

# GEOGRAPHIC INFORMATION SCIENCE MAJOR

Bachelor of Science Degree  
Texas State University  
Geography Advising Services



Primary Contact: Joyce Lawson - Evans Liberal Arts Building (ELA) 130

Phone 512-245-0372 / e-mail [JL06@txstate.edu](mailto:JL06@txstate.edu)

Major Faculty / Advisors: Dr. Nate Currit, Dr. Sven Fuhrmann, Dr. Alberto Giordano, Dr. Susan Macey  
Dr. Yongmei Lu and Dr. Benjamin Zhan

For all faculty office locations, phone numbers, e-mail addresses, and office hours, as well as information about Geography Department people, programs, courses and activities, check the Texas State Geography Web Site at [www.geo.txstate.edu](http://www.geo.txstate.edu) and Bulletin Boards on ELA 1<sup>st</sup> and 3<sup>rd</sup> floors.

## Major Description

The general philosophy of the program stresses the importance of a content-rich background in geography along with principles and techniques of Geographic Information Science: GIS; remote sensing; visualization; cartography; spatial modeling; and quantitative methods. The major in Geographic Information Science was developed and structured for positions in local, state, and federal agencies, commercial companies, planning departments, engineering firms, utility companies, and many others. To prepare for GI Science careers, many students perform internships with government agencies or private firms as part of their academic program.

Check <http://www.geo.txstate.edu> for more information.

## Pre-Major Requirements

Students who meet the university admission requirements enter the Department of Geography's undergraduate program as pre-majors. To become a major in geography, students must:

1. Complete GEO 1309 and/or GEO 1310, GEO 2410 & GEO 3301 with a minimum grade of C for each course.
2. Complete 45 or more credit hours with an overall minimum GPA of 2.5 for all courses.

## Degree / Major Requirements

1. Students majoring in Geographic Information Science complete the Bachelor of Science (B.S.) degree.
2. The B.S. degree requires a minimum of 36 semester hours of geography with:
  - a) at least a 2.5 GPA for all geography courses attempted at Texas State University and
  - b) at least a 2.25 GPA for all courses taken at Texas State University.
3. The degree requires a minor area of study with a minimum of 18 semester hours.
4. Texas State requires a minimum of 128 semester hours of coursework to graduate including:
  - a) General Education Core requirements; b) major requirements; c) minor requirements; and
  - d) Additional elective courses selected from disciplines other than major or minor.
5. At least 39 semester hours must be advanced (3000 - 4000) level courses.
6. At least 9 semester hours must be writing intensive (WI).
7. This major concentration also requires an additional three hours of computer science or three hours of mathematics beyond the General Education Core mathematics requirement.

## Minor Requirements

Minor may be any approved Texas State minor. Computer Science, Computer Information Systems, Math or Business may serve as an appropriate minor depending upon student interest and career goals. Discuss these and other possible options with your advisor.

## Optional Certificates

**Geographic Information System (GIS)** - The GIS Certificate requires completion of 16 hours:

GEO 2426 & (Choose one: GEO 2427 or GEO 3411 or GEO 3416) & GEO 4426 & GEO 4427 with a minimum grade of C for each course and an overall minimum GPA of 2.5 for all four courses. Additional course work beyond minimum degree/major requirements may be required for the certificate.

**Water Resources Policy** - The Water Resources Policy Certificate requires completion of 13 hours: GEO 3434, GEO 4313, GEO 4314 and GEO 4341 with a minimum grade of C for each course and an overall minimum GPA of 2.5 for all four courses. Additional course work beyond minimum degree/major requirements may be required for the certificate.

# GEOGRAPHIC INFORMATION SCIENCE MAJOR COURSE CHECKLIST

This checklist provides general guidelines only.

Refer to your catalog or consult with an academic advisor for degree requirement details.

