

Graduate Certificate Program in Geographic Information Sciences
Department of Geography
University of North Carolina at Chapel Hill
Program Handbook

Program Director:

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Program Website:

<https://geography.unc.edu/graduate-program/gisc-certificate-program/>

PROGRAM OVERVIEW

The Graduate Certificate Program in Geographic Information Sciences offered within the Department of Geography is designed to educate and train students in Geographic Information Sciences with a focus on remote sensing, geographic information systems (GIS), and spatial analysis. The UNC-CH program is unique in the combination of basic theory with a focus on the practical application of knowledge in public health, ecology, planning, business, and other areas. The program is designed to serve (1) current students who wish to acquire cutting edge geospatial technical expertise to support the topical knowledge gained in their undergraduate and graduate programs, and (2) returning students who wish to acquire specialized education and training to meet current or future job requirements calling for knowledge in geographic information sciences.

APPLICATION INFORMATION

Application Deadlines:

June 15 for fall semester start

November 15 for spring semester start

If you are NOT currently enrolled as a graduate student at UNC-Chapel Hill:

Send the following via email to the Program Director (Dr. Erika Wise, ekwise@email.unc.edu) by the application deadline:

- **Undergraduate and/or graduate transcript(s).** You must have a Bachelor's degree (any field) to enter the graduate certificate program and have taken an introductory course in statistical methods (stats course can be added to first semester, if needed).
- **Personal essay.** Describe your interest in the program and your professional goals, indicate your requested start semester, and provide your current full contact information (2-page maximum).
- **Recommendation Letter.** One letter of recommendation from someone who is qualified to serve as a professional reference. You may include the letter directly with your application or you can include the name, position, and contact information in your application & ask your letter writer to email the letter to ekwise@email.unc.edu.

If you ARE currently enrolled as a graduate student at UNC-Chapel Hill:

Send the following via email to the Program Director (Dr. Erika Wise, ekwise@email.unc.edu) by the application deadline:

- **Interest Statement.** Email indicating your interest in joining the certificate program with your requested start semester, PID, and UNC email address.
- **Advisor Note.** Have your advisor send a brief email stating that they support your enrollment in the program.

Enrollment Procedure:

Accepted students will receive instructions on enrollment, which takes place through the UNC Friday Center and has a separate deadline. Program cost is based on rates for graduate tuition & fees and depends on credit hours enrolled (see <https://cashier.unc.edu/tuition-fees/>); the program may be completed on a full-time or a part-time basis.

International Students: International students are welcome in our program, but should be advised that enrollment in this program alone will not qualify you for an F-1 student visa, as it is a "certificate" rather than a "matriculated" program.

PROGRAM INFORMATION

Practitioners of Geographic Information Sciences (GISc) study geospatial phenomena using an integrated set of spatial digital technologies including tools, techniques, concepts, and data sets associated with geographic information systems, remote sensing, data visualization, global positioning systems, spatial analysis, and quantitative methods. Due to the rapid growth of spatial digital technologies, GISc tools support decision-making and analyses with spatial data in fields including environmental policy, marketing, planning, demographic analysis, resource management, ecological analyses, health care, epidemiology, information technology, and city and regional planning. The widespread use of these technologies has increased demand for skilled users in government agencies, corporations, environmental consulting firms, health care, planning organizations, and academic institutions.

The primary goal of the Program is to ensure that students become sufficiently grounded in theoretical underpinnings of Geographic Information Sciences to enable them to make informed use of existing software and applications and gain the background needed to adapt to new technology uses in the future. Students will gain experience using major GISc software packages in their courses. Because the UNC-CH GISc certificate program combines conceptual knowledge, spatial reasoning, and hands-on use, the program differs from a typical short course designed to teach a particular software package. Our intent is for students to achieve a balanced combination of education and training in the use of a diverse set of tools, techniques, data, and spatial concepts that collectively reside within the analytical framework that defines Geographic Information Sciences.

