

## Geography CTE Annual Assessment/Reassessment Report

SAC Assessment Contact(s):

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1. Which SAC do you represent?

Geography/GIS/Geospatial

2. Which outcome(s) is/are reported here? (Please provide the text of the outcome, and the degrees/certificates to which it applies).

All four outcomes tie to the Geographic Information Systems (GIS) Less than-one-year Certificate.

1. Communicate geographic information, verbally and graphically, to a variety of audiences using geographic tools and technologies
2. Analyze critically geographic problems and questions
3. Collect, create, analyze, and document geographic information for various applications and disciplines
4. Use geographic concepts and GIS technologies to input, store, query and retrieve spatial and attribute data

3. Please share **how** the outcome(s) were assessed to help us understand your process for assessment. Please attach a rubric, sample score sheet, or other assessment tool.\*

The outcomes were assessed using student Map Portfolios from the Geo 270, Creating a Map Portfolio class. This is a required course in the GIS Certificate and taken in the last term of the program. Only students in the GIS Certificate program enroll in this course. The Map Portfolios include at least 4 examples of map/GIS projects completed during their time in the program. Faculty used these map project examples to assess the four GIS Program Outcomes using a standardized rubric (attached to this report along with the Portfolio requirements).

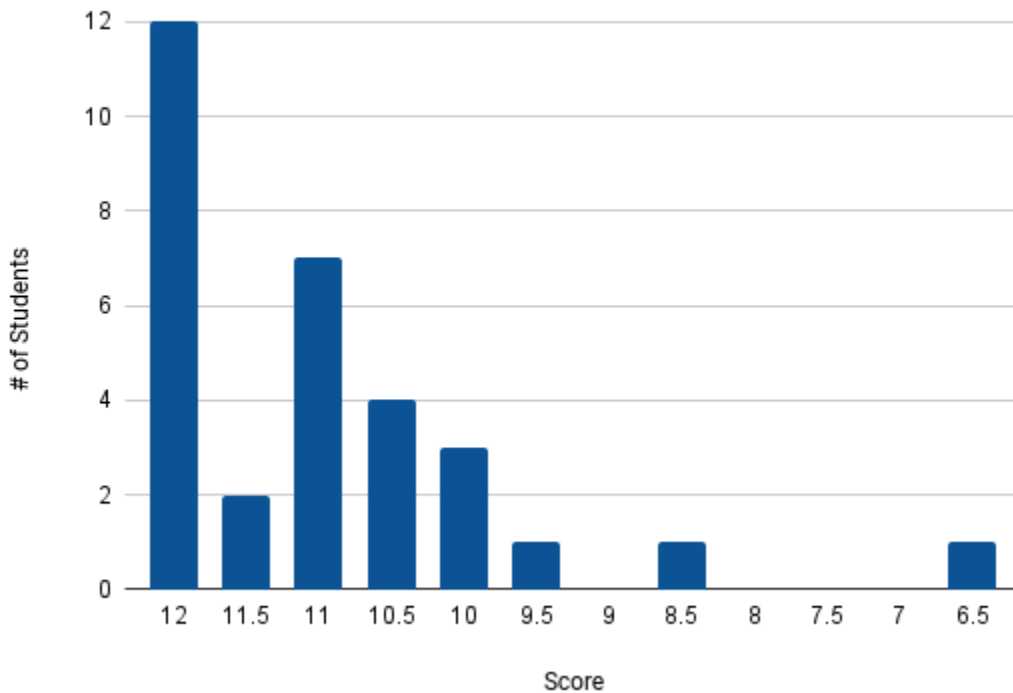
4. Please include information about your benchmarks (the scores that indicate successful attainment of the outcome), and how they were determined.\*

Our benchmark for successful attainment of the program outcomes is a total score of 8 out of a possible 12 points. Each outcome was scored on a 0-3 scale, and a score of 2 represents that the students meet the requirements for the outcome (a score of 3 represents that the student exceeds the requirements). Therefore, if a student can score at least a 2 on each of the four outcomes, it represents that they have met our GIS Program Outcomes.

5. Please provide data collected in the assessment of this outcome (including score distribution and percent of students meeting benchmark). Summarize your findings in the box below. Attach supplemental information or appendices. For this report, **please do not include student and instructor identifying information**, but you can assign an arbitrary identifier, especially if you wish to reference individual scores in your discussion.

We had a total of 36 students, of which 31 had successfully submitted Map Portfolios from the Fall 2021, Winter 2022, and Spring 2022 terms that could be assessed. Out of the 31 portfolios that could be assessed 30 students (96%) meet our benchmark of 8 out of 12 total points. The average score was 9.46. The chart below shows the distribution of scores.

