



# Graduate Certificate in GIS

Student Handbook



## WELCOME TO THE WOLFPACK!

### Table of Contents

About Us	3
Student Services	4
<ul style="list-style-type: none"><li>• Library Services</li><li>• Distance Education Resources</li><li>• Campus Resources</li><li>• Advising</li></ul>	
The Certificate Curriculum	6
<ul style="list-style-type: none"><li>• Core Courses</li><li>• Electives</li></ul>	
Graduate School and Program Policies	8
<ul style="list-style-type: none"><li>• Academic Integrity</li><li>• Enrollment and Registration</li><li>• Transfer Credits</li><li>• Academic Progress</li><li>• Students in Another NC State Program</li><li>• Preparing for the MGIST?</li></ul>	

We are so glad you have decided to make NC State University and the Center for Geospatial Analytics your home for the next step of your educational journey.

Our program prides itself on creating an atmosphere of innovation when it comes to online learning, and our curriculum has been designed to keep you on the cutting-edge of the GIS profession.

As Associate Director of Professional Education and Director of the GIS Certificate Program, I am dedicated to providing you with the educational support that you need to be successful. Never hesitate to contact me with questions, concerns, or if you just need to chat. My door is always open.

As we like to say, “location matters”, and you have chosen one of the best locations to advance your education and career.

Sincerely,



Dr. Eric Money  
[esmone@ncsu.edu](mailto:esmone@ncsu.edu)



## About Us

The Graduate Certificate in GIS Program (GISCert) is housed within the Center for Geospatial Analytics (CGA), and is a part of the College of Natural Resources. However, CGA, much like our program, is very interdisciplinary and is considered a university-wide center for research and education in the geospatial sciences.

Through a combination of geospatial theory and hands-on application, students earn a graduate level credential that can provide enhanced GIS skills and serve as a stepping-stone to more GIS education or career advancement.



Dr. Eric Money  
Associate Director of Professional Education  
Director of Graduate Programs (GISCert)  
Center for Geospatial Analytics



Rachel Kasten  
Graduate Student Services  
Center for Geospatial Analytics



Dr. Ross Meentemeyer  
Director, Center for Geospatial Analytics

## HELPFUL LINKS

[GIS Certificate Website](#)

[Center for Geospatial Analytics](#)

[CGA on Facebook](#)

[CGA on LinkedIn](#)

## Student Services

Your instructors, administrators, and staff in the Center for Geospatial Analytics and College of Natural Resources are here to make sure that you are supported throughout your time in the program. If at any time you have questions, concerns, or just need to chat, we are here to help. You'll find contact information and helpful links in the panel to the right. Some specific services are highlighted below.

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**Library Resources:** NC State maintains a large network of libraries across campus, with D.H. Hill on Central Campus and the James B. Hunt library on Centennial campus, being the primary student libraries. Both libraries contain dedicated space for graduate students, a wide variety of study rooms and spaces, and access to millions of articles and books.

Online students can also take advantage of special services for checking out books and obtaining articles for projects, research, or pleasure. NC State also has several dedicated GIS data librarians to help with your GIS data needs. Access to free trainings through Esri Academy and LinkedIn Learning are also available.

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**Distance Education Resources:** DELTA, or the Distance Education Learning Technologies Applications office is your go to place for all things distance education. DELTA provides faculty and students with support for designing and using numerous technologies inside and outside the classroom to ensure a robust online experience. Some of these technologies you will encounter include:

*Moodle:* The learning management system, where most of your course websites will be housed.

*Wolfware:* The primary site where you find the list of all of your current courses and can access the corresponding Moodle sites.

*Zoom:* Web-based platform for video conferencing. We often use Zoom for synchronous learning

*Mediasite:* A video production package used by faculty to create pre-recorded and live recordings of classroom lectures.

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## HELPFUL LINKS

Dr. Eric Money, DGP  
[esmoney@ncsu.edu](mailto:esmoney@ncsu.edu)  
Jordan Hall, 5108

Libraries

Library GIS  
Resources

Library Distance  
Ed Resources

DELTA

GIS Training

Esri Academy & LinkedIn  
Learning

**Additional Campus Resources:** There are numerous resources across the university to help you throughout your time here. Student organizations, such as the Geospatial Graduate Student Organization, help you find peer networks for educational and social development; Other offices, such as the GLBT Center and Military and Veterans Center also provide numerous resources to help you navigate the university. Many of our faculty and staff have received advocate training and are dedicated to provide safe spaces for any individual that may be experiencing stress or just has the need to talk.

