CoSE Assessment: Reporting Unit Four Column

School of Science and Medicine 18sept18

Program (CoSE) - Biochemistry Preprofessional BS

Mission Statement: The mission of the BS Chemistry Preprofessional degree is to prepare effective, knowledgeable and professional leaders for medicine, pharmacy, dentistry and veterinary medicine.
Assessment Contact: Dr. Steven Johnson
Program Notes: Formerly a B.A. Chemistry/Preprofessional

Student Learning Outcomes	*Assessment Criteria & Procedures*	*Assessment Results*	*Use of Results*
Knowledge & Skills - The BS Biochemistry student will demonstrate proficiency in their discipline. **Goal Status:** Active **Start Date:** 01/22/2016 **Goal Level (Bloom/Webb):** Low-Level (Understanding/Remembering) [Bloom]	Competence in the use of chemical instrumentation and laboratory skills including safe chemical practices **Criteria Target:** 100 % of students will complete 400 laboratory hours and successfully pass CHEM332 **High Impact Program Practices 1:** Collaborative Assignments, Projects	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students successfully passed CHEM332. (08/20/2018)	**Use of Result:** Goal met. Re-assess annually. (08/22/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of students successfully passed CHEM332. (05/01/2017)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
	Students will demonstrate communication and information retrieval skills **Criteria Target:** 100% of students will successfully complete CHEM495 and CHEM499 **High Impact Program Practices 1:** Capstone Course(s), Projects **High Impact Program Practices 2:** Writing-Intensive Course(s)	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students successfully completed CHEM499. 100% of students successfully completed CHEM495. (08/23/2018) **Related Documents:** Chem & Envi Science Senior Thesis Presentations .pdf	**Use of Result:** Goal met- continue to re-evaluate annually. (08/23/2018)
	Students will successfully complete CHEM351, CHEM452, CHEM495, CHEM499	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students successfully passed CHEM351, CHEM452,	**Use of Result:** Goal met. Reassess annually. (08/23/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
	Criteria Target: 100 % of students will successfully pass CHEM351, CHEM452, CHEM495, CHEM499 **High Impact Program Practices 1:** Capstone Course(s), Projects **High Impact Program Practices 2:** Undergraduate Research	CHEM495, and CHEM499. (08/23/2018) **Finding Reporting Year:** 2016-2017 **Goal met:** Yes 100 % of students successfully passed CHEM351, CHEM452, CHEM495, and CHEM499. (05/01/2017)	**Use of Result:** Goal met. Reassess annually. (05/01/2017)
Employability and Readiness for Graduate and Professional Study - The Pre-professional BS Biochemistry graduate will demonstrate readiness for employment as a chemist, science technician, or chemical technician at the baccalaureate level or graduate and professional level study. **Goal Status:** Active **Institutional Learning:** ILO4 - Professional Responsibility - Students will demonstrate the ability to apply professional ethics and intercultural competence when answering a question, solving a problem, or achieving a goal.	**Indirect - Survey, including faculty, supervisors, employers -** Graduate/Alumni Survey **Criteria Target:** Greater than 50% of students will express satisfaction with their preparedness for professional employment or graduate/professional study.	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes Greater than 50% of student self reported as satisfied with their preparedness. (08/23/2018) **Related Documents:** LSSU Graduate Survey Chemistry.xlsx	**Use of Result:** Goal met- reassess annually. (08/23/2018)
	Graduates will gain entry into graduate and professional programs. **Criteria Target:** Graduates will gain entry into graduate and professional programs.	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 4 students were accepted into graduate/professional programs. (08/23/2018)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 7 students were admitted into graduate/professional programs. (05/01/2017)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
Scholarship - The BS Biochemistry student will engage in university-supported faculty led research in chemistry **Goal Status:** Active	**Direct - Laboratory, Clinical, Skill/Competency Assessments -** 100% of students will complete a senior research project. **High Impact Program Practices 2:** Undergraduate Research	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students presented results for their senior research projects at the Symposium and Senior Research Presentations. (04/30/2018) **Related Documents:** Chem & Envi Science Senior Thesis Presentations .pdf	**Use of Result:** Goal met. Reassess annually. (08/23/2018)

