

Program Overview

The Master of Science (M.S.) degree with a major in Geography is designed to give highly qualified students exposure to geographic theory and research at the pre-doctoral level. Programmatic emphases include Environmental Geography, Geographic Education, Geographic Information Science, and other specialty areas in geography represented by the current active research interests of the faculty.

Financial Assistance

Graduate assistantships are available to qualified candidates. Please contact the graduate program coordinator in the Department of Geography for more information about financial assistance and the degree programs. For scholarship information, please visit The Graduate College website at <http://www.gradcollege.txstate.edu/funding.html>.

Application Requirements

The items listed below are required for admission consideration for applicable semesters of entry during the current academic year. Submission instructions, additional details, and changes to admission requirements for semesters other than the current academic year can be found on The Graduate College's website (<http://www.gradcollege.txstate.edu>). International students should review the International Admission Documents page (<http://mycatalog.txstate.edu/graduate/admission-documents/international/>) for additional requirements.

- completed online application
- \$55 nonrefundable application fee
- or
- \$90 nonrefundable application fee for applications with international credentials
- baccalaureate degree from a regionally accredited university (Non-U.S. degrees must be equivalent to a four-year U.S. Bachelor's degree. In most cases, three-year degrees are not considered. Visit our International FAQs (<https://www.gradcollege.txst.edu/international/faqs.html>) for more information.)
- official transcripts from **each institution** where course credit was granted
- background course work
- **Fall 2024: overall** minimum 3.4 GPA or 3.4 GPA in the last 60 hours of undergraduate course work (plus any completed graduate courses)
- **Spring 2025 and beyond: overall** minimum 3.25 GPA or 3.25 GPA in the last 60 hours of undergraduate course work (plus any completed graduate courses)
- GRE not required
- resume/CV
- statement of purpose identifying the student's preferred degree and concentration and possible areas of research
- three letters of recommendation

Approved English Proficiency Exam Scores

Applicants are required to submit an approved English proficiency exam score that meets the minimum program requirements below unless they have earned a bachelor's degree or higher from a regionally accredited U.S. institution or the equivalent from a country on our exempt

countries list (<http://www.gradcollege.txstate.edu/international/language.html#wave>).

- official TOEFL iBT scores required with a 78 overall
- official PTE scores required with a 52
- official IELTS (academic) scores required with a 6.5 overall and minimum individual module scores of 6.0
- official Duolingo Scores required with a 110 overall
- official TOEFL Essentials scores required with an 8.5 overall

This program does **not** offer admission if the scores above are not met.

Degree Requirements

The Master of Science (M.S.) degree with a major in Geography requires 30 semester credit hours, including a thesis. Students who do not have the appropriate background course work may be required to complete leveling courses.

Course Requirements

Code	Title	Hours
Required Courses		
GEO 5301 or GEO 5304	Multivariate Quantitative Methods Qualitative Research Methods	3
GEO 5309	Geographical Analysis	3
GEO 7300	Advanced Geographic Research Design	3
Prescribed Electives		
Choose 9 hours of electives from following:		9
GEO 5308	Regional Field Studies	
GEO 5312	Managing Urbanization	
GEO 5313	Environmental Studies	
GEO 5315	Geographic Analysis of Global Issues	
GEO 5314	Geographic Elements of Environmental Law	
GEO 5316	Applied Physical Geography	
GEO 5317	Seminar in Applied Human Geography	
GEO 5318	Environment Problems of the U.S.-Mexico Border	
GEO 5319	Seminar in Nature and Heritage Tourism	
GEO 5322	Interpretive Environmental Geography	
GEO 5323	Researching the City	
GEO 5326	Parks and Protected Places	
GEO 5329	Historical Geography of the Environment	
GEO 5330	Geography of Hazards	
GEO 5332	Environmental Geography of the Coastal Zone	
GEO 5334	Applied Water Resources	
GEO 5336	Transportation Systems	
GEO 5339	The Geography of Land Management	
GEO 5340	Active Learning in Geography	
GEO 5341	Contemporary Issues in Geographic Education	
GEO 5342	Theory and Research Methods in Geographic Education	
GEO 5344	Curriculum, Standards, and Assessments in Geography	
GEO 5349	Population Geography	
GEO 5351	Regional Waste Management	
GEO 5352	Air Quality Management	

