

MET4560 ATMOSPHERIC TELECONNECTIONS

3 CREDIT HOURS

SPRING 2022

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 appreciated) (business hours only - no evenings or weekends)*

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

Course Communications:

The discussion boards are a key component of the course that lets me know where you have questions since I cannot see you in person as we cover the material. Each week's module has a discussion board. First, read through other posts to see if your question has been posted. If not, post your question. If so, check to see if it has been answered. If so, you can either post a different question or read through and answer a question posted by another student to receive credit for that week's participation. Part of your Discussion Board grade depends on your weekly participation in the discussion boards.

If you need to speak to me about your grade, or a personal matter that does not belong on a discussion board, please email me via Canvas with a time(s) when we can connect on Skype, zoom, or via telephone and I will confirm. Please include a bulleted list of topics that you need to discuss. I cannot answer detailed questions via typing. I cannot return long distance phone calls as it costs our department too much money, and I am not available evenings or weekends. I reserve the right to limit the number of hours I spend responding to student inquiries each week.

To answer questions posted to the discussion boards and provide additional clarification and examples, I will send out invites to the Canvas Zoom tool. These sessions will be recorded in case you cannot join live. However, if no one logs in, I will stop recording until someone does. There is no point in listening to me cough and sneeze for an hour! If you cannot attend live, please submit questions on the discussion board as I will review and answer these.

The KEYS to your success are 1) good time management and communication skills, 2) familiarity with prerequisite concepts, 3) good attitude about overcoming challenges, and 4) regular ACTIVE participation via discussion boards and video conferences. Download the assignment and skim it over before watching the lectures each week to identify concepts with which you are unfamiliar and to set aside enough time to seek help if needed. 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! Please take the time to join or review the Conference recordings and also to read feedback on assignments that I've made using the tools in Canvas.

REQUIRED READINGS: Journal articles accessed through course reserves

ADDITIONAL RESOURCES: phone or microphone on computer to communicate with instructor, ability to use software through UF Apps, such as ArcMap, for course assignments, making data tables and using formulas in MS Excel, making presentations in MS PowerPoint, establishing an organized workspace in your directory on the R drive and save all work related to the course in appropriate directories.

COURSE DESCRIPTION: *Credits: 3; Prereq: MET 3503 or GEO 3250 with a minimum B- grade.*

Atmospheric teleconnections are recurring large-scale patterns of pressure and circulation anomalies. They can influence temperature, rainfall, storm tracks and jet stream location and intensity. Examines how these patterns were discovered, how the index that characterizes the phase of each teleconnection is calculated and the weather associated with different phases.

PREREQUISITE KNOWLEDGE AND SKILLS: Material from prerequisite courses.

This is an upper-level course, 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. You must already know these processes along with how to interpret time series and maps of geopotential heights and surface conditions. Please do not expect me to tutor you in the prerequisite knowledge.

PURPOSE OF COURSE: Teleconnections represent climatological relationships among atmospheric conditions in remote locations. Understanding where they occur, their cycles, and the weather associated with different phases can help seasonal forecasts. You will gain a better understanding of the processes that influence weather at locations spanning the globe which can be useful in your research or when planning travel. You will improve your ability to recognize spatial patterns in atmospheric data. This course qualifies for the undergraduate certificate in meteorology and climatology.

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

- Locate the centers of action of multiple teleconnections
- Identify how teleconnection indices are calculated and how values change over time
- Describe weather conditions associated with each phase of the teleconnections
- Analyze variables related to the teleconnections and interpret their spatial patterns
- Discuss the history of each teleconnection and scientists and their research that has discovered or utilized each one

HOW THIS COURSE RELATES TO THE STUDENT LEARNING OUTCOMES FOR THE CERTIFICATE IN METEOROLOGY AND CLIMATOLOGY (UNDERGRAD)

Content: Students will know the atmosphere from a geographic perspective on climatological time scales.

Critical Thinking: Students will analyze information relevant to climatology and apply interpretation of data toward problem solving.

Communication: Students will interpret and effectively communicate information relevant to climatology.

INSTRUCTIONAL METHODS:

The first four modules follow an atypical pattern as we review terminology, introduce new statistical techniques, and spend extra time on the El Nino Southern Oscillation given it is the teleconnection most students are familiar with and has the largest number of indices used to calculate it. Modules 5-12 follow the pattern of an overview lecture and lecture on a journal article followed by a quiz to assess learning from these lectures and reading. Then an assignment is undertaken to utilize a variety of datatypes and analytical techniques to explore spatial patterns in conditions associated with the teleconnections. You should interact with your classmates as much as possible through discussion boards as participation there is graded.

Each week you are required to post one question AND answer someone else's question too so that you have to come back later and read more responses. You might have the same question as someone else, but please post a unique question. Even if you understand all material, to pose a good question to challenge others. Questions on lecture content and articles must be posted by due date for quizzes (Wednesday 11:59 pm). I will go over unanswered ones in my conference on Thursdays – you can get easy points by posting answers to the DB that I give verbally. Answers must be posted by 11:59 pm Friday. Please do not answer all questions trying to get more points – you must leave some for others. Assignments are due 11:59 pm Monday so that I can review any remaining posts Monday morning and correct people if necessary.

There is a separate DB for homework – not required for weekly posting but highly suggested save for weeks when it is required as part of HW grade. Post any questions early so there is time to get help.

In some weeks, graduate students will lead discussion of a journal article of their choosing. They will post 5 discussion points and you must respond to at least one for each article, then return to read the response posted by the graduate student, and respond to the graduate student's answer to confirm you have read it. This plus your weekly Q and A on lecture material all count towards the 10% participation grade.

Information about the final project is available on the Module 13 page. You will turn in an outline, a draft of the project, a peer evaluation of someone else's project, and a final version of your project which I will then grade. I will not grade your draft.

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 POLICY: *Lecture quizzes feature a mix of question types including multiple choice with one correct answer, multiple choice with multiple correct answers, true/false, and defining acronyms. These are open book/open note but you should NOT work with anyone else. There are no exams in this course. 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 quiz submissions or assignments will be accepted. Please budget your time well. Unless official documentation of an absence is presented (police report, ticket number from IT), NO MAKE-UP QUIZZES will be permitted. Quizzes 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 assignments are available on the assignment’s page in Canvas. Even if you collaborate with others, you must ALWAYS turn in your own work, else you are guilty of an honor code violation. 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.*

COURSE TECHNOLOGY: *You will be watching lecture videos and should have your own copy of the slides available on which to take notes. Links are provided on lecture slides to animations and datasets for you to explore. You will also need to download assignments and datasets, use software available through UF Apps to complete assignments, and upload to Canvas for me to grade. I will use the Conference tool in Canvas to answer questions posted to the discussion boards.*

Requirements for class attendance and make-up quizzes, 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. 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.

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
Assignments	40
Lecture Quizzes	30
Final Project (outline, peer evaluation, project write-up/answers)	20
Discussion Board Q and A	10

One lowest score will be dropped from assignments, quizzes, and weekly required DB postings

GRADING SCALE:

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:

Week 1: Getting to know everyone

Module 1: Review and Overview

Module 2: NCEP Data and Statistics

Module 3: ENSO 1

Module 4: ENSO 2

Module 5: PDO

Module 6: PNA

Module 7: NAO

Module 8: AO

Spring Break:

Module 9: AMO, outline due for final project

Module 10: MJO

Module 11: IOD/IOSD

Module 12: SAM

Module 13: Draft of final project due - April 11

Module 13: Peer evaluation due - April 18

Final Project Due: April 27

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

INFORMATION ON CERTIFICATE:

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> 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.