Texas State University
Outcomes Report

Mission Statement
The General Geography program provides students with a highly specialized career goal: the option to design their own unique geography-related program in consultation with a faculty advisor. The General Geography program may also prepare students for graduate studies. In addition to general and specialized lecture-format courses, the program offers a variety of project-based lab and field-trip experiences, career development through advising, job-shadowing and internships as well as team-building and leadership opportunities available by joining one or more geography department student organizations. Finally, the General Geography program provides students with the foundation for a liberal education, preparing graduates to think independently, to choose free and to base personal and professional decisions on a broad understanding of the Earth's physical and cultural landscapes in order to live full, rewarding lives.

Evidence of Improvement
Assessment results of this year’s geographic information systems (GIS) knowledge questions for Outcome 4 - Method 1 show a 15% increase in the number of students meeting or exceeding expectations compared to AY 2010 – 2011.
Assessment results of this year’s General Geography Majors for Outcome 5 – Method 1 and Outcome 5 – Method 2 show a 33% increase in the number of students who exceeded expectations compared to AY 2010 – 2011. Small sample-size (n=3) for both year’s is reflective of the fact that General Geography majors are spread-out across all of the ‘capstone’ courses.

Action Plan
For Outcome 3 – Method 1, instructor will use AY 2011 – 2012 results as new baseline data and add embedded questions to evaluate student knowledge of inferential statistics.
For Outcome 4 – Method 2, instructor will revise grading rubrics for final project so that students can be better differentiated based on the quality of their work and so that outstanding students can be challenged to more fully develop their potential.
For Outcome 5 – select a different capstone course to assess general geography majors.

Outcome 1
Students will demonstrate knowledge of the major physical features of the Earth and the ability to locate examples of Earth’s major physical features on a map.

Outcome 1 - Method 1
Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of the major physical features of the Earth using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 1 - Method 1 - Result
During the fall 2011 semester, 355 undergraduate students were assessed using embedded test questions in order to measure their knowledge of the major physical features of the Earth. The course instructor found that 90.3% of the undergraduate students met (31.8%) or exceeded (58.5%) expectations by demonstrating their knowledge of the major physical features of the Earth. The most frequently missed knowledge questions – related to the physical features of Africa - still had at least 85% of the students getting them correct. Given these findings, students should continue to improve their knowledge by focusing more study on these weaker areas as prompted by the instructor.

Outcome 1 - Method 2
Students will be evaluated during and/or at the end of the semester by instructors on their ability to locate examples of major physical features of the Earth on a map using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test
questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

**Outcome 1 - Method 2 - Result**

During the fall 2011 semester, 355 undergraduate students were assessed using embedded test questions in order to measure their ability to locate examples of major physical features of the Earth on a map. The course instructor found that 82.2% of the undergraduate students met (46.5%) or exceeded (35.7%) expectations by demonstrating their ability to locate examples of major physical features of the Earth on a map. Students failed to meet the 70% target on two map locations: both in Africa (62.7% and 61.4%). Given these findings, students should continue to improve their ability to locate examples of major physical features of the Earth on a map by focusing more study on these weaker areas as prompted by the instructor. Slightly lower scores on map questions compared to knowledge questions may be the result of the complex nature of the map location questions, which require students to examine information about a location and select the correct answer based on that information, as well as know that location on a map.

**Outcome 2**

Students will demonstrate knowledge of the major cultural features of the Earth and the ability to locate examples of Earth’s major cultural features on a map.

**Outcome 2 - Method 1**

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of the major cultural features of the Earth using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

**Outcome 2 - Method 2**

Students will be evaluated during and/or at the end of the semester by instructors on their ability to locate examples of major cultural features of the Earth on a map using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

**Outcome 3**

Students will demonstrate knowledge of quantitative methods used by geographers and their ability to use statistical software to solve geographic problems.

**Outcome 3 - Method 1**

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of quantitative methods using 10 embedded test questions from the course: Quantitative Methods for Geography (GEO 3301). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

**Outcome 3 - Method 1 - Result**

During the spring 2010 semester, 69 undergraduate students were assessed during the semester by instructor on their knowledge of quantitative
methods using embedded test questions from the course: Quantitative Methods for Geography (GEO 3301). 73% of the students met (52%) or exceeded (21%) expectations on embedded knowledge questions related to measurement and descriptive statistics. 81% of the students met (64%) or exceeded (17%) expectations on embedded knowledge questions related to bivariate relationships and spatial statistics.

Outcome 3 - Method 2
Students will be evaluated during and/or at the end of the semester by instructors on their ability to use statistical software to solve geographic problems using 10 test questions embedded in lab assignments and/or lab quizzes from the course: Quantitative Methods for Geography (GEO 3301). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 3 - Method 2 - Result
During the spring 2012 semester, 69 undergraduate students were assessed on their ability to use statistical software to solve geographic problems using a final project graded with rubric from the course: Quantitative Methods for Geography (GEO 3301). 79% of the students met (64%) or exceeded (17%) expectations on their ability to use statistical software to solve geographic problems. Students lost most points by failing to follow assignment instructions.

Outcome 4
Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS.

Outcome 4 - Method 1
Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of geographic information systems using 10 embedded test questions from the course: Fundamentals of Geographic Information Systems (GEO 2426). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 4 - Method 1 - Result
During the fall 2011 semester, 54 undergraduate students were assessed during and at the end of the semester by instructors on their knowledge of geographic information systems using knowledge questions embedded in the midterm and final exams for Fundamentals of Geographic Information Systems (GEO 2426). Overall, 90.8% of the students met or exceeded expectations - an improvement of more than 15% compared to AY 2010 – 2011.

Outcome 4 - Method 2
Students will be evaluated during and/or at the end of the semester by instructors on their ability to use the tools and methods of GIS using 10 test questions embedded in lab assignments and/or lab quizzes from the course: Fundamentals of Geographic Information Systems (GEO 2426). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 4 - Method 2 - Result
During the fall 2011 semester, 54 undergraduate students were assessed at the end of the semester by instructors on their ability to use the tools and methods of GIS with a final project using a grading matrix in the lab section of Fundamentals of Geographic Information Systems (GEO 2426). 96.3 % of the students met or exceeded expectations - an improvement of 4.5% compared to AY 2010 – 2011.

Outcome 5
Students will demonstrate their knowledge of one specialized area of geography and demonstrate their expertise in this specialized area of geography; they will demonstrate this knowledge through embedded test items and a project from one of the other six geography majors.

Outcome 5 - Method 1
Students will be evaluated during and/or at the end of the semester by instructors on their knowledge from a capstone course of one of the other six geography majors using approximately 10 embedded test questions. Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 5 - Method 1 - Result
During fall 2011, 3 undergraduate students enrolled as General Geography Majors were assessed on their knowledge of one specialized area of geography using embedded test questions in order to measure their knowledge of environmental management. The course instructor found that all
of the undergraduate General Geography Majors met expectations for their knowledge of environmental management by answering 10 embedded test questions. All three students exceeded expectations by answering the questions 95% correctly. The results support current classroom approaches, but there is still some room for improvement in certain topical areas. This year some students struggled with questions pertaining to contemporary issues of energy production.

