergency medical technician-ambulance attendant. Theoretical and practical experience in administering preliminary emergency care and transportation of sick and injured victims to medical care centers.

*Source: Academic Catalog 2013-14*

# EMED191

**Prehospital Emergency Care and Crisis Intervention II**

**(2,6) 4**

Simulated practice with some in-hospital observation. Emphasis on laboratory practice of skills needed for functions of an EMT-A. Prerequisite: EMED190.

*Source: Academic Catalog 2013-14*

# PNUR101

**Introduction to Practical Nursing I**

**(2,0) 2**

This course provides introductory information required for successful college study. Additionally, the course provides the foundational information for the practical nursing program. Concepts include practical nursing philosophy and conceptual framework, history of nursing, nursing's Code of Ethics, and the role of nursing in the health care system with emphasis on the practical nurse. Prerequisite: Permission of dean or instructor only.

*Source: Academic Catalog 2013-14*

# PNUR102

**Drugs and Dosages**

**(2,3) 3**

This course introduces the practical nursing student to dosage calculations and medication administration. Calculations for conversion between systems of measurement is covered. The seven rights of medication administration are emphasized. Categories of drugs, their actions, side effects and nursing implications are covered. Prerequisite: MATH086 or equivalent placement score.

*Source: Academic Catalog 2013-14*

# PNUR104

**Introduction to Practical Nursing II**

**(2,0) 2**

Introduction to Practical Nursing II provides a theoretical foundation for practicing nursing care of adults within a variety of health care settings. Concepts such as nursing process, therapeutic communication, culture, and critical thinking are emphasized. This course builds on PNUR101. Prerequisites: Permission of dean or instructor only, BIOL105 or BIOL122, PNUR101 all with a grade of C or better.

*Source: Academic Catalog 2013-14*

# PNUR107

**Understanding Clinical Nutrition Lab for Practical Nurses**

**(0,3) 1**

This lab course is focused on the knowledge and skill practical nurses need to support the nutritional needs of people across the lifespan with a special emphasis on individuals with limited ability to meet their own nutritional needs. Strategies of providing nutrition associated with self care deficits are covered, including effective oral feeding techniques, use of thickeners or texture to enhance swallowing, tube feeding, and the principles of enceric feeding, elemental diets, IV therapy and hyper alimentation are presented. Prerequisites: BIOL105 or BIOL122 passed with a C or better; HLTH208 passed with a C or better or corequisite of HLTH208.

*Source: Academic Catalog 2013-14*

# PNUR113

**Fundamentals of Practical Nursing**

**(4,9) 7**

Students will learn the basic skills necessary to provide safe, competent care of the acute and chronically ill residents in Long Term Care/Nursing Home settings. Focus will be on the care of the elderly. Through lecture, lab simulations, and actual clinical experiences the student will learn basic nursing skills, infection control, safety/emergency procedures, nursing interventions and apply communication/interpersonal skills to promote resident's independence, to respect residents' rights, and to recognize abnormal changes in the resident. Prerequisites: MATH083 or equivalent, BIOL105 or 122, PNUR101, all with a grade of C or better.

*Source: Academic Catalog 2013-14*

# PNUR201

**Medical Surgical Practical Nursing**

**(6,12) 10**

This course focuses on nursing care of the adult client experiencing common stressors affecting health. Emphasis is placed on the administration of medications, collection and communication of relevant data, and implementation of basic nursing interventions. Prerequisites: PNUR113, 104, 102 and PSYC155, all with a grade of C or better. Corequisite: HLTH208.

*Source: Academic Catalog 2013-14*

# PNUR202

**Legal/Ethical Issues in Practical Nursing**

**(2,0) 2**

This course focuses on the ethical and legal responsibilities and issues related to the safe practice of practical nursing. The role of the practical nurse and within the health care community is emphasized. Licensure responsibilities, career advancement and lifelong learning needs are incorporated. Prerequisite: PNUR201 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# PNUR203

**OB Practical Nursing**

**(3,6) 5**

This course explores the cycles of life, beginning with the reproductive cycle, conception, fetal development, labor, birth, the postpartum woman, and needs and care of the newborn. At risk pregnancies and complications are identified. Emphasis is placed on the family as the client. Prerequisite: PNUR201 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# PNUR204

**Pediatric Practical Nursing**

**(3,6) 5**

In this course, the nursing process is used to address well-defined health problems common to children. Normal child growth and development, immunization needs and health risk factors for children are emphasized. Children's responses to illness and methods of evaluating children's needs are covered. Prerequisite: PNUR201 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# BIOL289

**Aquatic Research Sampling Methods**

**(2,3) 3**

A variety of sampling techniques are introduced as they relate to the various disciplines of aquatic science. These methods include sampling and preservation of biotic (plankton, fish, bethic invertebrates, DNA, pathogens) and abiotic (water quality, sediments, climate) data. Prerequisites: BIOL107, CHEM108 and 109, MATH111 and permission of instructor. Also listed as EVRN289.