CoSE Assessment: Reporting Unit Four Column

School of Science and Medicine 18sept18

Program (CoSE) - Biology BS

Assessment Contact: Dr. Jason Garvon

Student Learning Outcomes	*Assessment Criteria & Procedures*	*Assessment Results*	*Use of Results*
Scientific Literature - Students in the Biology, B.S. program, including the Pre-med and Pre-vet concentration, will thoroughly research and synthesize the primary literature for information relevant to a current scientific investigation. **Goal Status:** Active **Goal Category:** Student Learning **Start Date:** 05/01/2014	**Direct - Capstone Project - including undergraduate research -** As part of their undergraduate research project, Biology students are required to use sources from the primary literature to communicate the scope and rationale of their project. Rubrics are used to evaluate this requirement for the senior thesis paper. **Criteria Target:** All Biology students will meet minimum satisfactory requirements (average 12/20 for he Introduction sections of the senior thesis paper rubric). At least 50% of the students will demonstrate exemplary scores(18 of 20) for the 'Introduction' section of the thesis rubric). **High Impact Program Practices 1:** Undergraduate Research **High Impact Program Practices 2:** Capstone Course(s), Projects	**Finding Reporting Year:** 2016-2017 **Goal met:** Yes 100% of biology students met the minimum satisfactory requirements for the Introduction section of the senior thesis paper for fall 2016 and spring 2017 semesters. 71% of seniors for fall 2016 and 80% of seniors for spring 2017 received an exemplary score on the Introduction section of their research paper. (08/16/2018)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
	Direct - Capstone Project - including undergraduate research - As part of their undergraduate research	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes	**Use of Result:** Goal met. Reassess AY 2018-2019. (08/23/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
	project, biology students are required to use sources from the primary literature to communicate the scope and rationale of their project. Rubrics are used to evaluate this requirement for the poster, thesis paper, and oral presentation. (Active) **Criteria Target:** 75% of biology seniors will receive a satisfactory score on the introduction and literature cited section of his/her senior research paper. **High Impact Program Practices 1:** Undergraduate Research **High Impact Program Practices 2:** Capstone Course(s), Projects	88% of biology students received a satisfactory score score on the introduction and literature cited section of their senior research paper for fall 2017 and spring 2018 semesters. 14% of seniors for fall 2017 and 31% of seniors for spring 2018 received an exemplary score on the Introduction section of their research paper. (08/23/2018)	
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of students, both fall 2016 semester and spring 2017 semester, received a satisfactory score score on the on the introduction and literature cited section of their senior research paper. (08/16/2018)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
	Direct - Capstone Project - including undergraduate research - As part of their undergraduate research project, biology students are expected to properly cite sources from the primary literature. Rubrics are used to evaluate this requirement for both the poster and written paper. **Criteria Target:** 75% of students who turn in a senior research paper will receive a satisfactory score on the introduction, discussion and literature cited sections of the paper. **High Impact Program Practices 1:** Writing-Intensive Course(s) **High Impact Program Practices 2:** Capstone Course(s), Projects	**Finding Reporting Year:** 2016-2017 **Goal met:** Yes 100% of students, for fall 2016 and spring 2017 semesters, who turned in a senior research paper received a satisfactory score on properly citing sources from the primary literature in their final research paper. (08/16/2018)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
Scientific Investigation - Students in the Biology, B.S. program, including the Pre-medical and Pre-veterinary	**Direct - Capstone Project - including undergraduate research -** All biology students, including pre-	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of the students, both fall 2017 and spring 2018	**Use of Result:** The percentage of students that we expected to receive an exemplary score on the

