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

Department of Geosciences

May 2025

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. In the 2024-2025 academic year, three students graduated from the program and nine are actively enrolled in the program.

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 Spring 2025 data, not all students enrolled in certificate classes are pursuing the certificate. In this context, the assessment methods outlined below are clear and practical to implement.

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

	Assessment	
Learning outcome	**Direct**	**Indirect**
Understand broadly the impact of geospatial technology and data	Score gains between pre and post tests administered by instructor	GEOS 55403 grade
Understand fundamental 2D computational geometry and interaction with GIS		GEOS 50403 grade

Key elements of Python programming relevant to current trends in GIS		GEOS 50703 grade
Spatial analysis using mainstream GIS software		GEOS 55503 grade
Statistics and geospatial data		GEOS 50803 grade
Detailed experience with the database systems capacity in GIS		GEOS 55903 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 been developed by GISTGC instructors, partly due to the demands of rapidly changing technology.

b. Indirect Assessment

i. As of Spring 2025, nine students are actively enrolled in the GISTGC program and three graduated during the 2024-2025 academic year.

C. Timelines for Data Collection and Analysis: GISTGC

- The GISTGC was approved by ADHE in 2016, with the first successful graduate completing the program in Spring 2018. An initial assessment plan was established in June 2018, and the first assessment report was submitted on July 1, 2019, with the intention of continuing annual assessments as required throughout the program's lifecycle. These assessments will be conducted by the GISTGC director in collaboration with the Department of Geosciences, the University of Arkansas Global Campus, and faculty involved in GISTGC.

D. Use of Results: GISTGC

- Assessment results will be shared with participating GISTCP faculty, the director, relevant University of Arkansas Global Campus staff, the Geosciences curriculum committee, the Geosciences chair, and the dean of Fulbright College of Arts and Sciences.
- Based on the evaluated metrics, the Geosciences curriculum committee will make appropriate recommendations for program modifications.

Future work should focus on collecting and reporting results to support the curriculum committee or department in making informed recommendations for improving the GISTCP.