



NC STATE
UNIVERSITY

Geospatial Analytics

PH.D. STUDENT HANDBOOK
2020 – 2021

Table of Contents

Introduction.....	<u>3</u>
Land Acknowledgment.....	<u>3</u>
Useful Acronyms.....	<u>3</u>
Center for Geospatial Analytics Personnel.....	<u>4</u>
Geospatial Analytics Graduate Faculty / Faculty Fellows	<u>5</u>
Getting Started.....	<u>7</u>
Center for Geospatial Analytics Services.....	<u>11</u>
Geospatial Graduate Student Organization.....	<u>14</u>
Path to Graduation.....	<u>15</u>
Coursework.....	<u>16</u>
Professional Externship.....	<u>17</u>
Graduate Minors.....	<u>18</u>
Enrollment Requirements.....	<u>18</u>
Assistantships	<u>19</u>
Annual Reporting.....	<u>20</u>
Professional Development.....	<u>21</u>
Selecting a Graduate Advisory Committee.....	<u>26</u>
Graduate Plan of Work.....	<u>29</u>
Preliminary Written Examination.....	<u>30</u>
Preliminary Oral Examination.....	<u>32</u>
Final Oral Examination (Defense).....	<u>34</u>
Submission of the Dissertation.....	<u>36</u>
Graduation.....	<u>37</u>
Mental Health & Work-Life Balance.....	<u>38</u>
Diversity & Inclusion.....	<u>39</u>
Withdrawal from the University.....	<u>41</u>
Academic Difficulty.....	<u>42</u>
Conflict Resolution.....	<u>43</u>
Campus Resources.....	<u>45</u>
Appendix I: External Funding Opportunities.....	<u>47</u>
Appendix II: 2018–2019 Payroll Schedule.....	<u>49</u>
Appendix III: Professional Externship Requirements, Forms, & FAQs.....	50
Appendix IV: Geospatial Analytics Travel Award Application.....	54

Introduction

The Geospatial Analytics Doctoral Student Handbook is designed to introduce Ph.D. students to the Center for Geospatial Analytics and to provide an ongoing reference for program and university procedures. Any questions or suggestions are appreciated and should be directed to the Graduate Services Coordinator, Rachel Kasten (rachelkasten@ncsu.edu).

Land Acknowledgment

The land on which we learn, research, and work was originally the territory of several Tutelo and Saponi-speaking peoples, as well as the far western portion of Tuscarora territory. These people were displaced or killed through war, disease, and colonial expansion. Today, the Triangle is surrounded by contemporary tribes, the descendants of Tutelo, Saponi, and other Indigenous peoples of what is now central and eastern North Carolina. These tribes include the Haliwa-Saponi, Sappony, Occaneechi Band of Saponi, and Coharie tribes.

Useful Acronyms

CGA	Center for Geospatial Analytics
CNR	College of Natural Resources (CGA's home college)
DGP	Director of Graduate Programs (Ross Meentemeyer)
GGSO	Geospatial Graduate Student Organization
GSA	Graduate Student Association
GSC	Graduate Services Coordinator (Rachel Kasten)
GSSP	Graduate Student Support Plan
OIS	Office of International Services

Relevant Academic Programs:

GA	Geospatial Analytics (this is the official acronym for the Ph.D. as designated by the university)
MGIST	Master of Geospatial Information Science and Technology (the professional master's degree administered by CGA)

Center for Geospatial Analytics

Personnel

Name	Role	Office	Email
Arcaro, Zachary	Assistant Director of Operations	Jordan 5105A	zearcaro@ncsu.edu
Hicks, Mary	Business Service Coordinator	Jordan 3146	mhhicks@ncsu.edu
Jeziorska, Justyna (Inia)	Research Associate	Jordan 3133	jajezior@ncsu.edu
Jones, Chris	Research Scholar	Jordan 5118	cmjone25@ncsu
Jones, Shannon	Research Associate	Off-Site	skjohnso@ncsu.edu
Kasten, Rachel	Graduate Services Coordinator	Jordan 5105B	rachelkasten@ncsu.edu
Lawrimore, Margaret	Research Associate	Off-Site	malawrim@ncsu.edu
Meentemeyer, Ross	Center Director & Director of Graduate Programs (Ph.D.)	Jordan 5105C	rkmeente@ncsu
Mitasova, Helena	Associate Director of Geovisualization	Jordan 2127	hmitaso@ncsu.edu
Money, Eric	Associate Director of Professional Education & Director of Graduate Programs (MGIST)	Jordan 5108	esmoney@ncsu.edu
Pala, Okan	Research Associate	Jordan 4120	opala@ncsu.edu
Petras, Vashek	Research Software Engineer	Jordan 5111	vpetras@ncsu.edu
Petrasova, Anna	Research Software Engineer	Jordan 5111	akratoc@ncsu.edu
Sanchez, Georgina	Research Associate	Jordan 5118	gmsanche@ncsu.edu
Shukunobe, Makiko	Research Assistant	Jordan 3133	mshukun@ncsu.edu
Skrip, Megan	Science Communicator	Off-Site	mmskrip@ncsu.edu
Slocumb, Bill	Research Associate	Jordan 5121	slocumb@ncsu.edu
Smart, Lindsey	Research Associate	Jordan 5118	lssmart@ncsu.edu
Thakar, Vaishnavi	Assistant Teaching Professor	Jordan 5121	vthakar@ncsu.edu
Vatsavai, Raju	Associate Director of Computing & Technology	EB II 2254	rrvatsav@ncsu.edu
Vogler, John	Research Scholar	Jordan 4120	jbvogler@ncsu.edu
Walden-Schreiner, Chelsey	Research Scholar	Off-Site	cawalden@ncsu.edu

Geospatial Analytics Graduate Faculty / Faculty Fellows

*currently advising a Geospatial Analytics Ph.D. student

Name	Office	Tenure Home	Email
Arumugam, Sankar	Mann 314	Civil, Construction & Environmental Engineering	sarumug@ncsu.edu
* Baran, Perver	Jordan 5106	Parks, Recreation & Tourism Mgt	kperver@ncsu.edu
Berglund, Emily	Mann 312	Civil, Construction & Environmental Engineering	emzechma@ncsu.edu
* Bohnenstiehl, DelWayne	Jordan 4138	Marine, Earth, & Atmospheric Sciences	delwayne_bohnenstiehl@ncsu.edu
Byrne, Paul	Jordan 3135	Marine, Earth & Atmospheric Sciences	pkbyrne@ncsu.edu
* Cutts, Bethany	Jordan 5125	Parks, Recreation & Tourism Mgt	bbcutts@ncsu.edu
Emanuel, Ryan	Jordan 2217	Forestry & Environmental Resources	reemanue@ncsu.edu
* Gray, Josh	Jordan 5110	Forestry & Environmental Resources	jmgray2@ncsu.edu
Hill, David	Brooks 215C	Architecture	dbhill@ncsu.edu
* Hipp, Aaron	Jordan 5124	Parks, Recreation & Tourism Mgt	jahipp@ncsu.edu
Huseth, Anders	Research Annex West A 101	Entomology & Plant Pathology	ashuseth@ncsu.edu
Jones, Daniela	Weaver Labs 266	Biological & Agricultural Engineering	dsjones5@ncsu.edu
Leung, Yu-Fai	Jordan 5107	Parks, Recreation & Tourism Mgt	leung@ncsu.edu
Machado, Gustavo	Vet School Research Bldg R450	Population Health & Biology	gmachad@ncsu.edu
* Martin, Katie	Jordan 3118A	Forestry & Environmental Resources	klmarti3@ncsu.edu
* Meentemeyer, Ross	Jordan 5114	Forestry & Environmental Resources	rkmeente@ncsu.edu
* Mitasova, Helena	Jordan 2127	Marine, Earth & Atmospheric Sciences	helena_mitasova@ncsu.edu

Name	Office	Tenure Home	Email
Nelson, Natalie	Weaver 152	Biological & Agricultural Engineering	nnelson4@ncsu.edu
Nelson, Stacy	Jordan 5123	Forestry & Environmental Resources	stacy_nelson@ncsu.edu
* Obenour, Daniel	Mann 311	Civil, Construction & Environmental Engineering	drobenou@ncsu.edu
Osburn, Chris	Jordan 4150	Marine, Earth & Atmospheric Sciences	closburn@ncsu.edu
Pacifici, Krishna	Jordan 5217	Forestry & Environmental Resources	jkpacifi@ncsu.edu
Rand, Bill	Nelson 2324	Business Management	wmrand@ncsu.edu
Reich, Brian	SAS 5212	Statistics	bjreich@ncsu.edu
* Richmond-Bryant, Jennifer	Jordan 2221	Forestry & Environmental Resources	jrbryan@ncsu.edu
* Scheller, Robert	Jordan 5120	Forestry & Environmental Resources	rschell@ncsu.edu
Supak, Stacy	Jordan 5121	Parks, Recreation & Tourism Mgt	sksupak@ncsu.edu
* Tateosian, Laura	Jordan 5106	Parks, Recreation & Tourism Mgt	lgtateos@ncsu.edu
* Terando, Adam	David Clark Labs 127J	Applied Ecology	ajterand@ncsu.edu
* Tulbure, Mirela	Jordan	Forestry & Environmental Resources	mtulbure@ncsu.edu
* Vatsavai, Raju	EB II 2254	Computer Science	rrvatsav@ncsu.edu
* Vukomanovic, Jelena	Biltmore 4012G	Parks, Recreation & Tourism Mgt	jvukoma@ncsu.edu
Watson, Benjamin	EB II 2280	Computer Science	ben_watson@ncsu.edu
* Wegmann, Karl	Jordan 2123	Marine, Earth & Atmospheric Sciences	kwwegman@ncsu.edu
* Yuter, Sandra	Jordan 5145	Marine, Earth & Atmospheric Sciences	seyuter@ncsu.edu

Getting Started

Current CGA doctoral students maintain a [shared Google document](#) with answers to frequently asked questions about moving to the area, finding an apartment, and local activities.

Establishing Residency

You are a resident of the state once you arrive in North Carolina with the intention to live here. This is distinctly different from establishing [NC Residency for Tuition Purposes](#). **All US citizens and permanent residents are expected to establish residency before the beginning of their second year**, which requires a minimum of 12 months of physical presence in North Carolina. You will want to begin legally establishing residency status as soon as possible after arrival (i.e., obtain a driver's license, sign a lease, register to vote, register a vehicle).