**Outcome 5 - Method 2**

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge and skills as an embedded class project from a capstone course of one of the other six geography majors. Instructors will use a grading rubric (scored from 0 – 10) to assess student ability on the basis of “failure to meet,” “meeting,” or “exceeding expectations.” (Score 10 = exceeded expectations, score 7 – 9 = met expectations, score 6 or less = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations. We expect at least 70% of the students will meet or exceed expectations for this outcome.

**Outcome 5 - Method 2 - Result**

In fall 2011, 3 undergraduate students enrolled in the GEO 4313 environmental management course as General Geography Majors were assessed using an embedded written class project to assess their knowledge of resource and environmental issues. A grading rubric was used to assess students’ ability to follow the instructions, their ability to successfully execute a well-organized and well-edited written paper, their ability to organize references and citations in a professional style, their ability to gather and organize a scholarly bibliography, and their ability to think critically and creatively in their investigation and discussion of the topic assigned. All three students exceeded expectations (>90% score). Students did very well overall on the content and document retrieval portions of the assignment. The majority of errors on all assignments were errors relating to grammar and bibliographic style.

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The General Geography program provides students with a highly specialized career goal: the option to design their own unique geography-related program in consultation with a faculty advisor. The General Geography program may also prepare students for graduate studies. In addition to general and specialized lecture-format courses, the program offers a variety of project-based lab and field-trip experiences, career development through advising, job-shadowing and internships as well as team-building and leadership opportunities available by joining one or more geography department student organizations. Finally, the General Geography program provides students with the foundation for a liberal education, preparing graduates to think independently, to choose free and to base personal and professional decisions on a broad understanding of the Earth's physical and cultural landscapes in order to live full, rewarding lives.

### Evidence of Improvement

Assessment results of this year’s embedded knowledge questions for Outcome 1, Method 1 show that 89.1% of the students met or exceeded expectations compared to 86.6% of students meeting or exceeding expectations during the 2009-2010 academic year - a 2.5% improvement.

Assessment results of this year’s embedded questions for Outcome 3, Method 2 show that 97% of the students met or exceeded expectations compared to 90% of students meeting or exceeding expectations during the 2009-2010 academic year – a 7% improvement.

Assessment results of this year’s embedded questions for Outcome 4, Method 2 show that 91.8% of the students met or exceeded expectations compared to 79% of students meeting or exceeding expectations during the 2009-2010 academic year – a 12.8% improvement.

Assessment results of this year’s embedded questions for Outcome 5, Method 2 show that 100% of the students (3 of 3) exceeded expectations compared to 67% (2 of 3) of students exceeding expectations during the 2009-2010 academic year.

### Action Plan

Based on the results of this large sample (n=450), the course instructor will focus extra emphasis on frequently missed knowledge questions and spend additional time on the Asia and Africa regions during the next academic year (2010 – 2011). For the 2009-2010 academic year, it was speculated that the weaker performance on Asia was related to that particular section of the course having substantially more information that students need to study in preparation for the exam. Asia was split up, with Southeast Asia’s material joining the Africa material at the end of the course. However, this may have resulted in the difficulty being spread out, as the Asia questions improved, but the Africa questions saw decline from the previous year. Also, there may be a regression to the mean that may result from the sample from the fall 2010 semester being double the size of the previous year’s sample. The course instructor will continue to emphasize the complex nature of the map questions, which go beyond merely knowing and remembering but also understanding and applying knowledge, to help students better prepare for their examinations. This will involve students doing additional map exercises to become more familiar with using maps as geographic tools.

Based on the results of this large sample (n=450), the course instructor will focus extra emphasis on frequently missed knowledge questions including spending additional time on the cultural features of Africa during the next academic year. The weaker performance on Africa may also be related to that particular section of the course having substantially more information with the inclusion of Southeast Asia, a change that was considered in last year’s report. That additional information of a relatively unfamiliar region to a unit covering an extremely unfamiliar region may have resulted in time constraints and possible information overload. Also, the slight degree of the decline may also be a result of a sample size that was double the size of the previous year’s sample size, indicating a possible regression to the mean. The course instructor will also emphasize the complex nature of the map questions, which go beyond merely knowing and remembering but also understanding and applying knowledge, to help students better prepare for their examinations. This will involve students doing additional map exercises to become more familiar with using maps as geographic tools.

Although Math 1315 College Algebra is a prerequisite for our quantitative methods course many students continue to have difficulty with basic arithmetic and algebra. As in the past, course instructor had to spend significant time reviewing basic mathematical operations and techniques. Course instructor will continue to review basis math as required.

During this assessment period course instructor introduced a field sampling problem that required statistical analysis using either Excel™ or SPSS™. Moreover, the instructions were general in nature, not a “cookbook recipe.” Initially, this frustrated the students, but they quickly learned to build the equations and formulas in the software packages. The sampling exercise required both collection of primary data and spatial analysis of these data. Course instructor expanded this exercise and incorporated a day in the field to collect data. Students analyzed these data and wrote a research report based on their sample and the analysis. Course instructor also spent more time on graphing and charting techniques and theory.
Course instructor will continue to expand the above and will also spend more time using SPSS.

Based on the results of this analysis (n=49), the course instructor will review other methods of teaching about 1) scales of measurement, 2) spatial data abstraction theory, and 3) data classification methods. After reviewing the learning outcome measurement method for the GEO2426 lecture section (Method 1) it was found that the current test questions might not capture some essential spatial learning outcomes. Thus, in the 2011/2012 academic year the instructor will review and redesign (if necessary) the 10 embedded test questions. Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions (10 questions correct = exceeded expectations, 7 - 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations).

The course instructor will enhance current lecture materials (Power Points, handouts, in-class projects) and add selected readings to support the student’s learning on each of the topical areas that previously yielded performance below expectations. Specifically more class time will be allotted for covering contemporary issues of energy production and for addressing scholarly writing skills. The small sample-size is reflective of the fact that General Geography majors are spread-out across all of the ‘capstone’ courses. In addition to the above actions, we will sample a different capstone course for General Geography majors next academic year.

Outcome 1

Students will demonstrate knowledge of the major physical features of the Earth and the ability to locate examples of Earth’s major physical features on a map.

Outcome 1 - Method 1

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of the major physical features of the Earth using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 1 - Method 2

Students will be evaluated during and/or at the end of the semester by instructors on their ability to locate examples of major physical features of the Earth on a map using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 2

Students will demonstrate knowledge of the major cultural features of the Earth and the ability to locate examples of Earth’s major cultural features on a map.

Outcome 2 - Method 1

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of the major cultural features of the Earth using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of
failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

### Outcome 2 - Method 1 - Result

During the fall 2010 semester, 450 undergraduate students were assessed using embedded test questions in order to measure their knowledge of the major cultural features of the Earth. The course instructor found that 78.9% of the undergraduate students met (49.2%) or exceeded (30.5%) expectations by demonstrating their ability to locate examples of major cultural features of the Earth on a map. Students failed to meet the 70% target on one question related to the cultural features of Africa (64.3%). Given these findings, students should improve their knowledge by focusing more study in these weaker areas as prompted by the instructor. Slightly lower scores on map questions may be the result of the complex nature of the map location questions which require students to examine information about a location and select the correct answer based on that information, as well as knowing that location on a map.