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
concentration, will design and conduct a scientific investigation of a testable hypothesis or methodology using appropriate tools and techniques. **Goal Status:** Active **Goal Category:** Student Learning **Start Date:** 05/01/2014 **Goal Level (Bloom/Webb):** High-Level (Creating/Evaluating) **Institutional Learning:** ILO2 - Use of Evidence - Students will identify the need for, gather, and accurately process the appropriate type, quality, and quantity of evidence to answer a complex question or solve a complex problem.	medical and pre-veterinary, are required to conduct an independent and original research project under the guidance of a faculty mentor. The mentor evaluates the scientific merit of the project, as presented in written thesis, using the 'Methods', 'Results', and 'Discussion' sections of a grading rubric. **Criteria Target:** All students will meet minimum satisfactory requirements over the relevant sections of the rubric. At least 25% of the students will achieve exemplary performance over the relevant sections of the rubric. **High Impact Program Practices 1:** Undergraduate Research **High Impact Program Practices 2:** Capstone Course(s), Projects	semesters, met the minimum satisfactory requirement over the relevant sections of the rubic. 71% of the students during the fall 2017 semester and 55% of the students during the spring 2018 semester achieved exemplary performance of the relevant sections of the rubric. (08/23/2018)	Methods, Results and Discussion sections of the senior thesis paper was lowered from 50% to 25% in 2015. It then became our goal to set that back up to 50%, and the 2017-2018 results support that action. Goal met. (08/23/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of the students, both fall 2016 and spring 2017 semesters, met the minimum satisfactory requirement over the relevant sections of the rubic. 71% of the students during the fall 2016 semester and 80% of the students during the spring 2017 semester achieved exemplary performance of the relevant sections of the rubric. (08/16/2018)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
Communication - Students in the Biology, B.S. program, including the Pre-med and Pre-vet concentration, will effectively communicate the results or outcomes of their scientific investigation in multiple formats. **Goal Status:** Active **Goal Category:** Student Learning **Start Date:** 05/01/2014 **Institutional Learning:** ILO1 - Formal Communication - Students will develop and clearly express complex ideas in written and oral presentations.	**Direct - Presentation, Performance -** All biology students, including pre-med and pre-vet are required to communicate the results of an independent research project in the form of a poster presentation. This includes a 2-hour Q&A session, open to the public, with the students in attendance. Posters are evaluated by multiple faculty using a rubric. **Criteria Target:** 100% of biology students who present a poster will receive satisfactory scores on the standardized poster rubric. 25% of biology students who present a poster will receive exemplary scores on the standardized poster rubric. **High Impact Program Practices 1:** Undergraduate Research	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students received a satisfactory score on their poster presentations for the fall 2017 and spring 2018 semesters. 50% of the students during the fall 2017 semester and 67% of the students during the spring 2018 semester received an exemplary score on their poster presentations. (08/23/2018)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of students received a satisfactory score on their poster presentations for the fall 2016 and spring 2017 semesters. 43% of the students during the fall 2016 semester and 80% of the students during the spring 2017 semester received an exemplary score on their poster presentations during for the spring 2017 semester. (08/21/2018)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
	High Impact Program Practices 2: Capstone Course(s), Projects **Direct - Presentation, Performance -** All biology students, including pre-medical and pre-veterinary, are required to communicate the results of an independent research project in the form of a PowerPoint presentation at a research symposium held at the end of each semester. Presentations are evaluated by multiple faculty using a rubric. **Criteria Target:** 100% of the students presenting a PowerPoint presentation at a departmental research symposium will receive a satisfactory score based on a standardized grading rubric. 25% of the students will receive an exemplary score. **High Impact Program Practices 1:** Capstone Course(s), Projects **High Impact Program Practices 2:** Undergraduate Research	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students for the fall 2017 and spring 2018 semesters received a satisfactory score on their Power Point presentations at the research symposium for the spring 2017 semester. 31% of the students for the fall 2017 semester and 59% of students for the spring 2018 semester received an exemplary score on their Power Point presentations. (08/27/2018)	**Use of Result:** Goal met. Reassess following year. (08/27/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of students for the fall 2016 and spring 2017 semesters received a satisfactory score on their Power Point presentations at the research symposium for the spring 2017 semester. 86% of the students for the fall 2016 semester and 60% of students for the spring 2017 semester received an exemplary score on their Power Point presentations. (08/21/2018)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
	Direct - Capstone Project - including undergraduate research - All biology students, Including pre-medical and pre-veterinary, are required to communicate the results of an independent research project in the form of a written paper. The paper is evaluated by each student's faculty mentor using a rubric. **Criteria Target:** 100% of students will receive a satisfactory score on their senior thesis paper. 25% of students will receive an exemplary score on their senior	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students received a satisfactory score on their senior thesis paper during the fall 2017 and spring 2018 semesters. 35% of students during the fall 2017 semester and 55% of the students during the spring 2018 semester received an exemplary score on their thesis. (08/27/2018)	**Use of Result:** Goal met. Reassess following year. (08/27/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of students received a satisfactory score on their senior thesis paper during the fall 2016 and spring 2017 semesters. 43% of students during the fall 2016 semester and 60% of the students during the spring 2017 semester	**Use of Result:** Goal met. Reassess annually. (08/23/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
	thesis paper. **High Impact Program Practices 1:** Undergraduate Research **High Impact Program Practices 2:** Capstone Course(s), Projects	received an exemplary score on their thesis. (08/21/2018)	
Professionalism - Students in the Biology, B.S. program, including the Pre-med and Pre-vet concentration, will engage in professional activities related to the study of biological sciences. **Goal Status:** Active **Start Date:** 05/01/2014	**Indirect - Report/Audit - Internal -** The department chair will report yearly on the professional activities of students in the biology program. **Criteria Target:** Ten students in the biology program will engage in some sort of professional activity each year. Examples of professional include, but are not limited to research meetings, graduate or professional school visit, workshop or symposium. **High Impact Program Practices 1:** Not applicable to this outcome **High Impact Program Practices 2:** Not applicable to this outcome	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes Two pre-professional students attended the 2018 Michigan American Society for Clinical Laboratory Science meeting, three visited state medical schools (MSU and CMU), one interested in graduate programs visited MTU, and three attended a round-table discussion and continuing medical education event at War Memorial Hospital in November of 2017. Also, two students participated through the year in a science-based research project in collaboration with physicians and patients of War Memorial Hospital. (06/01/2018)	**Use of Result:** Goal met. Reevaluate AY 2018-2019. (08/23/2018)
Post Graduation - Graduates of the Biology, B.S. program will find gainful employment or go on to graduate and or professional school and enjoy rewarding careers. **Goal Status:** Active **Goal Category:** Operational Goal, not related to student learning **Start Date:** 06/01/2014	**Other Findings**	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 2018 LSSU Graduate Survey Responses - Biology. 19 Student responses. Grad School: 47% Employment: 26% Employment outside: 11% Unemployed: 11% Internship: 5% Total: 100% (08/23/2018)	**Use of Result:** Small data set (n=19). Will continue to survey graduates and increase the robustness of these survey results. (08/23/2018)
Post Graduation - Pre-Med and Pre-Vet concentrations - Graduates of the Biology B.S. Pre-Med and Pre-Vet concentrations will go on to graduate and or professional school and enjoy rewarding careers.	**Other Findings**	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes Summary (1996-2018) of the number of biology graduates who matriculated in the following professional and graduate schools. A full report including names and school attended is maintained by pre-professional advisers Britt	**Use of Result:** 2017-2018 Graduates from the pre-professional concentrations in the Biology program were successful in their application to both professional and graduate science

Student Learning Outcomes	*Assessment Criteria & Procedures*	*Assessment Results*	*Use of Results*
Goal Status: Active	**Other Findings**	Ranson Olson and Martha Hutchens. Medical School: 38 Dental School: 16 Vet School: 9 Other health professions: 24 (includes chiropractic, optometry, pharmacy, podiatry, physician assistant) Grad School: 21 Other: 4 (08/23/2018)	programs. Goal met. Will evaluate AY 2018-2019. (08/23/2018)

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Program (CoSE) - Chemical Technology AS

Assessment Contact: Dr. Thu Nguyen-Mosey
Mission Statement: The mission of this program is to prepare effective, knowledgeable and professional leaders in the field of chemical technology.