*Source: Academic Catalog 2013-14*

*Source: Academic Catalog 2013-14*

# MATH108

**Trigonometry and Vectors for Physics**

**(1,0) 1**

Trigonometric functions, basic identities, inverse trigonometric functions and vectors. Prerequisite: equivalent/satisfactory score on ACT or Placement Exam or MATH102 with a grade of C or better.

*Source: Academic Catalog 2013-14*

# RECA194

**Scuba**

**(0,2) 1**

This course is designed to introduce the student to the appropriate and safe use of self-contained underwater breathing apparatus.

*Source: Academic Catalog 2013-14*

# EMED211

**Emergency Pharmacology I**

**(2,0) 2**

Introduction to emergency pharmacology including sources of drugs, drug laws and regulation, routes of administration, pharmacokinetics and pharmaco-dynamics, dosage calculations and the metric system. Emphasis will be placed on drugs used in the management of cardiovascular emergencies. Prerequisite: math competency or MATH103, and corequisite EMED251.

*Source: Academic Catalog 2013-14*

# EMED212

**Emergency Pharmacology II**

**(2,0) 2**

Continuation of HLTH211 with an overview of emergency drugs frequently used in the prehospital management of respiratory, endocrine, toxicological, obstetrical and other prehospital emergencies. Administration procedures and dosages for adult and pediatric patients will be covered. Prerequisite: EMED211 with a B- or above.

*Source: Academic Catalog 2013-14*

# EMED251

**Advanced Emergency Care I**

**(4,0) 4**

Study of prehospital emergencies geared toward rapid intervention and patient stabilization. Introduction to the pre-hospital environment and preparatory information will be covered including medical-legal issues, airway management, parenteral therapy and comprehensive patient assessment. Management of traumatic injury and multiple casualty incidents will be addressed. Prerequisite: admission to Paramedic Technology Program.

*Source: Academic Catalog 2013-14*

# EMED252

**Advanced Emergency Care II**

**(4,0) 4**

Continuation of EMED251 addressing treatment modalities for environmental, medical, obstetrical and behavioral emergencies in the adult and pediatric patient. Prerequisite: EMED251 with a B- or above.

*Source: Academic Catalog 2013-14*

# EMED261

**Emergency Cardiology I**

**(2,0) 2**

Introduction to basic cardiac monitoring and dysrhythmia recognition. Review of the anatomy and physiology of the cardiovascular system, principles of electrophysiology, EKG interpretation and dysrhythmia management will be covered. Sinoatrial, juncitonal and atrial dysrhythmias will be addressed. Corequisite: EMED251.

*Source: Academic Catalog 2013-14*

# EMED262

**Emergency Cardiology II**

**(2,0) 2**

Continuation of EMED261 with emphasis directed at identification and management of life-threatening dysrhythmias including ventricular dysrhythmias and heart blocks. Coronary artery disease, myocardial infarction and other cardiovascular emergencies will be addressed, and the course will conclude with ACLS certification. Prerequisite: EMED261 with a B- or above.

*Source: Academic Catalog 2013-14*

# EMED271

**Prehospital Emergency Pediatrics**

**(2,0) 2**

This course will prepare the Emergency Paramedic to effectively assess and manage the pediatric patient in the emergency setting. Program material will include differentiation between adult and pediatric anatomy and physiology, assessment of the neonatal and pediatric patient, and management of common medical and traumatic conditions experienced by the pediatric patient. Special emphasis will be placed on topic areas including resuscitation skills, pediatric pharmacology, and the special needs of the patient.

*Source: Academic Catalog 2013-14*

# EMED284

**Advanced Skills and Situations I**

**(1,6) 3**

Advanced skills and procedures discussed in Advanced Emergency Care will be demonstrated and practiced in a laboratory setting. Skills covered will include advanced airway management, parenteral therapy, cardiac monitoring and advanced patient assessment. Simulated patient scenarios will be designed to allow the student to practice these advanced skills in a realistic patient setting. Emphasis will be placed upon strengthening new skills and providing critical thinking opportunities which allow for the integration of theory with practical applications. Prerequisite: admission to the Paramedic Technology Program and corequisite EMED251.

