

EAS 4651 – NWS Practical Internship – Fall 2026

Section: A

Number of Credits: 3

GT Instructor

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NWS Instructors

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Course Description

EAS 4651 students are required to log 150 internship hours through the semester. This averages to between 10 hours per week during a spring/fall semester, and around 15 hours per week for the summer semester.

For EAS 4651 Practical Internship you have three main objectives:

1. Shadow forecast shifts at NWS in-person/virtually (5 hours/week)
2. Attend a weekly lecture and question and answer discussing NWS forecasting and information topics. Submit assignments for these. (2-3 hr/week)
3. Design, complete and present a 15-20 minute collaborative applied research project (remaining time needed to complete internship hours) AND/OR complete a semester long learning project related to Decision Support Services that will include an end of semester live tabletop practical examination

Course Learning Outcomes

The School of Earth and Atmospheric Sciences at Georgia Tech strives for students to achieve proficiency within one or more of 5 Student Learning Outcomes (SLOs). All 5 SLOs are described below, with those elements specific to this course highlighted:

- 1) **Knowledge:** Graduates will be able to apply the principles of chemistry, physics, biology, mathematics, and computing to solving problems within Earth, Planetary, and Atmospheric science. Basic knowledge for all EAS includes the following:
 - a. Data analysis and statistics (quantitative methods)
- 2) **Communication:** EAS graduates will be able to take scientific knowledge and communicate it effectively orally and in writing.
 - a. Present a scientific topic (either research or lit. review) orally, either poster or conference presentation
 - b. Discuss a scientific topic effectively to non-scientists (e.g., elevator pitch, blog, social media platforms, participate in scientific outreach)
- 3) **Synthesis:** Graduates will be able to use their knowledge from EAS courses to conduct original research/problem solving in Earth, Planetary, and Atmospheric sciences:
 - a. Scientific experiment design and implementation

- b. Observation, laboratory experiment, and/or computer model simulation to solve problems
- 4) **Application:** Graduates will be able to apply the tools of the discipline to approach and address problems in the field. Examples include:
 - a. Meteorology: Utilizing observational or forecast data in combination with theory to interpret past data tied to weather events of interest to society or to construct an accurate weather forecast
- 5) **Career:** Graduates will be able to demonstrate knowledge of the field making them prepared to enter careers or further education.
 - a. Graduates will be knowledgeable of types and general availability of career opportunities in field
 - b. Graduates will have developed a bridge for succession from our program to their related career path

Required or Recommended Texts – None!

Grading Policy

40% Behavior and Participation

40% Project and Weekly Assignments

20% Final Presentation/Practical

Description of Graded Components

All Categories - Internship:

The internship portion of the course will consist of virtual or in person shadow shifts with NWS personnel at the forecast office. An initial orientation meeting will be held within the first 2 weeks of the course that will go over the basics of the National Weather Service and our office structure. Afterwards, opportunities will be made available to shadow forecasters working specific shifts that cover aviation, radar, short and long term forecasting, decision support services, public interaction, and launching weather balloons. For Georgia Tech students, we encourage you to come to the office at least once a week, but will work with you if your schedule makes this a challenge. **When in office, we encourage you to interact with forecasters! They are more than happy to answer any questions you have about the job, forecasting, the NWS, graduate school, or other employment opportunities that exist, as many of us have experience in other employment sectors.**

See the attendance section below for more information on attendance. We will offer these opportunities when we can - and if you would like more time with us, let us know!

Behavior and Participation - Attendance:

We understand that you are busy and have other courses, clubs, jobs, etc. Our schedules are weird as well given we are open 24/7 and rotate through shifts. We will do our best to accommodate your schedule in order for you to attend the shadow sessions and meet weekly regarding your project. We do not have a formal attendance policy, but do expect that you will be professional in your communications and interactions with us, which includes respecting our time. If you are unable to make a meeting, or need to change the time, please notify us and we

will be happy to work with you when possible. *Regularly missing meetings and/or failure to communicate with us will be communicated to the course instructors at Georgia Tech and may have an impact on your final grade.*

At the start of the course, we request that you send us your schedule for the semester. Please include any regular meetings that you would need to attend beyond your coursework for clubs, etc. We will use this to try and schedule meetings, including shadow sessions, but completely understand if a session just can't fit into your schedule - just let us know!

Behavior and Participation - In Person Expectations:

Since you will be regularly working out of the office in Peachtree City (coming to the office one or more times per week to work on your research project and/or shadow) then you will have to fill out some additional paperwork to obtain regular access to our facility due to federal regulations. See the initial course email for more information or reach out to us and we will be happy to talk with you about it. In many cases, by the time you receive this syllabus, you have likely already taken the necessary steps!

