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
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