### Map Portfolio Score Distribution



6. Please discuss your overall findings regarding student learning. (What did you learn from this assessment? What insights into student learning did you gain? Were there any surprises? Do the data make sense? How do the data relate to student learning?)\*

When we broke down the data to look at each individual outcome, we found there to be a slight variation. The lowest scoring outcomes (average score of 2.6/3) were focused on map design and communication, and critical geographic thinking. The two higher scoring outcomes (average of 2.8/3 and 2.9/3) were focused on demonstrating a wide variety of geographic data and applications, and applying geographic concepts and geospatial technologies.

What this tells us about student learning is that they are fairly well rounded and achieving the learning outcomes of the GIS Certificate. Since we are grading their final portfolios, we did notice a distinction between students who already have jobs versus those who are designing the Portfolios with a job search in mind, albeit slight. The students who will begin the job search in the GIS field after they complete the certificate tend to go above and beyond the minimum requirements of the Portfolio, while those not looking for a job tend to do exactly what is asked.

The data does make sense and we are happy to see that only one student did not meet the overall benchmark. Even when looking at the breakdown of each individual outcome, it was the same student who received scores below the benchmark for two of the outcomes.

7. Please reflect on the entire project and share how your CTE SAC will use the results to improve student achievement of this outcome. Are there changes that need to be made to improve teaching and/or learning?\*

At this point, I do not think that we need to make any major changes to improve upon student achievement. We need to continue to do what we have been doing - continuing to revise courses each year with minor improvements based on our experience with how students received them; meet students where they are at and build on their strengths; continue to teach students how to problem solve; focus on soft skills within class meetings and group work; and share what we have learned with creating class materials focused on real-world community issues.

8. What changes do you plan to make to your teaching and/or your assessment of this outcome in the future?\*

There are no major changes that we plan to make. We want to ensure that we continue to see students achieving our learning outcomes.

Has the outcome been assessed before? (If not, skip this question).

9. Were any modifications to instruction implemented between the prior assessment and this one? How did the SAC use the information from the initial assessment to inform the reassessment of the outcome (i.e. "closing the loop.")? How did the assessment methods and results compare with the prior assessment?

We did not make any modifications from our prior assessment.



## Geography SAC Overall Process

1a. Was the SAC able to include Part-Time (PT) and Full-Time (FT) faculty for this assessment? If PT faculty did not participate, please explain any barriers that might account for this fact.

Both PT & FT Faculty were involved in this assessment project. Full-time Faculty member Christina Friedle designed the Map Portfolio requirements, created the assessment tools, and assessed each of the projects using standardized rubric. Part-time Faculty member, Alicia Milligan, and Full-time Faculty, Lorena Nascimento, taught the Map Portfolio class sections. Both Full-time faculty members assessed each of the projects using the standardized rubric.

We analyzed the interrater reliability between the two scorers and nineteen students were evaluated the same, nine had a one-point difference in the final score, and three students had a score difference of 2 points or higher.

1b. How do you plan to share this information with all members of your SAC?

We will share the findings of this report with the SAC during the September SAC meeting.

2. Are there any areas that you might want help with from your CTE coach? Please let us know.

None that we can think of right now, although I appreciate that the coaches are always available when we do need help.

2b. Identify any barriers to participation in learning assessment within the SAC. Describe any external factors that got in the way of learning assessment this year -- for example, funding, time constraints, canceled courses, faculty workload, etc.

There were no barriers to participation in our assessment this year. The difficulty we have every year is that we rely on our Spring Geo 270 to be included in the assessment (it is when most students take this class from the program) and it does not give us much time to work on scoring, analyzing, and writing the results based on the LACs deadline.

3. Is there anything else you would like to share with us? Please let us know.

The Map Portfolio guidelines and scoring rubric are included in this document (following the report). Thank you!

# GEO 270 | CREATING A MAP PORTFOLIO

## Course Objectives/Goals

- Create a Professional Geospatial focused Resume
- Create a LinkedIn Profile
- Create a Map Portfolio that represents the full range of projects and experience gained throughout the GIS Certificate program
- Reflect upon your learning experiences

## COURSE ASSIGNMENTS

### 1 | Create a GIS/career focused resume

- First draft is reviewed by Instructor
- Edits from the Instructor are incorporated into a second draft
- The resume must be available in a digital format. There are a few options for what this will be:
  - PDF stored on a cloud service and linked to via LinkedIn
  - Digital resume on Indeed.com (preferred)