Student Learning Outcomes	*Assessment Criteria & Procedures*	*Assessment Results*	*Use of Results*
Knowledge & Skills - The Chemical Technology Graduate will demonstrate proficiency in their discipline. **Goal Status:** Active	Students will successfully complete CHEM326 and CHEM332 **Criteria Target:** 100% of students will successfully pass CHEM326 and CHEM332	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students successfully passed the CHEM332 course. 9% of students received a D and 93% of the students received a C- or greater. (08/20/2018)	**Use of Result:** Goal met, re-assess annually (08/22/2018)
	Students will demonstrate chemical quantitative skills **Criteria Target:** 100% of students will successfully complete CHEM231	**Finding Reporting Year:** 2016-2017 **Goal met:** Yes 94% of students successfully completed CHEM231. 6% of students failed CHEM231. Of the 2 students who failed, one was a criminal justice major and one was a business major. 100% of chemistry students successfully completed the CHEM231 course. (05/01/2017)	**Use of Result:** Goal met. Reassess annually. (05/01/2017)
Readiness for Advanced Study - The Chemical Technology Graduate will demonstrate readiness for advanced coursework in chemistry **Goal Status:** Active	Students will successfully pass CHEM231 and CHEM225 **Criteria Target:** 100 % of students will successfully pass CHEM231 and CHEM225	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 94 % of students successfully completed CHEM231. 6% of the students failed CHEM231. Of these two students who failed the course, one was a criminal justice major and one was a business major. 100% of the chemistry students passed the course. (08/20/2018)	**Use of Result:** Goal met. Re-assess annually. (08/22/2018)
Technical Skills - The Chemical Technology Graduate will demonstrate an operational	Students will successfully complete FIRE312 and CHEM399 **Criteria Target:** 100% of students	**Finding Reporting Year:** 2016-2017 **Goal met:** No 100% of students successfully passed CHEM399. 0% of	**Use of Result:** Only 1 student in the program , but did not enroll in FIRE312. (08/23/2018)

Student Learning Outcomes	*Assessment Criteria & Procedures*	*Assessment Results*	*Use of Results*
knowledge of basic chemical instrumentation as used in chemical analysis **Goal Status:** Active	will successfully pass FIRE312 and CHEM399 **High Impact Program Practices 1:** Internships	students passed FIRE312 (did not enroll). (08/23/2018)	

CoSE Assessment: Reporting Unit Four Column

School of Science and Medicine 18sept18

Program (CoSE) - Chemistry A

Mission Statement: The mission of this program is to prepare effective, knowledgeable and professional leaders in the field of chemistry.
Assessment Contact: Dr. Thu Nguyen-Mosey

Student Learning Outcomes	*Assessment Criteria & Procedures*	*Assessment Results*	*Use of Results*
Knowledge & Skills - The Chemistry Associate Degree Graduate will demonstrate proficiency in their discipline **Goal Status:** Active **Institutional Learning:** ILO3 - Analysis and Synthesis - Students will organize and synthesize evidence, ideas, or works of imagination to answer an open-ended question, draw a conclusion, achieve a goal, or create a substantial work of art.	Students will successfully complete CHEM326 and CHEM332 **Criteria Target:** 100% of students will successfully pass CHEM326 and CHEM332	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students successfully passed CHEM326. (08/23/2018)	**Use of Result:** Goal met - reassess annually. (08/23/2018)
		Finding Reporting Year: 2017-2018 **Goal met:** Yes 100% of students successfully passed CHEM332. Of those 7% scored a D, while 93% scored at C- or higher. (08/20/2018)	**Use of Result:** Re-assess next cycle. (08/22/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of students successfully passed CHEM332. (05/01/2017)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
	Students will demonstrate chemical quantitative skills **Criteria Target:** 100% of students will successfully complete CHEM231	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 94% of students successfully completed CHEM231. 2 out of 22 students failed the course. One of these students was a criminal justice major and one was a business major. So 100% of the students majoring in chemistry passed this course. (08/20/2018)	**Use of Result:** Re-assess next cycle. (08/22/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 94 % (17 out of 18) of the chemistry students passed	**Use of Result:** Goal met. Reassess annually. (08/23/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
		CHEM231. 6% (1 out of 18) of the chemistry students failed this course. This student was not enrolled in the chemistry associate program. (05/01/2017)	
Readiness for Advanced Study - The Chemistry Associate Degree Graduate will demonstrate readiness for advanced coursework in chemistry **Goal Status:** Active **Institutional Learning:** ILO4 - Professional Responsibility - Students will demonstrate the ability to apply professional ethics and intercultural competence when answering a question, solving a problem, or achieving a goal.	Students will successfully pass CHEM231 and CHEM225 **Criteria Target:** 100% of students will successfully pass CHEM231 and CHEM225	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 94% of students passed CHEM231. 2 students (6% of the class) failed the course. One of these students is a criminal justice major and one is a business major. So 100% of the chemistry majors passed this course. (08/20/2018)	**Use of Result:** Re-assess annually (08/22/2018)
Technical Skills - The Chemistry Associate Degree Graduate will demonstrate an operational knowledge of basic chemical instrumentation as used in chemical analysis **Goal Status:** Active	Students will successfully pass CHEM332 **Criteria Target:** 100% of students will pass CHEM332	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students passed the CHEM332 course. 7% of the students received a D and 93% received a C- or greater. (08/20/2018)	**Use of Result:** Re-assess annually (08/22/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of students successfully passed CHEM332. (05/01/2017)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)

CoSE Assessment: Reporting Unit Four Column

School of Science and Medicine 18sept18

Program (CoSE) - Chemistry BS

Mission Statement: The mission of the BS Chemistry degree program is to prepare effective, knowledgeable and professional leaders in the field of chemistry.
Assessment Contact: Dr. R. Adam Mosey