*Source: Academic Catalog 2013-14*

# EMED285

**Advanced Skills and Situations II**

**(1,6) 3**

Continuation of HLTH284 with an emphasis placed on ACLS and PALS procedures and algorithms. Instructor and peer evaluation will enhance learning, and working in groups will promote the concepts of teamwork and individual leadership. Prerequisite: EMED284 with a B- or above. Corequisite: EMED252.

*Source: Academic Catalog 2013-14*

# EMED286

**Paramedic Operations**

**(1,3) 2**

This course will prepare the Emergency Paramedic to effectively handle unique situations which may be encountered in the prehospital setting that require highly specialized training. Program material will include managing multiple casualty situations, Medical Incident Command, hazardous materials incidents, rescue awareness and operations and crime scene awareness. Special emphasis will be placed on rescuer safety. Practical skills will include vehicular entry and disentanglement, and basic rescue operations.

*Source: Academic Catalog 2013-14*

# EMED297

**Paramedic Clinical I**

**(0,12) 2**

Clinical rotations in the hospital emergency department, surgical suite, outpatient surgery and with local EMS agencies designed to provide the student with hands-on practical experience of patient care. Corequisite: EMED251 and permission of the instructor.

*Source: Academic Catalog 2013-14*

# EMED298

**Paramedic Clinical II**

**(0,12) 2**

Clinical rotations in the hospital emergency department, intensive care unit, obstetrical unit, pediatrics unit and local EMS agencies will provide the student with a continuation of clinical exposure. Additional clinical experience in other areas may be included as the opportunity permits. Prerequisite: EMED297 with a B- or above and concurrent with EMED252.

*Source: Academic Catalog 2013-14*

# EMED299

**Paramedic Field Internship**

**(0,21) 4**

This course is a field internship designed to prepare the student to function confidently in the role of the Emergency Paramedic in the prehospital setting, upon completion of the didactic, practical and clinical components of the Paramedic Technology Program. It will also provide the student with an opportunity to develop team leadership skills, and improve existing knowledge and practical skills. Emphasis will be placed on developing critical thinking skills and independent leadership ability.

*Source: Academic Catalog 2013-14*

# EMED301

**National Registry Certification Preparation**

**(2,0) 2**

This course is designed to prepare the Paramedic Student to challenge the National Registry Paramedic Certification Examination upon completion of the didactic, practical and clinical components of the Paramedic Technology Program. It will provide the student with an opportunity to thoroughly review key information in the 8 modules of the National Standard Paramedic Curriculum. Emphasis will also be placed on improving the student's test-taking skills.

*Source: Academic Catalog 2013-14*

# HLTH101

**Introduction to Medical Terminology**

**(2,0) 2**

This course introduces the beginning student to basic medical terminology related to all areas of health care. The focus of this course is on understanding and proper usage of medical language.

*Source: Academic Catalog 2013-14*

# DATA225

**Word Processing Techniques**

**(3,0) 3**

Students will cover basics of word processing including document creating, saving, printing, and some advanced features such as table, merge, graphics and report formatting. Hands-on experience is scheduled in labs outside of classroom hours.

*Source: Academic Catalog 2013-14*

# DATA250

**Desktop Publishing and Presentation Design**

**(3,0) 3**

Introduction to document design and layout, use of font, color and graphics to produce newsletters, brochures and presentations. Concepts included are presentation preparation and delivery. Graphics software will be used. Prerequisites: ENGL111 and a working knowledge of word processing.

*Source: Academic Catalog 2013-14*

# DATA261

**Multimedia Applications**

**(3,0) 3**

In this course, students will be introduced to the design and production of Web sites. Graphics, animation, and sound will be incorporated in the creation of interactive Web pages. Macromedia Studio, which includes Dreamweaver and Flash, will be used.

*Source: Academic Catalog 2013-14*

# DATA231

**Database**

**(3,0) 3**

In this course, students will cover advanced database applications in business including creating database tables, forms, reports, mailing labels and charts; creating relationships between database tables; using database wizards; and performing queries and filtering records. A student may repeat this course covering a different database management system for a maximum of six credit hours.