Required Forms and To Do List

Please refer to your MyPack Portal account regarding the completion of your To Do List and various required forms, such as the Patent Agreement Form.

Getting Paid

You will receive an email to electronically sign your RA/TA appointment terms and conditions using your MyPack Portal login. You will be paid on a biweekly basis, with a two-week lag in the cycle. Therefore, your first payment may not arrive until the end of your first month at NC State. You can find the 2020-2021 payroll schedule in [Appendix II](#).

Health Insurance

You will be eligible for the RA-TA Health Insurance plan, as long as you have a qualifying graduate appointment and maintain full-time enrollment. Coverage starts on August 1st for the Fall semester. Coverage duration for the plan is semester-based, which means eligibility can only be established at the beginning of the Fall or Spring semesters (summer coverage is included in the Spring coverage period). If you have questions about eligibility or coverage period, please contact the GSC, Rachel Kasten.

While the Graduate School manages eligibility and payment through the Graduate Student Support Plan (GSSP), any questions regarding benefits, dependent enrollment, or any other questions related to your policy should be directed to [Student Blue \(BCBS of NC\)](#), the insurance provider.

Students should register for Blue Connect once they have received their health insurance information from Student Blue (Subscriber & Group numbers). Student Blue Member Services allows participants to manage their policy online, including reviewing claims and printing a temporary card.

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If you need to retrieve your policy information, please contact Student Blue customer service at 1-800-579-8022. The Graduate School does not keep records of individual subscriber numbers.

Please be sure to keep your mailing address updated in MyPack Portal and with Student Blue (1-800-579-8022). Your mailing address in MyPack Portal is transmitted to Student Blue for your enrollment in the health insurance plan.

New Student Orientation

There are three required orientations for new graduate students that are held shortly before the start of the fall semester:

- 1) the Geospatial Analytics orientation,
- 2) a University-wide Graduate School orientation, and
- 3) an orientation for international students sponsored by the Office of International Services.

In addition, CGA will schedule assorted workshops helpful for new and returning students.

Registering for Classes

Course registration is completed through MyPack Portal. Your advisor will need to release any advising holds before you will be allowed to register. All incoming Ph.D. students must register for all core courses for each of the first two semesters unless they have received written permission from the Director of Graduate Programs. For more information, please see the [Coursework](#) section.

In subsequent semesters, your advisor will help you determine additional coursework. There is a financial penalty for late registration, so be mindful of all deadlines.

You should always speak with your advisor before dropping any courses to ensure that you will still meet all minimum enrollment requirements.

Tuition & Fee Payments

Tuition and health insurance will be provided for up to four years (dependent upon the student making adequate progress towards degree), which will be paid through the Graduate Student Support Plan, grants, or departmental funds and processed through the CGA Admin Office. If you have questions about tuition, please contact Rachel Kasten, Graduate Services Coordinator.

All students are required to pay their own fees. It is the student's responsibility to ensure that any outstanding fees are paid on time. Beginning in Fall 2020, students have the option to pay fees through a payroll deduction over six pay periods. In rare cases, advisors may offer to pay fees for their students. This should be communicated in writing to the GSC.

Note that CGA will cover tuition for a summer semester only if a student is defending in that semester.

Graduate Student Support Plan (GSSP)

The [GSSP](#) is a support package that provides tuition and health insurance benefits to students with a qualifying appointment. The Graduate School provides a separate [GSSP Handbook](#) which outlines the requirements in detail, but general eligibility requires:

- A qualifying graduate assistantship (teaching or research)
- Full time enrollment
- Be within the allowed semesters for GSSP tuition support: 8 semesters for doctoral students with previous master's degree, 10 semesters for doctoral students without a master's degree (there is no time limit for health insurance support)

If you will not be registered full time (at least 9 credit hours) at any point during the semester, please speak with Rachel Kasten right away. If you have been approved for a medical/hardship withdraw or are in your final semester, an exception can be requested to maintain your health insurance coverage.

Parking

All vehicles, including motorcycles, are required to have a parking permit on campus, unless parked in pay lots. Student parking permits are allocated based on availability, as well as priority date and time of request. Most parking permits are virtual. Students who desire parking permits should apply online through the [NC State University Transportation Office website](#). CGA students generally opt for the Coliseum Deck (CD) permit.

There are also numerous free Park & Ride options available, with bus stops right in front of Jordan Hall.

Wolfline Transit System

Wolfline is NC State's bus service. It is free for both students and the general public. No ID, pass, or fare is required to ride! Buses are red, white, and black with the Wolfline logo. Wolfline buses operate every day classes are in session, serving Central Campus, Centennial Campus, and the Centennial Biomedical Campus (Vet School), three Park & Ride lots, official NC State housing, and some privately owned apartment complexes. Several different bus routes stop along Morrill Drive, near Jordan Hall.

On Friday and Saturday nights from 10:00pm-3:00am, Wolfprowl provides service to Downtown Raleigh. RedTerror provides bus service for home football and basketball games. These services are also free.

Route information can be found [online](#) or by downloading the TrancLoc Rider app.

GoRaleigh and GoTriangle Buses

[GoTriangle](#) and GoRaleigh buses travel to the airport, shopping centers, and throughout the Triangle, as well as between NC State, Duke, and UNC-Chapel Hill. There is a bus stop at Western Boulevard at Dan Allen Drive, directly across from Jordan Hall. NC State students can [purchase](#) a GoPass for just \$5 per year.

Bicycling

There are multiple bike routes throughout Central and Centennial Campuses. All bikes must be [registered](#) each year (it's free), and Campus Police can engrave your driver's license number on your bike at no charge.

NC State has also partnered with [LimeBike](#), a bike (and electric scooter) sharing program. You'll be able to spot these bright green bikes all over campus. Download the LimeBike app on your phone and be sure to use your @ncsu.edu email address to get the discounted rate.

Center for Geospatial Analytics Services

Communication

All email communication will be through your @ncsu.edu email address. You will be added to a Google group (gaphd@googlegroups.com), and Rachel Kasten will send weekly emails with information about upcoming events, deadlines, and funding opportunities. These emails are the primary way that you will receive communication from the Ph.D. program and will often contain time-sensitive information.

Rachel Kasten also maintains a Google calendar called “Geospatial Analytics PhD.” The calendar includes core class schedules, Geospatial Forums, relevant workshops, and GGSO events. You will receive a link to add the calendar to your list, but please let Rachel know if you need the link re-sent.

You may use Google Hangouts to reach CGA staff when an immediate response is needed. Doctoral students also maintain a private Slack channel to communicate with each other, and new students will be added to the channel at the beginning of the academic year. In addition, there are several CGA-related email lists that you will automatically be added to for receiving updates on Center activities and job/internship postings. You are encouraged to speak to your advisor about being added to graduate email lists in their department as well.

Lab Space

First year Geospatial Analytics Ph.D. students are guaranteed lab space, either at CGA or with their advisor’s lab. In subsequent years, advisors will have the opportunity to request lab space for their students each summer. Zac Arcaro, Assistant Director of Operations, will grant requests based on research goals, funding sources, and other factors.

CGA seats students in the following rooms in Jordan Hall: 5118, 5117, 5111 (Geovisualization Lab), 4120, and 4117. Zac Arcaro will issue appropriate access to your lab space. Note that Zac is also CGA’s maintenance liaison; please email him (zearcaro@ncsu.edu) regarding issues such as temperature, plumbing, or cleaning needs.

The [Graduate Student Commons](#) at James B. Hunt Library (on Centennial Campus) is exclusively available to graduate students. There is lounge seating, open study spaces, group study rooms, computer workstations, and lockers. A valid Wolfpack One Card is required for access. There are also small group study rooms available for reservation.

Computing

If you have lab space at CGA, Zac Arcaro will ensure that you have administrative control of your lab PC. If you need to install software and it is open-source or freely available, you may install it yourself. If the software is proprietary, check software.ncsu.edu to see if the university has a license. If you need additional software, please work with your advisor.

The College of Natural Resources has an IT office that can assist you with technical support in Jordan Hall. Simply email CNR_help@ncsu.edu with a detailed description of your issue. There are only three support specialists serving the entire College; please be patient after you make your request.

Supplies

Mary Hicks, Business Service Coordinator, orders office supplies for the Center. There will be two bulk order periods, one in August and another in January. Please email Mary (mhhicks@ncsu.edu) with your requests.

Note that we keep a stock of basic supplies, such as Post-It notes, highlighters, pens, paper clips, paper, etc. If there are basic supplies that you need during the year, check in with Rachel Kasten. She will check the supply cabinets for you so that we do not over-order.

If you require specialized equipment, software, or supplies that exceed \$50, please check with your advisor to see if they have funds available on a particular project before sending Mary Hicks your order request.

Printing

To connect your PC to a printer, open Windows Explorer and enter `\waterworks` into the navigation bar to see a list of printers by building and room number; double-click to install. If your printer is out of toner, email Mary Hicks (mhhicks@ncsu.edu) and copy Zac Arcaro (zearcaro@ncsu.edu) with a request for new toner. If you are having additional problems with your printer, send a description of the issue to CNR_help@ncsu.edu.

Poster Printing

There is a poster printer (also called a plotter) in the Geovisualization Lab closet. To print, email a PDF of your poster to CNR_help@ncsu.edu and request it be printed on the CGA plotter. You are strongly advised to request printing in advance to give the IT team time to prepare your poster and in case there are any unforeseen issues with the plotter.

Fax

The Center fax machine is located in Jordan 5118 and may be used for work-related business only. The number is (919) 513-1294.

Scanning

There is a document scanner located in Jordan 4120.

Mail

Mail will be delivered to the office of the Business Service Coordinator and then distributed to student labs.

To receive letters or packages, use the following address:

YOUR NAME c/o CGA Admin Office
2800 Faucette Drive
Campus Box 7106
Raleigh, NC 27695

Room Reservations

Two meeting rooms are available to be reserved through the Center. To reserve space, [use this form](#). If a room is empty and unreserved, students are welcome to use it for collaboration. There are additional spaces available through the College of Natural Resources; see Rachel Kasten for more information.

