

UNIT REPORT

Earth and Spatial Sciences - APR**Self-Study Report by Academic****Unit/Department**

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Program Mission

Geography and Geological Sciences Department Mission Statement

Program Mission Statement:

Educate students and develop their scientific expertise to meet Idaho's workforce needs and address local, regional, and global challenges affecting the earth and human systems.

Program Goal (add a minimum of 3 program goal "plan items")

1. Deliver high quality undergraduate and graduate programs in the Earth and Spatial Sciences

Goal Statement:

It is the goal of the Department of Geography and Geological Sciences to provide our students with an educational experience that prepares them for a career in earth and spatial sciences.

Alignment to UI Strategic Plan Goals:

Engage (Goal 2): Suggest and influence change that addresses societal needs and global issues, and advances economic development and culture.

Transform (Goal 3): Increase our educational impact.

Indicators/Metrics to Evaluate Progress:

The students' mastery of the concepts and skills presented in the program will be demonstrated by their performance in the capstone class, which integrates all of the material covered in their coursework and provides students with an experience relevant to their career and participation in society.

List of Actions the Program Will Take to Achieve Goals :

Implement high-quality teaching that emphasizes mastery of fundamental skills, professional ethics, information evaluation, and learning outcomes as set forth in individual course syllabi. For geography students, the curriculum is being redesigned to focus on global change issues that are important to society, with the goal of making the curriculum more engaging and relevant to students with interests in either human and physical geography. For geoscience students, the program has chosen to offer the usual 6-week capstone experience as two 3-week courses, one usually taken after the sophomore or junior year and the other after the junior or senior year, to provide the students with a better integration of field and classroom experiences. In addition, the department is offering a 1-credit professional review course to assist students preparing for the FG exam.

Goal Achievement Level: In Progress

2. Conduct research of national and international significance

Goal Statement:

The Department of Geography and Geological Sciences seeks to conduct research of relevance to Idaho, the northwest, our nation, and the world, particularly as it relates to global change and the impacts of that change on humans and earth/human systems.

Alignment to UI Strategic Plan Goals:

Innovate (Goal 1): Scholarly and creative products of the highest quality and scope, resulting in significant positive impact for the region and the world.

Engage (Goal 2): Suggest and influence change that addresses societal needs and global issues, and advances economic development and culture.

Indicators/Metrics to Evaluate Progress:

Indicators of progress in this metric will be publication in peer-reviewed literature, engagement with groups, both governmental and non-governmental, that are working in the area of global change, and the involvement of graduate and undergraduate students research.

List of Actions the Program Will Take to Achieve Goals :

The curriculum of the geography program is being revised to focus on sustainability and global change as they impact human systems. The faculty are involved with a variety of governmental agencies and NGOs working on adaptation to the impacts of climate and global change on human systems. The geological sciences curriculum is also being revised to provide students with a more integrated educational experience that connects students' geological skills and knowledge with societal challenges.

Goal Achievement Level: In Progress

3. Grow stakeholder engagement to increase program impact and career opportunities for students

Goal Statement:

In order to meet the needs of Idaho, the region, and the nation, we require a better connection to our stakeholders in industry and local/state/federal government. This provides stakeholders with access to an educated and informed workforce and allows our students to impact economic, environmental, and social policy.

Alignment to UI Strategic Plan Goals:

Innovate (Goal 1): Scholarly and creative products of the highest quality and scope, resulting in significant positive impact for the region and the world.

Engage (Goal 2): Suggest and influence change that addresses societal needs and global issues, and advances economic development and culture.

Transform (Goal 3): Increase our educational impact.

Indicators/Metrics to Evaluate Progress:

Track student success in obtaining professional employment in local, regional, or national government and/or industry. Track student success in obtaining internships prior to graduation.

List of Actions the Program Will Take to Achieve Goals :

We have implemented a series of meetings with stakeholders to determine what the needs are for employers and how to best prepare students for the workforce needs of the future. We seek to expand the number of internships with private companies and governmental agencies and will work to keep students better-informed of opportunities. We will revise our curriculum and course offerings to reflect the needs of our stakeholders and society.

