

## MET4532: HURRICANES

Dr. Corene Matyas

MW 4, M 5 - 3006 Turlington

Fall 2023

### Office Hours

Monday 1:30-2:30 pm, Wednesday 9:00-10:00 am; other times BY APPOINTMENT (with 24 hours notice)  
Office: 3119 Turlington Hall email: matyas@ufl.edu but **please ONLY use Canvas** phone: 294-7508  
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 work during business hours Monday – Friday. I CANNOT return long distance calls.

*All office visits are virtual through zoom meeting ID 672 215 8470*

I prefer to utilize zoom for office hours. It is a great way for us to collaborate as you can share your screen while you are sitting somewhere comfortable with good internet and your computer plugged in. Wifi in my office is sketchy, there isn't a convenient power outlet for you to plug in, and I won't be able to see your screen while maintaining appropriate physical distancing.

**Course Prerequisites:** MET3503 Weather and Forecasting or GEO3250 Climatology or instructor permission

### 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.

The Southern Association of Colleges and Schools Commission on Colleges provides this federal definition of a credit hour: A credit hour is the amount of work represented in “not less than one hour of classroom or direct faculty instruction and a **minimum** of two hours out of class student work each week for approximately fifteen weeks for one semester or trimester hour of credit ...” **This is a 3-credit course, so expect to put in up to 9 hours of work each week.**

### 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 on the R drive

### Grades and Grading Scale

Midterm 25%, Forecasting 10%, Prolific TC Quiz/Presentation 15%, Maps Discussion 10%,  
Research Project 20%, Quizzes (online and in class) 10%, Participation/Discussions/Quiz Prep 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. They are due 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, their grades will be lowered accordingly. There is not a way to make up a forecast if you miss class – excused absences will receive substitute assignments. Your lowest score will be dropped. Instructions for format and content will be distributed when we begin forecasting in 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 10:00 am on the day of your discussion**. Be mindful of terminology and spelling.

### **Quizzes and the Midterm Exam**

You will take several quizzes. Five will specifically cover Chapters 1-4 and 7 in the required textbook and these will be taken on Canvas. 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. The midterm exam (closed book) will be held during normal class time on paper on the day listed in the syllabus. Only undergraduate students will take this exam. Unless official documentation of an absence is presented (Doctor’s note, police report), **NO MAKE-UP EXAMS** will be permitted! You cannot take exam or in-class quizzes if you arrive more than 10 minutes late or after the first person has left the room, which ever happens first.

### **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 closed-book quiz on these TCs – date is listed in the syllabus. I will assemble all slides into one presentation that you should use to study for the quiz.

## Research Project

During the last part of the course, you will gain experience in obtaining and analyzing data pertaining to tropical cyclones. We will utilize a Geographic Information System to perform a spatial analysis of the data. You will be given specific instructions in a step-by-step format but the time it may take you to complete your assignment may differ from other students depending on your experience in using computers in general, experience using GIS, and the pace at which you work. You will upload a summary of your results to Canvas and will also follow instructions to make your files available on the research drive so that I can verify the analysis was correctly performed. You can safely utilize the R drive to save your work and I also recommend saving on a flash drive as backup. The R drive is erased at the end of the semester, so make personal copies of any work you wish to save. Details will be distributed during the second half of the course. Also note that if you are a Geography major, you will need examples of your work for your portfolio in Senior Seminar. It is a good idea to save your work even after class ends.

## 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 will have a lower grade. Attendance alone does not qualify as participation. Repeated tardiness will also result in a lower grade.

## Academic Honesty

Academic honesty and integrity are fundamental values of the University community. UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/scer/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class. 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.

## 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 may also post announcements and many of your assignments will be submitted through this website.

## Disability Statement

Students requesting classroom accommodation must first register with the Dean of Students Office. This office will provide documentation to the student who must then provide this documentation to the Instructor. Please provide this documentation to Dr. Matyas as soon as possible and a minimum of 1 week before a quiz or exam.

## Attendance and Proper Conduct

Your performance in this course, and participation grade, will suffer if you do not attend class regularly. Arrive to class on time and do not interrupt someone’s presentation if you are late – please enter quietly and sit near the

door. You can move seats after the student finishes their presentation. We will be utilizing the computers in TUR 3006 during the forecasting labs— please keep all foods and beverages away from areas where computers are being used. Remember to turn off cell phones, and please refrain from casual conversation once class begins. Arriving late to class more than twice will result in a lowered grade. 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 feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

### **In-Class Recording**

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or guest lecturer during a class session. Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

### **Information on Certificates**

So long as you receive a grade of B- or higher, this course counts as 25% of the credits needed for the undergraduate certificate: Meteorology and Climatology. 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**

- Content: Students will know the atmosphere from a geographic perspective from both meteorological and climatological time scales.
- Critical Thinking: Students will analyze information relevant to climatology and meteorology and apply interpretation of data toward problem solving.
- Communication: Students will interpret and effectively communicate information relevant to meteorology and climatology.

## Lecture Topics

Weeks 1 and 2: Definition of a tropical cyclone (TC) and acronyms we will use in the semester

Weeks 3 and 4: Weather in the tropics, TC formation criteria, Chapter 1

Week 4: Chapter 2

Week 5: Chapter 3

Week 6: Climatology and steering

Week 7: Chapter 4

Week 8 Chapter 7

Week 9: Climatology of major hurricanes and forecast models

Week 10: Forecast models

## Important Dates

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

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

August 28 – evaluate the forecast discussion by Dr. Matyas and upload rubric to Canvas; syllabus quiz due

September 1 – All quiz questions, answers, and explanations for your assigned section of Chapter 1, 2, 3, or 4 uploaded to Canvas

September 4- No class for Labor Day

September 6-11 – Chapter 1 reading quiz available after/ due before class

September 13-18 – Chapter 2 reading quiz available after/ due before class

September 20-25 – Chapter 3 reading quiz available after/ due before class

October 4-9 – Chapter 4 reading quiz available after/ due before class

October 6- Chapter 7 notes due

October 11 and 13 – Chapter 7 student presentations

October 18-25 – Chapter 7 reading quiz available after/ due before class

November 1 – Midterm Exam (MET4532 only), MET6530 submit progress report to Canvas

November 3 - Prolific TC slides due

November 6 and 8 – Prolific TC student presentations

November 15 – Prolific TC quiz (in class)

November 20 – Project work day, attendance not required

November 22 – No class for Thanksgiving

November 27 and 29 – MET4532 share project results (attendance/participation mandatory)

December 4,6 - Peer evaluation of MET6530 presentations (attendance/participation is mandatory)

December 14 - Deadline for final project upload to Canvas

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:

### Health and Wellness

U Matter, We Care: If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <https://counseling.ufl.edu/>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

*Sexual Assault Recovery Services (SARS)* Student Health Care Center, 392-1161.

*University Police Department*, 392-1111 (or 9-1-1 for emergencies). <http://www.police.ufl.edu/>

#### Academic Resources

*E-learning technical support*, 352-392-4357 (select option 2) or e-mail to [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu).

<https://lss.at.ufl.edu/help.shtml>.

Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling. <https://career.ufl.edu/>

*Library Support*, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

*Teaching Center*, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

<http://teachingcenter.ufl.edu/>

*Writing Studio*, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

<http://writing.ufl.edu/writing-studio/>

*Student Complaints On-Campus*: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>