Children

CGA is a welcoming environment that respects all forms of diversity, including diversity in parenting status. Infants are welcome in lab spaces and classrooms at any time, and there are always people more than happy to hold babies. For unforeseen disruptions in childcare or school closings, occasionally bringing your older child with you is also perfectly acceptable. Please note that there are no changing tables in Jordan Hall.

There is a lockable room available for anyone who needs to pump or breastfeed. The lactation room includes a private refrigerator, a glider, and storage for breast pumps and other items. Please see Zac Arcaro for keys or Rachel Kasten with suggestions to improve the space.

Food Storage & Preparation

Students are welcome to use refrigerators, coffee makers, and microwaves in Jordan 4117 and Jordan 5104. Please help us keep these communal spaces clean.

Geospatial Graduate Student Organization

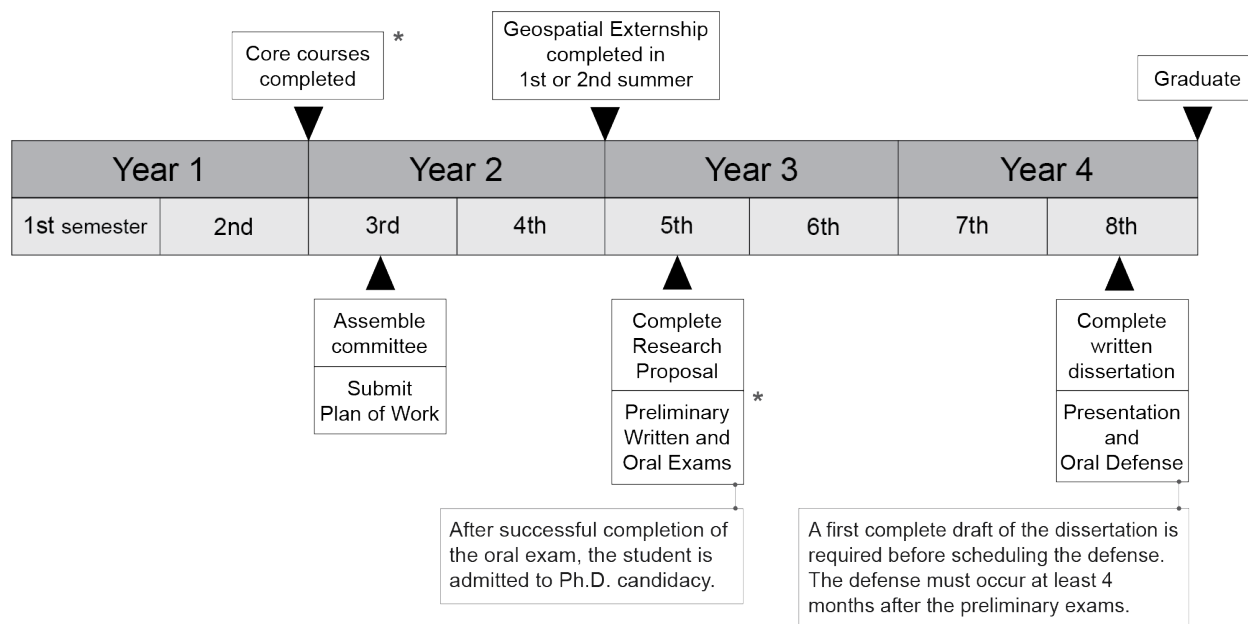
The Geospatial Graduate Student Organization is designed to support students in their study of geospatial science and analytics. The GGSO provides educational, networking, and other professional development opportunities to connect students in the geospatial community and advance the interests of interdisciplinary geospatial research and education.

2020-2021 GGSO Officers

Co-President:	Alex Yoshizumi	<i>Geospatial Analytics</i>
Co-President:	Mollie Gaines	<i>Geospatial Analytics</i>
Secretary:	Ian McGregor	<i>Geospatial Analytics</i>
Treasurer:	Kate Jones	<i>Geospatial Analytics</i>
Distance Ed Rep:	Peter Erlenbach	<i>MGIST</i>

Path to Graduation

The graphic below illustrates the major milestones in the Geospatial Analytics Ph.D. program, with a typical timeline to completion of four years. A student may complete the degree in as few as three years, but must complete it within ten.



* If a student is unable to complete their coursework or their preliminary exams within the expected timeline, they must request an extension in writing from the DGP.

Coursework

The Ph.D. program consists of 72 credit hours beyond the bachelor's degree. The core required courses comprise 18 credit hours. The remaining 54 credit hours are devoted to an individually tailored selection of electives and research hours.

For a student who holds a master's degree from a university other than NC State, a maximum of 18 hours of relevant graduate credit from the master's degree may be applied to the 72 hour minimum.

If a student completes a master's degree at NC State and continues for a doctoral degree without a break in time, up to 36 relevant credit hours taken while in master's status may be applied. If there is a break in time between completing the master's and beginning the doctorate, the allowance is limited to 18 hours. Either allowance may include 400-level courses taken as an approved part of the master's degree. Additionally, up to 12 credits at the 500- or 700-level taken in PBS (Post-Baccalaureate Studies) status at NC State may be transferred to a doctoral program with a grade of B or better.

Required Core Courses for the Ph.D.

Number	Course Title	Credits
GIS 710	Geospatial Analytics for Grand Challenges	3
GIS 711	Geospatial Data Management	3
GIS 712	Environmental Earth Observation and Remote Sensing	3
GIS 713	Geospatial Data Mining and Analysis	3
GIS 714	Geospatial Computation and Simulation	3
GIS 715	Geovisualization	3

The core courses are designed to be completed in the first year of study (three courses in the Fall and three in the Spring). Students are also required to complete a Professional Externship, preferably by the beginning of the third year.

If a student is unable to take the core courses according to the above timeline, they must request an extension in writing from the DGP, citing both the extenuating circumstances and a detailed timeline outlining when the course requirements will be completed. Please send the request to Rachel Kasten prior to the beginning of the semester in which you are supposed to take the course(s). The DGP will evaluate the request and return a decision in writing to both the student and the student's advisor.

Professional Externship

Students are required to complete a professional externship, preferably within the first two years of their doctoral program. This one-week externship will typically take place during the first or second summer of study, but students can also complete it during Spring Break or between Fall and Spring terms. If a student anticipates that they will not complete the externship prior to their fifth semester, he or she must request an extension from the DGP in writing.

The externship will involve shadowing a geospatial scientist in academia, industry, government, or a non-profit organization to experience a typical week on the job. During the externship, student externs will learn how different units within an organization operate and interact, sit in on meetings, and observe the day-to-day responsibilities of the scientist who is being shadowed.

The student should think about where he/she envisions their career five to ten years after graduation to identify potential mentors. While advisors may be able to assist in securing an externship, students are encouraged to reach out to potential mentors directly.

The Triangle area offers many opportunities for potential externships; please note that CGA will not cover travel or other expenses for externships.

Students will be required to complete the following steps *in this order*:

- Pre-approval form signed by advisor and DGP (submitted to GSC to be kept on file)
- Memorandum of Understanding signed by student, DGP, and mentor (submitted to GSC to be kept on file)
- Externship (minimum of one week)
- Post-externship reflection submitted to advisor and DGP

The post-externship reflection is a short essay (approximately 700-1,000 words) where the student considers the following questions:

- What expectations did you have going into your externship? How did the experience meet or differ from those expectations?
- What were your goals for the externship? Did you achieve those goals?
- What was the most valuable thing you learned or observed from your mentor?
- What skills are necessary for success in your mentor's role? How could you acquire those skills?
- Is there something that you wish you had known before you started your externship?
- How have your career aspirations changed based on your externship experience?

Graduate Minors

Students may choose to complete a graduate minor (9-12 credit hours) as part of their program. Graduate students must declare the minor in their graduate Plan of Work, which they develop with their Graduate Advisory Committee. The committee must include a representative of the minor. Minors (and graduate certificates) are administered by their respective programs, and not by CGA.

Enrollment Requirements

Graduate students are required to maintain continuous registration (excluding summer semesters) until they have graduated. Failure to maintain continuous registration will result in termination of academic program.

Students must be enrolled in at least nine hours per semester to be considered full-time. Once you have accumulated 72 hours towards the doctoral degree, the minimum is three credit hours.

Graduate students are not required to register during the summer semester. They will maintain access to the library, but other facilities that are funded by student fees, such as the gym and Student Health Services, cannot be accessed without paying for a summer membership.

The maximum course load for graduate students is 15 credit hours in the fall and spring or six credits in a summer session. Courses at the 500 and 700 level must be taken for a grade (not credit-only).

Leave of Absence

Students in good academic standing who must interrupt their enrollment may, with a strong justification, request a leave of absence from graduate study for up to two semesters. Students should first speak to their advisor, then see the GSC for the required paperwork, which must be approved by the DGP. An approved leave of absence will still count towards the doctoral degree time limit of ten years.

Assistantships

Students are guaranteed funding for up to four years, which includes a tuition waiver, health insurance benefits, and a \$25,000 stipend. Usually, this funding is provided through a 20 hour-per-week assistantship supervised by the student's advisor.

Eligibility

To be eligible for assistantships, students must be enrolled in the Fall and Spring semesters and be in good academic standing (with a 3.00 grade point average or higher), unless granted an exception by the Graduate School. Some fellowships have additional eligibility requirements.

Any graduate student holding a graduate research, teaching, or extension assistantship requiring 20 hours of work per week or more (i.e., half-time or greater) must maintain their status as a full-time student and therefore should not be otherwise employed. International graduate students on F-1 and J-1 visas are limited to 20 hours of work per week during the Fall and Spring semesters.

Benefits

Graduate Teaching Assistants, Graduate Research Assistants, and Graduate Fellows (Trainees) are provided health insurance through the Graduate Student Health Insurance Plan and in-state tuition / tuition remission as specified in the [Graduate Student Support Plan](#).

Teaching Assistant & Instructor of Record

Teaching Assistants (TAs) typically assist a faculty member in grading papers and providing tutorial assistance for one or more courses.

Students who have passed their preliminary exams may have the opportunity to serve as Instructor of Record in an undergraduate course. Be sure to express your interest in teaching to your advisor and the Director of Graduate Programs.

External Funding

While the Geospatial Analytics program will work to provide all students in good academic standing with funding for up to four years (either through program funds or external grants), students are strongly encouraged to seek additional external funding.

