

# ASSESSMENT REPORT FOR INSTRUCTIONAL PROGRAMS

Name Daniel Block Program / Department Grad. Cert. in GIS 2015-2016

## PART 1: ASSESSMENT REPORT

**Directions:** All items should be addressed in a clear and concise narrative (one paragraph or more each) and uploaded into *LiveText* [[www.livetext.com](http://www.livetext.com)].

1. For clarity, please rename your document as: Assessment Report [Program, Level, Spring 20xx]  
**For example: Assessment Report Chemistry UG Spring 2017**
2. Upload your document into your departmental/program/unit *LiveText* account. Please name the document shell.  
**For example: Assessment Report Chemistry UG Spring 2017**
3. Share your document with the CSU Assessment Committee <csuac\_admin> as an Editor.  
**Steps 8 and 9 in the Assessment Coordinators Live Text Resource Document.**
5. Submit your document for Review to one of the following:  
csuac\_02 [Academic Undergraduate]  
csuac\_03 [Academic Graduate]  
csuac\_04 [Academic General Education]  
**Steps 10 and 11 in the Assessment Coordinators Live Text Resource Document.**  
Deadline for ALL reports is June 1.

### 1. Evidence to Support Achievement of Student Learning

This report is on assessment results based on three assessment instruments: **Student Self-Assessment, pretest/post-test**, and a **capstone-course project**. The first instrument, *Student Self-Assessment* instrument, is for indirect assessment of learning, while the latter two are for direct assessment of learning. The **student self-assessment** instrument consists of open-ended and closed-ended Likert-style student survey questions. The instrument surveys student opinions about how much and what specific things students have learned in the past year,

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, administered in the first week of the advanced level course, provides information on whether students remember some basic concepts and skills they learned in a prerequisite class and whether the instructor has to review some of the basic concepts before delving into advanced concepts in the advanced level course. The instrument 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.

The **capstone-course** project involves a semester long project which involves the development and implementation of a major GIS project. Upon successful completion of the capstone course, students demonstrate the ability to:

1. Design and implement a major/semester-long GIS project to address a significant research question(s);
2. Create spatial databases consisting of raster and/or vector data models for GIS analysis and

- modeling;
3. Use analytical capabilities of ArcGIS, ArcGIS Extensions, and ERDAS IMAGINE in spatial analysis and modeling;
  4. Produce maps of professional quality;
  5. Organize research findings into a coherent written and oral presentation.

Methods of Assessment

The *student self-assessment* instrument is distributed to students and students are asked to complete and return them to their instructor. 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.

The *pretest/post-test* is administered to students of *Geog 5830, Advanced GIS. Geog 5800, Introduction to GIS*, or an equivalent course or background is a prerequisite for admission into the GIS Certificate program and for taking *Geog 5830*. Students taking *Geog 5830* are given the *pretest* in the first week of the course to assess some basic GIS concepts and skills that they are expected to have and their preparedness for the advanced level course. The same test is administered as a *post-test* toward the end of the semester to assess the effect of *Geog 5830* on students’ level of understanding of those same concepts and skills covered by the *pretest*. A score of 80% or better in the pretest or post-test is considered satisfactory, and the average score in the post-test is expected to be significantly higher than the average for the pretest.

*Geog 5850, GIS Application*, the capstone course for the *Graduate Certificate in Geographic Information Systems (GIS)*, involves the development and implementation of a major GIS project. A **project portfolio** and a **poster** approved by the instructor of the course must be submitted, and a student must attain at least a **B** to successfully complete the course and the Graduate Certificate in GIS.

A student self-assessment was not completed during the 2015 academic year, so this assessment is based on the pretest/post-test administered in GEOG 5830 during the fall 2015 semester as well as the capstone projects completed in Geog 5850 during the same period, as well as an alumni survey. Note that this assessment report was completed in 2017. The assessment coordinator during the 2015-2016 academic year retired and did not finish this report before retiring.

Assessment Findings

The pre/post-test was administered in GEOG 4830/5830 in fall 2015, with the following results:

**GEOG 4830/5840 Results – Fall 2015**

	Grade		Pretest	Post-test
<b>A</b>	<b>4</b>	<b>90 - 100</b>	<b>0</b>	<b>3</b>
<b>B</b>	<b>3</b>	<b>75 - 89</b>	<b>1</b>	<b>5</b>
<b>C</b>	<b>2</b>	<b>60 - 74</b>	<b>3</b>	<b>0</b>
<b>D</b>	<b>1</b>	<b>45 - 59</b>	<b>1</b>	<b>0</b>
<b>F</b>	<b>0</b>	<b>&lt; 40</b>	<b>2</b>	<b>0</b>

The post-test shows a sharp increase in knowledge among the students within the class.

