GEO6255 CLIMATOLOGY

3 CREDIT HOURS SPRING 2021

INSTRUCTOR: *Dr. Corene Matyas* matyas@ufl.edu *(Please ONLY email via Canvas)*

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

OFFICE HOURS: *Wednesday 10:00-11:00 am, Thursday 1:30-2:30 pm; by advance appointment (24 hours notice minimum) (business hours only - no evenings or weekends)*

COURSE WEBSITE: *http://lss.at.ufl.edu (100% online course)*

*This course is **asynchronous.** The only whole-class synchronous activities are the review sessions for the midterm and final exams. These will be recorded and available for you to review in Canvas using the Zoom tab. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.*

Course Communications:

I was requested to design a rigorous course with lectures, textbook readings, and a variety of assignments that include group and solo work. 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. This course is NOT an "easy A". It is an intermediate-level course that builds on pre-requisite introductory knowledge of atmospheric science.

You WILL have questions! Each week's module has a discussion board. First, read through other posts to see if your question has been answered. Second, if not, post your question. Third, read through and answer questions of other students. If your grade is within 1% of the next category at the end of the semester, send me an email and I will check to see how many times you answered questions of other students on the weekly discussion boards. Frequent participation (at least 1 per week) via answering questions may earn you the extra 1% necessary to raise your grade. The instructor will not respond to every post, and will not respond on the weekends. Therefore, you MUST start early and not wait until the due date. Also, there are homework assignments that require you to participate in your GROUP discussion board. This is a separate post from any general questions that you may post to the whole class on the weekly discussion boards.

I am here to help! If no one has answered your question or you need to speak to me about your grade, please email me via Canvas with a time(s) when we can connect on Zoom and I will confirm. Please include a bulleted list of topics for discussion so I am well-prepared to help you. I cannot answer detailed questions via typing. I reserve the right to limit the number of hours I spend responding to student inquiries each week.

For exam review sessions, I will send out invites to the Zoom Conference tool. These sessions will be recorded. However, if no one logs in after I finish introducing the session, I will stop recording until someone does. There is no point in listening to me breathe for an hour! If you cannot attend live, please submit questions on the discussion board as I will review and answer these during the review sessions.

The KEYS to your success are 1) good time management skills, 2) familiarity with prerequisite concepts, 3) good attitude about pursuing and overcoming challenges, and 4) regular participation via discussion boards. Download the homework and skim it over before watching the intro video each week. In the video, I spend several minutes going over the homework and provide tips to help you achieve success. Each semester I've modified the assignments according to student feedback, and I welcome your continued feedback! Follow along with the homework in front of you and if something doesn't make sense, make a note of it and post your question to the discussion board right away. That gives me the maximum amount of time to help you. Here is what NOT to do: wait until 11:00 pm to start an assignment due at 11:59 pm. No one is available to help if you have questions! I recommend watching the lecture videos before reading the textbook as the videos provide background material.

Also, I will review most frequently missed questions each week. As this course builds upon previous weeks' information, it is important to understand the material. So please take the time to listen to the audio posts and also to read feedback on assignments that I've made using tools in Canvas. The most-missed concepts are likely to appear on the exams.

REQUIRED TEXT: Climatology (3rd edition) by Rohli and Vega isbn: 978-1-284-03230-7

Printer/scanner for homework assignments and exam diagrams, zip images together into one file for upload, use Microsoft Office (word, excel, PowerPoint), ability to record presentation for research project

ADDITIONAL RESOURCES: microphone on computer to communicate with instructor during office hours, ability to use drawing tools in MS Word for diagrams on exams, making data tables and using formulas in MS Excel, making presentations in MS PowerPoint

COURSE DESCRIPTION: *Credits: 3;*

Climatology in a global context. Emphasizes energy budgets, weather systems in the tropics and extratropics, and atmospheric teleconnections such as El Nino.

PREREQUISITE KNOWLEDGE AND SKILLS: Previous undergraduate course in weather and climate (MET1010 preferred, GEO2242) or personal knowledge of that material

This is not an introductory course. We will NOT cover basic fundamentals of atmospheric science such as the difference between high and low pressure systems, the type of weather associated with each, and how a

cloud forms. Instead, we will focus on the components of the climate system, how energy moves through the climate system, and how the climate system changes over space and time. If needed, you must be willing to put in extra time to understand terminology or processes that are the foundations upon which this course is built.

PURPOSE OF COURSE: Climate change is a "hot" topic today. This course will provide you with a scientific understanding of the climate system and the processes that operate through it. Your goal is to develop an awareness of your physical environment as it relates to climatology so that you can apply knowledge gained in the real word. Students enroll in this course from a variety of majors: Engineering, Environmental Science, Journalism, Business, Sociology, English, Geological Sciences, Chemistry, and of course Geography among others. Many students tell me they take the course because they "love the weather." This course will challenge you to communicate scientific information to these students majoring across the physical and social sciences and humanities. It also qualifies for undergraduate and graduate certificates.

COURSE GOALS AND/OR OBJECTIVES: *By the end of this course, students will:*

- Define the field of climatology and components of the climate system
- Recount the limitations of observational data both currently and in the past
- Describe where energy comes from and trace its movement through the climate system
- Analyze the controls of the climate system and detail how they work
- Compare and contrast atmospheric conditions differ in the tropics and the extratropics
- Illustrate why and how the climate system changes over time
- Represent processes and energy flows through diagrams and symbology commonly used by atmospheric scientists

HOW THIS COURSE RELATES TO THE STUDENT LEARNING OUTCOMES FOR THE CERTIFICATE IN APPLIED ATMOSPHERIC SCIENCE (GRAD)

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.