Goal Achievement Level: In Progress

Student Learning Assessment Report (add one "plan item" for each major, degree, and/or certificate offered by dept)

Geological Sciences BS (Physical Geology)

Assessment Report Contact: Department Chair

Program Changes in Past Year:

The Geological Sciences and Geography programs were merged in the past year, necessitating a rethinking and reorganization of all the programs under the two former departments. This reorganization is on-going, but the majority of work to date has been focused on the undergraduate curriculum. A large number of changes to the curriculum have been made in the past year, including renaming courses to better reflect their content, renumbering the Geology Field Methods course (GEOL 290) to better represent the advanced nature of the material covered, and rethinking the required introductory courses to allow for alternative pathways to a degree in the geosciences. In addition to changes already made, the curriculum is currently undergoing revision to better integrate material from both the geography and geology sides of the department in an effort to reduce duplication and offer students a more holistic educational experience.

The department has begun offering a review course for undergraduate students preparing to take the Fundamentals of Geology (FG) exam, a prerequisite for obtaining professional licensure. The department also partnered with Hecla Mining Company to provide students with industry-relevant geology skills (core logging), and this program of partnering with industry to provide career relevant experience is scheduled to continue and expand in Spring 2022.

Learning Outcomes are Communicated to All Students in Program (check box if true):

Learning Outcomes are Communicated to All Faculty (check box if true): true

Optional: Framework Alignment: ASBOG

Import Outcomes Data (from Anthology Outcomes):

Out of five students that sat for the ASBOG Fundamentals of Geology exam in Spring 2021, all five received passing grades.

Students in the capstone preparation course (GEOL 290; Geological Field Methods) and capstone (GEOL 490; Summer Field Camp), demonstrated competency in applying classroom learning and integrating classroom education with field skills. Student mastery in these classes was demonstrated in particular by the completion of a quality geological field map and associated products, along with several intermediate exercises in budgeting and project planning (safety plan).

Summary of Student Learning:

The primary indicator of student learning in the past academic year was the high (100%) success rate of students taking the ASBOG FG test. In addition, one of student from the Hecla Mining core logging workshop was successful at obtaining a Hecla internship; these internships are very competitive (only ~3 are offered per year), and usually lead to permanent employment.

Summary of Faculty Discussion:

The discussion of the need to strengthen our interactions with industry and career opportunities with students has resulted in a broader effort to find and publicize opportunities for professional development, such as workshops and internships, to the students. Some of the courses offered by the department are being reoriented to provide improved professional experience (e.g., GEOL 290).

Summary of Changes/Improvements Being Considered:

This year the Hecla core logging workshop will be held earlier in the year (the end of January), to provide students with a better opportunity to compete for Hecla internships (the 2021 workshop was held in April, at which time two of the three available internships were already filled). Hecla has proposed to expand the workshop in January 2022 to include a section on underground mapping, which will significantly expand career and internship opportunities for students. In spite of the high rate of passing (100%) for UI/Geology students taking the ASBOG exam, the department is offering an FG exam review course beginning in Spring 2022. In addition, professional preparation in topics required by professional geologists, such as professional ethics, project budgeting and management, professional communications, etc., which are considered essential preparation by ASBOG for registered geologists but rarely addressed in standard geology classes, are being included in the required course GEOL 290 (Geological Field Methods) and the elective course GEOL 410 (Hydrogeology Field Methods).

Inter-rater Reliability:

All faculty teaching in the geology curriculum have been involved in a review of the essential skills for professional preparation in geology, as set forth in the ASBOG handbook and related materials. All geology faculty participated in development of a matrix of required skills based on the ASBOG handbook, and mapping those skills onto courses in the curriculum to ensure students were exposed to the necessary material.

Closing the Loop:

The development of the skills matrix from the ASBOG test materials and mapping of the skills to courses offered by the department was extremely helpful in understanding where the geology curriculum could be augmented to improve student success. Also very helpful were the discussions with industry and managers from government agencies, which helped to point out skills that were missing or treated inadequately in the program. A number of courses have been revised in response to these assessments; most importantly, in the field methods courses (GEOL 290 and GEOL 410), as mentioned above.

Geology BS (Environmental and Hydrogeology emphasis)

Assessment Report Contact: Department Chair

Program Changes in Past Year:

The Geological Sciences and Geography programs were merged in the past year, necessitating a rethinking and reorganization of all the programs under the two former departments. This reorganization is on-going, but the majority of work to date has been focused on the undergraduate curriculum. A large number of changes to the curriculum have been made in the past year, including renaming courses to better reflect their content, renumbering the Geology Field Methods course (GEOL 290) to better represent the advanced nature of the material covered, and rethinking the required introductory courses to allow for alternative pathways to a degree in the geosciences. In addition to changes already made, the curriculum is currently undergoing revision to better integrate material from both the geography and geology sides of the department in an effort to reduce duplication and offer students a more holistic educational experience.