During the 2015-2016 academic year, three students took the GEOG 5850, the capstone course. Two students completed their project on time while the other petitioned for “I” grade. One student got an “A” while the other got a “B” grade. The person with the I grade has not yet finished the course.

On the alumni survey, one student responded that graduated with a GIS Certificate. This student also had an MA. While the student is currently in a Geography Ph.D. program and does believe the program assisted them in their current position, they would not recommend the program, feeling that it needs more rigor.

### **Analysis and Program Change**

Based upon the evidence, what are the strengths and weaknesses of the program in terms of accomplishing student learning? What specific actions have been identified for discussion to make needed improvements? What change/s will be implemented to make improvements?

In the absence of 100% fulfillment of all criteria, all programs must identify concrete improvements and implement within an assessment cycle.

It is unadvisable to make changes to a program based on the results from one student and one survey. However, the GIS certificate program is under constant watch for technological and instructional issues. We are currently assessing whether a rehaul of the current required classes is needed due to changes in GIS technology. The issues pointed out by the student also may have had much to do with the lack of a GIS laboratory assistant for the past four years. The lab assistant keeps the lab running smoothly and assists students in small issues they may have with assignments. We are continuing to request a GIS laboratory assistant as well as a GIS graduate assistant.

The capstone project itself can be an issue, in terms of student’s competing the project during one semester. The I received by one student during the 2015-2016 school year was not unusual. The taking of this course needs to be tied to the knowledge of basic GIS skills. We are continuing to work to increase the skills of our students and make sure that the capstone is not taught before skills are in place.

### **Assessment as a Departmental Priority**

Identify and explain accomplishments for this assessment cycle by stating how your department evaluates the assessment process in order to continuously improve assessment and student learning.

Assessment and program development are frequent discussions within the Geography program, particularly in Geography program meetings, as well as in e-mail correspondence. An example of an e-mail discussion in the period 2015-2016 is included in the appendix.

### **Publicizing Student Learning**

What are the current mechanisms for publicizing assessment? **Note:** all programs must provide assessment information on their department/program webpage. In addition, all programs must identify at least one other systematic publication venue.

**Include the hyperlink to your program assessment page here to allow quick access for review.**

Link to Geography assessment page: <http://www.csu.edu/gshaa/geography/assessment.htm>

Geography graduate program students have presented posters and papers at the American Association of Geographers annual conference, the Illinois GIS Association conference and other venues.

## **PART 2: ASSESSMENT PLAN**

### **Department/Program Mission Statement**

Each program in CSU's Department of Geography, Sociology, History, African American Studies, and Anthropology serves the State of Illinois and metropolitan Chicago through accessible, quality instruction employing pertinent scholarly and technological methods; and through scholarship and practice in the interacting arenas of the environment, the economy, and the community. The primary objective of the program is to prepare its majors for the job market and for graduate studies through quality teaching and mentoring. The Department serves other programs in the University through quality teaching and through provision of GIS facilities and regional information. The Department serves the community through the Fredrick Blum Neighborhood Assistance Center and its Calumet Environmental Resource Center. The Department strives to be a national leader in the training of minority and women scholars in each of its constituent disciplines.

### **Program Objectives**

1. Prepare students for professional careers and graduate and further graduate studies.
2. Provide quality general education instruction in Geography/Geographic Information Science, Sociology, History, African American Studies, and Anthropology.
3. Support other programs in the University through program minors in Geography, Sociology, African American Studies, Anthropology, and Environmental Studies.
4. Provide state-of-the-art technology and service in the CSU Geographic Information Systems laboratory.
5. Provide exemplary community outreach through the Fredrick Blum Neighborhood Assistance Center and the Calumet Environmental Resource Center.
6. Continue to position the Department as a nationally recognized center for providing training in Geography, Geographic Information Science, Sociology, History, African American Studies, and Anthropology, especially for women and minorities.
7. Provide a firm, collegial and supportive base in which faculty can continue their excellent teaching, research, and practice.

