Academic Assessment Report:
Graduate Certificate in Geospatial Technologies (GISTGC)

Department of Geosciences

Summer 2023

This assessment report of the Graduate Certificate in Geospatial Technologies (GISTGC) is largely based on the learning outcomes and assessment techniques of the initial GISTGC assessment plan prepared in Jun 2018.

For context, overall interest in GISTGC appears to be steadily building. Since 2022, six students have graduated from the program, doubling the number of graduates from all previous years combined. Twenty students are currently actively enrolled, fourteen of whom joined the program in 2023.

A. Learning Outcomes: GISTGC

- Understand broadly the impact of geospatial technology and data
- Understand fundamental 2D computational geometry and interaction with GIS entities
- Key elements of Python programming relevant to current trends in GIS
- Spatial analysis using mainstream GIS software
- Statistics and geospatial data
- Detailed experience with the database systems capacity in GIS
- Since the GISTGC is intended for graduate students, it should promote leadership skills in an online GIS laboratory setting

B. Assessment Techniques: GISTGC

- Based on data acquired in Spring 2023, when taking into account all students enrolled in certificate classes, the majority of students taking the certificate classes are not pursuing the certificate. Given this context, the assessment methods indicated below are clear and easy to implement in the real world.

Table 1. Learning outcomes and corresponding methods of direct and indirect assessment.

Learning outcome	Assessment	
	Direct	Indirect
Understand broadly the impact of geospatial technology and data	Score gains between pre and post tests administered by instructor	GEOS 5543 grade
Understand fundamental 2D computational geometry and interaction with GIS		GEOS 5043 grade

Key elements of Python programming relevant to current trends in GIS		GEOS 5073 grade
Spatial analysis using mainstream GIS software		GEOS 5553 grade
Statistics and geospatial data		GEOS 5083 grade
Detailed experience with the database systems capacity in GIS		GEOS 5593 grade
Promote relatively more complex leadership skills (e.g., familiarity with multiuser concepts in a GIS laboratory setting)	Phone interviews with each student and certificate program director or coordinator, using a rubric	Average score on graduate student work that does not overlap with undergraduate certificate (GISTCP)

a. **Direct Assessment**

   i. Pre- and post-test comparisons have not yet been developed/ by GISTGC instructors, in part due to the demands of rapidly changing nature of the technology.

b. **Indirect Assessment**

   i. As of Fall 2023, twenty students are actively enrolled in the GISTGC program and six graduated during the 2022-2023 academic year. Of the graduates, two were solely enrolled in the certificate program while the others applied certificate course credits towards additional university degrees in Earth Science, Geography, Public Administration, and Biology.

C. Timelines for Data Collection and Analysis: GISTGC

- The GISTGC was approved by ADHE in 2016 with the first successful graduate of the program in Spring 2018. Since the initial plan for assessment was created in Jun 2018, initial certificate program assessment/analysis was reported 1 Jul 2019 with a goal to continue annually as required throughout the lifecycle of the program. The assessments will be conducted by the GISTGC coordinator with cooperation Department of Geosciences, University of Arkansas Global Campus, and faculty participating in the GISTGC.

D. Use of Results: GISTGC

- Results of the assessment will be communicated to participating GISTCP/GISTGC faculty, coordinator(s), and director, participating University of Arkansas Global Campus staff, geography curriculum committee, Geosciences chair, CAST director, and Fulbright College of Arts and Sciences dean.

- On the basis of the metrics examined, the geography curriculum committee will coordinate making appropriate recommendations for changes to the program.