PROGRAM REQUIREMENTS

Overview: The Program requires 18-hours of graduate-level university credit to obtain a Certificate in Geographic Information Sciences from the University of North Carolina at Chapel Hill. These 18-credit hours will consist of a combination of "core" and "elective" courses; see details and approved list of courses below. Students who have not previously taken a basic statistics course must take this the first semester in addition to the 18 credit-hours. Graduate students at UNC are graded on an H/P/L/F scale (High pass / Pass / Low pass / Fail), and GISc certificate students must obtain a grade of 'P' or higher in each class for certificate credit.

Transfer credit: Up to 6-credit hours of graduate level courses may be transferred to meet Program requirements. Given the rapid development GISc, courses taken more than five years ago will not be accepted to fulfill the credit requirement. To request transfer credit for a course, send an email request to the Program Director and include a copy of the course syllabus.

Graduate students enrolled in other programs at UNC: A maximum of six certificate credit hours can overlap with courses taken to fulfill requirements for the student's primary graduate program.

Program Completion: This program is intended to be a 1-year (two full-time semesters) course of study. Students may also complete the program on a part-time basis and have up to four years to complete the program. Students who have not graduated within four years of the starting semester will be automatically dropped from the program and will need to reapply for admission in order to continue in the certificate program. Once program requirements have been completed, notify the Program Director via email and send: 1) a list of classes (with course numbers, names, and semester taken) that make up the set of courses completed for the certificate; and 2) a transcript that includes all those courses (unofficial is fine). The Program Director will then notify the Dean of the Graduate School, who in turn submits the certificate of completion to the Registrar's office for final processing.

APPROVED COURSE LIST

Core Courses (choose two of the following three)*

1. GEOG 477: Introduction to Remote Sensing of the Environment
OR** GEOG 577: Advanced Remote Sensing
2. GEOG 491: Geographic Information Systems
OR** GEOG 591: Applied Issues in Geographic Information Systems
3. GEOG 592: GIS Programming

** If you do not have a previous statistics class, you must also take GEOG 391 or equivalent in the first semester*

*** Depending on prior GIS/RS experience*

Elective Courses: Choose four total; at least two must be Geography courses.

Courses taken to satisfy Core Course requirement cannot be double counted as Electives.

Geography

- GEOG 410: Modeling Environmental Systems
- GEOG 446: Geography of Health Care Delivery
- GEOG 456: Geovisualizing Change
- GEOG 477: Introduction to Remote Sensing of the Environment
- GEOG 491: Geographic Information Systems
- GEOG 541: GIS in Public Health
- GEOG 544: GIS in Impact Evaluation
- GEOG 555: Cartography of the Global South
- GEOG 567: Digital Image Processing with Google Earth Engine

GEOG 577: Advanced Remote Sensing
GEOG 591: Applied Issues in Geographic Information Systems
GEOG 592: GIS Programming
GEOG 594: Global Positioning Systems and Applications
GEOG 790: Spatial Analysis and Computer Modeling
GEOG 802: Seminar in Geographic Information Sciences

Anthropology

ANTH 419: Anthropological Applications and GIS
ANTH 490: Agent-Based Modeling of Social-Ecological Systems
ANTH 897: Archeological Visualization (*this course number is associated with different course names; only Archeological Visualization is approved as an elective*)

Biology

BIOL 465: Global Biodiversity and Macroecology

City & Regional Planning

PLAN 572: Urban Data Analytics

Computer Science

COMP 426 –Modern Web Programming
COMP 572: Computational Photography
COMP 775: Image Processing and Analysis

Environmental Sciences & Engineering

ENEC 468: Advanced Functions of Temporal GIS

Geological Sciences

GEOL 508: Applied Hydrology

Information & Library Science

INLS 523: Introduction to Databases
INLS 541: Information Visualization

Marine Sciences

MASC 415: Environmental Systems Modeling
MASC 561: Time Series & Spatial Data Analysis

Sociology

SOCI 718: Longitudinal and Multilevel Data Analysis

FOR FURTHER INFORMATION

Additional questions about the program in general, application procedure, or completion requirements should be sent to the Program Director:

Dr. Erika Wise, phone: 919-843-4762, email: ekwise@email.unc.edu

Questions concerning course enrollment should be sent to the Student Services Manager:

Ms. Nell Phillips, phone: 919-962-8901, email: nphillip@email.unc.edu