Master of Science Degree Geoinformatics

The Master of Science degree program in Geoinformatics offers opportunities for advanced study and research designed to prepare students for roles in industry, government, research and/or academic institutions. The educational objective of this program is to produce graduates who are capable of applying geospatial technology for conducting original research in industry or academia as well as assuming a leadership role in their chosen employment field. This is a multidisciplinary program administered by the Department of Geological Sciences. It encompasses faculty and facilities from the College of Sciences, College of Liberal and Fine Arts, College of Engineering, College of Public Policy, College of Architecture, Construction and Planning, as well as individual faculty from other UTSA departments.

Program Admission Requirements

In addition to satisfying the University-wide graduate admission requirements, applicants are expected to have completed either a bachelor of science degree, with emphases in geological, biological, physical, environmental, or computational sciences, or a bachelor of arts degree, with emphases in geography, social sciences, humanities, or business. Five required background classes or equivalents are: Algebra (MAT 1073), Computer Programming (CS 1073), Physics (PHY 1603 or 1943), Statistics (STA 1053), and World Geography (WRG 1023). Students whose undergraduate preparation is deficient but who meet the minimum University standards for admission may be conditionally admitted and required to complete specific courses as conditions of admission. If such courses are listed as deficiencies, they will not count toward the graduate degree. Background with GIS and/or remote sensing courses is a plus, but not required. Applicant's evaluations will be considered on a case-by-case basis.

Applicant must submit two letters of recommendation from persons familiar with the applicant's academic record, a personal statement of research or career interest, undergraduate transcripts, Graduate Record Examination (GRE) scores. When GRE scores are used to determine admission, applicants will be compared to applicants with similar socioeconomic backgrounds. All supporting documents should be sent to the Graduate School. Incomplete applications will not be considered until all required items are in an applicant's file.

Applicants whose native language is not English must submit scores from the Test of English as Foreign language (TOEFL) or the International English Language Testing Systems (IELTS) and must meet the minimum University-wide requirements.

Geoinformatics Graduate Studies Committee comprised of five graduate faculty members elected from the involved departments and colleges, and Graduate Advisor of Record (GAR) will be responsible for recommending acceptance into the program. A limited number of teaching assistantships are available and application should be submitted to the Department Chair. Individual faculty members may have opportunities for research assistantships or research fellowships and should be contacted directly.

Graduate Committee

As specified by University regulations, candidates for the Master of Science degree must have a Graduate Committee. The Committee will be chaired by the student’s graduate advisor and will consist of a minimum of two other members. Each student must decide if they are going to complete the thesis or nonthesis option in the first year if not done so in the first semester because that will determine the type of committee appointed. The Committee should be appointed once an academic advisor and topic have been determined. University rules for the supervising committee must be followed. Only tenured or tenure-track faculty members can chair these committees, and no more than one member can be a nontenure-track faculty member or be from another institution.

Comprehensive Examination

Candidates for the Master of Science degree must pass a comprehensive examination administered by their Graduate Committee. The student should normally schedule this examination the semester before the degree requirements are
to be completed. The student’s Graduate Committee will determine the content of the examination. Normally, the examination will consist of academic material that the student is expected to have mastered during his or her course of study. For a thesis option student, the thesis defense is treated as the comprehensive examination. The examination may only be taken twice. If it is not passed the first time, it may be scheduled again in the following semester.

Thesis Option in Geoinformatics

Degree Requirements

The Master of Science degree in Geoinformatics requires the successful completion of a minimum of 32 semester credit hours (exclusive of coursework or other study required to remove academic or admission deficiencies).