INSTRUCTIONAL METHODS:

Modules 1-7 feature textbook readings and video lectures that expand upon the readings, or emphasize material not covered in the book. This half of the course provides the foundation that you will need to be successful in the second part of the course. Video lectures do NOT repeat content in the textbook – rather they provide recaps of prerequisite knowledge to help understand the book.

Modules 8-13 have textbook readings but do not have accompanying lectures- the second part of the course focuses on applying what you learned in the first half. The book covers the material that you need to know, therefore no additional lectures are needed. In lieu of lectures and associated quizzes, you will undertake a research project – more details will be released through Canvas.

COURSE POLICIES:

ATTENDANCE POLICY*:* You must log into Canvas regularly to participate in this course. Logging in once per week will NOT be sufficient. No specific points towards the grade are reserved solely for your virtual attendance. Students who withdraw from the course must do so according to the UF deadlines. No students will be automatically dropped from the course.

QUIZ/EXAM POLICY: Textbook and Lecture quizzes have with a mix of multiple choice, true/false, and fill in the blank questions. These are open book/open note but you should NOT work with anyone else. Midterm and final exams are closed book/notes and you should NOT work with anyone else. Exams will have sections for me to hand grade – you will need to either 1) use drawing tools in MS Word and type in answers where required, or 2) download the worksheets, fill them in, then scan and upload before the time expires. Please allow a minimum of 3 days after the due date for grades to become available. You have one week after grades are released to arrange a time discuss results with the instructor. If you request a regrade, your score may go up or down. Regrades must be requested within one week of the grades being available.

MAKE-UP POLICY: No late homework will be accepted as you have one week to work on each assignment. Please budget your time well. Unless official documentation of an absence is presented (police report, ticket number from IT), NO MAKE-UP QUIZZES or EXAMS will be permitted. Quizzes and exams open and close at scheduled times. Once closed, they will not be reopened so please plan your schedule accordingly. Do not wait until the last hour before it is due!

ASSIGNMENT POLICY: Due dates for assignments are listed on Canvas. Late assignments will NOT be accepted – please submit before the due date each week. Rubrics for applicable homework assignments are available on the assignment's page in Canvas. You will work in groups for some assignments, and work individually on others. You must ALWAYS turn in your own work, else you are guilty of an honor code violation. Some assignments are assessed through homework quizzes. You MUST have your completed homework assignment handy and use your answers to answer the quiz questions. Please allow a minimum of 3 days after the due date for grades to become available. You have one week after grades are released to arrange a time discuss results with the instructor. You have one week after grades are released to arrange a time discuss results with the instructor. If you request a regrade, your score may go up or down. Regrades must be requested within one week of the grades being available.

COURSE TECHNOLOGY: You will be watching lecture videos for the first half of the class. You will need to record yourself giving a PowerPoint presentation for the research project. You will also need to download homework assignments and in some cases, hand-write information and scan or take a photo of your results and upload to Canvas for me to hand-grade. We will use the Zoom Conference tool in Canvas for review sessions prior to the midterm and final exams. Office hours will all be conducted via Zoom as will individually-requested meetings with the instructor.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.

UF POLICIES:

UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES: Students requesting accommodation for disabilities must first register with the Dean of Students Office (http://www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. 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.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT: 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/sccr/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.

NETIQUETTE: COMMUNICATION COURTESY: All members of the class are expected to follow rules of common courtesy in all email messages, discussion posts and chats. First instance of improper behavior will receive a warning. Subsequent instances may result in a lowering of the course grade. See Sample Netiquette Document

COURSE EVALUATIONS: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://gatorevals.aa.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://gatorevals.aa.ufl.edu/.

GETTING HELP:

For issues with technical difficulties for E-learning in Canvas, 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

Should you have any complaints with your experience in this course please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

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.

GRADING POLICIES:

Assignment	Percentage
Homework Assignments	35

Textbook Chapter Quizzes	20
Lecture Quizzes	15
Midterm Exam	10
Final Exam	10
Research Project	10

GRADING SCALE: (grades do not round)

A: 93% +
A-: <93% to 90%
B+: <90% to 87%
B: <87% to 83 %
B-: <83% to 80%
C+: <80% to 77%
C: <77% - 73%
C- : <73% to 70%
D+: <70% to 67%
D: <67% to 63%
D- : <63% to 60%
E: < 60%

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

COURSE SCHEDULE:

Module 1: Introduction to the Climate System
Module 2: Radiation and Atmospheric Structure
Module 3: Energy
Module 4: Controls on the Climate System
Module 5: Diurnal Cycle, Moisture, and Stability
Module 6: Precipitation and Water Balance
Module 7: Primary and Secondary Circulations
Midterm Exam: Week 8 (available to take Tuesday – Thursday)
Module 8: Climate Classification and Start Research Project
Module 9: Climate Change and Variability
Module 10: Anthropogenic Climate Change
Module 11: Interactions with Other Spheres
Module 12: Extratropical Northern Hemisphere Climates and Research Presentation Due

Module 13: Tropical and Southern Hemisphere Climates
Final Exam: (available to take Tuesday – Thursday)

Specific assignment due dates are available under the syllabus link in Canvas

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 and scrolling down to the section for CERTIFICATE. 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.

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.