

Geographic Information Science

Bachelor of Science Degree Effective Fall 2016

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Dr. Yihong Yuan, 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 and bulletin boards on ELA 1st and 3rd floors.

Major Concentration 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 GIScience 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.

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.
3. The B.S. degree requires a.) minimum 2.5 major GPA for geography courses attempted at Texas State University and b.) minimum 2.25 Texas State GPA for all courses taken at Texas State University.
4. Students must make a grade of "C" or better in all Geography courses to receive credit toward their major.
5. The degree requires a minor area of study with a minimum of 18 semester hours.
6. Texas State requires a minimum of 120 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.
7. At least 36 semester hours must be advanced (3000 – 4000) level courses.
8. At least 9 semester hours must be writing intensive (WI).
9. All Geography prerequisite courses must be completed with a "C" or better.
10. 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. Geology, Computer Science, 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: Certificates are designed to enhance your employability and offer you a firm foundation in a particular discipline that is complementary to your major field of study. The courses that you complete for a certificate may count toward your major or minor depending on your field of study. If you are interested in pursuing a certificate, please see the Undergraduate Program Staff Administrator in ELA room 130.

Environmental Interpretation – 16 hours
Location Analysis – 16 to 18 hours
Water Resources Policy – 16 to 17 hours

Geographic Information Science Course Checklist

Bachelor of Science: 36 Semester Hours Minimum

STUDENTS MUST MAKE A GRADE OF "C" OR BETTER IN ALL GEOGRAPHY COURSES TO RECEIVE CREDIT TOWARD THEIR MAJOR.

REQUIRED of all Geography majors: (14 hours)

- _____ 1309 Introduction to Cultural Geography or 1310 World Geography
- _____ 2410 Introduction to Physical Geography (Prerequisite: MATH 1315 or higher [excluding MATH 1316] with a grade of "C" or higher.)
- _____ 2426 Fundamentals of GIS (Prerequisite: MATH 1315 with a grade of "C" or higher.)
- _____ 3301 Research Methods in Geography (Prerequisite: MATH 1315 or higher [excluding MATH 1316] with a grade of "C" or higher.)

- _____ CS 1308 or higher, CIS 1323 or higher, Math 1317 or higher.
*Note: Additional 3 Hours **DOES NOT** count toward 36 major hours of Computer Science, Computer Information Systems or Math beyond General Education Core requirement).*

CORE: (12 hours)

- _____ 3411 Maps and Mapmaking (Prerequisite: GEO 2426 with a grade of "C" or higher.)
- _____ 3416 Principles of Remote Sensing (Prerequisite: GEO 2410 with a grade of "C" or higher.)
- _____ 3426 Advanced GIS (Prerequisite: GEO 2426 and GEO 3301 with a grade of "C" or higher.)

CAPSTONE: (4-10 hours)

At least one course from:

- _____ 4424 GPS and GIS – **Fall Only** (Prerequisite: GEO 2426 and either 3411 or 3426 with a grade of "C" or higher.)
- _____ 4411 Advanced Cartographic Design (Prerequisite: GEO 3411 with a grade of "C" or higher.)
- _____ 4412 Digital Remote Sensing – **Spring Only (WI)**. (Prerequisite: GEO 3301 and GEO 3416 with a grade of "C" or higher.)
- _____ 4422 Web Mapping – **Fall Only** (Prerequisite: GEO 3411 with a grade of "C" or higher.)
- _____ 4427 GIS Design and Implementation (Prerequisite: GEO 3426 with a grade of "C" or higher, Junior or Senior Standing. Instructor Approval)

ELECTIVES: In consultation with an advisor, selected from the following, to bring the total to 36 hours:

- _____ 2420 Introduction to Geographic Information Technology*
- _____ 2427 Management and Implementation of GIS* (Prerequisite: GEO 2426 with a grade of "C" or higher.)
- _____ 4380 Internship in Geography
- _____ 4393C Intro to GeoProgramming (Prerequisite: GEO 3426 with a grade of "C" or higher.)
- _____ 4417 Digital Terrain Modeling – **Check w/Advisor** (Prerequisite: GEO 2426 and 3416 with a grade of "C" or higher.)
- _____ 4430 Field Methods (**WI**). (Prerequisites: GEO 2410 and GEO 3301 with a grade of "C" or higher.)
- _____ A maximum of 3 cr. hr. from GEO 1305, 1309, 1310, 2310 or any GEO 3000-4000 level courses

* By transfer only, not regularly taught on the Texas State Campus

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