### Outcome 2 - Method 2

Students will be evaluated during and/or at the end of the semester by instructors on their ability to locate examples of major cultural features of the Earth on a map using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

### Outcome 3

Students will demonstrate knowledge of quantitative methods used by geographers and their ability to use statistical software to solve geographic problems.

#### Outcome 3 - Method 1

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of quantitative methods using 10 embedded test questions from the course: Quantitative Methods for Geography (GEO 3301). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

#### Outcome 3 - Method 2

During fall 2010, 20 undergraduate students were assessed using embedded test questions in order to measure their basic knowledge of quantitative methods for geography. The course instructor found that 97% of the undergraduate students met (50%) or exceeded (47%) expectations by demonstrating their knowledge of quantitative methods for geography. The 3% of the students who failed to meet expectations had the most difficulty with basic arithmetic and algebra skills. Given these findings, students could improve their knowledge of basic arithmetic and algebra skills as prompted by the instructor. Also, this particular student had significant attendance problems.

#### Outcome 3 - Method 2 - Result

During fall 2010, 20 undergraduate students were assessed using embedded test questions in order to measure their basic knowledge of quantitative methods for geography. The course instructor found that 97% of the undergraduate students met (50%) or exceeded (47%) expectations by demonstrating their knowledge of quantitative methods for geography. The 3% of the students who failed to meet expectations had the most difficulty with basic arithmetic and algebra skills. Given these findings, students could improve their knowledge of basic arithmetic and algebra skills as prompted by the instructor. Also, this particular student had significant attendance problems.

### Outcome 4

During fall 2010, 39 undergraduate students were assessed using embedded test questions in order to measure their ability to use statistical software to solve geographic problems. The course instructor found that 59.0% of the undergraduate students met expectations, and 38.0% exceeded expectations, by demonstrating their ability to use statistical software to solve geographic problems. The 3.0% of the students who failed to meet expectations had the most difficulty drawing conclusions from their data. Furthermore, the students who failed to meet expectations regarding software analysis had significant attendance problems.
Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS.

### Outcome 4 - Method 1

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of geographic information systems using 10 embedded test questions from the course: Fundamentals of Geographic Information Systems (GEO 2426). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

### Outcome 4 - Method 2

During AY 2010-2011, 49 undergraduate students were assessed using 10 embedded test questions in the midterm and final exam in order to measure their understanding of the general concepts of geographic information systems (GIS). The course instructor found that 75.48% of all undergraduate students met expectations. Three embedded questions failed to meet the 70% threshold. These questions were related to 1) the scales of measurement, 2) spatial data abstraction theory, and 3) data classification methods. Given these findings, additional class exercises will be developed to address these theoretical concepts. In addition, students will be asked to keep up with weekly readings and assignments.

### Outcome 4 - Method 2 - Result

During AY 2010-2011 the lab learning outcomes of 49 undergraduate students were assessed using a final project grading matrix. The course instructor found that 91.8% of the undergraduate students met expectations by demonstrating their ability to utilize a GIS to work on a project and answer geographic questions.

### Outcome 5

Students will demonstrate their knowledge of one specialized area of geography and demonstrate their expertise in this specialized area of geography; they will demonstrate this knowledge through embedded test items and a project from one of the other six geography majors.

### Outcome 5 - Method 1

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge from a capstone course of one of the other six geography majors using approximately 10 embedded test questions. Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

### Outcome 5 - Method 1 - Result

During fall 2010, 3 undergraduate students enrolled as General Geography Majors were assessed on their knowledge of one specialized area of geography (this semester: Environmental Management) using embedded test questions in order to measure their knowledge of environmental management. The course instructor found that all of the undergraduate General Geography Majors met expectations for their knowledge of environmental management by answering 10 embedded test questions. Two students exceeded expectations by answering the questions 95% correctly and the remaining student met expectations by answering 85% correctly. The results support current classroom approaches, but there is still some room for improvement in certain topical areas. This year some students struggled with questions pertaining to contemporary issues of energy production.

### Outcome 5 - Method 2

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge and skills as an embedded class project from a capstone course of one of the other six geography majors. Instructors will use a grading rubric (scored from 0 – 10) to assess student ability on the basis of “failure to meet,” “meeting,” or “exceeding expectations.” (Score 10 = exceeded expectations, score 7 – 9 = met expectations, score 6 or less = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations. We expect at least 70% of the students will meet or exceed expectations for this outcome.

### Outcome 5 - Method 2 - Result

In fall 2010, 3 undergraduate students enrolled in the GEO 4313 environmental management course as General Geography Majors were assessed using an embedded written class project to assess their knowledge of resource and environmental issues. A grading rubric was used to assess students’ ability to follow the instructions, their ability to successfully execute a well-organized and well-edited written paper, their ability to organize
references and citations in a professional style, their ability to gather and organize a scholarly bibliography, and their ability to think critically and creatively in their investigation and discussion of the topic assigned. All three students exceeded expectations (>90% score). Students did very well overall on the content and document retrieval portions of the assignment. The majority of errors on all assignments were errors relating to grammar and bibliographic style.

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Mission Statement

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Evidence of Improvement

Assessment results of this year’s embedded knowledge questions for Outcome 1, Method 1 show that 86.6% of the students met or exceeded expectations compared to 82.8% of students meeting or exceeding expectations during the 2008-2009 academic year - a 3.8% improvement. Assessment results of this year’s embedded map questions for Outcome 1, Method 2 show that 79.5% of the students met or exceeded expectations compared to 79.8% of the students met or exceeded expectations during the 2008-2009 academic year – a very slight .3% improvement. Assessment results of this year’s embedded map questions for Outcome 2, Method 2 show that 81.9% of the students met or exceeded expectations compared to 80.2% of students meeting or exceeding expectations during the 2008-2009 academic year – a 1.7% improvement. Assessment results of this year’s embedded questions for Outcome 3, Method 1 show that 99% of the students met or exceeded expectations compared to 70.8% of students meeting or exceeding expectations during the 2008-2009 academic year – a 19.2% improvement, due at least in part, to additional exercises prepared by the instructor.

Action Plan

Based on the results of this large sample (n=225), the course instructor will focus extra emphasis on frequently missed knowledge questions and spend additional time on the Asian region during the next academic year (2009 – 2010). The weaker performance on Asia may also be related to that particular section of the course having substantially more information that students need to study in preparation for the exam. It may be prudent to examine the possibility of breaking up Asia, spreading sub-regions into different sections of the course. The course instructor will also emphasize the complex nature of the map questions, which go beyond merely knowing and remembering but also understanding and applying knowledge, to help students better prepare for their examinations. This will involve students doing additional map exercises to become more familiar with using maps as geographic tools.

Based on the results of this large sample (n=225), the course instructor will focus extra emphasis on frequently missed knowledge questions including spending additional time on the cultural features of Asia during the next academic year. The weaker performance on Asia may also be related to that particular section of the course having substantially more information that students need to study in preparation for the exam. It may be prudent to examine the possibility of breaking up Asia, spreading sub-regions into different sections of the course. The course instructor will also emphasize the complex nature of the map questions, which go beyond merely knowing and remembering but also understanding and applying knowledge, to help students better prepare for their examinations. This will involve students doing additional map exercises to become more familiar with using maps as geographic tools.