GEO 5353	Emergency Management
GEO 5360	Seminar in Planning Problems
GEO 5362	Geographic Visualization
GEO 5365	Remote Sensing and the Environment
GEO 5367	Exploring Spatial Databases
GEO 5368	Lidar and SfM Data Processing and Analysis
GEO 5370	Seminar in Applied Physical Geography
GEO 5380	Internship
GEO 5390	Independent Study
GEO 5395	Problems in Applied Geography
GEO 5408	Web Mapping
GEO 5415	Geographic Applications of Remote Sensing
GEO 5417	Advanced Cartographic Design
GEO 5418	Geographic Information Systems I
GEO 5419	Geographic Information Systems II
GEO 5424	GPS and GIS
GEO 5430	Field Methods
GEO 5680	Internship
Choose 6 hours from the following:	6
GEO 7301	Advanced Quantitative Methods in Geography
GEO 7304	Qualitative Research Methods
GEO 7305	Historical Geography of the Environment
GEO 7308	Advanced Regional Field Studies
GEO 7313	Environmental Systems
GEO 7316	Remote Sensing and the Environment
GEO 7318	GIS and Environmental Geography
GEO 7330	Geography of Hazards
GEO 7334	Geographic Aspects of Water
GEO 7337	Global Climate Change
GEO 7339	Geography of Land Management
GEO 7340	Managing Urbanization
GEO 7341	Urban Environment
GEO 7342	Theories and Methods in Geographic Education
GEO 7344	Seminar in Geographic Curriculum
GEO 7346	Standards and Assessment in Geography
GEO 7349	Population Geography
GEO 7352	Social Theory, Space, and Geography
GEO 7361	Advanced Geographic Information Systems
GEO 7362	Geographic Visualization
GEO 7364	Geocomputation
GEO 7365	Theoretical Cartography
GEO 7366	Advanced Topics in Remote Sensing
GEO 7368	Lidar and SfM Data Processing and Analysis
GEO 7369	Exploring Spatial Databases
GEO 7370	Advanced Seminar in Environmental Geography
GEO 7371	Advanced Seminar in Geographic Education
GEO 7372	Seminar in Geographic Information Science
GEO 7374	Advanced Seminar in Human Geography
GEO 7390	Independent Study
GEO 7393D	International Migration
GEO 7393F	Gender and Development
GEO 7393G	Political Geography

GEO 7393J	Soil and Society
GEO 7393N	Rivers and Society
GEO 7415	Geographic Applications of Remote Sensing
GEO 7417	Geographic Information Systems
GEO 7418	Technical Foundations and Methods in Geographic Information Science
GEO 7430	Field Methods
GEO 7447	Spatial Graphics in Geographic Education

Thesis

GEO 5399A	Thesis	3
Choose a minimum of 3 hours from the following:		3
GEO 5199B	Thesis	
GEO 5299B	Thesis	
GEO 5399B	Thesis	
GEO 5599B	Thesis	
GEO 5999B	Thesis	

Total Hours 30

Comprehensive Examination Requirement

Students are required to take a comprehensive examination. The committee evaluates the comprehensive examination. The research advisor fills out the report of the comprehensive examination form and forwards this to the Graduate Staff Advisor, who then forwards the form to the Graduate College.

In evaluating the examination, the committee has two options: pass or fail. Students who fail the examination may also be required by their committees to complete additional course work or undertake research projects. These must be completed to the satisfaction of the committee before the examination is retaken. A student who has failed the comprehensive examination is eligible to retake the comprehensive examination once. Unless under extenuating circumstances and with the approval of the Graduate Program Coordinator, the second examination must take place no sooner than thirty days after the first comprehensive examination. A student who fails the comprehensive examination twice is dismissed from the graduate program.