Thesis Option Requirements

All candidates for the Master of Science in Geoinformatics with thesis option must complete a minimum of 32 semester hours of the following:

A. 17 Degree Core Curriculum

One of the following:
CE 5293 Geographical Information Systems
or
GEO 5033 Geographical Information Systems

All of the following:
GEO 5053 Remote Sensing
GEO 5063 Applied Statistics for Geoinformatics
GEO 6011 Seminar in Geospatial Science and Applications (Repeated for a total of 2 hours)
GEO 6513 Advanced GIS
GEO 6533 Programming for Geospatial Application

B. A minimum of 9 semester credit hours of electives in consultation with Graduate Advisor of Record

An additional 9 hours of graduate credit as approved by the Graduate Advisor of Record is required, which includes a minimum of two prescribed courses in a candidate’s substantive area of interest from the following:

ANT 6653 Spatial Technologies in Anthropology
CE 5303 Hydrometeorology
CS 5443 Database Management Systems
CS 5633 Analysis of Algorithms
DEM 7093 GIS for Population Science
DEM 7263 Spatial Demography
ES 5023 Environmental Statistic
GEO 5083 Remote Sensing Image Processing and Analysis
GEO 5093 Remote Sensing in Hydrology
GEO 6523 GIS for Water Resources
GRG 5913 Design and Management of GIS
IS 5003 Introduction to Information Systems
IS 5143 Information Technology
IS 6703 Introduction to Data Mining
C. Master’s Thesis:

   GEO 6983  Master’s Thesis (Repeated for a total of 6 hours)  6

D. Comprehensive Examination:

Candidates for the Master of Science degree electing the thesis option must also pass a final oral comprehensive examination in which they successfully defend their thesis before their Graduate Committee. The thesis defense will take one to two hours to complete. The thesis defense is normally scheduled in the last semester before the degree requirements are to be completed. Part of the thesis defense will be a public presentation in an open, advertised forum.

Total Credit Hours:  32

Non-thesis Option in Geoinformatics

Degree Requirements

The Master of Science degree in Geoinformatics requires the successful completion of a minimum of 32 semester credit hours (exclusive of coursework or other study required to remove academic or admission deficiencies).

Nonthesis Option Requirements

The nonthesis option is available for those who want the opportunity to earn the Master of Science degree in Geoinformatics primarily through organized coursework. Non-thesis students should consult the Graduate Advisor of Record on their program of study during the first semester of residence. For the independent study course, candidate must work on a project that applies geospatial technology to the candidate’s area of specialty and must write a final project report and present to the candidate's Graduate Committee as the final oral comprehensive examination. This is normally scheduled in the last semester before the degree requirements are to be completed.

Candidates are required to complete a minimum of 32 semester credit hours of the following:

A. 20 semester credit hours of required courses:  20

   One of the following:
   CE  5293  Geographical Information Systems
   or
   GEO 5033  Geographical Information Systems
All of the following:
GEO 5053 Remote Sensing
GEO 5063 Applied Statistics for Geoinformatics
GEO 6011 Seminar in Geospatial Science and Applications (Repeated for a total of 2 hours)
GEO 6513 Advanced GIS
GEO 6533 Programming for Geospatial Application

GEO 6953 Independent Study

B. A minimum of 12 semester credit hours of electives in consultation with Graduate Advisor of Record:

An additional 12 hours of graduate credit as approved by the Graduate Advisor of Record is required, which includes a minimum of two prescribed courses in a candidate’s substantive area of interest from the following:

ANT 6653 Spatial Technologies in Anthropology
CE 5303 Hydrometeorology
CS 5443 Database Management Systems
CS 5633 Analysis of Algorithms
DEM 7093 GIS for Population Science
DEM 7263 Spatial Demography
ES 5023 Environmental Statistics
GEO 5083 Remote Sensing Image Processing and Analysis
GEO 5093 Remote Sensing in Hydrology
GEO 6523 GIS for Water Resources
GRG 5913 Design and Management of GIS
IS 5003 Introduction to Information Systems
IS 5143 Information Technology
IS 6703 Introduction to Data Mining
STA 5093 Introduction to Statistical Inference
STA 5103 Applied Statistics
STA 6863 Spatial Statistics
STA 6973 Introduction to Data Analytics using R
URP 5233 GIS for Urban Studies

and other courses if course descriptions are appropriate.

Total Credit Hours 32