Despite the fact that Math 1315 College Algebra is a prerequisite for our quantitative methods course, many students continue to have difficulty with basic arithmetic and algebra. As in the past, instructor had to spend significant time reviewing basic mathematical operations and techniques and plans to continue to do so in the future as required. Instructor also plans to elaborate on a field sampling problem collecting primary spatial data that requires statistical analysis using either Excel or SPSS.

Based on the results of this analysis (n=102), course instructors will meet and discuss better methods of teaching about 1) the history of Geographic Information Systems; 2) projections and coordinate systems, and 3) spatial analysis methods. After reviewing the learning outcome measurement method for the GEO2426 lab (Method 2), the instructors decided that the current format might not capture some essential spatial learning outcomes. In the 2010/2011 academic year the instructors will measure the lab learning outcomes with a final project grading matrix. The matrix will review 7 skill categories (Asking Geographic Questions, Researching Background Information, Collecting and Editing Geographic Data,
Analyzing Geographic Data, Map Design, Answering Geographic Questions, Poster Design and Presentation). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the final project grading matrix: 19-21 points = exceeded expectations, 14-18 points = met expectations, 13 or fewer points = failed to meet expectations.

The course instructor will enhance current lecture materials (Power Points, handouts, in-class projects) and add selected readings to support the student’s learning on each of the topical areas that previously rendered performance below expectations. Specifically more class time will be allotted to covering major figures/issues in US environmental management and on scholarly writing skills. The small sample-size is reflective of the fact that General Geography majors are spread-out across all of the ‘capstone’ courses. In addition to the above actions, we will sample a different capstone course for General Geography majors next academic year.

**Outcome 1**

Students will demonstrate knowledge of the major physical features of the Earth and the ability to locate examples of Earth’s major physical features on a map.

**Outcome 1 - Method 1**

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of the major physical features of the Earth using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

**Outcome 1 - Method 1 - Result**

During the fall 2009 semester, 225 undergraduate students were assessed using embedded test questions in order to measure their knowledge of the major physical features of the Earth. The course instructor found that 86.6% of the undergraduate students met (33.5%) or exceeded (53.1%) expectations by demonstrating their knowledge of the major physical features of the Earth, which exceeded our target. The most frequently missed knowledge questions – related to the physical features of Asia - still met the 70% target. Given these findings, students should continue to improve their knowledge by focusing more study on these weaker areas as prompted by the instructor.

**Outcome 1 - Method 2**

Students will be evaluated during and/or at the end of the semester by instructors on their ability to locate examples of major physical features of the Earth on a map using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

**Outcome 1 - Method 2 - Result**

During the fall 2009 semester, 225 undergraduate students were assessed using embedded test questions in order to measure their ability to locate examples of major physical features of the Earth on a map. The course instructor found that 79.8% of the undergraduate students met (48.8%) or exceeded (31%) expectations by demonstrating their ability to locate examples of major physical features of the Earth on a map, which exceeded our target. Students failed to meet the 70% target on one map location: Africa (68.7%). Given these findings, students should continue to improve their ability to locate examples of major physical features of the Earth on a map by focusing more study on these weaker areas as prompted by the instructor. Slightly lower scores on map questions compared to knowledge questions – related to the physical features of Asia - still met the 70% target. Given these findings, students should continue to improve their knowledge by focusing more study on these weaker areas as prompted by the instructor.

**Outcome 2**

Students will demonstrate knowledge of the major cultural features of the Earth and the ability to locate examples of Earth’s major cultural features on a map.

**Outcome 2 - Method 1**

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of the major cultural features of the Earth using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

**Outcome 2 - Method 1 - Result**

During the fall 2009 semester, 225 undergraduate students were assessed using embedded test questions in order to measure their knowledge of the major cultural features of the Earth. The course instructor found that 90.7% of the undergraduate students met (44.2%) or exceeded (46.5%)
Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS.

Outcome 2 - Method 2

Students will be evaluated during and/or at the end of the semester by instructors on their ability to locate examples of major cultural features of the Earth on a map using 10 embedded test questions from the course: World Regional Geography (GEO 1310). The course instructor found that 81.9% of the undergraduate students met (58.7%) or exceeded (23.2%) expectations by demonstrating their ability to locate examples of major cultural features of the Earth on a map, which exceeded our target. Students failed to meet the 70% target on one question related to the cultural features of Asia (64.8%). Given these findings, students should continue to improve their ability to locate examples of major cultural features of the Earth on a map by focusing more study on these weaker areas as prompted by the instructor. Slightly lower scores on map questions may be the result of the complex nature of the map location questions which require students to examine information about a location and select the correct answer based on that information, as well as knowing that location on a map.

Outcome 3

Students will demonstrate knowledge of quantitative methods used by geographers and their ability to use statistical software to solve geographic problems.

Outcome 3 - Method 1

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of quantitative methods using 10 embedded test questions from the course: Quantitative Methods for Geography (GEO 3301). The course instructor found that 99% of the undergraduate students met (50%) or exceeded (49%) expectations by demonstrating their knowledge of quantitative methods for geography, which exceeded our target. The 1% of the students who failed to meet expectations had the most difficulty with basic arithmetic and algebra skills. Given these findings, students should continue to improve their knowledge of basic arithmetic and algebra skills as prompted by the instructor. Also, students who failed to meet expectations had significant attendance problems.

Outcome 3 - Method 2

Students will be evaluated during and/or at the end of the semester by instructors on their ability to use statistical software to solve geographic problems using 10 test questions embedded in lab assignments and/or lab quizzes from the course: Quantitative Methods for Geography (GEO 3301). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 4

Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS.
### Outcome 4 - Method 1

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of geographic information systems using 10 embedded test questions from the course: Fundamentals of Geographic Information Systems (GEO 2426). Students' ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students' total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

### Outcome 4 - Method 2

During the 2009-2010 academic year, 102 undergraduate students were assessed using 10 embedded test questions in the course final exam in order to measure their understanding of the general concepts of geographic information systems (GIS). The course instructor found that 77% of undergraduate students met expectations with no students exceeding expectations, which met our target. During this assessment period, students had difficulty with the following concepts: 1) understanding the difference between a map and a Geographic Information System; 2) distinguishing between projections and coordinate systems; 3) data classification methods. The concept of 'errors in geographic data sets' that was previously identified (AY 2008-2009) as a problem area has been corrected. The concept and methods of data classification continue to be problematic. Given these findings, students should continue to improve their knowledge of and understanding of data classification with a review of basic quantitative methods for geographers during the first weeks of class each semester as led by instructor. In addition, instructor should emphasize the link between the theoretical knowledge learned in class and lab exercises designed to reinforce that knowledge that will help clarify the other problem areas identified above.

### Outcome 4 - Method 2 - Result

Students will be evaluated during and/or at the end of the semester by instructors on their ability to use the tools and methods of GIS using 10 test questions embedded in lab assignments and/or lab quizzes from the course: Fundamentals of Geographic Information Systems (GEO 2426). Students' ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students' total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

### Outcome 5

Students will demonstrate their knowledge of one specialized area of geography and demonstrate their expertise in this specialized area of geography; they will demonstrate this knowledge through embedded test items and a project from one of the other six geography majors.