If a student elects to follow the thesis option for the degree, a committee to direct the written thesis will be established. The thesis must demonstrate the student's capability for research and independent thought. Preparation of the thesis must be in conformity with the *Graduate College Guide to Preparing and Submitting a Thesis or Dissertation*.

Thesis Proposal (http://www.gradcollege.txstate.edu/docs/Thesis_Diss_Guide.pdf)

The student must submit an official Thesis Proposal Form (<http://www.gradcollege.txstate.edu/forms.html>) and proposal to his or her thesis committee. Thesis proposals vary by department and discipline. Please see your department for proposal guidelines and requirements. After signing the form and obtaining committee members' signatures, the graduate advisor's signature if required by the program and the department chair's signature, the student must submit the Thesis Proposal Form with one copy of the proposal attached to the dean of The Graduate College for approval before proceeding with research on the thesis. If the thesis research involves human subjects, the student must

obtain exemption or approval from the Texas State Institutional Review Board prior to submitting the proposal form to The Graduate College. The IRB approval letter should be included with the proposal form. If the thesis research involves vertebrate animals, the proposal form must include the Texas State IACUC approval code. It is recommended that the thesis proposal form be submitted to the dean of The Graduate College by the end of the student's enrollment in 5399A. Failure to submit the thesis proposal in a timely fashion may result in delayed graduation.

Thesis Committee

The thesis committee must be composed of a minimum of three approved graduate faculty members.

Thesis Enrollment and Credit

The completion of a minimum of six hours of thesis enrollment is required. For a student's initial thesis course enrollment, the student will need to register for thesis course number 5399A. After that, the student will enroll in thesis B courses, in each subsequent semester until the thesis is defended with the department and approved by The Graduate College. Preliminary discussions regarding the selection of a topic and assignment to a research supervisor will not require enrollment for the thesis course.

Students must be enrolled in thesis credits if they are receiving supervision and/or are using university resources related to their thesis work. The number of thesis credit hours students enroll in must reflect the amount of work being done on the thesis that semester. It is the responsibility of the committee chair to ensure that students are making adequate progress toward their degree throughout the thesis process. Failure to register for the thesis course during a term in which supervision is received may result in postponement of graduation. After initial enrollment in 5399A, the student will continue to enroll in a thesis B course as long as it takes to complete the thesis. Thesis projects are by definition original and individualized projects. As such, depending on the topic, methodology, and other factors, some projects may take longer than others to complete. If the thesis requires work beyond the minimum number of thesis credits needed for the degree, the student may enroll in additional thesis credits at the committee chair's discretion. In the rare case when a student has not previously enrolled in thesis and plans to work on and complete the thesis in one term, the student will enroll in both 5399A and 5399B.

The only grades assigned for thesis courses are PR (progress), CR (credit), W (withdrew), and F (failing). If acceptable progress is not being made in a thesis course, the instructor may issue a grade of F. If the student is making acceptable progress, a grade of PR is assigned until the thesis is completed. The minimum number of hours of thesis credit ("CR") will be awarded only after the thesis has been both approved by The Graduate College and released to Alkek Library.

A student who has selected the thesis option must be registered for the thesis course during the term or Summer I (during the summer, the thesis course runs ten weeks for both sessions) in which the degree will be conferred.

Thesis Deadlines and Approval Process

Thesis deadlines are posted on The Graduate College (<http://www.gradcollege.txstate.edu/>) website under "Current Students." The completed thesis must be submitted to the chair of the thesis committee on or before the deadlines listed on The Graduate College website.

The following must be submitted to The Graduate College by the thesis deadline listed on The Graduate College website:

1. The Thesis Submission Approval Form bearing original (wet) and/or electronic signatures of the student and all committee members.
2. One (1) PDF of the thesis in final form, approved by all committee members, uploaded in the online Vireo submission system.