Learning Outcomes are Communicated to All Students in Program (check box if true):

Learning Outcomes are Communicated to All Faculty (check box if true): true

Optional: Framework Alignment: ASBOG

Import Outcomes Data (from Anthology Outcomes):

Students in the GEOL 410 (Hydrogeology Field Methods) course are required to demonstrate mastery of groundwater concepts and professional skills by assessing a request for proposals, and developing a bid package (including a budget and safety plan), and presenting their bid package to industry and government professionals working in the field of groundwater hydrology. The winning bid package, chosen by the groundwater professionals attending the presentation of bids, organizes and fields a 24-hour aquifer characterization pumping test according to the request for proposals, and all participants in the test (i.e., students in the class) turn in a final report of the test (including data analysis) and make an oral presentation of the results. On the basis of evaluation of the bid packages by the groundwater community, half of the groups presenting bids achieved a level of professionalism reflecting mastery of the subject appropriate for undergraduate students; the remainder of the students "partially met" the goals of professional mastery.

Summary of Student Learning:

Students in the GEOL 410 (Hydrogeology Field Methods) course are required to demonstrate mastery of groundwater concepts and professional skills by assessing a request for proposals, and developing a bid package (including a budget and safety plan), and presenting their bid package to industry and government professionals working in the field of groundwater hydrology. The winning bid package, chosen by the groundwater professionals attending the presentation of bids, organizes and fields a 24-hour aquifer characterization pumping test according to the request for proposals, and all participants in the test (i.e., students in the class) turn in a final report of the test (including data analysis) and make an oral presentation of the results. On the basis of evaluation of the bid packages by the groundwater community, half of the groups presenting bids achieved a level of professionalism reflecting mastery of the subject appropriate for undergraduate students; the remainder of the students "partially met" the goals of professional mastery.

Summary of Faculty Discussion:

Faculty discussion of assessment for this program has been limited by the ongoing revision to the Geology and Geography BS degrees. However, informal discussion indicates that further involvement in the evaluation process, as begun in the Fall 2020 GEOL 410 course, and further integration of professional skills (ethics, budgeting, safety planning, oral and written communication, project logistics) is beneficial for career development and should be expanded to other courses as appropriate.

Summary of Changes/Improvements Being Considered:

Discussion of additions to the curriculum to improve student outcomes, as well as revisions to individual courses to better cover the professional aspects of a career in geology/hydrogeology, are ongoing.

Inter-rater Reliability:

All faculty teaching in the geology curriculum have been involved in a review of the essential skills for professional preparation in geology, as set forth in the ASBOG handbook and related materials. All geology faculty participated in development of a matrix of required skills based on the ASBOG handbook, and mapping those skills onto courses in the curriculum to ensure students were exposed to the necessary material.

Closing the Loop:

The development of the skills matrix from the ASBOG test materials and mapping of the skills to courses offered by the department was extremely helpful in understanding where the geology curriculum could be augmented to improve student success. Also very helpful were the discussions with industry and managers from government agencies, which helped to point out skills that were missing or treated inadequately in the program. A number of courses have been revised in response to these assessments; most importantly for the hydrogeology/environmental emphasis area, in the groundwater field methods course (GEOL 410), although similar changes to the GEOL 290 course have also been important, since this course (and the capstone GEOL 490 class) is required of all geology BS majors, not just those in the physical geology emphasis area.

Geology MS

Assessment Report Contact: Chair

Program Changes in Past Year:

The Geological Sciences and Geography programs were merged in the past year, necessitating a rethinking and reorganization of all the programs under the two former departments. This reorganization is on-going, but the majority of work to date has been focused on the undergraduate curriculum. Revision of the graduate curriculum is expected for the coming year.

Learning Outcomes are Communicated to All Students in Program (check box if true):

Learning Outcomes are Communicated to All Faculty (check box if true):

Optional: Framework Alignment:

Import Outcomes Data (from Anthology Outcomes):

Graduates receiving a M.S. in Geological Sciences will demonstrate in-depth content knowledge in the professional subfield of their choice and related, supporting subfields in geology, mathematics, and other sciences.

Summary of Student Learning:

Students are assessed on the basis of graduate level coursework as defined in their degree plans and performance on oral thesis defense examination. All students must receive grades of A or B (or Pass, in the case of pass-fail grading) in all their graduate-level coursework. All students must pass the oral thesis defense exam. Being permitted to take this exam indicates the adviser's agreement that the student has adequately met the criteria for this outcome. Passing the exam indicates the committee's agreement that the student has achieved the necessary level of expertise.