### Outcome 5 - Method 1

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge from a capstone course of one of the other six geography majors using approximately 10 embedded test questions. Students' ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students' total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations for this outcome.

### Outcome 5 - Method 1 - Result

During fall 2009, 3 undergraduate students enrolled as General Geography Majors were assessed on their knowledge of one specialized area of geography (this semester: Environmental Management) using embedded test questions in order to measure their knowledge of environmental management. The course instructor found that all of the undergraduate General Geography Majors met expectations for their knowledge of environmental management by answering 10 embedded test questions. Two students exceeded expectations by answering the questions 100% correctly and the remaining student met expectations by answering 80% correctly. The results meet our target and support current classroom approaches, but there is still some room for improvement in certain topical areas. This year some students struggled with questions pertaining to major figures/ideas in US environmental management.

### Outcome 5 - Method 2

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge and skills as an embedded class project from a capstone course of one of the other six geography majors. Instructors will use a grading rubric (scored from 0 – 10) to assess student ability on the basis of "failure to meet," "meeting," or "exceeding expectations." (Score 10 = exceeded expectations, score 7 – 9 = met expectations, score 6
or less = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations. We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 5 - Method 2 - Result
In fall 2009, 3 undergraduate students enrolled in the GEO 4313 environmental management course as General Geography Majors were assessed using an embedded written class project to assess their knowledge of resource and environmental issues. A grading rubric was used to assess students’ ability to follow the instructions, their ability to successfully execute a well-organized and well-edited written paper, their ability to organize references and citations in a professional style, their ability to gather and organize a scholarly bibliography, and their ability to think critically and creatively in their investigation and discussion of the topic assigned. Two students exceeded expectations (>90% score) and the remaining student met expectations (>80% score), which met our target. Students did very well overall on the content and document retrieval portions of the assignment. The majority of errors on all assignments were related to student errors in writing and bibliographic style.

Approval History
Approval History Event
Outcomes Approved Level 1
Outcomes Approved Level 2
Outcomes Audit Report Submitted
Results Approved Level 1
Results Approved Level 2
Results Audit Report Submitted
The General Geography program provides students with a highly specialized career goal: the option to design their own unique geography-related program in consultation with a faculty advisor. The General Geography program may also prepare students for graduate studies. In addition to general and specialized lecture-format courses, the program offers a variety of project-based lab and field-trip experiences, career development through advising, job-shadowing and internships as well as team-building and leadership opportunities available by joining one or more geography department student organizations. Finally, the General Geography program provides students with the foundation for a liberal education, preparing graduates to think independently, to choose free and to base personal and professional decisions on a broad understanding of the Earth's physical and cultural landscapes in order to live full, rewarding lives.

Evidence of Improvement

During this academic year, we have refined our data collection process and our action plans. The previous syllabi review process is now complete. Course topic checklists keep multiple sections consistent, and emphasis in teaching mapping skills and cultural geography concepts and theories continue as part of our instruction to graduate teaching assistants in GEO 5150/5250 and 7150/7250 (Teaching Geography). We have revised embedded questions to focus on both knowledge and map questions, and now have good baseline data. Assessment results of this year’s embedded knowledge questions show that more than 82% of the undergraduate students met or exceeded expectations for Outcome 1 compared to 70% of students meeting or exceeding expectation during the 2007-2008 academic year.

For Outcome 4, which deals with students’ knowledge of geographic information systems (GIS), weaknesses were found in five subject areas in the 2007-2008 assessment. For 2008-2009, only two of these areas were identified as still weak, although a new third area emerged as a weak subject area. Overall, the number of weak subject areas within GIS dropped from five to three.

Action Plan

Based on the results of this large sample (n=647), the course instructor will focus extra emphasis on frequently missed knowledge questions and spend additional time on the Asian region during the next academic year (2009 – 2010). The course instructor will also emphasize the complex nature of the map questions, which go beyond merely knowing and remembering but also understanding and applying knowledge, to help students better prepare for their examinations. This will involve students doing additional map exercises to become more familiar with using maps as geographic tools.

Based on the results of this large sample (n=647), the course instructor will focus extra emphasis on frequently missed knowledge questions including spending additional time on the cultural features of Asia, South American and Africa during the next academic year. The course instructor will also emphasize the complex nature of the map questions, which go beyond merely knowing and remembering but also understanding and applying knowledge, to help students better prepare for their examinations. This will involve students doing additional map exercises to become more familiar with using maps as geographic tools.

Despite the fact that Math 1315 College Algebra is a prerequisite for our quantitative methods course, it will be necessary for students to focus extra study on basic arithmetic and algebra skills by participating in a review-session activity created by the instructor. Students will also receive additional practice drawing conclusions from data analyzed using statistical software to solve geographic problems, through additional exercises prepared by the instructor.

Based on the results of this sample (n=61), course lecture instructors will meet and discuss methods to teach: 1) the geometry of spatial joins; 2) errors in geographic data sets; 3) data classification methods. Since all of these items relate to quantitative methods in geography, lecture instructors will provide a brief summary of quantitative methods during the first week of class. Students will do two new lab exercises that will 1) help students analyze the results of their GIS more rigorously and 2) learn how to use the ‘map layout’ function of the GIS software to present GIS maps within a MS PowerPoint presentation, rather than using simple screen-shots.

Students will focus extra study on planning acronyms and lexicon by completing a specific assignment, created by the course instructor, to reinforce their planning vocabulary. Students will also review basic cartographic skills using a new handout to be created by the course instructor. Finally, students will complete an exercise that will reinforce the importance of following instructions. The small sample-size is reflective of the fact that General Geography majors are spread-out across all of the ‘capstone’ courses. In addition to the above actions, we will sample a different capstone course: GEO 4313 Environmental Management for General Geography majors next academic year.
Students will demonstrate knowledge of the major physical features of the Earth and the ability to locate examples of Earth's major physical features on a map. We expect at least 70% of the students will meet or exceed expectations for this outcome.

**Outcome 1 - Method 1**

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of the major physical features of the Earth using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.)

During the 2008-2009 academic year, 647 undergraduate students were assessed using embedded test questions in order to measure their knowledge of the major physical features of the Earth. The course instructor found that 82.8% of the undergraduate students met (32.8%) or exceeded (50%) expectations by demonstrating their knowledge of the major physical features of the Earth. The most frequently missed knowledge questions - related to climate, tectonic activity and the physical features of the Asian sub-continent - still met the 70% target. Given these findings, students could improve their knowledge by focusing more study on these weaker areas as prompted by the instructor.

**Outcome 1 - Method 1 - Result**

Students will be evaluated during and/or at the end of the semester by instructors on their ability to locate examples of major physical features of the Earth on a map using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.)

During the 2008-2009 academic year, 647 undergraduate students were assessed using embedded test questions in order to measure their knowledge of the major physical features of the Earth. The course instructor found that 82.8% of the undergraduate students met (32.8%) or exceeded (50%) expectations by demonstrating their knowledge of the major physical features of the Earth. The most frequently missed knowledge questions - related to climate, tectonic activity and the physical features of the Asian sub-continent - still met the 70% target. Given these findings, students could improve their knowledge by focusing more study on these weaker areas as prompted by the instructor.