(continued on next pg)

Geospatial Analytics students have had previous success in securing funding through the

[NSF Graduate Research Fellowship Program](#),
[NC Sea Grant-NC Space Grant](#),
[Global Change Fellows Program](#),
[US Geospatial Intelligence Foundation](#), and the
[NC Wildlife Federation](#).

The Graduate School has a full-time [Graduate Fellowship Specialist](#) who can assist students in preparing applications to nationally competitive programs.

CGA students have also created a [shared Google drive](#) with resources on applying for external funding.

Annual Reporting

Please use the Center's [Accomplishment Report](#) form to report each time you win an award, receive a grant, publish a paper, or any other achievement. Your accomplishments will be included in the Center's annual report and celebrated on the bulletin board, news blog, and/or social media channels.

Additionally, all doctoral students are required to complete an annual self-evaluation each June to report on their progress towards degree, research accomplishments, and professional development. The GSC will send the required form at the end of May. These evaluations will be reviewed by the DGP and the Education Committee to ensure student success and to assess the program itself.

Professional Development

Geospatial Forum

The Geospatial Forum brings together researchers, educators, practitioners, and students of geospatial sciences in an exciting series of lively presentations and discussions of cutting-edge work. Speakers are nominated by the GGSO's Forum Committee and span academia, research organizations, and industry. The Forums take place on select Thursday afternoons from 3:30pm-4:30pm. Doctoral students are strongly encouraged to attend. Refreshments are often available both before and after the Forum.

The Forum can be livestreamed at go.ncsu.edu/geospatial-forum-live. All Forums will be virtual in Fall 2020.

Travel/Conference Funding

Student attendance and presentations at professional meetings are an important part of career development. Funds for travel may be provided by the student's major professor, grants, fellowships, or other sources.

Before making any travel arrangements using university funds, you must meet with Mary Hicks, Business Service Coordinator. Email mhhicks@ncsu.edu to set up an appointment.

Because there is limited travel funding available for students:

- Speak to your advisor about which conferences will be best suited to your professional development. If you are funded through a grant, there may be funds designated for you to travel to a specific conference.
- Identify the conference you would like to attend as far in advance as possible. Apply for travel grants through the sponsoring body; most conferences offer opportunities for students to compete for travel funding. In addition, many conferences offer the opportunity for students to volunteer in exchange for free or reduced registration fees.
- Apply for the [Geospatial Analytics Travel Award](#). Geospatial Analytics doctoral students in good standing may apply for up to \$800 twice per year. There is no limit to the number of times a student may apply for or receive the award. The application deadlines are July 15 for travel September-February and January 15 for travel March-August. Applications will be accepted for conference opportunities that fall outside of these deadlines on a case-by-case basis. For more information, contact Rachel Kasten.
- Apply for additional travel grants. Funding is available through the Graduate Student Association (see below), as well as private foundations, such as the [Charles Koch Foundation](#).

GSA Award for Conferences

The GSA Award for Conferences is a highly competitive, merit-based award that is intended to cover the costs of attending a conference (up to \$1,500) for NC State graduate students.

The deadline for the Fall and Spring semesters are September 15 and February 15, respectively by 5 pm. **A student can receive the GSA Award for Conferences only once per graduate degree.**

Although students may apply in advance for funding, the **GSA Award for Conferences operates on a reimbursement basis**, meaning that awardees are reimbursed for costs after travel takes place.

If awarded, a student is reimbursed up to \$1,500 to cover conference and travel expenses.

GSA Travel Assistance Award

The GSA Travel Assistance Award was created through collaborations between the GSA and the Graduate School. These are merit-based, \$500 travel awards for NC State graduate students attending and presenting their research at conferences.

The deadline for the Fall and Spring semesters are September 15 and February 15, respectively by 5 pm. **A student can receive the GSA Travel Assistance Award only once per graduate degree.**

Although students may apply in advance for funding, **the GSA Travel Assistance Award operates on a reimbursement basis**, meaning that awardees are reimbursed for costs after travel takes place.

If awarded, a student is reimbursed up to \$500 to cover conference and travel expenses.

Graduate Student Workshop Support Grant

This new collaboration between Student Government and the Graduate School will provide funding for graduate students who want to attend workshops to further their academic development and build their skill sets.

The organizers anticipate three funding cycles annually with one in the Summer, Fall, and Spring with submission deadlines early in each semester. Applicants can request up to \$500, and there will be \$5,000 available per semester. These awards can **only be used for future travel**; the grant will not to cover costs for travel expenses incurred prior to the decision deadline.

Graduate School Opportunities

The Graduate School offers many professional development opportunities for students; here are just a few:

Teaching and Communication Certificate

CGA has partnered with the Graduate School to offer a customized Teaching and Communication Certificate for Geospatial Analytics Ph.D. students. Students who complete the certificate will have the achievement noted on their transcript.

The requirements for the Certificate for Geospatial Analytics students are:

- GIS 710
- one of the following development series: Structuring Content OR Teaching and Presentation Practicum OR Communication Strategies for Teaching and Beyond
- one approved workshop
- professional portfolio

Writing Certificate

The Graduate School also offers a Writing Certificate. As with the Teaching and Communication Certificate, students who earn it will have it noted on their official transcripts. The Certificate can be earned through many of the activities students already do, such as submitting articles to peer-reviewed publications, applying for grants, and presenting research.

Academic Packways: Gearing up for Faculty

Academic Packways is a professional development opportunity for graduate students and postdoctoral scholars who are interested in pursuing careers in academia. Organized by NC State's Graduate School, the two-day workshop is engineered to inform students and postdocs about responsibilities and roles of early-career faculty and prepare them for the competitive academic job market. During the workshop, students will have the opportunity to receive feedback on their CVs, research statements, and more.

Preparing the Professoriate

Preparing the Professoriate is a nationally recognized program designed to give exceptional doctoral students and postdoctoral scholars an immersive mentoring, teaching, and future faculty preparation experience. It provides fellows with a hands-on teaching opportunity under the direction of a distinguished faculty mentor recognized for their teaching skills.

Acceptance into this program is highly competitive. Every year, the selection committee makes tough decisions to select the new fellows. The program is one year long, consisting of two major components: regular workshop meetings and the mentoring relationship with your faculty member. Fellows also teach with their mentor, complete a peer observation, and conduct a professional development project. At the conclusion of the program, each fellow completes a teaching portfolio detailing his or her work and reflections from participating in the program.

Application to the program is open to doctoral students and postdoctoral scholars who plan careers as faculty members at colleges and universities, and up to 30 fellows are selected each year in a university-wide competition.

Accelerate to Industry (A2i)

The mission of A2i is to show NC State graduate students, postdocs, and alumni the wide range of available industry careers, to help them secure industry jobs, and to empower them to hit the ground running in the corporate environment by demonstrating key competencies that are not usually learned through graduate training.

A2i opportunities include:

- Industry Immersion (week, one-day, or two-day series)
- Industry Team Practicum (semester-long development series and team projects)
- Industry Job Search Strategies (half-semester development series)
- Industry Company Site Visit (one-day series)
- Industry Internship (varying duration)

Development Series

The Graduate School offers semester-long development series with meetings approximately once per week. These are free of charge (although required materials are determined by each individual instructor) and are non-credit-bearing. Courses include Curriculum Design, Teaching and Presentation Practicum, and Job Search Strategies. Many of these can also count towards the Teaching and Communication Certificate and/or Writing Certificate.

Workshops

Several shorter workshops are offered each month on topics such as: How to Avoid Death by Powerpoint, Dissertation 101, How to Deliver a Job Talk, Academic Presses, and How to Write a Statement of Teaching Philosophy. Many of these can also count towards the Teaching and Communication Certificate and/or Writing Certificate.

Camp Completion

Camp Completion is an intensive week-long retreat designed to help advanced graduate students make significant progress toward the completion of their theses, capstone projects, or dissertations. Camp Completion offers dedicated writing time, opportunities to get feedback from expert writers and researchers, and short activities for managing the dissertation project, developing productive writing habits, and communicating research to diverse audiences. Offered every May and December after the end of the semester.

Graduate Student Research Symposium

The Graduate Student Research Symposium, held each March, includes poster presentations from more than 200 graduate students from NC State University. Posters are judged by faculty, and students receive recognition for top posters. Each program can nominate a maximum of four students to present at the Symposium, so it is important to let the GSC know of your interest when nominations open.

Graduate Writing Center

Peer consultants provide feedback for writers based on clarity, structure, and organization. While consultants are not editors, they work with writers to help them become better editors of their own work. All writing support services are free. Students may [schedule an appointment online](#). The Writing Center also organizes online [Writing Accountability Groups](#).

NC State Libraries Opportunities

[Lynda.com Learning Library](#)

Lynda is an online library containing thousands of professionally-made video courses. All NC State students have full access to Lynda.com. Topics include [Data Visualization](#), [Data Science](#), and [Programming in R](#).

[Data and Visualization Workshops](#)

These free workshops are hosted at D.H. Hill Library (Central Campus) and Hunt Library (Centennial Campus) and include topics such as: Beginning R, Creating Thematic Maps in Tableau, Coding 3D Landscapes of Sound, and Elements of Visualization Design.

[Coffee & Viz Series](#)

This forum for NC State researchers to share their visualization work is free and open to the public.

[Peer Scholars](#)

The Peer Scholars Program is a series of workshops run through NC State Libraries and led by postdoctoral scholars and graduate students with specific research skills, including design, programming, analytics, immersive technologies, visualization, and data analytics.

Racial & Environmental Justice

Understanding and responding to issues of racial and environmental justice should be considered essential elements of each student's academic and professional development. To that end, CGA strongly recommends that students participate in at least one of the following:

- Relevant special topics courses in CNR, such as FOR 595 (Environmental Justice and Decision-Making), NR 595 (Decolonizing Science), or FOR 610 (Celebrating Diverse Scholars)
- Relevant courses in other colleges, such as LAR 535: Environmental Social Equity and Design
- Non-credit workshops offered through the [Office for Institutional Equity and Diversity](#)
- [GLBT Center Student Advocate program](#)

Several faculty members also work at the intersection of equity and geospatial analytics, including Bethany Cutts, Ryan Emanuel, Aaron Hipp, Louie Rivers, and Madhusan Katti in CNR, as well as Frederico Freitas and Matthew Morse Booker in CHASS.

