

# Academic Assessment Report: Certificate of Proficiency in Geospatial Technologies (GISTCP)

Department of Geosciences

Summer 2023

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

For context, in the 2022-2023 academic year, three students have graduated from the program. Seven students are currently active in the program. Admission and initial advising are conducted outside the department.

## A. Learning Outcomes: GISTCP

- 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

## B. Assessment Techniques: GISTCP

- 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 3543 grade |
| Understand fundamental 2D computational geometry and interaction with GIS |   | GEOS 3013 grade |
| Key elements of Python programming relevant to current trends in GIS      |   | GEOS 3103 grade |
| Spatial analysis using mainstream GIS software                            |   | GEOS 3553 grade |
| Statistics and geospatial data  |   | GEOS 3563 grade |

|   |  |                 |
|---|--|-----------------|
| Detailed experience with the database systems capacity in GIS |  | GEOS 3593 grade |
|---|--|-----------------|

**a. Direct Assessment**

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

**b. Indirect Assessment**

- i. As of Fall 2023, seven students are actively enrolled in the GISTCP program and three graduated from the program during the 2022-2023 academic year. Of the graduates, one student was solely enrolled in the certificate program while the others applied certificate courses towards additional university degrees in Earth Sciences, Geography, and Geology.

**C. Timelines for Data Collection and Analysis: GISTCP**

- The GISTGC was approved by ADHE in 2014. Since the initial plan for assessment was created in Jun 2018. The assessments should be conducted by the GISTCP coordinator with the cooperation Department of Geosciences, University of Arkansas Global Campus, and faculty participating in the GISTCP.

**D. Use of Results: GISTCP**

- Results of the assessment will be communicated to participating GISTCP faculty, coordinator(s), and director, participating University of Arkansas Global Campus staff, 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.

Future work should focus on collecting and reporting results so that the assessment can aid the curriculum committee/department in making recommendations to improve the GISTCP.