*Everyone in the Center for Geospatial Analytics is committed to providing a welcoming and inclusive environment for all students.*

You may also elect to get a Wolfpack OneCard. Certificate students are eligible to get a OneCard, particularly if you are close to campus. The OneCard can get you access to buildings after hours and certain library spaces, and makes check out in the library very easy (though not required to check out materials).

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**Advising:** Certificate students are not assigned specific academic advisors for the program. Dr. Eric Money, Associate Director of Professional Education, serves as the general advisor for all Certificate students. Students can contact Dr. Money at any time for advice on courses, program progress, and any general advice on any number of topics to help you succeed in the program.



Dr. Eric Money

## HELPFUL LINKS

Dr. Eric Money, DGP  
[esmoney@ncsu.edu](mailto:esmoney@ncsu.edu)  
Jordan Hall, 5108

GLBT Center

Military and  
Veterans

International  
Students

Financial Aid

Student  
Organizations

Geospatial Grad  
Student Org

NC State  
OneCard

Career  
Dashboard

[Academic Calendar](#)

[Certificate Curriculum](#)

[Course Catalog](#)

## The GIS Certificate Curriculum

The Graduate Certificate in GIS Program consists of 12 credit hours, 6 of which are required core courses taught by our Lead Faculty. The additional 6 credit hours are electives and allow the student to focus on related areas of interest to supplement your GIS instruction and skills development.

Students must have a cumulative GPA of 3.0 or greater across the certificate courses in order to graduate. It typically takes a minimum of 2 semesters (1 academic years) to complete the appropriate sequence of courses. Students have a maximum of 4 years to complete the program.

**Core Requirements (6 credit hours):** All students are required to complete the following 6 credit hours. Complete course descriptions can be found in the course catalog at the link in the right panel. The following pre-requisites are in place: GIS 510 before GIS 520. GIS 510 also serves as a pre-req for many of our other GIS courses.

Course Name and Number	Credit Hours
<b>GIS 510: Fundamentals of GIST</b>	3
<b>GIS 520: Spatial Problem Solving</b>	3

**Electives (6 credit hours):** The following are just a sample of electives that have been approved for students. Students should consult the course catalog entry for the most up to date information on pre-reqs and availability of courses. Note that not all courses listed below are offered online. *Other courses not on this list may serve as electives after consultation with an advisor. At least 3 credits must be GIS prefix courses.*

Course Name and Number	Credit Hours	
<b>GIS Electives</b>	GIS 512: Intro to Environmental Remote Sensing	3
	GIS 515: Cartographic Design	2
	GIS 517: GIS in Landscape Design and Environmental Planning	3
	GIS 520: Spatial Problem Solving	3
	GIS 521: Hydrology with GIS	3
	GIS 530: Spatial Data Foundations	3
	GIS 532: Spatial Data Science and Analysis	2 (8-week)
	GIS 535: Web and Mobile GIS Protocols	3
	GIS 609: Geospatial Forum	3
	GIS 584: Mapping and Analysis with UAS	3
	GIS 595/610: Special Topics	1-3
	Cover topics that are not part of our regular curriculum. These offerings change each semester and there may be multiple	

	offerings in a given semester. Check the courses catalog for upcoming offerings	
<b>Environmental Electives</b>	MEA 511: Introduction to Meteorological Remote Sensing	3
	SSC 540: GIS in Soil Science and Ag	3
	SSC 545: Remote Sensing Applications in Soil Science and Ag	3
<b>Engineering Electives</b>	CSC 540: Database Management Concepts and Systems	3
	BAE 535: Precision Agriculture Technology	3
	BAE 536: GIS Applications in Precision Ag	1
<b>Statistics Electives</b>	ST 5xx: Statistics Courses Many 500 level statistics courses could be appropriate, including 501, 502, 507, 508, 511, 512, 555 and others.	3
	ST 533: Applied Spatial Statistics	3

\* Advanced GIS courses such as GIS 540 (Programming) and GIS 550 (Databases) are restricted to Master's students. These students get enrollment preference each semester. However, if you are interested in taking one of these courses as a Certificate student, you can contact the instructor directly and ask about possible enrollment. It is the decision of the instructor to let you in the course based on capacity or other factors.

## HELPFUL LINKS

[Academic Calendar](#)

[Certificate Curriculum](#)

[Course Catalog](#)

## HELPFUL LINKS

### Graduate School and Program Policies

The policies below mirror those found in the Graduate School Handbook. If you have any questions about the policies listed below, please reach out to your advisor or Director of Graduate Programs.