Selecting a Graduate Advisory Committee

The function of the Graduate Advisory Committee is to direct the student's coursework, provide advice and expertise with regard to the student's research program, administer the preliminary and final defense examinations, and evaluate and critique the dissertation.

Members of the Graduate Advisory Committee must be members of the NC State Graduate Faculty. For a current list, consult the [Graduate School website](#).

Rachel Kasten will hold a workshop each spring to review regulations for selecting a committee in detail.

Committee Makeup

- Doctoral committees are required to have a minimum of four graduate faculty members, including the graduate advisor, who serves as chair or co-chair of the committee. If the student has declared a minor, one of these faculty members must be from the minor field.
- Due to the interdisciplinary nature of Geospatial Analytics, committees typically include faculty from several different departments. A committee member with Graduate Faculty status in a program outside of Geospatial Analytics should be asked to serve as the Graduate School Representative (GSR). The GSR may not be a committee co-chair.
 - > The Graduate School Representative primarily acts as an observer during the preliminary and final oral examinations and should never take a dominant role in the exams. The Graduate School Representative signs the official examination form to affirm that the exam was properly conducted. In the event that the GSR indicates any substantive reservation, the Dean of the Graduate School will investigate and decide the course of action.
- Graduate faculty from Duke University and UNC-Chapel Hill may serve as one of the required committee members when appropriate. See the GSC for the required paperwork.
- External committee members (i.e., faculty from other institutions or technical consultants) must be approved by the DGP and the Graduate School prior to submission of the advisory committee as a whole. **External members do not count towards the minimum of four committee members.** See the GSC for the required paperwork.
- A person from industry, a governmental agency, or another university may serve as a technical consultant. Technical consultants are expected to participate in the preliminary and final examinations but do not vote on the outcome. They do not count towards the minimum of four committee members. See the GSC for the required paperwork.

- Once the student and advisor have settled on a list of potential committee members, the student should set up a meeting with each faculty member. The student should give a general outline of their research program and invite the faculty member to serve on their Advisory Committee. Most faculty members who are asked will willingly serve. In some cases, a faculty member may decline if they feel they are overcommitted or do not have the appropriate expertise.

Functions & Requirements of the Committee

The primary function of the Graduate Advisory Committee is to advise the student in all aspects of the educational program and to monitor and evaluate that student's progress toward the degree. The committee **must meet at least once every semester to evaluate student progress, ideally beginning in the student's second year of study**. The committee should be active throughout the student's graduate training, beginning with helping prepare the student's Plan of Work.

The necessity of frequent contact between the student and committee members cannot be overemphasized. Committee members have the obligation to express to the student any concerns they may have regarding the student's performance, to stipulate the level and quality of work expected, and to offer guidelines to aid in the fulfillment of those expectations. Committee members should be sensitive to any difficulties in the student's progress.

Submitting the Committee Makeup to the Graduate School

The committee is included on the Plan of Graduate Work (see below), which should be submitted in the first semester of the second year. The Plan of Work and Graduate Advisory Committee are submitted online through MyPack Portal and require the subsequent approval of both the DGP and the Graduate School.

Changing Committee Members

If one of your committee members retires or leaves the university, you may ask for a change in your committee. If one of your committee members is on sabbatical leave, you may request a substitute for a particular examination. Please see Rachel Kasten for the appropriate paperwork.

- **Before Examinations:** If the student, in consultation with the advisor, wishes to change any committee member, a revised Plan of Work must be submitted.
- **After Preliminary Examinations:** A change in doctoral committee membership requires signatures of both outgoing and incoming committee members and the student, as well as justification for the committee change. See the GSC for the appropriate paperwork. A revised Plan of Work must then be submitted.
- **Resolving Disagreements:** Disagreements within the committee or between the student and a committee member over the quality of student performance are not grounds for reconstituting the committee. If a student believes that they have been unjustly or unfairly treated in efforts to resolve committee conflicts, they have the right to grieve this issue, according to the [University Grievance Procedures for Graduate Students](#).

Graduate Plan of Work

The [Graduate Plan of Work](#), found in the “Advising” tile of MyPack Portal, is a document that serves both as a guide to successful degree completion and a contract between students and their programs. It should be evaluated on an annual basis (at minimum) by students with their advisor and advisory committees. It should be viewed as a “living document” that reflects changes that may occur as students continue to develop and refine their academic programs.

Timeline for Submission

- Students should submit their Plan of Work by the end of their third semester.
- The final Plan of Work must be approved before the preliminary oral exam.

Contents of the Plan of Work

- A list of the coursework to be undertaken each term
- Transfer credits used towards the degree
- The members of the student’s advisory committee

Submitting the Plan of Work

The GSC will hold a workshop each Spring to show students how to navigate the Plan of Work tab in MyPack Portal and will also be available to meet with students individually.

Once you submit the Plan of Work through MyPack Portal, it will be evaluated by the Graduate School, which will inform the program as to whether or not the Plan of Work meets the requirements. If any materials are missing, the Plan of Work will be pushed back for adjustment.

Preliminary Written Examination

Scheduling the Written Exam

Each doctoral student is required to take a preliminary examination, consisting of written and oral components, after they have completed the year-one core curriculum. Prior to scheduling the written exam, the student should hold at least one full committee meeting. Written examinations should be completed before the beginning of the fifth semester of graduate study at the latest; we recommend that students schedule the written exam in the summer or fall of their second year.

Format of the Written Exam

The committee chair should request questions from each committee member at least 2 weeks prior to the exam date. Questions may cover any phase of the coursework taken by the student during graduate study and any subject logically related to an understanding of the subject matter in the major or minor areas of study. The questions are designed to measure the student's mastery of the field and the adequacy of preparation for research.

Each committee member should frame their set of questions to be answered and submitted within a 10-hour time period. Individual committee members should specify if the question is to be answered with or without notes (closed or open book). Exam days should not exceed the number of committee members (e.g., four committee members = four 10-hour days).

The GSC can provide a cover memo of instructions and/or assist with distributing questions if requested. The committee chair can choose to distribute the questions separately (questions from one committee member each day) or to send them packaged together the first morning of the exam. If receiving one question per day, the student has 10 hours to complete their response and transmit it via email to the appropriate committee member (or GSC, if administering the exam). This process is repeated on subsequent days.

Faculty should score written exams immediately in order to facilitate the scheduling of the preliminary oral examination.

Results of the Written Exam

The committee chair will notify the GSC of the result of the exam, who will formally notify the student.

- A unanimous favorable vote of the committee is necessary for the student to pass the written examination. In the case of an unconditional pass, the student should proceed with scheduling their Preliminary Oral Examination.
- Approval may be conditional and require students to meet specific requirements prescribed by their advisory committee. These conditions must be written clearly and communicated in such a manner that the student clearly understands what is expected; they must also be submitted to the DGP. The student will be given two weeks to provide a written response.
- A student who fails the preliminary examination is terminated from graduate work at NC State unless the graduate advisory committee unanimously requests a re-examination.

Preliminary Oral Examination

Scheduling the Preliminary Oral Exam

Students are required to complete their preliminary oral exam no later than 30 days after the beginning of the fifth semester. Extensions must be requested in writing to the DGP. Note that this timeline is different than the one established by the Graduate School, which states that doctoral students must attain candidacy (passing both the preliminary written and oral examinations) within four years of starting their program or before completing 48 hours of coursework, whichever is later. To submit your exam request to the Graduate School (after confirming the date with your committee), send an email to the GSC **at least three (3) weeks prior to the date requested** with the following information:

- Proposed date and time of your exam
- Proposed room and building of your exam (Jordan 5119 or 5103 should be used for this purpose if possible. To reserve one of these rooms, please contact Mary Hicks.)
- Working title of your dissertation
- The members of your committee and their roles, including the Graduate School representative (CC all committee members on the email as well.) *If a Graduate School Representative has yet to be assigned to the committee, the Graduate School may take up to two weeks to process the request.

The GSC will fill out the Request to Schedule Doctoral Oral Examination form and submit it to the Graduate School. Once the request has been approved by the Graduate School, the GSC will send the student a copy of the Information for Doctoral Oral Examination information sheet.

Format of the Oral Exam

- Presentation by the candidate. The candidate makes a presentation of a research proposal.
- Questioning of the candidate. Anyone attending the presentation will be allowed to ask questions of the candidate at the conclusion of the presentation.
- Deliberation and decision. Only the advisory committee and the Graduate School Representative will be allowed to participate in the deliberation and decision.

Results of the Oral Exam

- A unanimous vote of approval of the advisory committee is required for passing the preliminary examination. A doctoral student is admitted to candidacy by the Graduate School upon successfully passing the preliminary examinations.
- Approval may be conditional and require students to meet specific requirements prescribed by their advisory committee. These conditions must be written clearly and communicated in such a manner that the student clearly understands what is expected; they must also be submitted to the DGP and the Graduate School.
- A student who fails the preliminary examination is terminated from the program unless the graduate committee unanimously requests a re-examination. Only a single re-examination will be allowed; it can encompass written, oral, or both components as determined by the advisory committee. If the DGP or the Graduate School denies the request for a re-examination, the student's program is terminated.

Note that the Preliminary Oral Exam is open only to members of the Graduate Faculty.

Final Oral Examination (Defense)

The oral defense of the dissertation (also called the oral examination) occurs in the final semester of graduate study after completion of the written dissertation. During the defense, the student will be required to justify the scientific methodology, merit, and conclusions of the dissertation research.

Scheduling the Defense

It is the student's responsibility to set the date and time of the defense with their committee members. The request must be received by the Graduate School at least two weeks prior to the date requested and no earlier than four months after successful completion of the preliminary examination.

To submit your defense request to the Graduate School (after confirming the date with your committee), send an email to the GSC **at least three (3) weeks prior to the date requested** with the following information:

- Proposed date and time of your defense
- Proposed room and building of your defense (Jordan 5119 or 5103 should be used for this purpose if possible. To reserve one of these rooms, please contact Mary Hicks.)
- Title of your dissertation
- The members of your committee and their roles, including the Graduate School Representative (CC all committee members on the email as well.)