Student Learning Outcomes	*Assessment Criteria & Procedures*	*Assessment Results*	*Use of Results*
Knowledge & Skills - The B.S. Chemistry student will demonstrate proficiency in their disciplines **Goal Status:** Active **Institutional Learning:** ILO1 - Formal Communication - Students will develop and clearly express complex ideas in written and oral presentations., ILO2 - Use of Evidence - Students will identify the need for, gather, and accurately process the appropriate type, quality, and quantity of evidence to answer a complex question or solve a complex problem., ILO3 - Analysis and Synthesis - Students will organize and synthesize evidence, ideas, or works of imagination to answer an open-ended question, draw a conclusion, achieve a goal, or create a substantial work of art. , ILO4 - Professional Responsibility - Students will demonstrate the ability to apply professional ethics and intercultural competence when	Students will successfully complete CHEM326, CHEM361, CHEM362, CHEM461, CHEM495, and CHEM499 **Criteria Target:** 100% of students will successfully pass CHEM326, CHEM361, CHEM362, CHEM461, CHEM495, and CHEM499 **High Impact Program Practices 1:** Capstone Course(s), Projects **High Impact Program Practices 2:** Undergraduate Research	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of graduates successfully passed CHEM326, CHEM361, CHEM362, CHEM461, CHEM495, and CHEM499 (08/23/2018)	**Use of Result:** Goal Met - Reassess Anually (08/23/2018)
	Students will demonstrate competence in the use of chemical instrumentation and laboratory skills, including safe chemical practices **Criteria Target:** 100 % of students will complete 400 laboratory hours and successfully pass CHEM332 **High Impact Program Practices 1:** Collaborative Assignments, Projects	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100 % of students successfully passed the CHEM332 course. (08/20/2018)	**Use of Result:** Goal met. Re-assess annually. (08/22/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of students successfully passed CHEM332. (05/01/2017)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
	Students will demonstrate communication and information retrieval skills	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students successfully completed both CHEM495	**Use of Result:** Goal Met - Reassess Annually (08/23/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
answering a question, solving a problem, or achieving a goal.	**Criteria Target:** 100% of students will successfully pass CHEM495 and CHEM499 **High Impact Program Practices 1:** Capstone Course(s), Projects **High Impact Program Practices 2:** Writing-Intensive Course(s)	and CHEM 499 (08/23/2018) **Related Documents:** Chem & Envi Science Senior Thesis Presentations .pdf	
Employability and Readiness for Graduate and Professional Study - The B.S. Chemistry Graduate will demonstrate readiness for employment as a chemist, science technician, or chemical technician at the baccalaureate level or graduate and professional level study. **Goal Status:** Active **Institutional Learning:** ILO4 - Professional Responsibility - Students will demonstrate the ability to apply professional ethics and intercultural competence when answering a question, solving a problem, or achieving a goal.	**Indirect - Survey, including self-evaluation, peers, or graduates -** Graduate/Alumni Survey **Criteria Target:** Greater than 50% of students will express satisfaction with with their preparedness for professional employment or graduate/professional study. **High Impact Program Practices 1:** Not applicable to this outcome **High Impact Program Practices 2:** Not applicable to this outcome	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes Greater than 50% of graduates self reported as satisfied with their preparation. (08/23/2018) **Related Documents:** LSSU Graduate Survey Chemistry.xlsx	**Use of Result:** Goal met - reassess annually. (08/23/2018)
	Graduates will gain entry into graduate and professional programs. **Criteria Target:** Graduates will gain entry into graduate and professional programs.	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 1 graduate was accepted to a graduate program. (08/23/2018)	**Use of Result:** Goal met - reassess annually. (08/23/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 2 students were admitted into graduate/professional programs. (06/10/2017)	**Use of Result:** Goal met - reassess annually. (08/23/2018)
Scholarship - The B.S. Chemistry student will engage in University-supported faculty-led research in chemistry. **Goal Status:** Active	**Other Findings**	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes Students presented results from their senior research projects at the LSSU Annual Student Research Symposium and Chemistry and Environmental Senior Research Presentations and at a national American Chemical Society meeting. (04/30/2018)	**Use of Result:** Goal met - reassess annually. (08/23/2018)
	Direct - Laboratory, Clinical, Skill/Competency Assessments - The BS Chemistry student will	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students presented results from their senior	**Use of Result:** Goal met - reassess annually. (08/23/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
	engage in university-supported faculty led research in chemistry. **Criteria Target:** 100% of students will complete a senior research project.	research projects at the Symposium and Senior Research Presentations. (08/23/2018) **Related Documents:** Chem & Envi Science Senior Thesis Presentations .pdf	

CoSE Assessment: Reporting Unit Four Column

School of Science and Medicine 18sept18

Program (CoSE) - Forensic Chemistry BS

Mission Statement: The mission of the forensic chemistry program is to prepare effective, knowledgeable, caring and professional forensic scientists
Assessment Contact: Dr. Steven Johnson