Project and Weekly Assignments - Weekly Lectures and Q&A:

We will have a one hour “lecture” period each week. The time will be determined based on your schedules and when everyone registered for the course has availability. Don't worry - we will work with you to make sure this doesn't interfere with anything. Please don't be afraid to let us know if the time we choose creates a difficult situation for you! These lectures will focus on various NWS topics. Some will be related to forecasting and specific challenges to forecasting in the NWS that you might not see in your normal courses, such as fire weather, aviation, etc. Some will relate to how our organization functions, equipment such as our radar and local ASOS station, and we will also do a resume workshop for those interested in pursuing an NWS career in the future. Lectures will generally last around 30 minutes with time for Q&A after. Please ask questions! This is your chance to learn from NWS forecasters - no question is a dumb question. There will be assignments with some of these presentations that will be due the next week. While we won't be formally grading them, we will provide feedback to you and ensure you are completing them as part of your grade. These assignments won't take long, but are designed to give you experience doing many of the things we do in the NWS. The more effort you put into it, the more you will get out of it. Some of these assignments will mimic direct duties we have as forecasters, and could even be used on a resume.

Project and Weekly Assignments - Project Option:

At the beginning of the semester, our current Student Volunteer Team will meet with you to discuss options for a project. You are free to help develop your own idea if you have something you would like to do - otherwise, we will have a few options available based around our operational needs. If designing your own project, please remember that these projects are designed to help NWS FFC forecasters do their jobs better. We've had projects that help with decision making during severe operations, validate how well our fire weather forecasts or winter forecasts are performing, analyze the effectiveness of our social media communications, create new GIS dashboards for use in our operations, among many others.

There is no expectation or requirement that you know how to code - many of our projects have been completed in Excel or other means. If you have a programming language that you are familiar with and want to use, you are free to do so. Dylan is familiar with a few languages including Python, and if you would like to learn some basic Python, we are happy to accommodate that. If using a programming language we are not familiar with, know that we may not be able to help you if you get stuck. We also regularly have GIS opportunities. If you are interested in learning more about GIS, let us know!

We will meet with you regularly about the project - **we ask to meet once a week about it at the minimum, though weeks can be skipped for exams, breaks, etc provided that you clear it ahead of time.** This will help us answer any questions, guide you if necessary, and ensure that you are making progress towards something presentable by the end of the course. As long as you are meeting weekly with us and putting forth effort into the project, you will receive full credit for this portion of your grade. *We will not grade this based on the “merit” or findings of the project - only on the effort being put into it!*

Final Presentation/Practical - Project Presentation:

You will be required to give a presentation on the project at the end of the semester, if you chose this route. The presentation should mimic a formal presentation that would be given at a conference - it should look professional, include any potential sources and citations, and provide an appropriate summary of your findings. Consider this great practice for if/when you do have to give a presentation to your colleagues in any setting!

You will present a draft presentation to the forecast staff at the NWS at least one week prior to your final presentation. **The final presentation will be submitted electronically prior to your scheduled virtual presentation to all instructors listed above.** See details of format on the next page. The presentation is open to all faculty, staff and students at Georgia Tech and UGA, as well as all staff at the WFO. Prepare for a 15-20 minute presentation and allow an additional 5-15 minutes for questions.

Final Presentation/Practical - DSS Practical Option:

This option will allow you to explore the “people” side of our operations a bit more in depth through what we call "decision support services" or DSS for short. During the semester, students that chose this option will be given some additional projects that are based on interactions with emergency managers, state/county/city officials, and the general public, and how we communicate with them across a wide range of mediums. You'll get experience creating social media posts, developing weather briefings via our in office tools, giving stand up briefings, creating what are known as "spot" forecasts for wildfires and hazmat situations, etc. This will culminate with a "practical" exam at the end of the semester, where we will spend 2-3 hours in which you and any other students who choose this option will simulate being forecasters in an NWS office during a day with the potential for some impactful weather in which a large event is being held within the area of responsibility (CWA). You will create weather briefings, take phone calls from the public, create social media posts, and have to keep an eye on the radar

for any potential impacts to the ongoing event, and potentially answer calls or questions from event organizers.

Suggested Presentation Format:

*** Your project may or may not need each of these sections, depending on what kind of project you choose. ***

1. Title Page

2. Introduction: Discuss the motivation behind the project. How does it fit into the bigger picture of meteorology? What has been done by others before and how does your work add to the knowledge? How does it fit into the bigger picture of the NWS goals? How does it impact the public?

3. Data and Methods: What data did you use? How did you analyze it (i.e. calculations you did)? How did you build/create it?

4. Results/Discussion: Discuss your analysis of the data or project. What were the results of your study? What are the key issues in forecasting for this event? What issues are there for public communication? How does this improve NWS operations?

5. Conclusion: A final summary of the discussion and how your results fit back into what others have done and the bigger picture of meteorological forecasting and public impact.

6. Future Work: How would you expand on this project? What questions are left unanswered? What should be done next?

7. Acknowledgements

8. References

Grading Scale

The final course grade will be based on the final grade percentage calculated based on the assignment and assessment weighting described earlier within this syllabus, with the following percentage ranges associated with each letter grade:

- A: 89.5% or greater
- B: 79.5 – 89.49%
- C: 69.5 – 79.49%
- D: 59.5 – 69.49%
- F: Less than 59.5%

For any students completing this course as a pass/fail grade, a “passing” final grade constitutes a final grade percentage of 69.5% or higher (i.e., a minimum “C” letter grade).

Attendance Policy

Please read the “Behavior and Participation - Attendance” subsection under “Description of Graded Components” for attendance policy information.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech’s Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.