*Source: Academic Catalog 2013-14*

# DATA235

**Spreadsheets**

**(3,0) 3**

In this course, students will cover advanced spreadsheet applications in business including writing and working with formulas; creating templates; finding and organizing information by filtering, sorting and subtotaling; working with multiple worksheets; creating charts; working with data tables and scenario management; and importing data into spreadsheet software. A student may repeat this course covering a different spreadsheet software program for a maximum of six credit hour.

*Source: Academic Catalog 2013-14*

# FINC242

**Personal Finance**

**(3,0) 3**

An introduction to the principles of personal financial planning. Topics include the financial planning process, credit and borrowing fundamentals, analysis of savings, investments and taxes, individual insurance, retirement and estate planning. Prerequisite: MATH086 or equivalent/satisfactory score on ACT or Placement Exam.

*Source: Academic Catalog 2013-14*

# PSYC201

**Communication Skills in Counseling**

**(2,1) 3**

This course covers the essential elements of establishing a therapeutic relationship, including active listening skills, empathy and confrontation. Students both explore their potential to be congruent and authentic as counselors and demonstrate counseling skills with voluntary, involuntary and crisis counselors. No prerequisite.

*Source: Academic Catalog 2013-14*

# PSYC291

**Group Counseling**

**(3,0) 3**

This course examines the theory, techniques and practice of group counseling. Students will become familiar with basic group process, theoretical perspectives and their application to group counseling. Prerequisite: PSYC201.

*Source: Academic Catalog 2013-14*

# SOCY338

**Deviance**

**(3,0) 3**

Analysis of causes and consequences of deviant behavior and the development of deviant subcultures; examination of various societal responses to control deviance and their effectiveness. Prerequisite: Junior standing or three hours of sociology and/or human services.

*Source: Academic Catalog 2013-14*

# SOWK341

**Addiction**

**(3,0) 3**

Study of the nature of drug dependency with emphasis on social and cultural variations in patterns and consequences of use. Prerequisites: either junior standing or sophomore standing together with HMSV204.

*Source: Academic Catalog 2013-14*

# PSYC391

**Family Therapy**

**(3,0) 3**

This course applies a systems framework to the understanding of family dynamics and introduces structural perspectives and modalities for family intervention. Prerequisites: PSYC101 and junior standing.

*Source: Academic Catalog 2013-14*

# HIST310

**Russia: From Under-developed State to Superpower**

**(4,0) 4 fall, odd-numbered years**

A study of Russian history from Peter the Great to the present.

*Source: Academic Catalog 2013-14*

# HIST316

**Europe in the 20th Century**

**(4,0) 4 spring, odd-numbered years**

A study of Europe in the age of Nazism, Communism, World War I and II, and the Common Market.

*Source: Academic Catalog 2013-14*

# HIST361

**Latin America**

**(4,0) 4 Fall, even-numbered years**

A study and analysis of Latin American history from the end of the Colonial Period to the present. This course will examine the basic political, social and religious institutions of Latin America and their evolution and the role in the change of problems of U.S.-Latin American relations will be an important focus of this study. Prerequisite: GEOG322 geography of South America.

*Source: Academic Catalog 2013-14*

# HIST371

**Far East Civilization: 1850 to Present**

**(4,0) 4 Odd numbered years**

A study of the history of China, Japan, India and adjoining areas of Asia from 1850 to present.

*Source: Academic Catalog 2013-14*

# HIST442

**Diplomatic History of the United States II**

**(4,0) 4 Spring, even numbered year**

American diplomacy from the entry of the U.S. into World War I in 1917 up through present day. May be used as political science credit.

*Source: Academic Catalog 2013-14*

# HUMN261

**World Literature I**

**(3,0) 3 on demand**

The Ancient World to the Renaissance. Readings in translation of significant, primarily Western texts. Selection can include the Bible and works by such authors as Homer, Virgil, Thucydides, Tacitus, Boccaccio, Montaigne, Rabelais, and others. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# HUMN262

**World Literature II**

**(3,0) 3 on demand**

The Renaissance to modern times. Readings in translation of significant, primarily Western, texts. Selections can include works by Galileo, Voltaire, Racine, Goethe, Ibsen, Dostoevksy, Brecht, Kafka, Sartre and others. Prerequisite: ENGL110.

*Source: Academic Catalog 2013-14*

# FREN353

**Business French I**

**(3,0) 3**

An initiation into the language skills for use in business situations in a French-speaking environ-ment. A conversational approach is used with systematic oral and written practice from authentic documents. Preparation to the examination leading to the Certificat Pratique from the Chamber of Commerce of Paris. May be taken concurrently with FREN351. Prerequisite: FREN252 or equivalent.

