Assurance of Student Learning Reflection 2024-2025	
Ogden College of Science and Engineering	Department of Earth, Environmental, & Atmospheric Sciences
Environmental, Sustainability, and Geographic Studies #5009	
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Is this an online program? ☐ Yes ☒ No	Please make sure the Program Learning Outcomes listed match those in CourseLeaf. Indicate verification here ☒ Yes, they match! (If they don't match, explain on this page under **Evaluation)**

Instructions: For the 2024-25 assessment, we are asking you to reflect on the last three-year cycle rather than collect data. It's important to take time to look over the results from the last assessment cycle and really focus on a data-informed direction going forward. In collaboration with your assessment team and program faculty, review each submitted template from 2021-2024 and consider the following for each Program Learning Outcome, add your narrative to the template, and submit the draft to your ASL Rep by May 15, 2025.

Program Student Learning Outcome 1	
Program Student Learning Outcome	Students can demonstrate a theoretical and applied understanding of basic environmental concepts, sustainability pillars, and geographical principles and convey an understanding of their value and importance to stakeholders and the public.
Evaluation	Direct: All majors must successfully complete the program exit exam administered in the last semester of the student's program. The exam consists of four essay questions, with questions designed to assess student understanding and application of theoretical and foundational concepts and methodologies in the discipline. These questions include real-world applied questions designed to evaluate students' ability to think critically and address comprehensive challenges faced by global and regional populations.
Measurement Instruments	All graduating program students are administered a senior assessment or exit exam.
Criteria & Targets	Students must complete, with a 70% or higher, their comprehensive program exit exam.
Results & Conclusion	Throughout the last three cycles we have altered small parts of this exam to reflect any changes in our program. One change that we made was to include opportunities for the students to convey feedback about the program regarding the curriculum but also to advise the program on what we can be doing to facilitate student success. This isn't a 'graded' portion of the exam, but it does ensure data are collected from soon to be alumni. Another change that we made, is that we often have students who complete the ESGS degree with a specific environmental focus, like climatology or water resources. On the exit exam, we present a variety of different scenarios, and we ask the students to select two where they provide their professional opinion. We have altered and added variety to these questions to better accommodate

	the rather diverse foci of a student's coursework. Since the ESGS program is so interdisciplinary we feel that having a selection of scenarios allows the students to focus on their specific areas of interest and best evaluate their knowledge geared towards a specific career goal/field.
****IMPORTANT - Plans for Next Assessment Cycle**:	Each year the faculty of ESGS engage in the conversation of what can or should we change on this assessment. We will annually continue to review the senior exit exam to make sure our scenarios represent what our students should be taking away from their programs and also that the scenarios are relevant to the current industry. We would hope that all of our students would be able to pass this exam without lowering the rigor of what is expected.

Program Student Learning Outcome 2	
Program Student Learning Outcome	Students can demonstrate proficiency in the quantitative and qualitative spatial analysis and critical thinking through written and oral communication.
Evaluation	Spatial analysis is a critical skillset in any sector related to the ESGS fields, so this remains a critically important student learning outcome. Further, increasingly, our graduates secure positions because of their advanced spatial analysis skillsets, so ensuring we are evaluating those abilities in important. For the capstone project, students must create a customized research project, in their area of interest. Each project requires data collection, manipulation, analysis, interpretation and display through a traditional map that has a projection for their study area, and develop a map layout that effectively communicates their dataset theme while adhering to accepted principles of cartographic design. In addition, students must create an online story map to further reinforce their process and findings. Each project is then presented to their classmates. A comprehensive rubric is used to evaluate the capstone project. GISC 317 GIS II is the final 300-level GISC course for all ESGS majors, so examining the artifacts of this course provides the best overall reflection of students' basic ability to synthesize and analyze data quantitively and spatially.
Measurement Instruments	All students in GISC 317 must complete and present an independent research project.
Criteria & Targets	We are very excited and happy with the criteria and target of this learning outcome. The capstone project we use to assess student success is the ideal measure of the student learning outcome. It requires that the student articulate a research idea and how they will address it; an indication of critical thinking processes. The hands-on process of finding data and assessing its usefulness for the project, performing analyses appropriate for the project idea, analysis and data interpretation, and producing a traditional map that displays the important elements of communication and cartography are effective learning experiences and viable bases of our rubric-driven assessment. The students are also expected to produce a story map about their project and present it to the class - which is an important indicator of