## Bachelor of Science: 36 Semester Hours Minimum

### REQUIRED:

- \_\_\_\_\_ 1309 Introduction to Cultural Geography **and/or** 1310 World Geography  
**and**
- \_\_\_\_\_ 2410 Introduction to Physical Geography (Prerequisite: Math 1315)  
**and**
- \_\_\_\_\_ 3301 Quantitative Methods (Prerequisite: Math 1315)

RECOMMENDED PRE-CORE ELECTIVES: These courses provide useful preparation for the program core requirements (4-12 hours).

- \_\_\_\_\_ 2426 Fundamentals of GIS
- \_\_\_\_\_ 3411 Maps and Mapmaking
- \_\_\_\_\_ 3416 Principles of Remote Sensing

Consider joining Texas State's Student Organization for Geographic Information Science (SOGIS) or GTU - Geography's National Honor Society. Check bulletin board across the hall from ELA 139 for more information.

PROGRAM CORE: In consultation with an Advisor, select from the following courses to complete requirements: (12-32 hours)

- \_\_\_\_\_ Additional 3 Hours of Computer Science, Computer Information Systems or Math beyond General Education Core requirement (CS 1308 or higher, CIS 1323 or higher, Math 1317 or higher)
- \_\_\_\_\_ 4310 Regional Field Studies (check with advisor)
- \_\_\_\_\_ 4380 Internship in Geography (May be repeated once for additional credit)
- \_\_\_\_\_ 4411 Advanced Cartographic Design (Prerequisite: GEO 3411)
- \_\_\_\_\_ 4412 Digital Remote Sensing (Prerequisite: GEO 3416)
- \_\_\_\_\_ 4417 Digital Terrain Modeling (Prerequisite: GEO 3416)
- \_\_\_\_\_ 4422 Web Mapping (Prerequisite: GEO 3411)
- \_\_\_\_\_ 4426 Advanced GIS (Prerequisite: GEO 2426)
- \_\_\_\_\_ 4427 Advanced GIS II (Prerequisite: GEO 4426)
- \_\_\_\_\_ 4430 Field Methods (Prerequisites: GEO 2410 and GEO 3301)
- \_\_\_\_\_ 4440 Topics in GIS/Cartography/Remote Sensing (May be repeated with change in content) (Prerequisites: GEO 2427 or GEO 3411 or GEO 3416)
- \_\_\_\_\_ Regional Geography Electives (One course may be selected as an approved elective): GEO 3306 (American South), GEO 3307 (Europe), GEO 3308 (Latin America), GEO 3309 (US & Canada), GEO 3328 (N. Africa & Middle East), GEO 3329 (Texas) GEO 3332 (S & SE Asia), GEO 3333 (China and Japan), GEO 4306 (Southwest US), GEO 4328 (Russian Realm)

### Specialized areas in Geographic Information Science

#### GIS

GEO 2426, GEO 4426, GEO 4427 and GEO 4440

#### REMOTE SENSING

GEO 3416, GEO 4412, GEO 4417 and GEO 4440

#### CARTOGRAPHY

GEO 3411, GEO 4411, GEO 4422, and GEO 4440

### Steps to Graduation

1. Consult with an academic advisor or geography faculty member.
2. Declare intention to major in Geography with Department Academic Advisor, ELA 130.
3. Declare minor with Geography Department Academic Advisor.
4. Attend Group Advising Sessions (scheduled prior to advanced registration fall and spring semesters) and/or consult with major concentration advisor.
5. After completing 45 semester hours of coursework, apply for a Degree Audit with the Geography Department Academic Advisor.
6. After completing 90 semester hours of coursework, apply for a Degree Audit Summary with the College of Liberal Arts Academic Advisor, Flowers Hall 322.
7. Apply for graduation on-line during the first two weeks of the semester of graduation.

### Geo Info Science Career Info Links

- <http://www.gisjobs.com>
- <http://careers.geocomm.com>
- <http://www.asprs.org>
- <http://www.gjc.org>