*Source: Academic Catalog 2013-14*

# FREN354

**Business French II**

**(3,0) 3**

Continuation of FREN353. Aims to bring students to a level of proficiency in French business communication that would enable them to function in an internship situation. Visits to French-speaking companies. Further preparation to the examination leading to the Certificat Pratique from the Chamber of Commerce of Paris. May be taken concurrently with FREN352. Prerequisite: FREN353 or equivalent.

*Source: Academic Catalog 2013-14*

# FREN360

**French Cultural Perspectives**

**(4,0) 4**

This course takes place in France as students participate in a study tour with their instructor. They discover Paris, its monuments, art galleries, museums and libraries; visit ancient Roman vestiges, cathedrals of the Middle Ages and chateaux of the Renaissance, as well as actively participate in French everyday life. However, alternate on-campus version of this course on contemporary French society and culture is offered to students who do not wish to travel to France. Extensive literary, historical and audio-visual documentation provide material for stimulation analysis and discussion of typical French value orientations, family structures, educational, and cultural institutions. Assignments in French or English. Offered summers only. No prerequisite.

*Source: Academic Catalog 2013-14*

# JAPN105

**Intensive Introductory Japanese Language I**

**(10,2) 10**

This course is designed as an intensive introductory study of Japanese. The class meets five hours per week and the laboratory/recitation/practice sessions meet five hours each week. The "New Jordan method" of Japanese language studies for English speakers is used in both class and lab sessions.

*Source: Academic Catalog 2013-14*

# JAPN106

**Intensive Introductory Japanese Language II**

**(10,2) 10**

This course is designed as a continuation of JAPN105. It will stress uses of written Japanese and a research project in which communication with Japanese in the community will be vital. The "New Jordan Method" will be the basis of the instruction.

*Source: Academic Catalog 2013-14*

# JAPN201

**Culture and Society of Japan I**

**(3,0) 3**

This is a very broad overview course which examines the social and political development of Japan from prehistoric times to 1300 A.D. It combines written text materials with field work. An emphasis will be placed on the social organization of Japan and its relationships with traditional religious values, economic structures, socialization of children and political institutions.

*Source: Academic Catalog 2013-14*

# JAPN202

**Culture and Society in Japan II**

**(3,0) 3**

This is an overview of Japanese history which examines the political and social developments of Japan from 1300 A.D. to the present. Special emphasis will be placed on the Shogunate Tradition, the Meiji Restoration and 20th century political, economic and social developments.

*Source: Academic Catalog 2013-14*

# JAPN301

**Japanese Art and Culture I**

**(4,0) 4**

This course is a broad overview of the development of the painting, sculpturing, architecture and literary traditions of Japan from earliest times to 1300 A.D. Special emphasis will be placed on the historic collections available in Nara and Kyoto. Biweekly field trips to examine and study local sites will be a regular portion of the instruction.

*Source: Academic Catalog 2013-14*

# JAPN302

**Japanese Art and Culture II: 1300 to Present**

**(4,0) 4**

This course is designed as a study of the development of Japanese art, architecture and literature from the Ashikaga Shogunate to the present. Special attention will be given to the influences from Western civilization and its impact on Japanese culture.

*Source: Academic Catalog 2013-14*

# EGMF110

**EGMF110 Introduction to Machining I**

**(2,6) 4**

Students will receive instructions on shop safety, blueprint reading, measuring instruments, layout principles, and basic bench work. They will also receive instructions on grinding, lathes, drill presses, saws, and basic milling. Some metallurgical concepts are introduced. The course will make use of the Machinery's Handbook and apply the principles, concepts, and data in the handbook to industrially related projects. Information from the handbook will be used to ensure proper set-up and operation of the machinery. Students will spend several hours each week setting up, working, and familiarizing themselves with the machines.

*Source: Academic Catalog 2013-14*

# EGMF130

**EGMF130 Introduction to Machining II**

**(2,6) 4**

This course builds up upon the material presented in EGMF110. Students will receive additional instruction on shop safety and measuring techniques relative to the machinery introduced in this course. Additional topics on vertical and horizontal milling machines, surface grinders, metallurgy, and blueprint reading are covered. The Machinery's Handbook will continue to be used in conjunction with the machines utilized in this course. Students will spend several hours each week setting up, working, and familiarizing themselves with the machines. Prerequisite: EGMF110.

*Source: Academic Catalog 2013-14*