**Outcome 1 - Method 2**

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of the major cultural features of the Earth using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.)

During the 2008-2009 academic year, 647 undergraduate students were assessed using embedded test questions in order to measure their knowledge of the major cultural features of the Earth. The course instructor found that 87.5% of the undergraduate students met (57.5%) or exceeded (30%) expectations by demonstrating their knowledge of the major cultural features of the Earth. The most frequently missed knowledge questions – cultural and political features in Asia such as defining a ‘forward capital’ and Asian languages – still met the 70% target. Given these findings, students could improve their knowledge by focusing more study on these weaker areas as prompted by the instructor.

**Outcome 2**

Students will demonstrate knowledge of the major cultural features of the Earth and the ability to locate examples of Earth’s major cultural features on a map. We expect at least 70% of the students will meet or exceed expectations for this outcome.

**Outcome 2 - Method 1**

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of the major cultural features of the Earth using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.)

During the 2008-2009 academic year, 647 undergraduate students were assessed using embedded test questions in order to measure their knowledge of the major cultural features of the Earth. The course instructor found that 87.5% of the undergraduate students met (57.5%) or exceeded (30%) expectations by demonstrating their knowledge of the major cultural features of the Earth. The most frequently missed knowledge questions – cultural and political features in Asia such as defining a ‘forward capital’ and Asian languages – still met the 70% target. Given these findings, students could improve their knowledge by focusing more study on these weaker areas as prompted by the instructor.

**Outcome 2 - Method 1 - Result**

Students will be evaluated during and/or at the end of the semester by instructors on their ability to locate examples of major cultural features of the Earth on a map using 10 embedded test questions from the course: World Regional Geography (GEO 1310). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.)

During the 2008-2009 academic year, 647 undergraduate students were assessed using embedded test questions in order to measure their knowledge of the major cultural features of the Earth. The course instructor found that 87.5% of the undergraduate students met (57.5%) or exceeded (30%) expectations by demonstrating their knowledge of the major cultural features of the Earth. The most frequently missed knowledge questions – cultural and political features in Asia such as defining a ‘forward capital’ and Asian languages – still met the 70% target. Given these findings, students could improve their knowledge by focusing more study on these weaker areas as prompted by the instructor.
Outcome 2 - Method 2 - Result
During the 2008-2009 academic year, 647 undergraduate students were assessed using embedded test questions in order to measure their ability to locate examples of major cultural features of the Earth on a map. The course instructor found that 80.2% of the undergraduate students met (70.2%) or exceeded (10%) expectations by demonstrating their ability to locate examples of major cultural features of the Earth on a map. Students failed to meet the 70% target on two questions related to the cultural features of South America (69.4%) and Africa (69.2%). Given these findings, students could improve their ability to locate examples of major cultural features of the Earth on a map by focusing more study on these weaker areas as prompted by the instructor. Slightly lower scores on map questions may be the result of the complex nature of the map location questions which require students to examine information about a location and select the correct answer based on that information, as well as knowing that location on a map.

Outcome 3
Students will demonstrate knowledge of quantitative methods used by geographers and their ability to use statistical software to solve geographic problems. We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 3 - Method 1
Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of quantitative methods using 10 embedded test questions from the course: Quantitative Methods for Geography (GEO 3301). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.)

Outcome 3 - Method 1 - Result
During spring 2008, 39 undergraduate students were assessed using embedded test questions in order to measure their knowledge of quantitative methods for geography. The course instructor found that 70.4% of the undergraduate students met (50.4%) or exceeded (20%) expectations by demonstrating their knowledge of quantitative methods for geography. The 29.6% of the students who failed to meet expectations had the most difficulty with basic arithmetic and algebra skills. Given these findings, students could improve their knowledge of basic arithmetic and algebra skills as prompted by the instructor.

Outcome 3 - Method 2
Students will be evaluated during and/or at the end of the semester by instructors on their ability to use statistical software to solve geographic problems using 10 test questions embedded in lab assignments and/or lab quizzes from the course: Quantitative Methods for Geography (GEO 3301). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.)

Outcome 3 - Method 2 - Result
During spring 2008, 39 undergraduate students were assessed using embedded test questions in order to measure their ability to use statistical software to solve geographic problems. The course instructor found that 70.8% of the undergraduate students met expectations, and none exceeded expectations, by demonstrating their ability to use statistical software to solve geographic problems. The 29.2% of the students who failed to meet expectations had the most difficulty with the process of drawing conclusions from their data. Given these findings, students could improve their skill at drawing conclusions from data analyzed using statistical software to solve geographic problems as prompted by instructor.

Outcome 4
Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS. We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 4 - Method 1
Students will be evaluated during and/or at the end of the semester by instructors on their knowledge of geographic information systems using 10 embedded test questions from the course: Fundamentals of Geographic Information Systems (GEO 2426). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.)

Outcome 4 - Method 1 - Result
During the 2008-2009 academic year, 118 undergraduate students were assessed using 10 embedded test questions in the course final exam in order to measure their understanding of the general concepts of geographic information systems (GIS). The course instructor found that all undergraduate students met expectations. Three embedded questions related to spatial analysis failed to reach the 70% target: 1) the geometry of spatial joins; 2) errors in geographic data sets; 3) data classification methods. Given these findings, students could improve their knowledge of GIS spatial analysis with a review of basic quantitative methods for geographers during the first weeks of class each semester.
Students will be evaluated during and/or at the end of the semester by instructors on their ability to use the tools and methods of GIS using 10 test questions embedded in lab assignments and/or lab quizzes from the course: Fundamentals of Geographic Information Systems (GEO 2426). Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.)

Outcome 4 - Method 2 - Result

During the 2008-2009 academic year, 61 undergraduate students were assessed using 10 embedded test questions in order to measure their ability to utilize a GIS to answer geographic questions. The course instructor found that 92% of the undergraduate students met expectations by demonstrating their ability to utilize a GIS to answer geographic questions. Although meeting the 70% target, students showed weaknesses in two areas: 1) results analysis and 2) presentation format. Given these findings, students could improve their ability to utilize a GIS to answer geographic questions by 1) learning to summarize the steps in the process in order to better explain the results, and 2) by practicing the skill of presenting GIS maps within a MS PowerPoint presentation.

Outcome 5

Students will demonstrate their knowledge of one specialized area of geography and demonstrate their expertise in this specialized area of geography; they will demonstrate this knowledge through embedded test items and a project from one of the other six geography majors. We expect at least 70% of the students will meet or exceed expectations for this outcome.

Outcome 5 - Method 1

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge from a capstone course of one of the other six geography majors using approximately 10 embedded test questions. Students’ ability will be assessed on the basis of failure to meet, meeting, or exceeding expectations, which will be determined by the students’ total score on the embedded test questions. (10 questions correct = exceeded expectations, 7 – 9 questions correct = met expectations, 6 or fewer questions correct = failed to meet expectations.)