After the dean of The Graduate College approves the thesis, Alkek Library will harvest the document from the Vireo submission system for publishing in the Digital Collections database (according to the student's embargo selection). **NOTE: MFA Creative Writing theses will have a permanent embargo and will never be published to Digital Collections.**

While original (wet) signatures are preferred, there may be situations as determined by the chair of the committee in which obtaining original signatures is inefficient or has the potential to delay the student's progress. In those situations, the following methods of signing are acceptable:

- signing and faxing the form
- signing, scanning, and emailing the form
- notifying the department in an email from their university's or institution's email account that the committee chair can sign the form on their behalf
- electronically signing the form using the university's licensed signature platform.

If this process results in more than one document with signatures, all documents need to be submitted to The Graduate College together.

No copies are required to be submitted to Alkek Library. However, the library will bind copies submitted that the student wants bound for personal use. Personal copies are not required to be printed on archival quality paper. The student will take the personal copies to Alkek Library and pay the binding fee for personal copies.

Master's level courses in Geography: GEO

Courses Offered

Geography (GEO)

GEO 5190. Independent Study.

Individual study under direct supervision of a professor. May involve geographic field trips. GEO 5190, GEO 5290, and GEO 5390 may be taken for a total of six semester hours of credit. Prerequisite: Instructor approval.

1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Standard Letter

GEO 5199B. Thesis.

This course represents a student's continuing thesis enrollments. The student continues to enroll in this course until the thesis is submitted for binding.

1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

GEO 5290. Independent Study.

Individual study under direct supervision of a professor. May involve geographic field trips. GEO 5190, GEO 5290, and GEO 5390 may be taken for total of six semester hours of credit. Prerequisite: Instructor approval.

2 Credit Hours. 2 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Standard Letter

GEO 5299B. Thesis.

This course represents a student's continuing thesis enrollments. The student continues to enroll in this course until the thesis is submitted for binding.

2 Credit Hours. 2 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Credit/No Credit

GEO 5300. Applied Research Design and Techniques.

Students will be introduced to appropriate research methods for applied geographers. Emphasis will be placed on the scientific method, productive library research, data collection and analysis, fieldwork, effective writing, and the nature of graphic representation.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5301. Multivariate Quantitative Methods.

The use of multivariate descriptive and inferential statistics as applied to geographic data and problems, beginning with the general linear model and including topics such as multiple regression, principal components analysis, discriminant analysis, and clustering algorithms. Prerequisite: GEO 3301 with a grade of "D" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5304. Qualitative Research Methods.

This course introduces the qualitative research paradigm, including research design, methods of data collection, and inductive analysis. Standards of scientific research that call for a deeper evaluation of complex social relationships are emphasized. The focus and application will be oriented towards human geography and nature-society relations.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5308. Regional Field Studies.

Study of geographic phenomena during field excursions to a particular site or region. Students will study the physical and/or cultural environments through off-campus field experience. Students will research, analyze, and report on major regional geographic features. Repeatable once for additional credit with a different site or region. (MULT).

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Multicultural Content

Grade Mode: Standard Letter

GEO 5309. Geographical Analysis.

A survey of typical spatial problems of interest to geographers, with emphasis on current research and application being undertaken by the faculty in the Department of Geography. Topics include environmental geography, geographic education, land use and regional development, and cartographic representation and geographic information theory.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5312. Managing Urbanization.

Survey methods and procedures related to managing and preparing for urban growth. Selected topics for examination include transportation planning, housing, historic preservation, and environmental design. (MULT).

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Multicultural Content

Grade Mode: Standard Letter

GEO 5313. Environmental Studies.

A critical analysis of the major causes of environmental change and human response to environmental problems.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5314. Geographic Elements of Environmental Law.

A survey of environmental laws related to land, air, and water pollution. The nature of environmental problems will be studied as they relate to urbanization, industrialization, land development, noise, radiation and solid waste management, and the laws and guidelines that have been passed to alleviate such problems.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5315. Geographic Analysis of Global Issues.