The GSC will fill out the Request to Schedule Doctoral Oral Examination form and submit it to the Graduate School (note that this is the same form used for the Preliminary Oral Examination; there is a place to indicate if this is the Preliminary or Final Oral Exam). Once the request has been approved by the Graduate School, the GSC will send the student a copy of the Information for Doctoral Oral Examination information sheet. Two weeks prior to the defense, the student must also provide the committee with a copy of the dissertation (see the [ETD Guide](#) for formatting guidelines and templates).

Students are encouraged to book a practice session in the exam room. This provides the student the opportunity to become familiar with the room, the audiovisual equipment, and to sort out any technological issues before the date of the defense. If using Jordan 5119 or 5103, students can schedule a practice session by contacting Mary Hicks, the Business Service Coordinator.

On the day of the defense, the GSC will provide a printed copy of the Final Doctoral Exam Form in the exam room. The committee chair is responsible for returning the original copy of the signed form to the GSC within three business days of the exam and for notifying the student of all recommended changes to the written dissertation. The GSC will return the form to the Graduate School, and the exam result will be available via the student's electronic file within five days of receipt.

Publicizing the Defense

For the purpose of dissemination of research, it is required that a presentation of the dissertation be open to the community before the closed-door defense. The Center's Science Communicator, Megan Skrip, will ensure that all defense presentations are promoted through social media, email, and other methods.

Once your defense date has been approved, please send the following to both the Graduate Services Coordinator and Science Communicator:

- Representative image from your presentation
- Abstract
- Headshot

Format of the Defense *(2.5 hours max)*

1. Welcome and introduction by Advisor
2. Oral presentation (40 minutes; generally with no questions from audience or committee members): The candidate typically presents the project justification, methodology used, the data collected, and the conclusions reached as reported in the dissertation. This presentation is open to the university community.
3. Q&A with audience (10 minutes; committee refrains from asking questions)
4. Break. Committee meets without candidate (5-10 minutes)
5. Questioning of candidate by committee (60 minutes)
6. Deliberation by committee (candidate excused, only the advisory committee and the Graduate School Representative are present)
7. Grade and conditions shared with candidate

Results of the Defense

- Passing the final oral examination: A unanimous vote of approval of the advisory committee is required to pass the final oral examination.
- In the case of a conditional pass, the specific requirements must be submitted to the student as well as the Graduate School attached to the Exam Results form. Final approval by the advisory committee is dependent upon a student's successful completion of those conditions.
- Failure to pass the final oral examination: Should a student fail the final examination, this terminates a student's academic program unless the advisory committee recommends a re-examination.

Submission of the Dissertation

It is strongly recommended that students thoroughly read the Graduate School's [Electronic Thesis and Dissertation \(ETD\) website](#) and attend an ETD workshop in preparation for submission.

All dissertations must be submitted to the Graduate School electronically using the [ETD Submission System](#). This must be completed by the graduation deadline for the semester as noted on the [Graduate School ETD Deadline page](#) and cannot be done until after the final examination/defense. Students electronically submit the PDF file of their dissertation to the ETD Reviewer via the ETD submission system for review.

Instructions for Submission

1. All members of the advisory committee review the dissertation and must give their approval prior to submission by signing the title page. The dissertation must be formatted according to the [ETD Guide](#).
2. The student applies to graduate through MyPack Portal. If the student has a minor, they must also apply to graduate for the minor.
3. The student submits the dissertation electronically following procedures as outlined on the [ETD website](#), within a week of unconditionally passing the final oral exam.
4. Submission must take place at least four weeks prior to the last day of classes in the semester in which the degree is to be conferred. [Specific deadlines](#) are published at least a year in advance.
5. Via the ETD system, the ETD Reviewer will return the draft with comments.
6. After making the requested changes, students submit their error-free Final File Submission to the ETD System. In order to ensure approval in time to graduate, make this submission well before the [Final Error-Free Deadline](#). The Final File Submission, once approved, will be the file that is published by the library, so the content should be final.
7. At this time, students are also required to submit the [required forms and fees](#).
8. Once the ETD Reviewer has finalized the ETD, the committee members—but not the committee chair—will immediately be notified by email and prompted to accept or deny the ETD submission. Faculty with the standard “Committee Member” role must approve the ETD before a Committee Chair is able to approve it. The entire committee must approve the ETD by the [Final Committee Approval deadline](#).

Registration Required vs. No Registration Required Deadlines

There are two ETD Review deadlines to choose from. This deadline refers to the submission of your initial ETD draft:

No Registration Required Deadline

If the first ETD draft is submitted by this deadline (usually the first day of classes), the student does not have to register for classes that semester.

Note that international students should speak to the Office of International Services regarding their visa status.

Registration Required Deadline

If the ETD is submitted after the No Registration Required deadline, the student must register for classes. In order to graduate within the semester, students still must submit the first draft before the Registration Required Deadline, around 6 weeks prior to Graduation.

If you miss ANY of the deadlines after the Registration Required Deadline, you will not be able to graduate until the following semester.

Graduation

There are three official graduations per year: at the end of the Fall and Spring semesters and at the end of the second Summer session. Formal commencement exercises are held only at the end of the Fall and Spring semesters; students who complete their degrees during the summer can participate in the Fall commencement exercises. Students must notify the Graduate School in writing if they wish to have their degree conferred in absentia.

There are a number of [required forms](#) associated with Graduation. All of them must be submitted prior to the [“Apply to Graduate” deadline](#), generally six weeks prior to the commencement ceremony. After passing the final oral examination but before submitting the ETD, students should apply to graduate through MyPack Portal (Student Homepage -> Planning & Enrollment -> Apply to Graduate). If a student has a minor, they must also apply to graduate for the minor.

Students who have completed all program requirements and are awaiting graduation can request the Graduate School to write a letter for prospective employers that these requirements have been met.

Mental Health & Work-Life Balance

Graduate students are at a greater mental health risk than the general population. Students are strongly encouraged to invest time in caring for their mental health. CGA supports its students, faculty, and staff engaging in ongoing self-care, including exercising, leaving the office for lunch, bringing babies and children to work or class, working from home, taking sick days for both physical and mental health needs, and setting boundaries as necessary. If you have concerns or require accommodations due to mental health or other needs, please speak with Rachel Kasten or Ross Meentemeyer.

CGA will periodically offer workshops and other opportunities for faculty, staff, and students to learn about or engage in self-care. If you have any suggestions for topics you would like to see covered, let Rachel Kasten know. You can also give feedback to Geospatial Analytics Ph.D. student Nikki Inglis, who has been trained through the Counseling Center as a Mental Health Ambassador.

Counseling Center

The [Counseling Center](#) provides free services to currently enrolled students, from one-on-one appointments to ongoing group counseling to drop-in groups. Psychiatric services are also available.

In addition, the Counseling Center has created Counseling Groups specifically for graduate students. These groups include the Graduate Women's Support Group, Graduate Women of Color, and a general Graduate Student Group. Schedules are not posted publicly. Call 919-515-2423 (or stop by the Counseling Center) to join a group.

Referrals

If you are worried or concerned about a student or employee's well-being (no matter how small or insignificant the concern may seem), please use the [online anonymous referral system](#). A case manager will follow up on the report.

Diversity & Inclusion

At the Center for Geospatial Analytics, diversity, equity, and inclusion are core values. Diversity is more than broadly representative demographic differences. Rather, diversity embodies cultural sensitivity and openness, collaboration, and full inclusion. CGA embraces a notion of intellectual community enriched and enhanced by diversity along a number of dimensions, including race, ethnicity and national origins, gender and gender identity, sexuality, physical ability, socioeconomic class, age, family and marital status, and religion. We are especially committed to increasing the representation of those populations that have been historically excluded from participation in U.S. higher education.

CGA students are encouraged to take part in opportunities to increase their understanding of diversity and inclusion, such as the [Developing Cultural Competence](#) Student Certificate Program or the [GLBT Student Advocate Program](#).

If a student believes they are not being fully respected, valued, and included as a member of CGA, the following resources are available:

Office of Institutional Equity and Diversity (OIED)

The Office of Institutional Equity and Diversity assists in resolving violations of NC State's Equal Opportunity and Non-Discrimination Policy. Anyone in the NC State community can [file a complaint](#) regarding sex discrimination, sexual harassment, pregnancy discrimination, or other Title IX violations.

Bias Impact Response Team

Bias incidents and trends degrade institutional trust, prevent open and honest collaboration, and often impede the learning of those involved. NC State's OIED Bias Impact Response Team (BIRT), serves the campus community by offering a system and processes that invite students, faculty, and staff to document and proactively address the impacts of bias-related behaviors and actions. BIRT has an [online submission form](#) to report biased statements, actions, or behaviors. This report can be submitted by individuals directly affected by bias-related behaviors/actions, observers, or those indirectly impacted (advisor, family, friends, etc.).

GLBT Advocates

A number of CGA faculty and staff participate in ongoing training through the GLBT Center's Advocate Program and have committed to creating a space where GLBT students can speak to them openly about their identity and concerns they are facing. Students are encouraged to reach out to them as needed:

Bethany Cutts
Rachel Kasten
Eric Money
Robert Scheller
Jelena Vukomanovic

CNR Diversity and Inclusion Office

The College of Natural Resources has an internal Diversity and Inclusion Office that can help connect students to resources and support. Stacy Nelson, a CGA Faculty Fellow, is currently the Interim Associate Dean for Diversity for the College.

Several CGA faculty and staff members serve or have served on the Diversity Committee for CNR and can serve as liaisons between students and the larger university community in addressing diversity-related needs or challenges:

Bethany Cutts
Rachel Kasten
Stacy Nelson

Additionally, several CGA faculty and staff participated in the Whiteness at Work series in Summer 2020 to address issues of racial bias:

Bethany Cutts
Rachel Kasten
Katie Martin
Megan Skrip

Withdrawal from the University

Terminating an Active Program

A student who wishes to terminate the graduate program must first, in writing, notify the DGP, who will forward the request to the Graduate School for approval. If the student is not in good standing, they will receive a “Termination” notation on their transcripts. If the student is in good standing, they will receive a “Termination without prejudice” notation on their transcripts. The student is responsible for dropping all courses prior to the end of the drop period (otherwise, the student will receive a failing grade).

Withdrawal

In order to maintain continuous enrollment, a student who withdraws during the official registration period (usually the first 10 days of a semester) must obtain a leave of absence. Students who withdraw after the official registration period ends do not need to obtain a leave of absence and will be considered as having met their continuous registration requirement.