	how they have developed communication skills relevant not only to GIS but to any career that the student might pursue. The last part of the project, which requires the student to produce a comprehensive report on how they conducted their project, in a specified format, provides a viable indicator of the students written communication skills. In summary, the current instrument that we use to measure the Student Learning Outcome for GISC 317 is highly effective and pertinent to study success.
Results & Conclusion	The students are receiving one-on-one mentoring with the instructors of this course for the project creation and implementation. Each project is developed with the students interest and future career goal in mind. The students run into a variety of challenges along the way, as they do in the real world, and are in a position to thoughtfully navigate their way through the confusion. We plan to continue with this evaluation of student learning outcome #2.
****IMPORTANT - Plans for Next Assessment Cycle**:	The ESGS faculty along with the GISC 317 instructors will work together to enhance this research experience for the students. We would like to have the students engaging additional faculty, within EEAS and outside the department, as some of the projects are very interdisciplinary and that additional feedback would be very useful to the student's success. We are also encouraging these students to continue researching their topic and presenting the following spring at the student research conference at WKU.

Program Student Learning Outcome 3	
Program Student Learning Outcome	Students can explain the complexities of social, cultural, and environmental diversity, and demonstrate an ability to critically assess contemporary challenges and develop problem-solving skills.
Evaluation	The very definition of environmental science stresses interconnectedness and problem-solving. As such, the ESGS fields require skills to assess complex, interdisciplinary, and diverse challenges, so this learning outcome remains critically important to assess. Graduates should be able to understand and explain the interconnectedness of environments and societies to assess and solve a wide range of real-world problems. Without those abilities, the students will not be successful in their future career goals, and we will have done them a disservice in their professional development.
Measurement Instruments	Direct: Capstone Research Proposal and Presentation in GEOG 300 (Research and Writing in the Discipline) In a research proposal, students must demonstrate the ability to successfully develop and design an original research project. Their proposed research design must incorporate qualitative and quantitative data collection common in the geographic, sustainability, and environmental studies fields. Students must place their research within an appropriate methodological and/or technological framework and provide evidence to support their arguments through a complete and comprehensive literature review. Students must also prepare and present their proposed work to their peers and a selection of department faculty, including the course instructor.

Criteria & Targets	The criteria and targets for evaluating this course were designed to mirror those included as part of the Foundations Writing in the Discipline evaluation since the GEOG 300 course also fits within that Colonnade category. A separate evaluation and rubric is used to evaluate every aspect of the course. For the purposes of the ESGS program learning outcome, students must have earned an 80% or higher on the final research proposal to demonstrate proficiency. We aim for at least 75% of students surpassing that metric.
Results & Conclusion	The results of past assessments are in line with our expectations. The success target has been consistent with our goal, suggesting that the metric is set within a reasonable range and that the students are being challenged and their abilities enhanced by developing and presenting the research proposal. We are also seeing more students use this experience to explore a specific research project they continue to pursue after the course is complete, which has been a great unintended positive outcome of the evaluation measure. We do not intend to make any changes at this time. That said, as classroom continues to grow to accommodate the growing number of majors in our departmental programs, all of whom take the GEOG 300 course, having enough time in the classroom to cover all of the course materials and have all students to present their work is becoming a challenge. Additionally, we continue to receive feedback from students that they present projects in multiple classes, so they are presentation skills in other courses. As such, we are considering eliminating the presentation portion of our assessment.
****IMPORTANT - Plans for Next Assessment Cycle:**	Maintaining the rigor of a student needing an 80% or higher to demonstrate proficiency is a reasonable expectation and one we intend to continue. We will continue to use the comprehensive rubrics that are created as part of all of the Colonnade Writing in the Discipline courses. As classroom continues to grow to accommodate the growing number of majors in our departmental programs, all of whom take the GEOG 300 course, having enough time in the classroom to cover all of the course materials and have all students to present their work is becoming a challenge. Additionally, we continue to receive feedback from students that they present projects in multiple classes, so they are presentation skills in other courses. As such, we are considering eliminating the presentation portion of our assessment. We will experiment with not requiring presentations in the fall term to see if the quality and thoroughness of the written project proposals changes drastically when students know they aren't also held accountable for a presentation. If no notable changes are documented, we will do the same in the spring term to see if the pattern holds and potentially permanently change the SLO afterwards based on the outcomes of this experiment. Otherwise, we will maintain all rigor and expectations related to this SLO.

To add more outcomes, if needed, select the table above and copy & paste below.