(GS) GRAPHIC INFORMATION SYSTEMS

Courses

GS 101. Foundations of Geographic Information Systems. 3 Hours.
In this foundational course, students will examine the concepts, history, and applications of Geographic Information Systems (GIS). The course covers geospatial data types, software tools, and spatial analysis techniques to solve real-world problems. Students will develop skills in creating maps, performing basic geospatial analyses, and applying GIS across various domains.

GS 201. Cartography and Remote Sensing. 3 Hours.
This course introduces students to the principles of cartography and the fundamentals of remote sensing. Students will learn to design visually effective maps and acquire, process, and interpret remotely sensed data, such as satellite imagery. The course will emphasize hands-on, experiential learning using QGIS software to visualize spatial data. Prerequisite(s): GS 101.

GS 301. GIS for Social and Natural Sciences. 3 Hours.
This advanced course transitions from GIS fundamentals and data creation to practical, problem-based applications. Students will learn to design and implement spatial analysis workflows to address real-world challenges in both the social sciences (e.g., public health, urban planning, environmental justice) and the natural sciences (e.g., conservation, natural resource management, hazard modeling). The course emphasizes critical thinking and project management. Prerequisite(s): GS 101 and GS 201.

GS 401. Applied GIS Project. 3 Hours.
This capstone course serves as the culminating experience for the GIS certificate program. Students will design, manage, and execute a comprehensive, independent GIS project from conception to completion. Students will select a topic of interest, formulate a research question, acquire and process relevant data, perform advanced spatial analysis, and produce a set of professional-quality deliverables. The course emphasizes project management, independent problem-solving, and the effective communication of complex spatial information. Prerequisite(s): GS 101 and GS 201 and GS 301.