

# MASTER OF SCIENCE IN GEOGRAPHIC INFORMATION SCIENCE

Graduate Advisors: Leonhard Blesius, Jerry Davis, Ellen Hines, XiaoHang Liu

## Admission to the Program

For admission to the graduate program, a student must meet the general University requirements as stated in the *Bulletin*. An applicant must have a baccalaureate degree from an accredited institution with a GPA of 3.25 or better in geography or a related discipline, with emphasis or experience in spatial data analysis, and have earned a grade of B or better in GEOG 603, or equivalent.

Please submit applications through Cal State Apply (<https://www2.calstate.edu/apply/>). Transcripts, a Statement of Purpose, and two letters of recommendation are required. Personal interviews with graduate advisors and the appropriate department faculty are recommended.

## Program Learning Outcomes

- Demonstrate skills appropriate to master's-level work in Geography.
- Understand the use of appropriate methods of inquiry in GIScience research.
- Quantitatively analyze a geographic research question.
- Develop and formulate research questions from literature or internship experience.
- Use skills and knowledge to answer research questions through a thesis or research project.

## Written English Proficiency Requirements

The University has a requirement for written English proficiency that is to be assessed at two different levels.

### Level One

Written English proficiency will be assessed on the basis of the Statement of Purpose. Students who demonstrate a need for additional writing support will be required to take a graduate-level writing class.

### Level Two

Satisfactory completion of GEOG 895 or GEOG 898.

## Advancement to Candidacy

In addition to fulfilling all University requirements, students must complete the required curriculum outlined below. All graduate seminars and all courses used on the Advancement to Candidacy (ATC) with the exception of Geography 895 and 898 must be taken on a letter grade basis and have earned a B- or better. Not more than three units of Special Study (GEOG 899) and 1 unit of Special Study (GEOG 699) may be included on the ATC. Each student must consult with their graduate advisor regularly and design an individual program leading towards the culminating experience requirement (thesis or research paper). For advancement to candidacy, the student must select a culminating experience committee comprised of two or three members, at least two of whom must be full-time faculty in geography at SF State, and must present a research proposal to the department.

Upper-division courses offered by the department may be included with the approval of the graduate advisor. Depending on a student's background and/or objective, additional courses in geography or a related field may be required on advisement. Note: A maximum of 30% undergraduate-only courses may be used in a graduate program.

## Geographic Information Science (M.S.)

### – Minimum 30 units

### Prerequisites as Needed (0-3 units)

Code	Title	Units
GEOG 603	Introduction to Geographic Information Systems (or equivalent)	3

### Core Courses (24 units)

Code	Title	Units
GEOG 705	Geographical Analysis	3
GEOG 801	Scope and Method in Geography	3
GEOG 815	Seminar in GIScience	3
Select one:		
GEOG 789	GIScience Internship	
GEOG 896	Directed Reading in Geography	
Select one:		
GEOG 751	Environmental Management	3
GEOG 810	Seminar in Physical Geography (any variant: Biogeography, Climatology, or Geomorphology)	3
GEOG 820	Human and Social Geography	3
Select 12-16 units on advisement from the following:		12-16
GEOG 610	Remote Sensing of the Environment I	
GEOG 711	Remote Sensing of the Environment II	
GEOG 720	Geographical Information Systems	
GEOG 721	Geographic Information Systems for Environmental Analysis	
Approved courses from among the following on advisement:		
CSC 667	Internet Application Design and Development	
CSC 675	Introduction to Database Systems	
GEOG 606	Cartography	
GEOG 625	Programming for Geographic Information Science	
GEOG 642	Watershed Assessment and Restoration	
GEOG 657	Natural Resource Management: Biotic Resources	
GEOG 702	Field Methods in Environmental Science & Physical Geography	
GEOG 704	Environmental Data Science	3
GEOG 810	Seminar in Physical Geography	3
GEOG 820	Human and Social Geography	3
GEOG 857	Issues in Marine and Estuarine Conservation	3
or EARTH 702	Quantitative Methods in Geosciences	

### Culminating Experience (3 units)

Code	Title	Units
Select one:		
GEOG 895	Research Project (and Master's Comprehensive Oral Examination)	3
GEOG 898	Master's Thesis (and Oral Defense of Thesis)	

### **Comprehensive Oral Examination ( GEOG 895)**

A two-hour oral examination is required of all students using this option. One hour is devoted to the research topic (GEOG 895) and a second hour of comprehensive oral examination on the theory and applications of GIScience. The examination or either of its parts may be repeated only once. Students must have completed all coursework prior to taking the oral examination, which can be scheduled only during the fall and spring semesters. Examination guidelines are available from the graduate advisor.

### **Research Proposal**

The department requires all graduate students to present a proposal of their research for culminating experience to faculty and peers within a semester of filing the Proposal for Culminating Experience. The object is to provide students with useful feedback in the critical developmental stage of the research experience. Students present a twenty-minute synopsis of their research ideas to faculty and fellow graduate students focusing particularly on linking the research to a broader theoretical framework and presenting a methodology design to achieve the stated objectives. This is followed by twenty minutes (maximum) for questions and comments. Proposal presentations are scheduled as needed.