This course focuses on a critical analysis of contemporary global or regional issues from geographic perspectives. The course emphasizes research-based case studies associated with the topics and integrative approaches to the study of world regions and world cultures. The course may be repeated with permission of the instructor.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Standard Letter

GEO 5316. Applied Physical Geography.

This course is a survey of methods and techniques used in the collection, analysis, and evaluation of information relating to problems within the physical environment. Emphasis will be on problems characteristic of particular geographic locations or specific environmental settings. Repeatable once for additional credit with a different topic.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Standard Letter

GEO 5317. Seminar in Applied Human Geography.

A focus on the methods and techniques used in the collection, analysis, and evaluation of information relating to problems within the human geographical environment. Emphasis will be on problems pertaining to particular geographic locations or special environmental settings. Repeatable once for additional credit with a different topic.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Standard Letter

GEO 5318. Environment Problems of the U.S.-Mexico Border.

This course serves as an in-depth introduction to the physical, social, and environmental landscapes of the region of the U.S.-Mexico Border. The course applies an interdisciplinary perspective to geographic understanding of the environmental and health-related issues experienced by residents of the borderlands. Special attention is given to management and planning solutions to the region's problems. (MULT).

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Multicultural Content

Grade Mode: Standard Letter

GEO 5319. Seminar in Nature and Heritage Tourism.

This seminar focuses on the special geographic issues of nature and heritage tourism. Particular emphasis is placed on sites and activities, costs and benefits, commoditization and authenticity, resource protection, and substantive learning content of nature and heritage tourism activities.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5322. Interpretive Environmental Geography.

Students learn to use geographic theories and concepts to provide holistic and thematic interpretation of environmental information, as specified by interpretive principles. Students also learn advanced use of traditional and digital presentation techniques and research methods, which include audience assessment and program evaluation.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5323. Researching the City.

This course covers data collection and analysis of urban life and the factors considered in locating industry, business, housing, and community facilities. Attention will be paid to the location of manufacturing activities, commercial enterprises, and a variety of social service facilities.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5326. Parks and Protected Places.

This course serves as an in-depth introduction to the philosophy, establishment, and operation of public parks, wildlife refuges, protected areas, non-governmental preserves and historic sites. Students will be introduced to the scientific and policy rationale for the creation of such areas as well as methods of classification and acquisition.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5329. Historical Geography of the Environment.

This course examines the evolution of environmental problems using the techniques and analytical perspectives of historical geography. Special emphasis is given to the emergence of environmental challenges related to urbanization and climate change. Students in this class will engage with scholarship related to historical geography of the environment and develop original research related to environmental change.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5330. Geography of Hazards.

This course focuses on understanding and advancing scholarship in hazards research – the threats to life, health, and welfare caused by natural, technological, and/or social processes, and disasters. Special emphasis is placed on understanding the complexities of the assessment and management of risks, hazards, and disasters at multiple geographic scales.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5332. Environmental Geography of the Coastal Zone.

Investigation of the physical geographic factors associated with the coastal zone and the role of human activities in problems and opportunities characteristic of this environment.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5334. Applied Water Resources.

Application of techniques employed in water management including flood hazards, water supply assessment, and water management strategies. Students will apply principles to specific watersheds and water problems including the analysis of various physical, land use, and legal parameters.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5335. Directed Research.

This course is directed research on various topics in applied geography under the supervision of a graduate faculty member. Students gain experience about the entire process of conducting applied research in geography. Students receive course credit after a directed research report is approved by a student's advisor and members of the student's committee.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5336. Transportation Systems.

This course introduces key concepts and methods of transportation geography and transportation planning. Topics include, among others, the spatial structure of transportation systems, transportation economics, and logistics. Various methods, techniques, and technologies for transportation analysis, particularly Geographic Information Systems (GIS), will be explored and applied as part of the course.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5339. The Geography of Land Management.