Outcome 5 - Method 1 - Result

During spring 2009, 3 undergraduate students enrolled as General Geography Majors were assessed on their knowledge of one specialized area of geography (this academic year – Urban and Regional Planning) using embedded test questions in order to measure their knowledge of urban and regional planning and how effective land management influences the utility of the land. The course instructor found that all of the undergraduate General Geography Majors met expectations by demonstrating their knowledge of land use planning by answering the following essay question: “Explain how effective land management influences the utility of the land. Provide at least one specific example to illustrate how land-use regulatory tools impact the economy, the environment and society. Use the planning lexicon you learned this semester.” Although still meeting expectations, one student had difficulty with planning acronyms and lexicon. Given these findings, students could improve their knowledge by focusing more study on planning acronyms and lexicon as prompted by the instructor.

Outcome 5 - Method 2

Students will be evaluated during and/or at the end of the semester by instructors on their knowledge and skills as an embedded class project from a capstone course of one of the other geography majors. Instructors will use a grading rubric (scored from 0 – 10) to assess student ability on the basis of “failure to meet,” “meeting,” or “exceeding expectations.” (Score 10 = exceeded expectations, score 7 – 9 = met expectations, score 6 or less = failed to meet expectations.) We expect at least 70% of the students will meet or exceed expectations.

Outcome 5 - Method 2 - Result

During spring 2009, 3 undergraduate students enrolled as General Geography Majors were assessed on their knowledge of one specialized area of geography (this academic year – Urban and Regional Planning) using a class project in order to measure their ability to create a land use plan – including a conceptual site plan map – demonstrating their knowledge of how effective land management influences the utility of the land. The course instructor found that two of the undergraduate students exceeded expectations by demonstrating their ability to create a land-use plan in order to demonstrate student knowledge of how effective land management influences the utility of the land. The student who failed to meet expectations had the most difficulty in three areas: 1) basic map-making (cartographic) skills; 2) basic word-processing and computer-presentation software skills; 3) following assignment instructions. Given these findings, students could improve their cartographic and computer skills by spending more time polishing their projects into professional-looking documents.
The General Geography program provides students with a highly specialized career goal the option to design their own unique geography-related program in consultation with a faculty advisor. The General Geography program may also prepare students for graduate studies. In addition to general and specialized lecture-format courses, the program offers a variety of project-based lab and field-trip experiences, career development through advising, job-shadowing and internships as well as team-building and leadership opportunities available by joining one or more geography department student organizations. Finally, the General Geography program provides students with the foundation for a liberal education, preparing graduates to think independently, to choose free and to base personal and professional decisions on a broad understanding of the Earth's physical and cultural landscapes in order to live full, rewarding lives.

Evidence of Improvement

We have collected data for AY 2006 / 2007 & AY 2007 / 2008, so can only make preliminary conclusions as a result. We have been working to refine our data collection processes and our action plans. Assessment results of our syllabi review indicate that most (approximately 80%) of these syllabi show evidence of including the required topics. Details provided in the Assessment Plan section for each outcome. Assessment results of embedded questions show that approximately 70% of students answered these embedded questions correctly. Advanced students completed project-based assignments successfully. Details of missed questions provided in the Assessment Plan section for each outcome. Instructor feedback has helped drive the following enhancements that apply to all of our undergraduate programs this AY 2007 / 2008: 1) Improvement of undergraduate student learning through refinement of Teaching Geography courses for graduate instructors, 2) Creation of new lower-level meteorology course to increase physical geography learning opportunities, 3) New computer lab for quantitative methods courses to allow for additional demonstration / use of statistical software, (4) New prerequisite of MATH 1315 (College Algebra) for GEO 3301 Quantitative Method course.

Action Plan

We will no longer use syllabi review in the future, since that is an indirect method; however, instructors will complete their own topics checklist beginning fall 2008. Examining the topics checklist will help remind instructors to specify these important introductory geography topics. We will turn our attention to direct methods using embedded test questions to measure success of outcomes. In addition in the fall, we will reinforce the need to focus on problem areas (mapping skills and cultural geography, concepts and theories) as part of our instruction to graduate teaching assistants in GEO 5150 / 5250 and 7150 / 7250 (Teaching Geography). Students will be given specific out of class mapping activities to reinforce these skills.

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We will no longer use syllabi review in the future, since that is an indirect method; however, instructors will complete their own topics checklist beginning fall 2008. Examining the topics checklist will help remind instructors to specify these important introductory geography topics. We will turn our attention to direct methods using embedded test questions to measure success of outcomes. In addition in the fall, we will reinforce the need to focus on problem areas (Hypothesis testing, shape of distributions and use of statistical software) as part of our instruction to graduate teaching assistants in GEO 5150 / 5250 and 7150 / 7250 (Teaching Geography). Students will be given specific out of class and lab GIS activities to reinforce these learning outcomes.
1) Include reference to problem areas: a) Coordinate systems; b) topological vs non-topological; c) data classification strategies; d) spatial joins and thematic layer; e) Intersect command as part of GEO 5150 / 5250 and 7150 / 7250 (Teaching Geography) curriculum for graduate student instructors and alert regular faculty to these potential problem areas.

2) More emphasis on coordinate systems and data classification in other introductory geography courses - GEO 1310 and GEO 3301

3) Continue to refine standard embedded questions test bank.

4) Formalize data collection instrument and continue data collection.

**Assessment Method 2B: Lab Project Evaluation**

1) Begin collecting data for GEO 2426 labs.

We plan to combine Outcomes 5 & 6 Fall 2008 and determine the best methods to measure outcomes for General Geography.

Upon reflection, we plan to combine Outcomes 5 & 6 Fall 2008 and determine the best methods to measure outcomes for General Geography.

**Outcome 1**

Outcome 1 – All Geography Majors: “The Geographic Perspective.” Students will learn to analyze the physical and cultural realms of our world by comparing and contrasting similarities and differences of the major world regions with an emphasis on remarkable physical features and cultural specialties as well as human impacts on the natural environment including the ethical need for environmental stewardship in order to synthesize a value-based interpretation of the world from a geographic perspective and to become positive contributors to the diverse community to which we all belong.

**Outcome 1 - Method 1**

Assessment Method #1 - Syllabus Review

Syllabus Review. (A) Review GEO 1309: Cultural Geography syllabi using Syllabus Content Checklist. This is a required course (and/or 1310: World Regional) for all Geography Majors. There are multiple sections and instructors of this course. (B) Review GEO 1310: World Regional Geography syllabi using Syllabus Content Checklist. This is a required course (and/or 1309: Cultural) for all Geography Majors. There are multiple sections and instructors of this course, which necessitated that we review the syllabi of all instructors to ensure that the outcomes are part of the curriculum. That said, indirect methods are not preferable and will be changed next year; however it is certainly an important first step in assessment.


GEO 1310 Topics List: World Regional Geography syllabi by comparing to syllabi content checklist: 1) Introduction to Physical and Cultural GEO; 2) Map and Globe Skills; 3) Earth Generalizations; 4) Population; 5) World Regions; 6) Europe; 7) Asia; 8) Latin America; 9) Africa; 10) Oceania; 11 - 20) Other Regional Breakdowns depending on instructor.

**Outcome 1 - Method 1 - Result**

Overall, three course syllabi (GEO 1310) met expectations (that is, 80% of the course topics were listed on the syllabi); one course (GEO 1309) did not meet expectations. Although minimum standards were met in three course syllabi, only one course syllabus (GEO 1310) included Map and Globe skills, and only one syllabus (GEO 1310) included Population as a topic.

