

STUDENT LEARNING ASSESSMENT PROGRAM
SUMMARY FORM AY 2020-2021

Degree and Program Name:

Master of Science in Sustainability
(Interdisciplinary)

Submitted By:

Dr. Nichole Hugo, Graduate Coordinator

PART ONE

*As a new program (starting in Spring 2020) and with issues related to COVID, data is limited due to low enrollment size. SP20 had 5 fulltime SUS and 2 full time dual degree students (total of 7 fulltime students); FA20 and SP21 had 4 fulltime and 1 dual degree student (total of 5 students). With only 5 students, many core classes in SUS were not able to be offered and students took a variety of classes in other areas.

The Assessment Report for 2021-2022 will likely include more data as 8 fulltime and 2 Second MS (TEC) students are enrolled in FA21 (total of 10 students).

What are the learning objectives?	How, where, and when are they assessed?	What are the expectations?	What are the results?	Committee/ person responsible? How are results shared?
<p>1. Students will demonstrate understanding of principles related to the field of sustainability (CGS goal: depth of content knowledge)</p>	<p>The Sustainability program design was based on studying sustainability with an interdisciplinary focus. The scientific knowledge and skills are addressed by departments, including Geology and Geography, Political Science, and School of Technology.</p> <p>There are six (6) required core courses that all students must take, regardless of which option they are pursuing. Three (3) focus on sustainability content:</p> <ul style="list-style-type: none"> • CERE 5100 Intro to Sustainability 	<p>Students are expected to understand:</p> <ul style="list-style-type: none"> • The three pillars of sustainability (economic, social and environmental) and the extent of the impacts in which sustainability attempts to balance these areas of concern • How greenhouse gases contribute to global changes • Political policy and its role in minimizing negative impacts to the three pillars of 	<p>Out of 2 students enrolled in CERE 5100 in Fall 2020 semester, 2 students (100 %) met expectations of 80% or higher on HW Assignment 1 and 0 students (or 0%) did not meet the expectations for Assignment 1. (97, 97%)</p> <p>GEO 5200 and PLS 4763 only had 1 student enrolled in Spring and Fall 2020, so data will be collected in Spring 2022 when more students are enrolled in these courses.</p>	<p>Based upon the assessment feedback, faculty members are contacted individually based on feedback from students in their exit interview and recommendations for adjusting their way of instruction is provided the content can be readily understood by students with non-science background.</p>

	<ul style="list-style-type: none"> • GEO 5200 Human Impact and the Environment • PLS 4763 Environmental Politics and Policy <p>Students are assessed in the above courses in terms of the depth of knowledge of sustainability principles. Either class projects or comprehensive research papers were used to assess the knowledge acquisition of the respective science disciplines by students.</p> <p>At the end of every semester, assessment data will be submitted by faculty teaching the courses that are on regular rotation.</p>	<p>sustainability</p> <p>Students are expected to score an 80% or higher on their assessment in order to meet expectations.</p>		
<p>2. Students will be able to apply leadership and managerial practices in sustainability (CGS goal: depth of content knowledge)</p>	<p>Students will be assessed in leadership and managerial practices in:</p> <ul style="list-style-type: none"> • TEC 5103 Leadership in Technology OR • PLS Civic and Non-Profit Leadership <p>Students are assessed in the above courses in terms of the depth of science knowledge. Either class projects or comprehensive research papers were used to assess the knowledge acquisition of the respective leadership or management principles by students.</p>	<p>The following “technology management” program outcomes are addressed in the delivery of the graduate program:</p> <ul style="list-style-type: none"> • Organizational effectiveness and leadership; • Employee motivation and empowerment; • Customer focus and service excellence; • Sustainability, environment and corporate social responsibility; <p>Students must possess knowledge of leadership, and managerial principles and</p>	<p>Out of 2 students enrolled in TEC 5103 in Fall 2020 and Spring 2021 semesters, 2 students (100 %) met expectations of 80% or higher on overall course requirements and 0 students (or 0%) did not meet the expectations (A, A in class)</p>	<p>Based upon the assessment feedback, faculty members are contacted individually based on feedback from students in their exit interview and recommendations for adjusting their way of instruction is provided the content can be readily understood by students with non-science background.</p>

