**Annual Departmental Assessment Report**

**Department or Program: Geography**

**Academic Year of Report: 2017-18**

**Department Contact Person for Assessment: P. McDowell or D. Gavin**

**Section 1: Learning Objectives Assessed for this Report**

*Geography Major*

Learning Objective 2: Identify and use geospatial techniques to analyze spatial data towards problem solving or modeling

Learning Objective 3: Exhibit the ability to critically analyze geographic problems, ask research questions, understand methods, and conduct research

*Spatial Data Science and Technology Major*

Because this is a new major (opened in fall 2017), no assessment was scheduled for 2017-18. The first assessment will occur for academic year 2018-19.

**Section 2: Assessment Activities**

*Geography Major*

For Learning Objective 2, we examined two long-running courses related to analysis and visualization of geographic data as well as student portfolios created by students in GEOG 419: The Professional Geographer.

GEOG 493: Advanced Cartography presents topics, materials, and tools relevant for solving map design and production problems. We analyzed grades from the final course project (40% of the course grade) to design and create a finished thematic cartographic product, that includes maps with supporting graphs and text. The final class project and presentation is used to assess the knowledge and skill students have gained in the course, has a grading rubric including topics such as the creation of data graphs, design, mapping method, data quality, richness, and completeness, etc. The class is challenging because it requires technical skills of using GIS software and data-analytic skills to effectively summarize complicated data. The class has been taught by the same instructor (Jim Meacham) all five year (2014-2018). The class normally fills to capacity at 20 students. Average and standard deviation of student scores from 2014 were 82±11%. The scores changed little until 2017 (81±7%) but 2018 had a high-performing class with scores of 88±8%. Qualitatively, this class is popular and carries a reputation as a challenging class to obtain skills in cartography. The student evaluations have been above-average for the department.

GEOG 419 The Professional Geographer: Nearly all majors in Geography take this class. The class focuses on helping students articulate the set of skills and concepts that they have developed throughout their geography courses. Students are graded on how the selection of artifacts (projects, experiences, etc.) that they present relate to their overall interests and the skills they want to promote; that artifacts are clearly and efficiently labeled and relate to the overall sense of the portfolio; that there are clear links between artifacts and the future career interests of the student; that the artifacts effectively reflect the work they have completed in their Geography courses; that these artifacts are described clearly and effectively for a non-geography audience.

The online portfolio is the final product for GEOG 419 and represents the culmination of how students have reflected on what they have learned and how they want to approach their coursework before they finish college. Students spend the term learning how to articulate their experiences beyond the classroom, and see the value of individual projects in the context of the specific and transferable skills reflected in Learning Objective 2. Students have included projects in their Spatial Data Science courses, policy briefs for courses such as GEOG 465, 467, and 468; Storymaps they have completed for GEGO 181, 201, or 468, and a variety of other projects from courses throughout the major, most of which reflect the ability of a student to ask a question, identify appropriate methods and engage in critical thinking to effectively answer it.

In 2017-2018, GEOG 419 was taught two times. In the Winter of 2018, the average score on the online portfolio assignment was 90%.

In the Spring of 2018, the average score was 80%. 16 students were enrolled in the course, one did not turn in a final portfolio and two students turned in only partially complete portfolios, lowering the course average.

This is a challenging assignment for students because it asks them to think beyond the individual courses that they take, and instead draw a larger narrative about their interests and skills. This class has been taught as either GEOG 399 or GEOG 419 for the last five years by our Undergraduate Coordinator and Instructor, Leslie McLees, who is also the Geography academic and career advisor. In 2017-2018, there was enough need for the course that we started to offer it twice.

We believe we are meeting Objective 2. A majority of students are drawn to geography because the geospatial technology, and thus these students excel at using geospatial data for problem solving.

For Learning Objective 3, we identified two courses that are listed in our curriculum map as providing assessment of mastery of outcome. We selected courses that are frequently offered and would provide a good basis for assessment. Data on student performance in these courses for the last several years were examined to evaluate whether the objective is being met. The results are summarized below.

GEOG 430: Long-term Environmental Change: Students write research papers of at least eight pages and (in some cases) incorporate their writing into Wikipedia articles. The students need to conduct a literature review independently and write a coherent review of an advanced topic in climate change science. Student scores on the research paper averaged 86% (s.d. +5%) for the past three times the class was offered, and these scores showed no trend over time. The overall course scores average around 87% (s.d. +7%).

GEOG 441: Political Geography: This class examines the political organization of territory in different parts of the world and examine the spatial relationships between political patterns and a variety of related phenomena, including resources, militarization, ethnicity, economic development, and policy making. The class involves a 5-page research paper that accounts for 30% of the grade, and two exams each worth 20% of the grade. Student scores on the final test average 78-85% (s.d. +11-15%) for all years examined. The overall course scores average around 84-86% (s.d. +7-8%).

**Section 3: Actions Taken Based on Assessment Analysis**

For both learning objectives, we found that class grades indicate that the classes are appropriately gauged to students’ abilities. However, it remains uncertain to the degree which instructors are cognizant of department learning objectives when they design course content and grading schemes. Thus, it was not straightforward to identify which activities in these classes map to specific learning objectives. Future action will be to have instructors choose an assignment which maps closely to specific learning objectives and begin tracking student performance on that activity.

**Section 4: Other Efforts to Improve the Student Educational Experience**

We have modified the Geography major beginning in 2016 and began a new major in 2017. The “concentrations” of the new major match current strengths of the department. We are continually evolving course offerings to meet the student demands in these areas.

**Section 5: Plans for Next Year**

*Geography Major*

For academic year 2018-19, we will assess Learning Objectives 1 and 4. These objectives are:

1. Exhibit a general understanding of major biophysical and social patterns in the world, and the key drivers that give rise to those patterns.

4. Demonstrate effective written, verbal, and graphic communication skills

The broad scope of these objectives do not map neatly to specific courses; rather they are spread among most classes in the major. In spring 2019, we will choose two long-running classes to use to assess each learning outcome. For example, for objective 4, classes with writing assignments should have a grading rubric in which clarity of writing and presentation receive separate scores. For objective 1, we will use classes typically enrolled at class sizes more than 30 students.

The Assessment Report for 2017-18 will be shared with the faculty as a whole. We will devote a faculty meeting to discussing the results. Individual faculty members will discuss whether the results reflect their view of student mastery in their courses. We will discuss whether we find this method of assessing mastery valuable or not, and we will discuss alternative approaches. We believe the results of this assessment are generally indicate that our students are achieving mastery of learning objectives 2 and 3 so we don’t anticipate major changes in our assessment plan.

*Spatial Data Science and Technology Major*

This will be the first year of assessment for the SDST major. We will assess Learning Objective 4.

Utilize geospatial data and technologies for collecting data, employ analytical and visualization methods for interpreting such data, and communicate effectively to a range of audiences.

We will modify the current assessment plan due to changes in instruction in the department. This learning objective is similar to objective 2 for the Geography major. We will use the following classes to address this objective:

 Geog 319 The Professional Geographer portfolios.

 Geog 482: GIScience II.

 Geog 495: Geographic Data Analysis.

Grades on projects and student feedback in course evaluations will be used in these courses.