

MET6530: HURRICANES

Dr. Corene Matyas

M 4-5 W 5 Online using Canvas/Zoom

Fall 2020

Office Hours

Tuesday 9:30-10:30 am, Thursday 1:30-2:30 pm; other times available BY APPOINTMENT (with 24 hours notice)

No office visits this semester. email: matyas@ufl.edu but **please ONLY use Canvas**

Notes: please do not expect an immediate response to your message. 24 hours is a reasonable response period given other duties of faculty at a university. I am generally available during business hours Monday – Friday.

Prerequisites: Basic understanding of atmospheric processes/terminology

Course Objectives

This course is designed to be a capstone course that utilizes concepts that you have learned in other weather-related courses. We will cover both meteorological and climatological concepts related to tropical cyclones (TCs), and there will be computer-related work with current forecasts, models, and data. We will use GIS software for some of the analysis. We will use current TC activity to develop an understanding of these weather systems, so please keep in mind that our class activities will change from one day to the next. If a tropical system is out there, we want to study it! It is assumed that you have a basic understanding of meteorological concepts such as the difference between high and low pressure systems and how clouds and thunderstorms develop. We will work in groups as well as individually. Please note that your enrollment in this course acknowledges your acceptance of the information contained within this syllabus.

Learning Outcomes

Perform spatial analysis on TCs using Geographic Information Systems

Interpret the conditions required for TC formation, intensification, and motion

Contrast forecasting models and understand National Hurricane Center products and statements

Utilize proper terminology and correct formatting of data while communicating orally and in written form

Explain hazards brought by TCs and recount some of the most famous storms

Required Textbooks and Tools

Textbook: Hurricanes of the North Atlantic: Climate and Society by Elsner and Kara (1999)

Tools: Learn how to remotely access UF Apps and your storage space, Canvas

Grades and Grading Scale

Forecasting 10%, Prolific TC Quiz/Presentation 15%, Maps Discussion 10%, Research project write-up & peer evaluation 25% Research Project Presentation & outline & progress report 20%, Quizzes 10%, Participation/Discussions 10%

A: 93 % or above	A-: 90 – 92.9 %	B+: 87 - 89.9%	B: 83 - 86.9%	B-: 80 – 82.9%
C+: 77 - 79.9%	C: 73 - 76.9%	C- : 70 – 72.9%	D+: 67 - 69.9%	D: 63 - 66.9%
D- : 60 – 62.9%	E: < 60%			

It is your responsibility to know your current grade. Grades will be posted to Canvas.

Information pertaining to UF grading policies can be found here:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Forecasting

The class will be divided into teams that will work together to forecast formation, or track and intensity. You will submit your forecasts using the Excel sheets that I provide and a Word document with the discussion. Files must be uploaded to Canvas by the end of class on the day when forecasting occurs. Due to the uncertain nature of tropical cyclones, it is not possible to determine how many forecasts we will submit during the semester – we are aiming for 5. You should use your Group's Canvas page to submit details for the discussion, screen shots, etc. Only 1 person per group should upload the finalized forecast spreadsheet (.csv) and written summary (.docx). We will also learn to use GIS to plot the storm positions – everyone must learn how to do this! Forecasts will primarily be evaluated on utilization of proper format for data and interpretation and explanation of information in your written summary. If one or more group members are observed not to be contributing (assessed through DB activity), their grades will be lowered accordingly. There is not a way to make up a forecast if you miss class. If you need to not attend class for an extended period, we will work together to substitute an alternate assignment. Your lowest score will be dropped. Instructions for format and content will be distributed when we begin forecasting during class.

Maps Discussion

The National Hurricane Center holds a daily maps discussion. The head forecaster presents a briefing on current TCs and regions of possible development. We will echo this format. Each student will give a briefing that includes satellite imagery, track locations, model predictions, and the NHC discussion. Specific information to include in your discussion will be presented on a separate handout – you must follow the instructions on this handout. You should also consult the rubric that will be posted online as that details how you will be evaluated. Dr. Matyas will upload a sample maps discussion and will present it as an example – you should follow the same sequence, updating the text and images with data from some point within 48 hours of your discussion time. You must submit your slides to Canvas **by 9:00 am on the day of your discussion**. You will not see this deadline on Canvas since everyone has their own date. Be mindful of terminology and spelling.

Quizzes

You will take several quizzes. Five will specifically cover Chapters 1-4 and 7 in the required textbook. They will be available after Wednesday's class and close before Monday's class so that no one is taking these quizzes during class time. There may also be unannounced in-class quizzes that will cover information we are using, such as what information can be found on the various websites we use, or how to plot the track data in a GIS. Quizzes are submitted when time expires so don't leave a bunch of questions blank until the very end. The midterm exam is only for undergraduates. Your scores for your research project write-up and peer review will appear in the Midterm exam column in Canvas.

Prolific Tropical Cyclones

Each student will be assigned a tropical cyclone and will prepare a Power Point presentation about it. Specific details and format of information will be provided at a later date. You will upload your slides to Canvas and present them to the class. Your presentation will be evaluated using a rubric. There will also be a quiz on these TCs – date is listed in the syllabus. I will assemble al20l slides into one presentation that you should use to study for the quiz.

