GEOGRAPHY MA, ASSESSMENT REPORT AY2012-2013

Programs: Geography MA Options **Department:** GSHAA

Assessment Instruments and Student Outcomes

This is an assessment report on three MA options in Geography in the Department of Geography, Sociology, History, African American Studies, and Anthropology: **MA in Geography without thesis**, **MA in Geography with thesis**, and **MA in Geography with GIS Concentration**. The report is based on one indirect assessment of learning, namely, ***student self-assessment instrument*** consisting of open-ended and closed-ended Likert-style student survey questions, and two direct assessment of learning. The student self-assessment instrument surveys student opinions about how much and what specific things students have learned in the past year.

The instruments for direct assessment of learning for the MA in Geography without thesis option include two ***referred seminar/master's papers*** and a ***comprehensive exam***; successful completion of both the master's papers and the comprehensive exam are required for graduation. The instruments for direct assessment of learning for the MA in Geography with thesis option include writing a draft Master's thesis proposal embedded in ***Geog 5860, Geographic Inquiry***, and a ***thesis***. Upon completion of the MA in Geography, students should be able to :

1. Analyze the changing geography of the physical and human environments at local, regional, national, and global scales;
2. Evaluate urban spatial patterns and processes;
3. Demonstrate proficiency in the geography of a major region; a region of the student's choice;
4. Apply geographic information systems (GIS) and quantitative techniques for spatial analysis and modeling;
5. Write a master's paper/thesis to address a significant geographic research question(s);
6. Organize information into coherent written and oral presentations.

The instruments for direct assessment of learning for the MA in Geography with GIS Concentration include ***pretest/post-test*** and a ***thesis***. The ***pretest/post-test*** consists of open-ended questions on basic GIS concepts and skills that students are expected to bring to an advanced level course. The pretest/post-test assesses students' ability to:

1. Explain the geographic coordinate system in general and the concepts of latitude, parallel of latitude, longitude, meridian, and graticule in particular.
2. Explain map projection and distortions on map projections.
3. Explain the general classes of map projections with specific examples for each class of map projection.
4. Explain horizontal and vertical datum planes used for mapping in North America.
5. Explain the concept of map scale, calculate map scale, and convert between types of map scales.
6. Convert degrees, minutes, and seconds into decimal degrees, and vice versa.

Upon completion of the thesis and the MA in Geography with GIS concentration students should be able to:

1. Explain earth-map relationship and distortions on map projections;
2. Process analog and digital remote-sensing imagery to prepare imagery for analysis;
3. Analyze analog and digital remote-sensing imagery to extract/create new information;

4. Create spatial databases consisting of raster and/or vector data models for GIS analysis and modeling;
5. Use analytical capabilities of ArcGIS, ArcGIS Extensions, and ERDAS IMAGINE in spatial analysis and modeling;
6. Customize ArcGIS and ArcGIS extensions to add specialized functionalities and automate operations;
7. Design a Web map that allows viewers to display and query the layers on the map;
8. Write a master's thesis that integrates remote sensing and GIS to address significant human and/or environmental issues;
9. Organize information into a coherent written and oral presentations.

Methods of Assessment

The ***student self-assessment*** instrument is distributed to students and students are asked to complete and return them to their instructors. Although some of the questions in this test instrument are open-ended, a judgment is made by the assessment coordinator whether responses by a particular student would indicate ***satisfaction*** or ***dissatisfaction***. If responses to the questions by the majority of the self-assessing students indicate ***satisfaction***, the program gets a ***satisfactory*** grade. If responses to the questions by the majority of the self-assessing students indicate ***dissatisfaction***, the program gets ***unsatisfactory*** grade.

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For the **MA in Geography without thesis option**, the two referred/master's papers and the comprehensive examination are evaluated by the graduate committee and a grade of **"satisfactory"** or **"not satisfactory"** is assigned by each faculty member to each of the student's work. If there is no consensus among the committee members about the quality of the papers and the results of the comprehensive exam, the committee holds a meeting to reach a consensus; a consensus to assign a grade of **"Pass"** or to require the student to make improvements..

For the **MA in Geography with thesis option**, a student has to achieve a grade of "B" or better for the assessment instrument embedded in Geog 5860 and the thesis must be accepted as a **pass** by a unanimous decision of the thesis committee members.

For the **MA in Geography with GIS concentration**, the pretest is administered in the first week of an advanced level course and the post test is administered in the last two weeks of the course. An average score of 80% or better is considered a **pass** in both the pretest and the post-test. The **thesis** must be accepted as a **pass** by a unanimous decision of the thesis committee members.

Assessment Findings and Student Learning

In fall 2012, thirteen students took Geog 5860 and wrote draft-thesis proposals. Of the thirteen draft-thesis proposals, three were judged to be of **superior** quality (received A), three were of **excellent**

quality (received A), four were of **good** quality (received B), and three were judged to be **unsatisfactory** (received C).

In the 2012/2013 academic year, one student completed the **MA in Geography without thesis option** and two students completed the **MA in Geography with GIS concentration**. In 2012/203, there was no candidate for the **MA in Geography with thesis option.** The student needed to go through many drafts of the two Master's. Their comprehensive exam was mixed, with some very good answers and some answers not so good. The two referred seminar/master's papers and the comprehensive examination were evaluated by the graduate committee and a grade of **"satisfactory"** or **"not satisfactory"** was assigned by each faculty member to each of the student's work. After some discussion, the Committee reached a unanimous decision to assign a grade of **"Pass"** to the papers as well as to the comprehensive exam results.