*Academic Integrity:* Academic Integrity is taken very seriously at the University, College, and Program level. Each student will be required to sign an Academic Integrity Pledge during Orientation or their first semester of enrollment. The same policies apply to both Distance Track and On-Campus students. Advisors and students are referred to the policy linked to the right. In addition to these policies, the MGIST program does not allow, under any circumstances:

- Sharing of homework, exams, keys, or completed assignments among students in the program, this includes computer code, maps, and protocols
- Unauthorized group work on assignments
- Bullying, inappropriate language, demeaning language towards students, instructors, or staff in a classroom, message board, or any other physical or online setting will not be tolerated.

Any student interpreted as violating any one of the stated policies will be reported to the Office of Student Conduct for proper action.

[Graduate School Handbook](#)

[DELTA Virtual Orientation](#)

[Academic Integrity Policy](#)

### Enrollment and Registration Policies

<b>Adding/Dropping Courses</b>	MyPack Portal allows you to add/drop classes. It will not let you drop a class if that is the only class you are enrolled in as that is taken as "withdrawal" from university and you will be required to initiate a withdrawal process for that semester (see below).
<b>Enrollment Advising</b>	Registration typically opens in the 3rd week of October and 3rd week of March. The program will notify you approximately 3 weeks prior as a reminder and to discuss course selection and plan of work if needed.
<b>Advising Holds</b>	Each student will have an advising hold placed on their account at the beginning of each semester. This hold must be removed by the program before you can enroll for a particular semester. Other holds, such as cashier holds, must be resolved by the appropriate office.
<b>Electives</b>	Students have a choice of many electives to meet the 12 hour requirement in the program. Courses in other departments are controlled by those departments. If a course in another department is waitlisted, has a restriction, or a pre-requisite, the



	<p>student should contact the instructor directly to inquire about course content and permission to enroll in the course.</p> <p>For courses with these types of restrictions, the respective department will manually enroll you in the course if they grant you permission to take it.</p>
<b>Interinstitutional Courses</b>	<p>Students should always consult an advisor before taking a course at another institution to make sure it meets the requirements of our program. Students are allowed to take courses at several local universities towards an elective. <b>Distance courses are not allowed</b> (see link to the right)</p>
<b>S/U Courses</b>	<p>S/U courses (or pass/fail) are 600-level courses.</p> <ul style="list-style-type: none"> <li>• MGIST students are only allowed up to 6 credit hours of S/U graded courses</li> <li>• Grades of U will not count towards degree requirement</li> <li>• S/U courses are not factored into the GPA</li> <li>• 500/700 Level course cannot be taken for S/U Credit Only</li> </ul>
<b>Auditing</b>	<ul style="list-style-type: none"> <li>• <b>Courses outside the program</b> - students can generally audit a course from another department as long as the advisor and dept. agree. The student would need special permission to take the course again for credit after the audit.</li> <li>• Graduate students get one free audit (non-distance courses). Audited courses do not count towards the required credit hours in the program.</li> <li>• Be advised, you generally still have to pay for a course that is audited and you must participate in the course as outlined in the syllabus to receive a grade of 'Au' for the course.</li> <li>• If a student is only enrolled in one course and it is an audit, they must be enrolled in at least 1 additional credit hour to meet the continuous enrollment requirement.</li> <li>• <b>Courses within the GIS program</b> - students enrolled in one of our GIS programs cannot audit any core GIS course.</li> </ul>

HELPFUL LINKS

Interinstitutional Courses

## HELPFUL LINKS

[Transfer Credit Policy](#)

[Withdrawal Process](#)

Transfer Credit Policies*	
<b>Graduate Credits Earned at Other Universities</b>	<ul style="list-style-type: none"> <li>• Courses from other universities are not eligible for transfer</li> <li>• All 12 credit hours must be taken at NC State</li> </ul>
<b>Credits Earned While an Undergraduate at NC State</b>	<ul style="list-style-type: none"> <li>• Course must have been at the 500 level or higher</li> <li>• Grade of B or better</li> <li>• It was not counted towards the undergraduate requirements (must perform a (listed as 99-non-degree-course on audit)</li> <li>• Recommended by the DGP at the time of enrollment in the Graduate School</li> </ul>
<b>Credits Earned While Enrolled in Previous Graduate Program at NC State</b>	<ul style="list-style-type: none"> <li>• 500 level or higher</li> <li>• Grade of B or better</li> </ul>
<b>Credits Earned While in PBS (Non-degree) Status</b>	<ul style="list-style-type: none"> <li>• 500 level or higher</li> <li>• Grade of B or better</li> </ul>
<b>Course Waivers/Substitutions</b>	<ul style="list-style-type: none"> <li>• Core courses in the Certificate program cannot be waived or substituted.</li> <li>• Credit hour requirement cannot be waived. All 12 credit hours must be completed through a combination of coursework and any allowable transfer credit</li> </ul>