### **Student Learning Outcomes (SLOs)**

Upon completion of the Certificate program in Geographic Information Systems (GIS) students should be able to:

- a. Explain earth-map relationship and distortions on map projections;
- b. Process analog and digital remote-sensing imagery to prepare imagery for analysis;
- c. Analyze analog and digital remote-sensing imagery to extract/create new information;
- d. Create spatial databases consisting of raster and/or vector data models for GIS analysis and modeling;
- e. Use analytical capabilities of ArcGIS, ArcGIS Extensions, and ERDAS IMAGINE in spatial analysis and modeling;

- f. Design and implement a major/semester-long GIS project to address a significant research question(s);
- g. Design a Web map that allows viewers to display and query the layers on the map;
- h. Organize information into a coherent written and oral presentation.

**Chicago State University**  
**Graduate Certificate in Geographic Information Systems (GC-GIS) Curriculum Map**  
**June 2013**

Program Level Student Learning Outcomes	Geog 5800	Geog 5810	Geog 5820	Geog 5830	Geog 5840	Geog 5850
Explain earth-map relationship and distortions on map projections	K	A		A		S
Process analog and digital remote-sensing imagery to prepare imagery for analysis			K		A	S
Analyze analog and digital remote-sensing imagery to extract/create new information			K		A	S
Create spatial databases consisting of raster and/or vector data models for GIS analysis and modeling	K	A		A	A	S
Use analytical capabilities of ArcGIS, ArcGIS Extensions, and ERDAS IMAGINE in spatial analysis and modeling	K	A	A	A	A	S
Design and implement a major/semester-long GIS project to address a significant research question(s)	K	K	K	A	A	S
Design a Web map that allows viewers to display and query the layers on the map	K	K		A		S
Organize information into a coherent written and oral presentation	K	A		A	A	S

**K = Knowledge/Comprehension A = Application/Analysis S = Synthesis/Evaluation**

\*Cells should be populated with K (Knowledge), A (Analyze), or S (Synthesize) to indicate the level of learning that will be achieved in the course.

**Assessment Plan Detail**

PEOs	SLOs	Assessment Instruments	Criteria*
1, 4, 6	a. a	a. Pretest/Post-test	a. $\geq 80\%$
1, 4, 6	b. a through h	b. Capstone Project	b. B or better
1, 4, 6	c. a through h	c. Student-Self Assessment	c. Satisfactory
1, 4, 6	d. a through h	d. Intern-Employer Survey	d. Satisfactory
1, 4, 6	e. a through h	e. Alumni Survey	e. Satisfactory
1, 4, 6	f. a through h	f. Alumni-Employer Survey	f. Satisfactory

- \* Program objectives related to learning must be assessed. Link program objectives to appropriate outcomes and assessments.
- \*\* Attach definitions of specific criteria for satisfactory performance. Assessment cannot be based on course grades. Consider the distinction between student performance criteria and program effectiveness criteria.

### **PART 3: APPENDIX**

The primary purpose of this section is to streamline the main report with summary information and have a place where valuable evidence and raw data can be archived for viewing. Use this section for your evidence of departmental involvement, raw data used to create summaries, completed surveys, and anything relevant to your assessment activities that you do not want to store locally in your department. This way evidence is still accessible, but does not hamper the reading and evaluation of the report.

Below are e-mails related to assessment:

Janet Halpin <jhalpin@csu.edu> 8/19/15

to Tekleab, me, Gebeyehu

Geb, Tek, Danny

We should have a meeting fairly soon. I used the General Education assessment for GEOG 1000 in the summer, and would like to explore ways to improve it and make it more suitable for online course delivery. Also, I dropped the ball on a few things last year regarding assessment instruments that were connected to particular courses. I'd like to prepare a time-line for myself to make sure I have a conversation with instructors in plenty of time to prepare assessment materials and update as needed.

This week is fairly fraught. Early next week?

Janet

On Wed, Aug 19, 2015 at 4:36 PM, Tekleab Gala <[tgala@csu.edu](mailto:tgala@csu.edu)> wrote:  
Dear Dr. Mulugeta,

Can you please send me a pretest you were using for advanced and intro-GIS? Dr. Halpin asked me to fill GIS-certificate assessment form, where I had to fill information about students' performance on pretest. I didn't know about it then and I would like to use it in the future.

Thanks,

***Tekleab S. Gala (Ph.D.)***

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