Summary of Faculty Discussion:

There has been relatively little discussion among the department faculty regarding the geology MS. In part, this is because the coursework and research undertaken by the students is diverse and largely dependent on the advisor. The majority of discussion of the findings of student learning outcomes takes place between smaller subgroups of the faculty, within the context of the oral examinations.

Summary of Changes/Improvements Being Considered:

No changes are being considered at this time. However, it is expected that changes will be considered in the upcoming year as revisions to the undergraduate curriculum (in response to the recent department merger) are completed and the discussion shifts to graduate education.

Inter-rater Reliability:

The primary means by which consistency is maintained between students in the program is through the oral examination process, which requires three or more faculty to agree that students have mastered the program learning outcomes.

Closing the Loop:

The rapid turnover of department chairs, and the upheaval associated with the recent department merger have made it impractical to make significant revisions to the graduate program in response to previous assessment efforts. It is expected that this will change as the department achieves greater stability in the coming year.

Geology PhD

Assessment Report Contact: Department Chair

Program Changes in Past Year:

The Geological Sciences and Geography programs were merged in the past year, necessitating a rethinking and reorganization of all the programs under the two former departments. This reorganization is on-going, but the majority of work to date has been focused on the undergraduate curriculum. Revision of the graduate curriculum is expected for the coming year.

Learning Outcomes are Communicated to All Students in Program (check box if true):

Learning Outcomes are Communicated to All Faculty (check box if true):

Optional: Framework Alignment:

Import Outcomes Data (from Anthology Outcomes):

Graduates receiving a PhD in Geological Sciences will demonstrate in-depth content knowledge in the professional subfield of their choice and related, supporting subfields in geology, mathematics, and other sciences.

Summary of Student Learning:

Students are assessed on the basis of graduate level coursework as defined in their degree plans and performance on oral thesis defense examination. All students must receive grades of A or B (or Pass, in the case of pass-fail grading) in all their graduate-level coursework. All students must pass the oral thesis defense exam. Being permitted to take this exam indicates the adviser's agreement that the student has adequately met the criteria for this outcome. Passing the exam indicates the committee's agreement that the student has achieved the necessary level of expertise.

Summary of Faculty Discussion:

There has been relatively little discussion among the department faculty regarding the geology MS. In part, this is because the coursework and research undertaken by the students is diverse and largely dependent on the advisor. The majority of discussion of the findings of student learning outcomes takes place between smaller subgroups of the faculty, within the context of the oral examinations.

Summary of Changes/Improvements Being Considered:

No changes are being considered at this time. However, it is expected that changes will be considered in the upcoming year as revisions to the undergraduate curriculum (in response to the recent department merger) are completed and the discussion shifts to graduate education.

Inter-rater Reliability:

The primary means by which consistency is maintained between students in the program is through the oral examination process, which requires three or more faculty to agree that students have mastered the program learning outcomes.

Closing the Loop:

The rapid turnover of department chairs, and the upheaval associated with the recent department merger have made it impractical to make significant revisions to the graduate program in response to previous assessment efforts. It is expected that this will change as the department achieves greater stability in the coming year.

Geography BS

Assessment Report Contact: Department Chair

Program Changes in Past Year:

The Geological Sciences and Geography programs were merged in the past year, necessitating a rethinking and reorganization of all the programs under the two former departments. This reorganization is on-going, but the majority of work to date has been focused on the undergraduate curriculum. A large number of changes to the curriculum have been made in the past year, including renaming courses to better reflect their content and rethinking the required introductory courses to allow for alternative pathways to the degree. In addition to changes already made, the curriculum is currently undergoing revision to better integrate material from both the geography and geology sides of the department in an effort to reduce duplication and offer students a more holistic educational experience.

Learning Outcomes are Communicated to All Students in Program (check box if true):

Learning Outcomes are Communicated to All Faculty (check box if true):

Optional: Framework Alignment:

Import Outcomes Data (from Anthology Outcomes):

Student success at achieving learning outcomes is largely measured by 1) successful completion of required and elective courses, and 2) the ability to carry out an independent project as part of the capstone course that integrates all aspects of the students' undergraduate learning. Oral and written project reports for capstone course Geog 493. This course requires every student to perform a research project or focused internship, to write a report describing the project and its results, and to make an oral presentation summarizing their work and its outcomes. Students follow a specified course of study as delineated in the UI Catalog. Evaluation of student performance in courses is measured by: 1) examinations (midterm and final) 2) quizzes 3) essays and research papers 4) semester project papers 5) exercises (in some methods courses).