For the **MA in Geography with GIS concentration** program, the pretest/post-test was administered in the Geog 5830 class in fall 2012; the pretest in the first week of the semester and the post-test in the last two weeks of the course. Scores for the **pretest** ranged from 45% to 65% and the average score was 52%. The pretest indicated that:

1. Students had some understanding of the geographic coordinate system, but could not provide clear definitions of *latitude, parallel of latitude, longitude, meridian,* and *graticule*. A number of them didn't remember the difference between *latitude* and *parallel of latitude, the difference* between *longitude* and *meridian,* the difference between *latitude* and *longitude*.
2. Students appeared to have some understanding of map projections in general, but they could not define the major categories of map projections and could not provide specific examples of the different types map projections.
3. Students had problems with such basic concepts as *standard line (on map projection), map scale, scale factor* (*on map projection*), *datum planes* (*NAD27*& *NAD83), etc.* and why GIS data have to be transformed from *NAD27* to *NAD83*.
4. Students had serious problems with scale computations, the conversion of degrees, minutes, and seconds to decimal degrees, and the conversion of decimal degrees to degrees, minutes, and seconds.

The results of the pretest were very useful in that they gave the instructor insight into his students' GIS background at the beginning of the semester and helped him identify which basic GIS concepts and skills had to be reviewed to improve student learning before delving into the discussion of advanced concepts and skills.

As expected, scores for the post-test were significantly better than scores for the pretest, and the **post-test** results indicated significant learning during the course of the semester. Scores for the **post-test** ranged from 65% to 92% . The average post test score, 84%, meets the criterion (≥80%) set for satisfactory performance and is higher than the average post-test score (81%) for the previous assessment period. The average post-test scores for the past six assessment periods, except one, met or exceeded the criterion (≥80%) set for satisfactory performance.

Two students completed theses for the **MA in Geography with GIS concentration.** The two students performed independent research projects involving a large amount of primary research. Both of these students did an excellent job working with their advisers to plan, carry out, and write their theses. One student produced detailed maps of rest rooms in downtown Chicago, complete with ancillary information such as the availability of a baby changing table. The outcomes of this mapping included not only the thesis itself and a set of static maps, but also interactive maps. The ultimate goal of the project is to create an online interactive map for visitors to Chicago which would allow them to find a rest room in the downtown area more easily. Besides being a well done GIS project, this thesis also stands out as an excellent application of current theory and thought around the changing

definitions of public space in America. Overall, this was one of the best theses yet completed at Chicago State. **The student is hired by the biggest GIS developer and vendor in the world, ESRI (Environmental Systems Research Institute), headquartered in Redlands, California.** The second thesis was also very well done. The student explored the efforts of the City of Chicago to promote technological innovation through open data sources on its web page, improved internet connectivity throughout the city, and promoting computer programming innovation and sharing through public "meet-ups." Not surprisingly, the promoting innovation portions of these efforts were more successful than the efforts to assist underserved communities, overcoming the "digital divide." Like the first thesis, this project contains both paper and interactive on-line maps.

Decision-making Using Findings

The two thesis students were among the best students to graduate from our programs in the past ten years. The non-thesis student was very borderline. In general, the contrast between these students points to a general need to increase the quality of students in our program, particularly as the thesis is now required for all students. In order to do this we must increase our marketing efforts for our graduate as well as undergraduate programs. However, we will find it very difficult to do that with only two tenured/tenure track faculty, one whom is an administrator of the Neighborhood Assistant Center. If we succeed in filling the two positions we tried to fill in spring 2013, we will be able to work more on marketing, and then, hopefully improve our standards for our MA programs. We should note, however, that it is still a goal of the Geography programs at CSU to serve the community and remain open to a large group of students who qualify and have interests that match our programs.

Demonstrating Student Learning

Positive and encouraging responses to questions in the student self-assessment instrument, successful completion of the MA in Geography with GIS concentration by two topnotch students, one of whom landed on a job at the **biggest GIS developer and vendor in the world, ESRI (Environmental Systems Research Institute), headquartered in Redlands, California,** demonstrate the quality of our graduate programs.

Publicizing Student Learning

The assessment plan and assessment results are posted at the department's geography unit web page.

Accomplishments and Challenges

Among the major accomplishments related to assessment in our department is that we have managed to keep up with new technologies in GIS, remote sensing, and GPS by upgrading existing hardware and software and by acquiring new ones through various sources of funding, including grants. Our GIS lab has become a tremendous asset for teaching not only GIS and remote sensing courses but also for enhancing the teaching of other graduate and undergraduate courses in Geography, Sociology, History, African American Studies, and Anthropology, and for enhancing the activities of the Neighborhood Assistance Center. Another major accomplishment is the full participation of faculty in assessment activities; faculty have accepted assessment as an important component of the teaching and learning process.

Our major challenge is soliciting funds for maintaining GIS and remote sensing software licenses and for continually upgrading software and hardware to keep with new developments. While software and hardware upgrading may be required at least every two years, the kind of money required to do the upgrading may be hard to come by every two years.