	At the end of every semester, assessment data will be submitted by faculty teaching the courses that are regular rotation.	practices related to sustainable energy operations. Students are expected to score an 80% or higher on their overall assessment in order to meet expectations.		
3. Students will be able to apply critical thinking and problem solving skills in the areas of sustainability. (CGS goal: Effective critical thinking and problem solving)	CERE 5100 gives students opportunities to connect what they learned in classroom to real-world applications. This is one of the best ways to promote and test students' problem solving skills. The final paper in this course has them address a specific issue and analyze how to address it with recommendations for solutions In terms of critical thinking and problem solving skills, students will be assessed in the following venue: CERE 5100 Final Research Paper At the end of the semester, assessment data will be submitted by faculty when the course is offered.	Students are expected to score an 80% or higher on their final paper in order to meet expectations.	Out of 2 students enrolled in CERE 5100 in Spring 2021 semester, 2 students (100 %) met expectations of 80% or higher on the Final Research Paper. 0 students (or 0%) did not meet the expectations the Final Research Paper. (88, 100%)	Based upon the assessment feedback, faculty members are contacted individually based on feedback from students in their exit interview and recommendations for adjusting their way of instruction is provided the content can be readily understood by students with non-science background.
4. Students will be able to conduct intellectual research related to sustainability. (CGS goal: Advanced scholarship through research or creative activity)	Students will understand the appropriate procedures for conducting research in either: <ul style="list-style-type: none"> • TEC 5143 Research in Technology OR • PLS 5054 Applied Research Methods in Public Policy OR • CMN Communication Research Methods 	At the end of the program, students must demonstrate their ability to conduct meaningful research, related to sustainability. Students are expected to score an 80% or higher on their assessment in order to meet expectations.	Out of 3 students enrolled in TEC 5103 in Fall 2020 and Spring 2021 semesters, 3 students (100 %) met expectations of 80% or higher on overall course requirements and 0 students (or 0%) did not meet the expectations (A, A, A in class)	The results are also shared and discussed during the regular Sustainability board meeting every semester. Based upon the assessment feedback, faculty members are contacted individually based on feedback from

	<p>Students are assessed in the above courses in terms of the depth of science knowledge. Either class projects or comprehensive research papers were used to assess the knowledge acquisition of the respective leadership or management principles by students.</p> <p>At the end of every semester, assessment data will be submitted by faculty teaching the courses that are regular rotation.</p> <p>Optional: CERE 5953 Sustainability Research (Students must conduct independent research, write a research paper and defend results to a committee of at least 3 Graduate Faculty members, similar to a thesis)</p> <p>While not required, students are strongly encouraged to apply for research funding, present research at conferences, and publish in journal articles. Totals will be kept of these extracurricular research activities.</p>	<p>CERE 5953: Students must score at least 70/100 in order to pass the course.</p> <p>There are no expectations of extracurricular research to be completed by students outside of these classes, but totals will still be maintained to document these successes.</p>	<p>SP 2021: Out of 2 students enrolled in CERE 5953 in Spring 2020 semester, 2 students (100 %) met expectations of 70% or higher on the Final Research Paper and Presentation (93.5, 99.5%)</p> <p>FA2020 Conferences</p> <ul style="list-style-type: none"> • Illinois Innovation Network (IIN)- 2 students • Association of Technology, Management, and Applied Engineering (ATME) – 1 student <p>SP2021 Conferences</p> <ul style="list-style-type: none"> • California State University Student Research Competition- 1 student • Frost Physics Summer Research Symposium • EIU Research and Creative Activity Day Presentations- 4 students <p>SP2021 Publications</p> <ul style="list-style-type: none"> • 1 Journal: <i>Solar Energy</i> <p>Fellow- Summer Institute on Sustainability and Energy- 1 student</p>	<p>students in their exit interview and recommendations for adjusting their way of instruction is provided the content can be readily understood by students with non-science background.</p>
<p>5. Students will develop effective oral and written communication skill (CGS goal: effective oral and written communication)</p>	<p>1. Students will be assessed in the following required course: CMN/ENG 5260 Science and Technical Communication</p> <p>Written communication is</p>	<p>Students possess effective oral and written communication skills, related to sustainability.</p> <p>Students are expected to score an 80% or higher on their</p>	<p>Spring 2022 will be the first time CMN/ENG 5260 is offered to students, so no data is available at this time.</p> <p>Exit interview:</p>	<p>The results are also shared and discussed during the regular Sustainability board meeting every semester.</p>