Summary of Student Learning:

Students in the capstone course demonstrated competency in applying classroom learning and integrating classroom education with real-world problems. Student mastery in these classes was demonstrated in particular by a written paper and oral report. Students will score at least 80% on the communication-related criteria for these reports. Minimum performance targets for acceptable learning outcomes is 75% of learned material generating a course grade of C or better.

Summary of Faculty Discussion:

There has been considerable discussion of undergraduate student learning outcomes and expectations among the faculty as the result of the recent department merger and subsequent curriculum revision. The curriculum is being reoriented to better address topics of societal importance, such as global change and sustainability. There has also been some discussion of the needs of the program's state and industry partners, including a meeting with stakeholders to discuss their workforce needs.

Summary of Changes/Improvements Being Considered:

A program of curriculum revision is being pursued to integrate the geography and geology undergraduate curricula to improve efficiency and provide students with a better preparation to meet emerging societal and environmental challenges.

Inter-rater Reliability:

The primary mechanism by which consistency between students is the performance of the students in the capstone course.

Closing the Loop:

The department has engaged with industry and state agencies to find ways to improve the ability of our students to compete for careers. Through these discussions and the requirements of the department merger, we are revising the curriculum to better integrate the geography and geology undergraduate curricula to improve efficiency and provide students with a better preparation to meet emerging societal and environmental challenges.

Geography MS

Assessment Report Contact: Department Chair

Program Changes in Past Year:

The Geological Sciences and Geography programs were merged in the past year, necessitating a rethinking and reorganization of all the programs under the two former departments. This reorganization is on-going, but the majority of work to date has been focused on the undergraduate curriculum. Revision of the graduate curriculum is expected for the coming year.

Learning Outcomes are Communicated to All Students in Program (check box if true):

Learning Outcomes are Communicated to All Faculty (check box if true):

Optional: Framework Alignment:

Import Outcomes Data (from Anthology Outcomes):

Students demonstrate the ability to communicate research in oral presentations and written peer-reviewed materials.

Summary of Student Learning:

Student learning is evaluated on: 1) Completion of course work with grades of B or better including Geography 591 and Geography 507. 2) Successful completion of qualifying thesis prospectus. 3) Successful completion of M.S. thesis or, for non-thesis students, written report, as the primary written product of the student's research. 4) Oral presentations in professional contexts (scholarly conferences, UI Research Expo, etc.).

Summary of Faculty Discussion:

There has been little discussion to date among the department faculty regarding the geography MS. In part, this is because the coursework and research undertaken by the students is diverse and largely dependent on the advisor. The majority of discussion of the findings of student learning outcomes takes place between smaller subgroups of the faculty, within the context of the oral examinations

Summary of Changes/Improvements Being Considered:

No changes have been decided on at this time, although it is likely the program emphasis will change in the coming year to reflect the emphasis of the merged department on sustainability and global change. It is expected that changes will come into greater focus in the upcoming year as revisions to the undergraduate curriculum (in response to the recent department merger) are completed and the discussion shifts to graduate education.

Inter-rater Reliability:

The primary means by which consistency is maintained between students in the program is through the oral examination process, which requires three or more faculty to agree that students have mastered the program learning outcomes.

Closing the Loop:

The rapid turnover of department chairs, and the upheaval associated with the recent department merger have made it impractical to make significant revisions to the graduate program in response to previous assessment efforts. It is expected that this will change as the department achieves greater stability in the coming year.

Geography PhD

Assessment Report Contact: Department Chair

Program Changes in Past Year:

The Geography and Geological Sciences programs were merged in the past year, necessitating a rethinking and reorganization of all the programs under the two former departments. This reorganization is on-going, but the majority of work to date has been focused on the undergraduate curriculum. Revision of the graduate curriculum is expected for the coming year.

Learning Outcomes are Communicated to All Students in Program (check box if true):

Learning Outcomes are Communicated to All Faculty (check box if true):

Optional: Framework Alignment:

Import Outcomes Data (from Anthology Outcomes):

Students are assessed on the basis of graduate level coursework as defined in their degree plans and performance on oral thesis defense examination. All students must receive grades of A or B (or Pass, in the case of pass-fail grading) in all their graduate-level coursework. All students must pass the oral thesis defense exam. Being permitted to take this exam indicates the adviser's agreement that the student has adequately met the criteria for this outcome. Passing the exam indicates the committee's agreement that the student has achieved the necessary level of expertise.