Student Learning Outcomes	*Assessment Criteria & Procedures*	*Assessment Results*	*Use of Results*
Knowledge & Skills - The B.S. Forensic Chemistry graduate will demonstrate proficiency in their discipline. **Goal Status:** Active **Institutional Learning:** ILO1 - Formal Communication - Students will develop and clearly express complex ideas in written and oral presentations.	Students will successfully complete CHEM351, CHEM445, CHEM495, CHEM499 **Criteria Target:** 100% of students will successfully pass CHEM351, CHEM445, CHEM495, and CHEM499 **High Impact Program Practices 1:** Capstone Course(s), Projects **High Impact Program Practices 2:** Undergraduate Research	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of graduating students successfully completed CHEM 351, 445, 495, 499. (08/23/2018)	**Use of Result:** These four courses are the foundation of the BS Forensic Chemistry program. Will reassess at the department level annually. (08/23/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of graduates successfully completed the aforementioned courses. (05/01/2017)	**Use of Result:** Conversation was initiated at the department level about including CHEM 452. (08/23/2018)
	Students will demonstrate competence in the use of chemical instrumentation and laboratory skills, including safe chemical practices. **Criteria Target:** 100% of students will complete 400 laboratory hours and successfully pass CHEM332 **High Impact Program Practices 1:** Collaborative Assignments, Projects	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students successfully passed CHEM332. (08/20/2018)	**Use of Result:** Goal met. Re-assess annually. (08/22/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes 100% of students successfully passed CHEM332. (05/01/2017)	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
	Students will demonstrate communication and information retrieval skills **Criteria Target:** 100 % of students	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of forensic chemistry majors successfully completed CHEM499. 100% of students successfully completed CHEM	**Use of Result:** Goal met. Will continue to reevaluate annually. (08/23/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
	will successfully pass CHEM495 and CHEM499 **High Impact Program Practices 1:** Capstone Course(s), Projects **High Impact Program Practices 2:** Writing-Intensive Course(s)	495. (08/23/2018) **Related Documents:** Chem & Envi Science Senior Thesis Presentations .pdf	
Employability and Readiness for Post-Graduate or Professional Study - The Forensic Chemistry graduate will demonstrate readiness for employment as a laboratory forensic chemist, crime scene investigator or law enforcement laboratory chemist OR graduate or professional study. **Goal Status:** Active	**Indirect - Survey, including self-evaluation, peers, or graduates -** Graduate/Alumni Survey **Criteria Target:** Greater than 50% of students will express satisfaction with their preparedness for professional employment or graduate/professional study.	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes Greater than 50% of students self-reported as satisfied with their prepardness (08/23/2018) **Related Documents:** LSSU Graduate Survey Chemistry.xlsx	**Use of Result:** Goal met. Reassess annually. (08/23/2018)
		Finding Reporting Year: 2016-2017 **Goal met:** Yes Two students gained entry to graduate school in forensic chemistry. (05/01/2017)	**Use of Result:** Department decided it would be beneficial to generate a graduate survey and to develop a means of maintaining contact with alumni. Possibly a School newsletter. (08/23/2018)
Scholarship - The University supports an active and engaged faculty in chemistry and the forensic applications of chemistry for criminalistics **Goal Status:** Active	**Other Findings**	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes Students presented their research involving detection of gunshot residue utilizing MP-AES at the national American Chemical Society Meeting. (06/04/2018)	**Use of Result:** The department needs to look at funding mechanisms to support students with the ability and results to present at national meetings such as this. (08/23/2018)
	Direct - Laboratory, Clinical, Skill/Competency Assessments - The BS Forensic Chemistry student will engage in university-supported faculty led research in forensics. **Criteria Target:** 100% of students will complete a senior research project. **High Impact Program Practices 1:** Undergraduate Research	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 100% of students presented results for their senior research projects at the Symposium and Senior Research Presentation. (04/28/2018) **Related Documents:** Chem & Envi Science Senior Thesis Presentations .pdf	**Use of Result:** Goal met. Reassess annually. (08/23/2018)