**Outcome 1 - Method 2**

Assessment Method #2: Course-Embedded Assessment

Assessment derives from locally developed examinations for GEO 1309 and/or GEO 1310, which are courses required for all Geography Majors. There are multiple sections and instructors of these courses.

**Outcome 1 - Method 2 - Result**

In GEO 1309, 70% of students answered 18 of the 19 embedded questions correctly. In GEO 1310, with a sample of 321 to 338 students (3 large sections fall 2007 & spring 2008), students responded to 20 embedded questions. 70% of students answered 15 of the 20 questions correctly. An analysis of missed questions revealed some deficiency in students’ learning in the area of cultural geography.

**Outcome 2**
Outcome 2 – All Geography Majors: “The Natural-Physical Environment." Students will learn to analyze how the Earth works as an energy/matter system with an emphasis on the inputs of solar and internal Earth energy in order to synthesize an understanding of the Earth's atmosphere, hydrosphere, biosphere, cryosphere, and lithosphere and explain the spatial distributions of the Earth's environments and physical features from a geographic perspective. Students will learn to measure and analyze the Earth's physical processes and patterns on the landscape by developing skills such as map reading, scientific methodology, data collection / evaluation and geographic fieldwork. Lab projects provide students an opportunity to practice working in small groups and to learn to speak intelligently about the physical aspects of our world using the lexicon of physical geography. Lab reports provide students an opportunity to practice concise, coherent writing.

**Outcome 2 - Method 1**

**Assessment Method #1: Syllabus Review**

Syllabus Review. Review GEO 2410 syllabi for the lecture and lab sections. There are multiple sections and instructors of this course, which necessitated that we review the syllabi of all instructors to ensure that the outcomes are part of the curriculum. That said, indirect methods are not preferable and will be changed next year; however it is certainly an important first step in assessment.


**Outcome 2 - Method 1 - Result**

All (100%) of the syllabi evidenced inclusion of these topics.

**Outcome 2 - Method 2**

**Assessment Method #2: Course-Embedded Assessment**

Locally developed examinations for GEO 2410: Physical Geography. Required course for all Geography Majors. Multiple sections and instructors of this course. Required course for all Geography Majors. Multiple sections and instructors of this course.

**Outcome 2 - Method 2 - Result**

In GEO 2410, 70% of students answered the embedded questions correctly. Although minimum standards were met, some students had difficulty with basic Earth/Sun relationships and factors determining climatic zonation.

**Outcome 3**

Outcome 3 – All Geography Majors: “Quantitative Methods for Geography." Students will learn to use descriptive and inferential statistical techniques to collect, classify, analyze and display data about variables distributed across the worlds physical and cultural landscapes in order to make comparisons, examine relationships and look for spatial patterns and historical trends to answer questions, solve problems and make confident, ethical decisions by providing scientific evidence supporting a particular point-of-view. Students will learn to combine the use of words, numbers and images to effectively communicate their message.

**Outcome 3 - Method 1**

**Assessment Method #1: Syllabus Review**

Syllabus Review. Review GEO 3301, Quantitative Methods. syllabi using Syllabus Content Checklist. This is a required course for all Geography Majors. There are multiple sections and instructors of this course, which necessitated that we review the syllabi of all instructors to ensure that the outcomes are part of the curriculum. That said, indirect methods are not preferable and will be changed next year; however it is certainly an important first step in assessment.


**Outcome 3 - Method 1 - Result**

All course syllabi reference at least 80% of the course topics list. Although minimum standards were met, 3301 syllabi reviewed did not include spatial statistics.

**Outcome 3 - Method 2**

**Assessment Method #2: Course-Embedded Assessment**

Assessment derives from locally developed examinations for GEO 3301, which is a required course for all Geography Majors. There are multiple sections and instructors of this course.

**Outcome 3 - Method 2 - Result**
70% of students responded correctly to embedded questions. The most frequently missed questions include, hypothesis testing and shape of distributions. 70% of students met lab assignment criteria using statistical software.

**Outcome 4**

Outcome 4 – All Geography Majors: “Geo-Spatial Technologies and Mapping.” Students will acquire a working knowledge of at least one Geographic Information Science technique: Geographic Information Systems (GIS), Remote Sensing or Cartography. Successful completion of project-based assignment(s) becomes part of students’ professional portfolio.

**Outcome 4 - Method 1**

Assessment Method #1: Syllabus Review

Syllabus Review. Review GEO 2426: Introduction to GIS syllabi using Syllabus Content Checklist. This is one of three options for required techniques course for all Geography Majors. There are multiple sections and instructors of this course, which necessitated that we review the syllabi of all instructors to ensure that the outcomes are part of the curriculum. That stated, indirect methods are not preferable and will be changed next year; however it is certainly an important first step in assessment.


**Outcome 4 - Method 1 - Result**

All course syllabi reference at least 80% of the course topics list. We have instituted a common consistent coursesyllabus for all three lecture sections.

**Outcome 4 - Method 2**

Assessment Method #2: Course-Embedded Assessment

Assessment derives from locally developed examinations for GEO 2426. This is a required course for all Geography Majors. There are multiple sections and instructors of this course.

**Outcome 4 - Method 2 - Result**

70% of students answered 15 of the 20 embedded questions correctly. Most frequently missed questions include, 1) Coordinate systems; 2) topological vs non-topological; 3) data classification strategies; 4) spatial joins and thematic layer; 5) Intersect command.

**Outcome 5**

Outcome 5 – Program Specific: “General Geography – Theory and Practice.” Consulting with a faculty advisor early in the course of study, students will identify career or graduate school goal to be met by the General Geography concentration in order to select appropriate coursework in Geography as well as selection of minor and electives.

**Outcome 5 - Method 1**

Assessment Method #1

Performance Evaluation. Students will consult with academic advisor to complete General Geography Advising Checklist (Staff Advisor Activity Log).

**Outcome 5 - Method 1 - Result**

No data collected.

**Outcome 5 - Method 2**

Assessment Method #2

Student applies with staff academic advisor for degree audit, reflecting required coursework (Staff Advisor Activity Log).

**Outcome 5 - Method 2 - Result**

No data collected.

**Outcome 6**

Outcome 6 – Program Specific: “General Geography – Application.” Students will learn to analyze and evaluate information and issues from a geographic perspective related to selected specialized career goal in order to synthesize solutions to real-world problems while considering the major physical, legal, economic, social and ethical constraints of those solutions.

**Outcome 6 - Method 1**
Assessment Method #1
Evaluation of Independent Study (GEO 4390) or Directed Research (GEO 4335) project related to selected specialized career goal. Successful completion of project-based assignment(s) become part of students' professional portfolio.

Outcome 6 - Method 1 - Result
No data collected.

Outcome 6 - Method 2
Assessment Method #2
Evaluate "Internship Assessment Report" for students performing for-credit internships (GEO 4380) in General Geography. The "Internship Assessment Report" becomes part of students' professional portfolio.

Outcome 6 - Method 2 - Result
No data collected.

Approval History

Approval History Event
Outcomes Approved Level 1
Outcomes Approved Level 2
Results Approved Level 1
Results Approved Level 2