Summary of Student Learning:

Graduate students in the PhD program demonstrated the following: 1) Successful completion of qualifying examinations and oral dissertation defense; 2) Successful completion of a dissertation that meets professional standards in the opinion of the thesis committee and the major professor; in addition: 3) each student's dissertation research will result in at least one external (e.g. not within the department) presentation and/or journal article while the student is enrolled at UI.

Summary of Faculty Discussion:

There has been relatively little discussion among the department faculty regarding the geography PhD. Coursework and research undertaken by the students is diverse and largely dependent on the advisor. The majority of discussion of the findings of student learning outcomes takes place between smaller subgroups of the faculty, within the context of the oral examinations.

Summary of Changes/Improvements Being Considered:

No changes are being considered at this time. However, it is expected that changes will be considered in the upcoming year as revisions to the undergraduate curriculum (in response to the recent department merger) are completed and the discussion shifts to graduate education.

Inter-rater Reliability:

The primary means by which consistency is maintained between students in the program is through the oral examination process, which requires three or more faculty to agree that students have mastered the program learning outcomes.

Closing the Loop:

The rapid turnover of department chairs (five in the past five years, between the geography and geological sciences departments), and the upheaval associated with the recent department merger have made it impractical to make significant revisions to the graduate program in response to previous assessment efforts. It is expected that this will change as the department achieves greater stability in the coming year.

Geographic Information Systems Academic Certificate

Assessment Report Contact: Department Chair

Program Changes in Past Year:

The Geography and Geological Sciences programs were merged in the past year, necessitating a rethinking and reorganization of all the programs under the two former departments. This reorganization is on-going, but the majority of work to date has been focused on the undergraduate curriculum, including the GIS certificate curriculum. Although the coursework required for the certificate has remained the same to date, changes are anticipated in the near future, in response to the need for greater efficiency and to better support the merger between the two programs (geography and geological sciences).

Learning Outcomes are Communicated to All Students in Program (check box if true):

Learning Outcomes are Communicated to All Faculty (check box if true):

Optional: Framework Alignment:

Import Outcomes Data (from Anthology Outcomes):

Students are evaluated on the basis of: examinations (midterm, final and quizzes); semester research projects/papers; laboratory exercises, and are expected to demonstrate: 1) an understanding of GIS concepts and operations 2) an understanding of map projections 3) competence in managing geospatial data 4) competence in mapping and/or visualization of geospatial data 5) competence in project planning and implementation that involves analysis of geospatial data 6) competence in using geospatial techniques for decision making 7) depth and/or breadth in analysis of geospatial data beyond that expected in the core course sequence (Geog 385/475/390).

Summary of Student Learning:

GIS certificate students demonstrated competence in project planning and implementation that involves analysis of geospatial data, and in using geospatial techniques to inform decision making. Employer and alum feedback and continued employment opportunities for our students in public, private sector and, for students in or going on to graduate school, that they have sufficient skills and abilities to carry out their research.

Summary of Faculty Discussion:

Although there has been some discussion among the faculty in the context of undergraduate curriculum revision regarding the GIS certificate, the majority of the discussion has been between the faculty and industry representatives. The objective of these discussions has been to understand how to revise the curriculum to better address the needs of industry for an educated workforce. Although a number of areas for improvement have been identified, most of these are awaiting hiring of a dedicated GIS professional/academic to allow better coverage within the curriculum in topics of interest to industry.

Summary of Changes/Improvements Being Considered:

No changes are being considered at this time. However, it is expected that changes will be considered in the upcoming year as revisions to the undergraduate curriculum (in response to the recent department merger) are completed.

Inter-rater Reliability:

Since students in the certificate take the same courses, with minor variations, evaluation between students is generally consistent.

Closing the Loop:

It has been very difficult to use past assessments to improve the program, due to the change in the type of information requested between this year and previous years. In addition, the lack of continuity in leadership and the general chaos of the recent department merger have complicated things. Hopefully, this will improve in the near future and assessment will improve as the university standardizes on one format and faculty learn what is

required. This would greatly enhance the ability of faculty to apply assessments from previous years toward improving learning outcomes, but it will undoubtedly take several years to achieve this goal.

Student Achievement

New Student Achievement Item

Student Retention:

Student Persistence:

Student Completion:

Student Postgraduate Success:

Identify Equity Gaps:

Effective Learning Environment and Closing Equity Gaps:

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