CoSE Assessment: Reporting Unit Four Column

School of Science and Medicine 18sept18

Program (CoSE) - Medical Laboratory Science BS

Assessment Contact: Dr. Martha Hutchens

Student Learning Outcomes	*Assessment Criteria & Procedures*	*Assessment Results*	*Use of Results*
Research - Graduates of the Medical Laboratory Science program will use the scientific method to formulate and test hypotheses **Goal Status:** Active **Goal Category:** Student Learning **Institutional Learning:** ILO3 - Analysis and Synthesis - Students will organize and synthesize evidence, ideas, or works of imagination to answer an open-ended question, draw a conclusion, achieve a goal, or create a substantial work of art.	**Direct - Capstone Project - including undergraduate research -** Medical Laboratory Science students will complete a senior capstone research project culminating in a paper, a poster, and a presentation. **Criteria Target:** All Medical Laboratory Science seniors will receive a B or better grade in BIOL499, the culminating course of the senior research project. **High Impact Program Practices 1:** Undergraduate Research **High Impact Program Practices 2:** Capstone Course(s), Projects	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes All Medical Laboratory Science seniors completing BIOL499 between spring 2017 and spring 2018 received a grade of B or higher. (07/05/2018) **Finding Reporting Year:** 2016-2017 **Goal met:** Yes All Medical Laboratory Science seniors who completed BIOL499 between spring 2014 and fall 2016 earned a B or better in this course. (12/26/2016)	**Use of Result:** Re-assess next cycle. (07/05/2018) **Use of Result:** Re-assess annually (12/26/2016) **Update:** See 2017-2018 Finding (07/05/2018)
External Validity - After completing a clinical internship at appropriate medical institutions, graduates of the Medical Laboratory Science program will be able to obtain a passing score on the Board of Certification exam for Medical Laboratory Scientists **Goal Status:** Active **Goal Level (Bloom/Webb):** High-Level (Creating/Evaluating)	**Direct - Exam/Quiz - Standardized -** The pass rate of students graduating from the nationally accredited MLS-Clinical Concentration on the American Society for Clinical Pathology (ASCP) Board of Certification (BOC) exam will be monitored. **Criteria Target:** The 3-year average pass rate for students taking their	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes Three (3) of the 3 students (100%) who graduated from the MLS-Clinical Concentration in 2017 passed the BOC exam on their first attempt. (05/30/2018)	**Use of Result:** Goal met. Re-assess next cycle. (05/30/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
	boards within 1 year of graduation from the program will be 75% or greater.		
Written Communication - Graduates of the Medical Laboratory Science Program will communicate clearly in writing **Goal Status:** Active **Goal Category:** Student Learning **Goal Level (Bloom/Webb):** High-Level (Creating/Evaluating) **Institutional Learning:** ILO1 - Formal Communication - Students will develop and clearly express complex ideas in written and oral presentations.	**Direct - Capstone Project - including undergraduate research -** Each student will write a paper describing his Senior Thesis research project, including Abstract, Introduction, Methods, Results, Discussion, and Literature Cited. **Criteria Target:** At least 90% of MLS students will receive a B or better on their on their 499 Final Papers (sections listed above; rubric related below). **High Impact Program Practices 1:** Undergraduate Research **High Impact Program Practices 2:** Capstone Course(s), Projects **Related Documents:** BIOL499_Paper_Rubric.pdf	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes 10 students have completed senior thesis papers since Spring 2015. I have a record of final scores for 8 of those students, and they all scored above 85%. (08/27/2018) **Related Documents:** 2017-2018 MLS-CC Assessment Report.docx	**Use of Result:** Re-assess in 1-3 years. (08/27/2018)
Professionalism - Graduates of the Medical Laboratory Science Program will exhibit professional behavior and attitudes **Goal Status:** Active **Goal Category:** Student Learning **Goal Level (Bloom/Webb):** Mid-Level (Analyzing/Applying) **Institutional Learning:** ILO4 - Professional Responsibility - Students will demonstrate the ability to apply professional ethics and intercultural competence when answering a question, solving a problem, or achieving a goal.	**Regular, recurring -** Student attendance in the laboratory component of selected courses is monitored **Criteria Target:** In the 300- and 400-level MLS courses linked to this outcome, no more than 1 student per course has more than 2 unexcused absences per semester	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes No more than 1 student per course had more than 2 unexcused absences per semester in any of the 300- and 400- level MLS courses that were taught during the 2017-2018 academic year. (08/27/2018)	**Use of Result:** Re-assess next cycle. (08/27/2018)
	Direct - Field Placement/Internship Evaluation - Clinical instructors will observe and evaluate students' behavioral characteristics during their clinical rotations using the checklist linked to this method. (Multiple categories of behavior, rated on a 1-3 scale, 1 being lowest	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes None of the 3 students who completed their clinical rotations between January and December 2017 received a score lower than "2" in more than one category on the professionalism checklists. (08/27/2018) **Related Documents:**	**Use of Result:** Re-assess in 1-3 years. (08/27/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
	and 3 highest). **Criteria Target:** No student will receive a lower score than "2" in more than one category on the checklist. **High Impact Program Practices 1:** Internships **Related Documents:** Professionalism Evaluation Checklist.docx	Professionalism Evaluation Checklist.docx	
Clinical Laboratory Result Interpretation - Given a set of clinical laboratory data, graduates of the MLS Program will draw accurate conclusions about the health of the patient and suggest a correct course of action **Goal Status:** Active **Goal Category:** Student Learning **Goal Level (Bloom/Webb):** Mid-Level (Analyzing/Applying) **Institutional Learning:** ILO3 - Analysis and Synthesis - Students will organize and synthesize evidence, ideas, or works of imagination to answer an open-ended question, draw a conclusion, achieve a goal, or create a substantial work of art.	**Direct - Exam/Quiz - within the course -** This outcome is assessed using selected questions on midterm and final exams in courses related to this outcome: assessed at course level **Criteria Target:** All courses related to this outcome will meet or exceed the target given for their course-level outcome(s) corresponding to this program-level outcome	**Finding Reporting Year:** 2017-2018 **Goal met:** No Of the 3 course-level outcomes pertaining to this program-level outcome assessed in 2 courses, one target was met and the other 2 weren't. The two that were not met was "test interpretation" and "transfusion reactions" in BIOL 406, Immunohematology. The students had a hard time correctly completing antibody ID problems and identifying transfusion reactions. (08/27/2018) **Related Documents:** 2017-2018 MLS-CC Assessment Report.docx	**Use of Result:** Introduce antibody ID problems more systematically and spend more time practicing transfusion reaction identification next time I teach the course (spring 2020). (08/27/2018)