	<p>assessed through the final project, the culminating assignment for the semester.</p> <p>Oral communication is assessed through presentation of the final project.</p> <p>At the end of semester when the course is offered, assessment data will be submitted by the faculty team teaching the course.</p> <p>Students' ability to communicate in writing and oral form will also be assessed during an exit interview before their graduation. Students will be asked a sustainability related question and a score from 0-100 will be given based on their ability to adequately answer the question clearly.</p>	assessment in order to meet expectations.	<p>Spring 2021- 1/1 students met expectations of a score of 80/100 or higher (100)</p> <p>Summer 2021- 1/1 students met expectations of a score of 80/100 or higher (95)</p>	Based upon the assessment feedback, faculty members are contacted individually based on feedback from students in their exit interview and recommendations for adjusting their way of instruction is provided the content can be readily understood by students with non-science background.
6. Students will be able to apply concepts of ethical and professional responsibility through the awareness of codes of ethics in sustainability, respect and value for diversity and inclusion, and commitment to respectful and responsible discourse (CGS goal: Ethical and professional responsibility)	<p>CERE 5100 will include an essay question on the midterm to determine how well a student can apply the principles of ethical practices in the sustainability field.</p> <p>CERE 5100 will have 3 discussion questions in which students must respond to a student they disagree with and respectfully provide an alternative stance on the subject.</p>	Students are expected to score an 80% or higher on both assessments in order to meet expectations.	Fall 2021 will be the first time to assess this new CGS goal	

PART TWO

Describe your program's assessment accomplishments since your last report was submitted. Discuss ways in which you have responded to the CASA Director's comments on last year's report or simply describe what assessment work was initiated, continued, or completed.

A. Competency or Comprehensive Knowledge Assessment on Graduates:

In addition to regular assessment or evaluation during classes, graduates were assessed of their competency and comprehensive knowledge in the field of Sustainability at the conclusion of their graduate study. As a sampling method, students are asked one question related to Sustainability during the graduates' exit interview. The questions are not released ahead of time, and may vary from student to student. The following lists some sample questions:

- a) What is the negative effects on humans living on Earth?
- b) What is the impact of renewable energy vs. fossil fuel?
- c) What tactics are used to provide balance to the three pillars of sustainability?
- d) What is the Brundtland Report and what importance does it play in the field of sustainability?
- e) What kind of policy will be needed to promote sustainability and/or sustainable energy?
- f) What sustainable energy process is the solution to our energy crisis?

Based upon the student response to the question, the program director will further ask related or follow up questions to clarify the response, and she will assign a score for student's comprehensive knowledge in Sustainability. A maximum score will be 100 and minimum will be 0. Since this is used only for program assessment purpose, the score will not be shared with students. Continuing monitoring of the score is expected since the inception of the graduate program. Consequently, the assessment results provide a gauge independently on the outcome of student learning in the program. Last year feedback was given to include another faculty member to assess the answers and this will be implemented this coming year.

B. Program Outcome:

The main areas of improvements from the exit interviews revolved around students not being able to take electives they wanted. These classes were not offered due to limited interest only to Sustainability students and there were not enough student in the program to offer them.

In addition to collecting information on improvements, an alumni tracking system to help connect current students to those in the field. Information from email communication or LinkedIn will help current students connect and ask questions. As the program grown, more prospective students are asking about what jobs our graduates go into, and this information from alumni

may assist with recruitment efforts as well.

PART THREE

*Summarize changes and improvements in **curriculum, instruction, and learning** that have resulted from the implementation of your assessment program. How have you used the data? What have you learned? In light of what you have learned through your assessment efforts this year and in past years, what are your plans for the future?*

Application numbers continue to increase, but the yield is only slowly increasing. However, with 10 students in the program we are now able to offer classes that students want and are directly related to Sustainability, such as the Biomass Gasification class. The main plan is to increase student enrollment so classes of interest to the student can start to be offered again.

Changes have been very limited as there was not much that could be done with 5 students, except to encourage them to engage in research and professional development opportunities. As a result, 3 students studied for the LEED (Leadership in Energy and Environmental Design) Green Associate Exam and passed in Spring 2021. We have had students be engaged with community projects, such as starting a garden and assisting with hosting Earth Week and Arbor Day on campus. While these activities are not directly related to the assessment goals, they help the students gain the skills to be successful in their field once they graduate.