

PhD in Geospatial Information Sciences Course Planning

Other courses may be substituted for those listed below with the written permission in advance of the Director of the GIS Doctoral program.

Geospatial Science Core – Fifteen (15) Semester Credit Hours:

GISC 6381 Geographic Information Systems Fundamentals

GISC 6325 Remote Sensing Fundamentals

GISC 6384 Advanced Geographic Information Systems

GISC 6385 GIS Theories, Models and Issues

GISC 7310 Advanced GIS Data Analysis

Geospatial Specialization Area Fifteen (15) Semester Credit Hours selected from one of the following areas. Courses selected must include at least three at successively advanced levels.

1. Geospatial Computing and Information Management

CS 6359 Object-Oriented Analysis and Design

CS 6360 Database Design

CS 6364 Artificial Intelligence

CS 6366 Computer Graphics

CS 6375 Machine Learning

CS 6384 Computer Vision

GISC 6317 GIS Programming Fundamentals

GISC 6388 Advanced GIS Programming

GISC 7363 Internet Mapping and Information Processing

MIS 6320 Database Foundations

MIS 6324 Business Intelligence Software and Techniques

MIS 6360 Agile Software Project Management

MIS 6326 Data Management

2. Spatial Analysis and Modeling

ECON 6309 Econometrics I

ECON 7309 Econometrics II

ECON 7318 Structural Equation and Multilevel (Hierarchical) Modeling

ECON 7370 Time Series Analysis

ECON 6316 Spatial Econometrics

GISC 7364 Demographic and Epidemiological Analysis and Modeling

GEOS 5306 Data Analysis for Geoscientists

GISC 6311 Statistics for Geospatial Science

GISC 6331 (CRIM 6322) GIS Applications in Criminology

GISC 6334 (PPPE 6334) Workshop in Environmental and Health GIS/Policy

GISC 6382 (GEOS 6383) Applied Geographic Information Systems

GISC 7360 GIS Pattern Analysis

GISC 7361 Spatial Statistics

EPPS 7313 Descriptive and Inferential Statistics

EPPS 7316 Regression and Multivariate Analysis

3. Remote Sensing and Satellite Technologies

GISC 5322 (GEOS 5322) GPS (Global Positioning System) Surveying Techniques

GISC 5324 (GEOS 5324) 3D Data Capture and Ground Lidar

GISC 5330 (GEOS 5330) Geospatial Applications in Earth Science
GISC 5395 (GEOS 5395) Satellite Geophysics and Applications
GISC 7365 (GEOS 5326) Advanced Remote Sensing
GISC 7366 (GEOS 5329) Applied Remote Sensing
EESC 6360 Digital Signal Processing I
EESC 6363 Digital Image Processing

4. **Customized Geospatial Specialization (15 Semester Credit Hours)**

Identified by the student with approval in advance by the Director of the GIS Doctoral Program.

Application Area or Technical Field (12 Semester Credit Hours)

Twelve semester-credit hours of specialized course work in an application area or technical field relevant to GIScience. Normally, these will derive from the student's master's degree. These hours may be transferred from another institution, or taken at UT Dallas in an existing master's program area and may be applied toward a master's degree in that area.

Application area examples: planning, public affairs, criminal justice, health and epidemiology, geoscience, forestry, hydrology, marketing, real estate, economics, civil engineering.

Technical field examples: statistics, computer science, software engineering, management information systems, image analysis, operations research/location science, instrumentation.

Research and Dissertation (24 to 48 Semester Credit Hours)

Which must include:

GISC 7387 GIS Research Design

and may include:

GEOS 8V21 Research in Remote Sensing, GIS and GPS, GISC 6387 Geographic Information Systems Workshop, GISC 6389 GIS Geographic Information Sciences Master's Project

GISC 7367/GEOS 7327 Remote Sensing Workshop GISC 8V29 Research in GIS

*POEC 5310 & 6342 Research Design I & II

GISC 8v99 or GEOS 8v99 or CS 8v99 Dissertation

Other Related Electives (0-24 Semester Credit Hours)

Students may choose up to 24 SCHs in related electives with consent of the GIS Program Director.

** May not be used in conjunction with certain other courses. Consult GIS Program Director*

GISC: Geospatial Information Sciences

CS: Computer Science

GEOS: Geoscience

POEC: Political Economy, the designation for interdisciplinary graduate courses in the School of Economic, Political and Policy Sciences

MIS: Management Information Systems