

Brimley Area Schools
Natural Resources and Conservation 1 CTE Syllabus
2019-2020 School Year

Instructor: Scott McLeod

Program: Natural Resources and Conservation

Location: Room 256 Crawford Hall LSSU

Time: 9am-11am Monday-Friday

Course Description: Natural Resources and Conservation 1 (Year 1: Semester 1 and 2 – Grades 10-12)

Course Date: September 2019 – June 2020

Students will become part of the Lake Superior State University Center for Freshwater Research and Education (LSSU CRFE) initiative which, in partnerships with other natural resource agencies, offers expertise in the natural resources and conservation of our area. Students will grow in their knowledge of natural resources and in their conservation skills through a variety of instructional strategies including hands-on learning, computer-based lessons, use of science equipment, field work, and most importantly, student-created projects that apply learning and allow students to study ecosystems and develop conservation management plans.

Students can expect to improve their understanding of biology and math which are naturally embedded in the study of natural resources and conservation. In addition to appropriate STEM knowledge and skills, 21st century skills like critical thinking, collaboration, creative problem solving, and effective communication will be developed. Opportunities for student leadership and work-based learning experiences, will also be woven throughout the course.

Course Outline by Class:

Natural Resources and Conservation 1 Segments to be Taught:

3. Ecology
5. Soils
6. Water Resources and Quality
8. Environmental Occupational Health and Safety
11. Forestry
12. Wildlife Identification and Management

Academic Credits:

This is a 2-hour block course, students can receive 1 full credit hour per semester. This course can count as a senior math elective.

Post-Secondary Connection:

Students will have the opportunity to earn credit for at least one LSSU biology course in the first year of this program. Biology 107 is Field Biology: Fish and Wildlife Ecology and Identification and its course description aligns well with the student outcomes for the CTE program: Introduction to organisms and their environmental interactions and conservation concerns with emphasis on regional game species, endangered species, and invasive species. Lab consists primarily of field experiences and specimen identification.

Certification and Licensures:

We are still looking into options, but will at least provide a certificate of achievement for students successfully completing the program.

Off-Site Delivery and Work-Based Learning:

The course will be housed on the LSSU campus in Crawford Hall, which is the science building on campus, until the new Barch CFRE building is completed in spring 2020 and then the program will be housed there. Field work will be done in the region at sites within the National Forest, on state lands, in the fish hatchery, and in local rivers and lakes.

Final Grades:

Grades will be calculated using the Brimley High School policies including the weighting of quarter and exam grades to determine a final semester grade and using the school grading scale.

Grades will be updated weekly and students may request information about their current grade at any time.

- Quizzes and Tests 15%
- Weekly Work 50%
- Projects 35%

Attendance and Impact on Grades:

Given the hands-on nature of this course, students who are present and participating will learn the most and students who are absent will logically struggle to learn the material. Therefore, the weekly work grade will include a daily work component and absent students will earn a zero for missing class but have an opportunity to make up those points for up to five absences (excused or unexcused) per semester. Any absences over five in a semester will result in zeros for daily work and thus a lower weekly work grade for that week.

Electronic Devices: The program is designed to model a work environment; therefore, electronic devices may not be used except as work tools with the instructor's permission.

Safety Training: Safety training will be embedded into coursework so that it can be provided at the time it will be most beneficial, typically as new equipment and experiences are introduced.

Student Leadership: Students will receive training in how to work in teams as many projects will be group projects and students will be provided with leadership experience in the teams. Additionally, CFRE is in the process of forming a community group focused on local natural resource stewardship and CTE students will be encouraged, but not required, to participate in this work which may offer leadership opportunities.

Resources:

Textbooks, websites, and articles may be used as resources. The instructor will also use a learning platform such as Moodle for course materials and assignment submission.

Brimley Area Schools
Natural Resources and Conservation 2 CTE Syllabus
2020-2021 School Year

Instructor: to be determined

Program: Natural Resources and Conservation

Course Description: Natural Resources and Conservation 2 (Year 2: Semester 1 and 2 – Grades 11-12)

Course Date: September 2020 – June 2021

Students will become part of the Lake Superior State University Center for Freshwater Research and Education (LSSU CRFE) initiative which, in partnerships with other natural resource agencies, offers expertise in the natural resources and conservation of our area. Students will grow in their knowledge of natural resources and in their conservation skills through a variety of instructional strategies including hands-on learning, computer-based lessons, use of science equipment, field work, and most importantly, student-created projects that apply learning and allow students to study ecosystems and develop conservation management plans.

Students can expect to improve their understanding of biology and math which are naturally embedded in the study of natural resources and conservation. In addition to appropriate STEM knowledge and skills, 21st century skills like critical thinking, collaboration, creative problem solving, and effective communication will be developed. Opportunities for student leadership and work-based learning experiences, will also be woven throughout the course.

Course Outline by Semester and Class:

Natural Resources and Conservation 2 Segments to be Taught:

1. Natural Resources Management and Products
2. Scientific and Career Readiness
4. Public Policy and Decision Making
7. Land Systems
9. Energy
10. Environmental Issues and Trends

Academic Credits:

This is a 2-hour block course, students can receive 1 full credit hour per semester. This course can count as a senior math elective.

Post-Secondary Connection:

Students will have the opportunity to earn credit for at least one LSSU biology course in the second year of this program

Certification and Licensures:

We are still looking into options but will at least provide a certificate of achievement for students successfully completing the program.

Off-Site Delivery and Work-Based Learning:

The course will be housed in the new Barch CFRE building. Field work will be done in the region at sites within the National Forest, on state lands, in the fish hatchery, and in local rivers and lakes.

Final Grades:

Grades will be calculated using the Brimley High School policies including the weighting of quarter and exam grades to determine a final semester grade and using the school grading scale.

Grades will be updated weekly and students may request information about their current grade at any time.

- Tests 15% (test for each segment)
- Weekly Work 50% (students will earn a weekly grade)
- Project 35% (a project rubric will be developed and used)

Attendance and Impact on Grades:

Given the hands-on nature of this course, students who are present and participating will logically learn the most and students who are absent will logically struggle to learn the material. Therefore, the weekly work grade will include a daily work component and absent students will earn a zero for missing class but have an opportunity to make up those points for up to five absences (excused or unexcused) per semester. Any absences over five in a semester will result in zeros for daily work and thus a lower weekly work grade for that week.

Electronic Devices: The program is designed to model a work environment; therefore, electronic devices may not be used except as work tools with the instructor's permission.

Safety Training: Safety training will be embedded into coursework so that it can be provided at the time it will be most beneficial, typically as new equipment and experiences are introduced.

Student Leadership: Students will receive training in how to work in teams as many projects will be group projects and students will be provided with leadership experience in the teams. Additionally, CFRE is in the process of forming a community group focused on local natural resource stewardship and CTE students will be encouraged, but not required, to participate in this work which may offer leadership opportunities.

Resources:

Textbooks, websites, and articles may be used as resources. The instructor will also use a learning platform such as Moodle for course materials and assignment submission.