This course explores U.S. land management philosophies, techniques, and development approaches. Major topics include land ethics/philosophies, U.S. traditions in cadastral geography, urban sprawl and green development, land conservation techniques, the role of local/state/federal regulations in land management, and the human environmental impacts of land development.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5340. Active Learning in Geography.

The course focuses on instructional strategies that will allow teachers to promote active learning in geography. Emphasis will be on how active learning can help students reach geography content and skills standards.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5341. Contemporary Issues in Geographic Education.

This course examines current approaches to teaching geography in American education. Specific attention will be given to new classroom materials, curriculum reform efforts, and research developments.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5342. Theory and Research Methods in Geographic Education.

The course focuses on designing, conducting, and presenting empirical research on teaching and learning geography. This course emphasizes the critical analysis of theories, research methods, and key research questions in geographic education and developing a research proposal.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5344. Curriculum, Standards, and Assessments in Geography.

This course is a survey of major curriculum and assessment theories and practices in geography education. Geography is examined as a school subject that is part of the social studies, as an element of interdisciplinary studies, and as a stand-alone subject. The concept of teacher leadership frame discussions of geography subject matter and standards implementation in schools.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5345. Spatial Thinking in Education.

This course introduces the concept of spatial thinking and discusses how spatial thinking may be taught in the context of K-16 education. Students examine various instructional strategies to facilitate spatial thinking in the classroom and design grade-level appropriate learning experiences.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5346. Inquiry-Based Teaching in Human Geography.

This course introduces models of geographic inquiry for instruction in human geography at the secondary and postsecondary levels. Case studies examining contemporary issues will be paired with lessons and activities that support integrated and inquiry-based approaches to teaching human geography. Students develop inquiry lessons aligned with geography/social studies standards, the Advanced Placement Human Geography course, and introductory undergraduate courses in human geography.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5349. Population Geography.

An in-depth study of the spatial distribution and movement of human populations. Course will emphasize current issues and analytical techniques. Topics will include the impact of population growth, spatial diffusion processes, migration trends and theories, explanation of regional demographic differences, and techniques such as population projections. (MULT).

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Multicultural Content

Grade Mode: Standard Letter

GEO 5350. Practicum in Teaching Geography.

This course introduces key concepts in teaching geography and provides regular training and planned periodic evaluations of instructional responsibilities. Course topics include instructional and assessment strategies in geography and classroom management. This course is required for first-year instructional assistants in the Geography Department. Students do not earn graduate degree credit.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Graduate Assistantship|Exclude from Graduate GPA

Grade Mode: Leveling/Assistantships

GEO 5351. Regional Waste Management.

The principles of effective solid waste planning and management will be examined as they relate to such activities as waste generation, storage and collection, transfer and transportation, processing and volume reduction, resource conservation and recovery, the disposal of wastes, and the handling of special wastes, particularly those of a toxic and hazardous nature.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5352. Air Quality Management.

A geographic assessment of air quality management in the United States. Spatial distribution of the types, sources, and effects of air pollutants. Meteorology and physics of air pollution dispersion. Legislative and regulatory approaches to pollution management. National, state, regional, and local policy development procedures. Geographic methods for air pollution management.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5353. Emergency Management.

This course provides an overview of the most important aspects of emergency management at all geographic scales, with emphasis on local, regional, and federal levels. Best practices and proper methodologies are emphasized as well as ways that students can develop the skills and capabilities for a career in this field.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5360. Seminar in Planning Problems.

A critical and in-depth examination of several problem areas currently facing the planner.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5365. Remote Sensing and the Environment.

This course provides an examination and implementation of sophisticated approaches for processing satellite digital images with emphasis on environmental applications.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5367. Exploring Spatial Databases.

This course covers principles of spatial ontologies and spatial semantics to facilitate appropriate database conceptualization, design and implementation. Course assignments and projects provide in-depth experience with database query languages. Course work is completed using a spatially-enabled Relational Database Management Systems (RDBMS). Prerequisite: GEO 5418 or equivalent with a grade of 'B' or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5368. Lidar and SfM Data Processing and Analysis.