*\*Note: A maximum of 6 credit hours from all transfer sources is allowed in the Certificate program*

Academic Progress Policies	
<b>Continuation Enrollment and Time to Degree</b>	<ul style="list-style-type: none"> <li>• Students must maintain continuous enrollment while in the program, which means registering for at least 1 credit hour each Fall/Spring term. Otherwise, a Leave of Absence is required</li> <li>• Students have 4 years to complete the program requirements</li> <li>• <b>IMPORTANT: The 4 year clock starts with your earliest transfer credit</b></li> </ul>
<b>Leave of Absence</b>	<ul style="list-style-type: none"> <li>• If you foresee needing to miss a semester, you can request a Leave of Absence</li> <li>• Students are allowed 2 semesters of Leave</li> <li>• Your 'time to degree' does not stop during a Leave of Absence</li> <li>• Leave should be requested BEFORE the start of the semester</li> </ul>
<b>Withdrawal</b>	<ul style="list-style-type: none"> <li>• Withdrawal means dropping all courses you are currently enrolled in for the semester, once the semester has started</li> <li>• If you withdraw before 'census day' in a term, you will also need a Leave of Absence</li> </ul>

## HELPFUL LINKS

Applying to Graduate

	<ul style="list-style-type: none"> <li>• Withdrawals should be for exceptional (family, health, job, etc.) and documented hardship</li> <li>• Withdrawal can be initiated in MyPack Portal</li> </ul>
<b>Grade Requirements/Repeating Courses</b>	<ul style="list-style-type: none"> <li>• Any grade below C- cannot count towards degree requirements</li> <li>• <b>Repeating Courses:</b> Students are required to repeat any core course where the grade was below C-; If it is an elective course, that course can be repeated or a different elective chosen</li> <li>• Students should not register for any other courses in the semester they are re-taking a previous course (unless required by financial aid)</li> <li>• Students CANNOT take the next course in the requisite sequence until the pre-req is passed</li> <li>• If a student drops a course while re-taking it, or fails the course twice, the student MUST meet with the DGP before being allowed to register for next semester</li> <li>• <b>IMPORTANT: Both grades of a re-taken course remain a part of the cumulative GPA calculation.</b></li> </ul>
<b>Graduation Requirements</b>	<ul style="list-style-type: none"> <li>• Cumulative GPA of 3.0 or greater required for graduation</li> <li>• <b>Academic Warning:</b> Transcript notation when you have completed less than 18 credit hours and your GPA drops below 3.0</li> </ul>

### Students in Another NC State Graduate Program

<b>Time to Degree</b>	<ul style="list-style-type: none"> <li>• Students must complete certificate requirements within the 4 year time frame, no matter the length of the other graduate program.</li> </ul>
<b>Leave of Absence/Withdrawal</b>	<ul style="list-style-type: none"> <li>• Students should consult with their primary program advisor/committee/department for requesting a Leave or Withdrawal.</li> <li>• Students should also notify the GIS Certificate program if they do not plan to enroll for a semester.</li> </ul>
<b>Double Counting Courses</b>	<ul style="list-style-type: none"> <li>• Students can double count up to 12 credit hours between the Certificate program and their primary graduate program as long as 18 credit hours remains unique to the Master's and 30 hours remain unique to a PhD program.</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Students should consult with their primary program advisor/committee, as their double counting rules may be more strict.</b></li> <li>• Minor coursework and Certificate coursework must be completely independent.</li> <li>• Triple counting is never allowed.</li> </ul>
<b>Graduation Requirements</b>	<ul style="list-style-type: none"> <li>• Cumulative GPA of 3.0 or greater required for graduation across certificate courses</li> <li>• <b>A separate 'application to graduate' must be submitted for the Certificate program at the time requirements have been met regardless if the student has completed the primary graduate program.</b></li> </ul>

**Preparing for the MGIST?** For students interested in pursuing the MGIST after the Certificate program will need to submit a new application and apply as normal through the Graduate School. Admissions to the Certificate program does not guarantee admissions to the MGIST program. In general, the 12 credit hours taken in the Certificate program can transfer over if they meet normal transfer credit requirements (B or better grade).

HELPFUL LINKS

Applying to Graduate

Apply to the MGIST Program



NC State  
Center for Geospatial Analytics

[geospatial.ncsu.edu](http://geospatial.ncsu.edu)