Neither courses nor grades are recorded on the permanent record for students who withdraw during the regular drop period. After the drop period, withdrawals without academic penalty are approved only under exceptional circumstances.

Late Withdrawal

Graduate students may receive withdrawals after the last day of the drop period but before the end of the semester under one or more of the following conditions:

- Certification by a physician of inability to continue for medical reasons.
- Certification by the Counseling Center or an independent psychiatrist or psychologist on inability to continue for mental health reasons.
- Documentation of a personal or family hardship that adversely affected the student’s academic performance in a significant way.

The DGP, Dean of the College of Natural Resources, and the Graduate School will review the student’s request, consulting with the Counseling and Student Health Centers as appropriate.

Retroactive Withdrawals

Requests for retroactive withdrawals may be made if the semester in which the student was registered has passed. A student who wishes to pursue a retroactive withdrawal must go through the official withdrawal process through the Counseling Center.

Academic Difficulty

Academic Warning

Graduate students are given a notice of academic warning if they have less than a 3.000 GPA and have accumulated fewer than 18 credit hours. Students on academic warning may continue to hold an assistantship or fellowship or receive financial aid, provided that the DGP supplies a justification.

If a student's GPA is below 3.000 after their first semester, the student and the student's advisor must meet together with the DGP to develop a comprehensive mentoring plan.

Academic Probation

Graduate students will be placed on academic probation if they have accumulated more than 18 credit hours and have a GPA between 2.667 and 2.999. Students on academic probation will be ineligible for financial aid and appointment/reappointment to an assistantship or fellowship.

Termination

Graduate students will be terminated from their program of study if they have accumulated more than 18 credit hours and have a GPA below 2.667 or have accumulated 30 or more credit hours and have less than a 3.000 GPA.

Students may be terminated from the program at any time if, in the judgement of the Geospatial Analytics program and the Graduate School, a student fails to make satisfactory progress towards the completion of the degree (regardless of grades) or violates the NC State Code of Student Conduct. Examples of unsatisfactory progress include, but are not limited to, inadequate research progress, inability to sustain a normal course load, or failing the preliminary examination. Students are automatically terminated if they fail to complete the doctoral degree within ten years.

Conflict Resolution

CGA understands that, occasionally, conflicts arise between students and faculty members. Students are strongly encouraged to first attempt to resolve the problem with the faculty member if at all possible. If that is unsuccessful, the student should contact the DGP, who will work with the student informally to seek a satisfactory resolution. If these steps fail, the student has the following options:

Student Ombuds Services

The [Student Ombuds](#) assist students to resolve problems related to their university working, learning, or living experience. The Student Ombuds can serve as a confidential resource and sounding board, providing you information on university policies and procedures. An Ombuds is also a liaison for broader systemic concerns and can bring those issues to the university. Note that speaking with an Ombuds or sending communication to an Ombuds does not constitute notice to the university.

Students may contact the Student Ombuds Services regarding any university-related issue; however, some issues have defined procedures or other designated offices established to address them. The Ombuds will let you know if S.O.S. is able to assist you with your concern and will refer you to a more appropriate office if necessary.

Some common concerns include: interpersonal conflicts with faculty, advisors/major professors, or peers; graduate committee functioning; groups/team functioning; housing issues; exam procedures; and ethical concerns.

University Mediation Services

If the student is employed by the university through an assistantship or other role, they have access to [Mediation Services](#) through Employee Relations. Mediation is an informal, semi-structured process in which an impartial third party (a mediator) assists disputing parties in working through and resolving work-related problems or conflicts. It is a non-judgmental, voluntary process that focuses on helping parties find mutually satisfying resolutions to their problems, consistent with each of their interests and without formal grievance proceedings.

Mediation is an appropriate tool for dealing with most interpersonal and work-related conflicts, including personal disputes, office behaviors, and issues of respect and cooperation. It also is an effective tool for addressing many content or process conflicts related to work assignments and duties, such as resource allocation and ownership issues.

Filing a Formal Student Grievance

[Student grievances](#) are limited to matters that both adversely affect the student and involve a misinterpretation or misapplication of university policy, regulation, or rule, or a violation of state or federal law. Grievances may not be used to challenge policies or procedures of general applicability.

The following items may not be grieved through this avenue: test grades or partial grades, claims based on purchases or contracts, claims not directly related to a faculty member or administrator's status as an employee at NC State, student disciplinary decisions (administered by the Office of Student Conduct), or complaints, grievances or appeals that are subject to another university procedure (e.g., residency appeals, FERPA grievances, research misconduct).

The person filing the grievance must be the alleged victim of unfair treatment that is related to his or her status as a graduate student. A grievance cannot be filed on behalf of another person. Any grievance should be filed within 60 calendar days from the decision, action, or event forming the basis of the grievance. Filing occurs when the written grievance is provided to the department head, dean, or vice chancellor. This time limit may be extended by the applicable department head, dean, or vice chancellor for good cause shown, if the grievant makes a request for extension within the 60 day period.

Campus Resources

African American Cultural Center

The [African American Cultural Center](#) promotes awareness of and appreciation for African American and other African descent experiences through activities and events that enhance academic excellence and strengthen cultural competence for the campus and surrounding communities.

Disabilities Services Office

Contact the [Disability Services Office](#) (DSO) should you require academic accommodations due to physical, mental health, and/or learning disabilities.

If you have a concern about access on campus (for example, a video needs closed captioning or a path is not accessible), you can [report it online](#).

DSO offers Wolfpack Pick Up anywhere on Central Campus for students living with disabilities or who have injuries hindering their mobility. Rides [can be scheduled](#) from six hours to 30 days in advance.

GLBT Center

The [GLBT Center](#) serves students of all sexual orientations, gender identities, and gender expressions, including gay, lesbian, bisexual, pansexual, asexual, queer, transgender, genderqueer, gender fluid, gender non-conforming, non-binary, agender, intersex, and questioning students and their allies. Students are encouraged to participate in ally training.

Military and Veteran Services

NC State's [Military and Veterans Resource Center](#) offers a centralized resource to support military-affiliated students. There is also a [Student Veterans Association](#) that serves as a peer support group.

Multicultural Student Affairs

[Multicultural Student Affairs](#) (MSA) promotes academic success, retention and graduation of students, with an emphasis on African American, Native American, and Hispanic/Latino students.

Office of International Services

The [Office of International Services](#) (OIS) is the most important resource for international students. International students should contact OIS for all visa-related or employment questions.

Student Health Services

[Student Health Services](#) offers confidential, professional health care ranging from general medical care to specialized treatments—all conveniently located on campus. Capabilities extend to allergy injections, immunizations, travel medicine advice, laceration repair, and X-rays. The Student Health Center is just a short walk from CGA.

Onsite physicians, nurse practitioners, physician assistants, dietitians, physical therapists, and pharmacists treat students with common acute and chronic care problems. They provide care for a wide range of issues including injury management, diabetes, hypertension, ADHD, anxiety, depression, and sports medicine.

Sexual Assault Hotline

If you or someone you know is dealing with interpersonal violence, call 919-515-4444 or email ncsuadvocate@ncsu.edu to reach a trained Advocate. An Advocate can assist you with accessing academic, legal, medical, emotional, and student conduct resources.

Violence Prevention & Threat Management

The [Violence Prevention & Threat Management](#) staff address behaviors of concern, such as threatening communications or behaviors, domestic violence, and stalking. Anyone can [file a report](#), whether or not they are the target of the behaviors.

Women's Center

The [NC State Women's Center](#) offers workshops, support, and community in the pursuit of gender equity and social justice.

Women in Science Discussion Group

The College of Natural Resources Women in Science Discussion Group meets on Wednesdays from 12:00pm-1:00pm in Jordan 5119. The objectives of the Women in Science Discussion Group are two-fold: 1) to provide a space to discuss the challenges and biases facing women and strategies for addressing these challenges, and 2) to help build a peer support, mentoring, and sponsorship network. For more information, contact Jelena Vukomanovic (jvukoma@ncsu.edu).

Appendix I: External Funding Opportunities for Geospatial Analytics Doctoral Students

Students are encouraged to apply for any and all relevant external funding opportunities. This list is not exhaustive.

Opportunity	Requirements	Deadline
American Association of University Women Dissertation Fellowship AAUW provides fellowships for women pursuing full-time study to complete dissertations.	Final year of writing dissertation; Identify as female; U.S. citizens and permanent residents	November
Department of Energy Computational Science Graduate Fellowship The DOE CSGF provides outstanding benefits and opportunities to students pursuing doctoral degrees in fields that use high-performance computing to solve complex science and engineering problems. Renewable for up to four years.	Incoming or first-year Ph.D. students; U.S. citizens or permanent residents	January
Dr. Nancy Foster Scholarship Program The National Oceanic and Atmospheric Administration's (NOAA) Dr. Nancy Foster Scholarship Program recognizes outstanding scholarship and encourages independent graduate level research -- particularly by female and minority students -- in NOAA mission-related sciences of oceanography, marine biology and maritime archaeology, including all science, engineering and resource management of ocean and coastal areas.	U.S. citizens and permanent residents	Application opens in October
Facebook Fellowship Program Designed to encourage and support promising doctoral students who are engaged in innovative and relevant research in areas related to computer science and engineering. Renewable for up to two years.	Full-time Ph.D. students with a defined research project	October
Generation Google Scholarship Established to help aspiring computer scientists from underrepresented ethnic groups excel in technology and become leaders in the field. \$10,000 for one year.	Black, Hispanic/Latino, American Indian or Filipino/Pacific Islander	Application opens in Fall
Josephine de Karman Fellowship The purpose of this Fellowship program is to recognize and assist students whose scholastic achievements reflect Professor Von Karman's high standards. \$25,000 for one year.	Ph.D. students in the final year of their program	January
Microsoft Research Ph.D. Fellowship Program A two-year fellowship for Ph.D. students at North American universities pursuing research aligned to the research topics carried out by Microsoft Research. Must be nominated by the program.	Third-year Ph.D. students	October
National Defense Science & Engineering Graduate Fellowship The NDSEG Fellowship increases to the number of U.S. citizens and nationals trained in science and engineering disciplines of military importance. Renewable for up to three years.	First- or second-year Ph.D. students; U.S. citizens or permanent residents	December