This course covers Light Detection and Ranging (lidar) systems and Structure from Motion (SfM) workflows for mapping and analysis of the environment. Students learn to successfully apply knowledge of lidar data and SfM workflows for a variety of Geographic Information Science applications.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5370. Seminar in Applied Physical Geography.

Critical analysis of theories, models, and techniques of physical geographic research with the focus on application to real-world problems. Repeatable once for additional credit with a different topic.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Standard Letter

GEO 5371. Seminar in Geographic Education.

This research seminar addresses contemporary topics related to geographic education. The emphasis is on applications of learning theories, teaching strategies, and innovative tools in geography classrooms. Course topics may vary depending on student and faculty interest. Repeatable once for additional credit with a different topic.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Standard Letter

GEO 5380. Internship.

Application of techniques of applied geography in an actual on-the-job setting. Internships will be arranged and supervised by the Internship Director. May be repeated once for additional credit.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Credit/No Credit

GEO 5390. Independent Study.

Individual study under direct supervision of a professor. May involve geographic field trips. GEO 5190, GEO 5290, and GEO 5390 may be taken for a total of six semester hours of credit.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Standard Letter

GEO 5393B. Biogeography in Mountain Environments.

This course examines how plants and animals interact with and affect geomorphological processes and landforms, and how geomorphological processes, landforms and geological factors affect spatial distribution of animals and plants; all within the environmental limitation and conditions of mountains. The role of humans in affecting these interrelationships will be emphasized.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

GEO 5393D. Water Resource Planning.

This seminar presents case-studies related to water quality protection and mitigation and to the planning of water supply at the state and regional level from a policy practitioner's perspective. The objective of the course is to identify the components of the planning process and its outcomes, including water-use conservation.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

GEO 5393E. Geomorphology in the Anthropocene.

This course will examine the ways in which humans interact with and affect geomorphological processes and landforms, and how humans directly act as geomorphological agents. The level at which human activities have transformed the surface of the Earth will be examined.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

GEO 5393G. Jobs, Careers, and Professional Development in Geography.

This course introduces graduate students to research-based strategies for career planning and professional development in geography. Career opportunities for geographers in business, government, nonprofit, and academic organizations are examined. The course also analyzes professional identities, applications of geography in society, professional ethics, lifelong learning, work-life balance, and professional networking.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

GEO 5393H. Professional Development in Geographic Education.

This course combines useful, dynamic geography content with a sensible professional development online delivery system. The content emphasis stresses the applicability of geography in our modern world thus offering jobs and careers to students. The message for teachers is that geography has become more oriented to student aspirations and civic and environmental responsibility.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

GEO 5393I. Geography and the Social Studies.

This course examines on how geography fits within the social studies. It details how geography can be taught alongside history, economics, and civics for a well-rounded social studies curriculum. Attention is paid to technology, skills and perspectives. The course examines various social studies frameworks and standards. This course will prepare teachers to be versatile in their social studies knowledge and understanding. It will enhance a teacher's ability to teach geography across all of the social studies subjects.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

GEO 5393K. Advanced Web Cartography and Data Visualization.

This course provides advanced training in the design and development of interactive, web-based data visualization systems with emphasis on the modern cartographic process and the spatial applications of interactive data visualization principles.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

GEO 5395. Problems in Applied Geography.

Designed to consider a selected topic relating to applied geography. Emphasis on the practical application of geographic tools, with individual or group participation in a specific project. Course topics may vary depending on student and faculty interests and may apply to any of the four graduate tracks: physical-environmental, urban and regional planning, geographic education or GIScience. Repeatable for up to six hours.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Standard Letter

GEO 5399A. Thesis.

This course represents a student's initial thesis enrollment. No thesis credit is awarded until student has completed the thesis in GEO 5399B.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Credit/No Credit

GEO 5399B. Thesis.

This course represents a student's continuing thesis enrollments. The student continues to enroll in this course until the thesis is submitted for binding.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Credit/No Credit

GEO 5408. Web Mapping.