Research Project

Instead of taking the midterm exam with the undergraduates, and the final project that will be assigned to the undergraduates, graduate students will pursue their own research topic. Your project should involve data analysis as well as a literature review, and must be related to tropical cyclones in some way – either the storms or their impacts on humans and/or the natural environment. An outline of your intended research is due to me by the date listed at the end of the syllabus and I REQUIRE that you meet with me prior to this date so that we can discuss your ideas. A progress report is due on the date listed below. All of these activities count as part of the grade on the project. You will be recording a presentation on your research topic to be turned in on Canvas, and you will also submit a research paper. Dates for these activities are listed at the bottom of the syllabus. The outline, meeting, and oral presentation will comprise the 20% of your grade that will be listed under Final Project in Canvas. The paper and peer reviews will be the 25% of the grade listed in the midterm exam column.

Participation/Discussions

Throughout the semester, you will be asked to participate in such activities as writing quiz questions, class-wide and group discussions, and interpreting textbook images in front of the class. Contributing to these activities will be an easy way to earn full credit for 10% of your grade. Those who choose not to participate, who do not regularly attend class, or who do not complete assignments cannot successfully complete the course. Attendance alone does not qualify as participation. Again, if you need to be absent for an extended period, please let me know so that we can find substitute assignments.

Academic Honesty

Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at <http://www.dso.ufl.edu/students.php>. Each suspected honor code violation will be reported to the Dean of Students Office.

You are encouraged to help each other with projects, but you must turn in your own work. The exception is with forecasting assignments, where the group will collaborate and only one student will turn in the assignment for the group on their group's Canvas page. All suspected cases of honor code violations will be reported to the Dean of Students Office and actions such as lowering of the course grade, and/or other penalties may be assigned.

Canvas

This syllabus, announcements, copies of handouts, grades, and other course information will be posted on Canvas. Access this page at <http://lss.at.ufl.edu> If you miss a class, it is your responsibility to learn the material covered during your absence. Come see me if you have questions. You are advised to check Canvas frequently to verify that week's activities and any announcements about upcoming quizzes, projects, etc. I will also post announcements and your assignments will be submitted through this website.

Disability Statement

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. A minimum of one week is needed for the instructor to find ways to provide the accommodation. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

Attendance and Proper Conduct

Your performance in this course, and participation grade, will suffer if you do not attend class regularly. Long onto Zoom on time and do not interrupt someone's presentation. You should keep your microphone muted unless you are ready to ask a question. If you choose to turn on your video camera, please be mindful of your background and be sure no offensive materials are in view. Zoom has a hand raise button that we can use to indicate yes/no to broad class questions. You can also use that when I am lecturing and you need to ask a question. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Online Course Evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/.

Information on Certificates

So long as you receive a grade of B- or higher, this course counts as 33% of the credits needed for the graduate certificate: Applied Atmospheric Science. . If you are interested in pursuing the certificate, you can apply by going to <http://admissions.ufl.edu/start.html>, click more options, then Certificate Programs. There is no charge to apply if you are already a UF student. If you have applied but don't see that you are enrolled in the certificate, please email me as the Certificate Coordinator so I can check into the problem. I have uploaded fliers to Canvas that list all certificate courses.

How This Course Relates to the Student Learning Outcomes for the Certificate

- Knowledge: Students will demonstrate knowledge of the subject matter related to the atmospheric sciences and articulate orally and in writing the results and applications of their research and scholarship.
- Skills: Students will demonstrate problem solving skills by applying the scientific method to the analysis of published and self-generated data for a research project of their design that is related to the atmospheric sciences.
- Professional Behavior: Students will exhibit professional behavior and ethical practice while conducting their research.

Weekly Plans

We will have lectures and related activities each day except for the midterm exam.

We may do forecasting on any given Monday during 5th period until we reach November

Week 1: Introductions, sign-ups, website review, sample maps discussion

September 7- No class for Labor Day

Week 2: Evaluate Matyas maps discussion, Lecture on defining TCs finish Chapter section assignment

Week 3: Lectures on tropical weather and Chapter 2; read Chapter 1/Quiz

Week 4: Lectures on Chapter 2 and 3, read Chapter 2/Quiz, develop GIS skills

Week 5: Lectures on Chapter 3 and Climatology, read Chapter 3/Quiz, Assign Chapter 7 slides

Week 6: Lectures on Climo and Chapter 4, read first part Chapter 4 (no quiz – work on CH 7 slides); grads must meet with me by end of week to discuss final project

Week 7: Lectures Chapter 4, Introduce Prolific TCs, Student presentations Ch 7. Chap 4 quiz, GIS; grad outline due

Week 8: Finish Chapter 7 student presentations, Ch 7 quiz, Lecture major hurricanes

Week 9: Lecture forecast models, GIS skills, midterm review handout distributed

Week 10: Midterm review (Grads do not participate); Midterm exam Wednesday class time (grads do not participate, instead they must upload their project progress report; Prolific TCs slides due Friday

Week 11: first Prolific TC presentations

November 11 – no class for Veteran’s Day

Week 12: finish prolific presentations, continue with projects; prolific quiz on Wednesday

Week 13: Project work day, attendance not required

November 25 – No class for Thanksgiving

Week 14: Grad project write-up due, start working on oral presentations

Week 15: Peer review of Grad projects using a rubric, oral presentation of your project due

Final Exam week: review of Grad student oral presentations using a rubric

Disclaimer: This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

Campus Resources

For issues with technical difficulties for E-learning in Canvas, or problems with UF Apps, please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- <http://helpdesk.ufl.edu>

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at <http://www.distance.ufl.edu/getting-help> for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.