### 2 | Create a LinkedIn Profile

- Up-to-date profile based on your experience and education
- Set up for continual updating beyond course
- Include narrative
- Include url link to their portfolio website

### 3 | Create a Portfolio Website

- Resume
- Link to LinkedIn page
- 4 maps or examples of work created in GIS program, Internships, or other projects completed during the GIS Certificate program
  - At least one map/project that is unique to them and not a lab that all students complete
  - At least one map/project that demonstrates your Cartographic design skills/ability
  - At least one map/project that demonstrates your ability to critically address a spatial problem/question (analysis)
  - A map of your choice that demonstrates a geospatial application or tool (i.e. ENVI, UAS, Story Map, Web map, etc.)
- Each Map/Work Sample should include:
  - Statement of Purpose
  - Intended Audience
  - Geographic Question (analysis / spatial problem) or Design Goal (Cartographic)



- Data Sources
- Brief explanation of process/methods, including software used

#### **4 | Write a Reflection Essay**

- First draft is submitted to Instructor and revisions are made for a second/final draft
- Describe your most challenging project. How did you work through those challenges?
- What do you consider your most innovative workflow/method, or novel use of geospatial tools?
- What do you consider the most important thing that you learned throughout your GIS Certificate experience?

PROGRAM OUTCOMES	ACTIVITIES
Communicate geographic information verbally & graphically to a variety of audiences using geographic tools & technologies	<ul style="list-style-type: none"> <li>→ Apply cartographic principles such as visual hierarchy, balance, color choices, symbols, and labels to map design</li> <li>→ Communicate visual information clearly</li> <li>→ Include appropriate map elements in map design</li> </ul>
Analyze critically geographic problems & questions	<ul style="list-style-type: none"> <li>→ Articulate a Geographic question</li> <li>→ Use valid GIS principles and tools to answer geographic questions</li> </ul>
Collect, create, analyze & document geographic information for various applications & disciplines	<ul style="list-style-type: none"> <li>→ Document GIS methods (work flows or written explanations) and data sources</li> <li>→ Data sources reflect a compilation from a wide variety of valid and reliable sources</li> <li>→ Uses GIS for a variety of applications (whether that be software applications or disciplines)</li> </ul>
Use Geographic concepts & GIS technologies to input, store, query, and retrieve spatial & attribute data	<ul style="list-style-type: none"> <li>→ Apply Geographic concepts (location, place, scale, patterns, space) to spatial analysis</li> <li>→ Use a variety of geospatial technologies to answer geographic questions</li> </ul>

<b>PROGRAM OUTCOMES</b>	<b>Does not meet expectations (0)</b>	<b>Partially meets expectations (1)</b>	<b>Meets expectations (2)</b>	<b>Exceeds expectations (3)</b>
<b>1. Communicate geographic information verbally &amp; graphically to a variety of audiences using geographic tools &amp; technologies</b>	Map(s) construction is attempted, but the message is unclear, the design is lacking necessary elements and unification, and the audience is not considered.	All of the elements of the map(s) are present, but have not been refined, unified, or made specific to map purpose, making the map difficult to read and understand.	There is evidence to support an effort to display data clearly and in an understandable manner. Some small details are lacking.	Map(s) contains all data in clean, easy to read format. Clear attention to details of making a professional map given the map purpose and audience
<b>2. Analyze critically geographic problems &amp; questions</b>	Map(s) shows no geographic question, and little or no evidence of geographic analysis or addressing geographic questions.	The map(s) has a question specified, but the methods or processes are not appropriate to answering the question.	The map adequately states a geographic question, and documents a sufficient method or process to analyze it	The portfolio provides a clear geographic question, and documents an appropriate or creative method or process to analyze it
<b>3. Collect, create, analyze &amp; document geographic information for various applications &amp; disciplines</b>	Little or no evidence of diverse data compilation or creation. No variety mapping projects completed in the program	Inadequate evidence of diverse data compilation or creation. No variety mapping projects completed in the program	Some variety of data source compilation and range of mapping projects completed in the program	Effectively uses a variety of data sources and demonstrates a diverse range of mapping projects completed in the program
<b>4. Use Geographic concepts &amp; GIS technologies to input, store, query, and retrieve spatial &amp; attribute data</b>	Shows little to no evidence of applying geographic concepts to projects. Uses a limited number of technologies or tools to address Geographic questions	Inadequately or incorrectly applies geographic concepts to projects. Inadequately or incorrectly uses technologies or tools to address Geographic questions	Sometimes applies geographic concepts to projects. Sometimes uses appropriate technologies or tools to address Geographic questions	Effectively applies geographic concepts to projects. Uses a variety of technologies or tools to address Geographic questions