Knowledge - Graduates of the Medical Laboratory Science Program will recall fundamental principles of each discipline used in the medical laboratory **Goal Status:** Active **Goal Category:** Student Learning **Goal Level (Bloom/Webb):** Low-Level (Understanding/Remembering)	**Direct - Exam/Quiz - within the course -** Selected questions on midterm and final exams in courses related to this outcome: assessed at course level **Criteria Target:** All courses related to this outcome will meet or exceed the target given for their corresponding course-level outcome(s)	**Finding Reporting Year:** 2016-2017 **Goal met:** Yes Of the 6 course-level outcomes pertaining to this program-level outcome that were assessed in 3 courses during AY 2016-2017, 5 of them were met, and there was insufficient data to determine whether or not the 6th was met. (08/27/2018)	
		Finding Reporting Year: 2017-2018 **Goal met:** Yes Of the 5 course-level outcomes pertaining to this program-	**Use of Result:** Re-assess next cycle. (08/27/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
		level outcome that were assessed in 2 courses, the outcome target was met for all 5. (08/27/2018) **Related Documents:** 2017-2018 MLS-CC Assessment Report.docx	
Clinical Laboratory Quality Evaluation - Graduates of the MLS Program will, given the necessary data, draw accurate conclusions about the quality of a clinical laboratory test and suggest appropriate action **Goal Status:** Active **Goal Category:** Student Learning **Goal Level (Bloom/Webb):** Mid-Level (Analyzing/Applying)	**Direct - Exam/Quiz - within the course -** Specific questions on midterm and final exams in courses related to this outcome: assessed at course level **Criteria Target:** All courses related to this outcome will meet or exceed the target given for their course-level outcome corresponding to this program-level outcome	**Finding Reporting Year:** 2017-2018 **Goal met:** No 2 course-level outcomes in 2 courses were identified as pertaining to this program level course and assessed during the 2017-2018 AY. One of the outcomes was met and the other wasn't. The one that wasn't was the same one in BIOL406 in which students had to correctly complete all the steps of an antibody identification problem, but most of them could not do so by the end of the course. (08/27/2018) **Related Documents:** 2017-2018 MLS-CC Assessment Report.docx	**Use of Result:** Introduce antibody identification more systematically the next time I teach the course (Spring 2020). (08/27/2018)
Skills - Graduates of the Medical Laboratory Science program will safely and accurately perform basic medical laboratory test procedures. **Goal Status:** Active **Goal Level (Bloom/Webb):** Mid-Level (Analyzing/Applying)	**Direct - Laboratory, Clinical, Skill/Competency Assessments -** Students will be evaluated on laboratory skills through homework assignments and/or practical exams in the laboratory portions of courses related to this outcome: assessed at course level **Criteria Target:** All courses related to this outcome will meet or exceed the target given for their course-level outcome corresponding to this program-level outcome	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes See related document "2017-2018 MLS-CC Assessment Report" (08/27/2018) **Related Documents:** 2017-2018 MLS-CC Assessment Report.docx	
	Indirect - Survey, including self-evaluation, peers, or graduates - Alumni survey: Question 2 on the alumni survey asked respondents to rank their level of preparedness in performing and understanding medical laboratory test procedures in each of seven subject areas, and	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes There have been 3 alumni of the accredited MLS program to date. All 3 responded to the survey. All 3 felt prepared in most areas of laboratory testing, except in Immunology (2 felt unprepared) and Immunohematology (1 felt unprepared). (08/27/2018)	**Use of Result:** This is a small dataset. If the pattern I see in this group continues, I may have to take steps to strengthen the Immunology portion of the program. (08/27/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
	to comment on any specific strengths and weaknesses. **Related Documents:** Alumni Survey LSSU MLS Program df edits.docx	**Related Documents:** Alumni Survey LSSU MLS Program df edits.docx	
	Indirect - Survey, including faculty, supervisors, employers - Employer survey: Question 2 on the employer survey asked employers of recent graduates of the MLS program to rank the level of preparedness of LSSU graduates in performing and understanding medical laboratory test procedures in each of seven subject areas, and to comment on any specific strengths and weaknesses. **Related Documents:** Employer Survey LSSU MLS Program.docx	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes All 3 employers of all 3 recent graduates of the MLS program ranked the graduates at a "3" or "4" (on a scale of 1-4 with 4 being the highest) on their level of preparedness to perform test procedures. (08/27/2018) **Related Documents:** Employer Survey LSSU MLS Program.docx	**Use of Result:** This result does not support the need for any changes in the program, but it is a very small dataset. Continue to survey employers of recent graduates annually. (08/27/2018)
Employability - Graduates of the Medical Laboratory Science program will obtain clinical internships (if graduating from the Academic Concentration) or employment (if graduating from the Clinical Concentration) in Medical Laboratory Science at appropriate medical institutions **Goal Status:** Active **Goal Category:** Operational Goal, not related to student learning **Goal Level (Bloom/Webb):** Goal is not a student learning outcome.	**Direct - Field Placement/Internship Evaluation -** Each Medical Laboratory Science graduate who applies for a clinical internship will either obtain an internship slot or not. **Criteria Target:** 75% of Medical Laboratory Science graduates who apply for clinical internships after graduation will be placed in one. **High Impact Program Practices 1:** Internships	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes From the end of 2015 to the present, only one student elected to seek an internship placement independently, as a graduate of the Academic Concentration rather than the Clinical Concentration. That student was successful in securing an internship. (05/30/2018)	**Use of Result:** Goal met. Re-assess next cycle. (05/30/2018)
	Indirect - Survey, including self-evaluation, peers, or graduates - Graduates of the MLS-Clinical concentration will be asked whether or not they have obtained employment as medical laboratory	**Finding Reporting Year:** 2017-2018 **Goal met:** Yes All three students (100%) who graduated from the MLS-Clinical Concentration since its creation in 2014 were employed as medical laboratory scientists within 1 year of program completion. (05/30/2018)	**Use of Result:** Goal met. Continue to monitor employment rates as more students graduate from the program. (05/30/2018)

Student Learning Outcomes	Assessment Criteria & Procedures	Assessment Results	Use of Results
	scientists within 1 year of program completion. **Criteria Target:** The three-year cumulative average of the employment rate will 75% or higher.		