Opportunity	Requirements	Deadline
National Science Foundation Graduate Research Fellowship Program The NSF GRFP recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines. Renewable for up to three years.	First- or second-year Ph.D. students; U.S. citizens or permanent residents	October
NASA Earth and Space Science Fellowship The purpose of the NESSF is to ensure continued training of a highly qualified workforce in disciplines needed to achieve NASA's scientific goals.	Any full-time students	February
NC Space Grant Graduate Research Fellowship The objective of this research fellowship opportunity is to encourage talented individuals to pursue careers in science, technology, engineering, and mathematics (STEM) fields that support NASA's mission. These fellowships are for one summer of study.	Active research project with aerospace applications; U.S. citizens	Spring
Paul & Daisy Soros Fellowships for New Americans Honors the contributions of immigrants and children of immigrants to the United States. Each year, we invest in the graduate education of 30 New Americans—immigrants and children of immigrants—who are poised to make significant contributions to US society, culture or their academic field. Up to \$90,000 over two years.	Under 30 with New American or DACA status (both parents must be born outside of U.S.)	November
Women Techmakers Scholarship Formerly the Google Anita Borg Memorial Scholarship Program - furthering Dr. Anita Borg's vision of creating gender equality in the field of computer science by encouraging women to excel in computing and technology and become active leaders and role models in the field.	Identify as female	Application opens in Fall

Appendix II: 2020–2021 Payroll Schedule

DIVISION OF ACADEMIC AND STUDENT AFFAIRS

Pay Period Begin Date	Pay Period End Date	Payday	*Deadline
Jun 13	Jun 26	Jul 10	*July 1
Jun 27	Jul 10	Jul 24	Jul 16
Jul 11	Jul 24	Aug 07	Jul 30
Jul 25	Aug 07	Aug 21	Aug 13
Aug 08	Aug 21	Sep 04	Aug 27
Aug 22	Sep 04	Sep 18	Sep 10
Sep 05	Sep 18	Oct 02	Sep 24
Sep 19	Oct 02	Oct 16	Oct 08
Oct 03	Oct 16	Oct 30	Oct 22
Oct 17	Oct 30	Nov 13	Nov 05
Oct 31	Nov 13	*Nov 25	*Nov 17
Nov 14	Nov 27	Dec 11	Dec 03
Nov 28	Dec 11	*Dec 22	*Dec 14
Dec 12	Dec 25	Jan 08	*Jan 03
Dec 26	Jan 08	Jan 22	*Jan 13
Jan 09	Jan 22	Feb 05	Jan 28
Jan 23	Feb 05	Feb 19	Feb 11
Feb 06	Feb 19	Mar 05	Feb 25
Feb 20	Mar 05	Mar 19	Mar 11
Mar 06	Mar 19	Apr 02	Mar 25
Mar 20	Apr 02	Apr 16	Apr 08
Apr 03	Apr 16	Apr 30	Apr 22
Apr 17	Apr 30	May 14	May 06
May 01	May 14	May 28	May 20
May 15	May 28	Jun 11	Jun 03
May 29	Jun 11	Jun 25	Jun 17

+ This is the last day an employee can enter direct deposit account information or change their tax withholding via Employee Self Service and be guaranteed it will be effective for that pay period.

* Deviations due to holidays

DASA Finance Office Student Payroll Email: dasa-student-payroll@ncsu.edu

DASA Finance Office Website: <https://finance.dasa.ncsu.edu>

Professional Externship Requirements

Students are required to complete a professional externship within the first two years of their doctoral program. This one-week externship will typically take place during the first or second summer of study, but students can also complete it during Spring Break or between Fall and Spring terms. If a student anticipates that they will not complete the externship prior to their fifth semester, he or she must request an extension from the DGP in writing.

The externship will involve shadowing a geospatial scientist in academia, industry, government, or a non-profit organization to experience a typical week on the job. During the externship, student externs will learn how different units within an organization operate and interact, sit in on meetings, and observe the day-to-day responsibilities of the scientist who is being shadowed.

The student should think about where her/she envisions their career five to ten years after graduation to identify potential mentors. While advisors may be able to assist in securing an externship, students are encouraged to reach out to potential mentors directly. Attending graduate student lunches with Geospatial Forum speakers is a great way to build your network.

The Triangle area offers many opportunities for potential externships; please note that CGA will not cover travel or other expenses for externships.

Students will be required to complete the following steps in this order:

- ☐ Pre-approval form signed by advisor and DGP (submitted to GSC to be kept on file)
- ☐ Memorandum of Understanding signed by student, DGP, and mentor (submitted to GSC to be kept on file)
- ☐ Externship (minimum of one week)
- ☐ Post-externship reflection submitted to advisor and DGP

The post-externship reflection is a short essay (approximately 700-1,000 words) where the student considers the following questions:

- What expectations did you have going into your externship? How did the experience meet or differ from those expectations?
- What were your goals for the externship? Did you achieve those goals?
- What was the most valuable thing you learned or observed from your mentor?
- What skills are necessary for success in your mentor's role? How could you acquire those skills?
- Is there something that you wish you had known before you started your externship?
- How have your career aspirations changed based on your externship experience?

Externship Pre-Approval Form

Student Name: _____

Faculty Advisor(s): _____

Proposed Mentor: _____

Please attach a CV for your prospective mentor.

Proposed Site: _____

Proposed Dates: _____

Attach a short (approximately 250-500 words) justification for the selection of this Mentor and externship site. Explain how this experience will advance your professional goals.

Advisor Signature: _____

Co-Advisor Signature: _____

DGP Signature: _____

Externship Memorandum of Understanding

Student Extern Name: _____

Externship Mentor: _____

Externship Site: _____

Dates: _____

The Mentor will:

- Accept primary responsibility for mentoring the Student Extern throughout the externship period.
- Share a tentative schedule with the Student Extern prior to the externship period.
- Orient the Student Extern to the policies and procedures of the externship site.
- Ensure any tasks assigned to the Student Extern are meaningful (e.g., not routine clerical tasks such as filing and photocopying).
- Make every effort to include the Student Extern in staff meetings and day-to-day operations during the externship period. The Mentor should think of specific activities that will be valuable for understanding the Mentor's role.
- Provide time during the externship for questions and debriefing.

The Student Extern will:

- Share goals for the externship with the Mentor at least two weeks prior to the externship period.
- Follow all policies and procedures of the externship site.
- Participate fully in all aspects of the externship experience.
- Maintain confidentiality and discretion as necessary.
- Complete a post-externship reflection.

Mentor Signature: _____

Student Extern Signature: _____

DGP Signature: _____

Externship FAQs

What is an externship?

An externship is a short-term opportunity for a student to job shadow a mentor in a workplace setting.

How is this different than an internship?

Even though the student will be in the workplace, they are shadowing an individual rather than acting as an employee of the organization.

How long is an externship?

To meet the requirement for the Ph.D. in Geospatial Analytics, a student must be on site shadowing a mentor for a minimum of one week (approximately 40 hours).

Does the externship have to be in Raleigh?

The externship site can be anywhere; however, the Center for Geospatial Analytics is unable to provide travel funding. The Triangle area has many opportunities for potential externships.

Who can be a mentor?

The externship mentor is a mid-career geospatial scientist in academia, industry, government, or a nonprofit organization. A mentor should be in a position that the student can see themselves holding ten years post-graduation.

What happens during an externship?

Externs will shadow their mentors in the workplace for a full week, observing day-to-day operations, sitting in on staff meetings, listening in on conference calls, and meeting with other professionals in the organization. The student may be asked to assist with some of the tasks they observe.

Geospatial Analytics Travel Award Application

Application Deadline

July 15 for travel September-February

January 15 for travel March-August

Applications will be accepted for conference opportunities that fall outside of these deadlines on a case-by-case basis.

Eligibility

The GA Travel Award is open to all students enrolled in the Geospatial Analytics doctoral program in good standing (GPA > 3.00). There is no limit to the number of times a student may apply for or receive the award.

Funds Available

You may request a maximum of \$800 each cycle. You are responsible for covering any amount above what is awarded. CGA will not make any purchases above \$800. For example, if your flight costs \$900, you will need to purchase it, and CGA will reimburse you \$800.

Note that priority will be given to students who have actively sought additional sources of funding outside of CGA.

Application Requirements

- Completed application form
- Detailed budget, including costs of registration, transportation, lodging, and other expenses
- Personal statement (no longer than one page) describing the conference's impact on your personal/professional development
- Copy of abstract submitted to conference and confirmation of abstract acceptance (if received)

Email all components as a **single PDF** to Rachel Kasten, Graduate Services Coordinator, at rachelkasten@ncsu.edu.

Blog Post

Recipients of the Travel Award will write a post for the center's news blog about their experience. Students should send a relevant high-resolution photo and a Word doc with the following elements to the center's Science Communicator, Megan Skrip (mmskrip@ncsu.edu):

- Title ≤ 10 words
- Text ≤ 550 words
- A list of any urls to be linked from mentions of organizations, conferences, projects, etc. in the text

The body of the post should tell a brief, interesting and informative story about the work supported by the travel award—e.g., the research presented at a conference (and why it matters), a unique experience at the conference (for example, a workshop attended or led), or how data collected while traveling will be used. Students are encouraged to write in first person, with active voice, and be creative. The audience for the center's news blog includes people outside of the field of GIS and even outside of the sciences; students should introduce their main message in the first paragraph, avoid jargon and keep explanations simple. The Science Communicator will review all submissions for clarity before posting.

Geospatial Analytics Travel Award Application

Name:

If you are planning to present research:

Are you the first author?

Advisor:

☐ Yes

☐ No

Conference Name:

Are you the primary presenter?

Conference Location:

☐ Yes

☐ No

Conference Dates:

Presentation type:

☐ Poster

☐ Oral

☐ Other _____

Abstract title:

All authors; enter in order of appearance on abstract:

List all sources from which you have applied for funding for this conference (i.e. sponsoring organization of conference, NC State Graduate Student Association). Indicate amount received if applicable.

How much funding are you requesting from the Center for Geospatial Analytics (\$800 maximum)? Remember to include a detailed budget with your application. You are responsible for any costs above the amount you are awarded.

\$_____

Notes

[illegible]