This course introduces students to modern interactive and dynamic mapping and GIS techniques that allow internet-based cartographic representations of temporal and non-temporal geospatial objects and phenomena. Prerequisite: GEO 3411 with a grade of "C" or better.

4 Credit Hours. 2 Lecture Contact Hours. 4 Lab Contact Hours.

Course Attribute(s): Lab Required

Grade Mode: Standard Letter

GEO 5415. Geographic Applications of Remote Sensing.

Students will focus on Geographic applications of the principles and practices of digital image processing, classification, and modeling using satellite images.

4 Credit Hours. 2 Lecture Contact Hours. 4 Lab Contact Hours.

Course Attribute(s): Lab Required

Grade Mode: Standard Letter

GEO 5417. Advanced Cartographic Design.

This advanced course in cartography focuses on thematic map design. The objective is to produce a series of well-designed, professional grade maps (or an atlas) that students can use to build a cartographic portfolio. Theoretical concepts and principles will be introduced using practical examples and written assignments. Prerequisite: GEO 3411 with a grade of "D" or better or instructor approval.

4 Credit Hours. 2 Lecture Contact Hours. 4 Lab Contact Hours.

Course Attribute(s): Lab Required

Grade Mode: Standard Letter

GEO 5418. Geographic Information Systems I.

Course is concerned with the analysis and interpretation of maps stored in digital form. Students are introduced to concepts and practices involving computerized cartographic and geographic data input, storage and retrieval, data manipulation and analysis, graphic and tabular report generation, and cartographic modeling.

4 Credit Hours. 2 Lecture Contact Hours. 4 Lab Contact Hours.

Course Attribute(s): Lab Required

Grade Mode: Standard Letter

GEO 5419. Geographic Information Systems II.

This course aims to develop more advanced GIS concepts and application issues, further spatial data manipulation and analysis skills, and provide hands-on experience with GIS hardware and software programs. The emphasis will be on practical application of skills to real world issues. Prerequisite: GEO 5418 with a grade of "C" or better.

4 Credit Hours. 2 Lecture Contact Hours. 4 Lab Contact Hours.

Course Attribute(s): Lab Required

Grade Mode: Standard Letter

GEO 5424. GPS and GIS.

Students will learn to plan and conduct fieldwork using Global Positioning System (GPS) to differentially correct GPS data, and to build Geographic Information Systems (GIS) applications using GPS technology. The course is project-based and involves working with external clients(s). Prerequisites: GEO 2426 with a grade of "D" or better or GEO 5418 with a grade of "C" or better.

4 Credit Hours. 2 Lecture Contact Hours. 4 Lab Contact Hours.

Grade Mode: Standard Letter

GEO 5430. Field Methods.

Course will emphasize common field techniques necessary in the construction of accurate maps. Various kinds of data collection techniques will be presented that will facilitate geographic research. Prerequisite: GEO 3301 with a grade of "D" or better.

4 Credit Hours. 2 Lecture Contact Hours. 4 Lab Contact Hours.

Course Attribute(s): Lab Required

Grade Mode: Standard Letter

GEO 5447. Technology in Geographic Education.

The course focuses on the applications and implications of technology in geographic education. The emphasis is placed on the role of technology as an instructional tool to promote inquiry-based learning.

4 Credit Hours. 3 Lecture Contact Hours. 1 Lab Contact Hour.

Grade Mode: Standard Letter

GEO 5599B. Thesis.

This course represents a student's continuing thesis enrollments. The student continues to enroll in this course until the thesis is submitted for binding.

5 Credit Hours. 5 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Credit/No Credit

GEO 5680. Internship.

Application of techniques of applied geography in an actual on-the-job setting. Internships will be arranged and supervised by the Internship Director.

6 Credit Hours. 6 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Credit/No Credit

GEO 5999B. Thesis.

This course represents a student's continuing thesis enrollments. The student continues to enroll in this course until the thesis is submitted for binding.

9 Credit Hours. 9 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Credit/No Credit