FLORIDA ATLANTIC UNIVERSITY

NEW COURSE PROPOSAL
Undergraduate Programs

Department Geosciences

College College of Science
*(To obtain a course number, contact **erudolph@fau.edu**)*

UUPC Approval 2/26/24
UFS Approval
SCNS Submittal
Confirmed
Banner Posted
Catalog

Prefix MET **Number** 4142	*(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)* **Lab Code**	**Type of Course** Lecture	**Course Title** Climate Data Applications
Credits *(See Definition of a Credit Hour)* 3	**Grading** *(Select One Option)* **Regular** ◉ **Sat/UnSat** ○	**Course Description** *(Syllabus must be attached; see Template and Guidelines)* This course offers a comprehensive introduction to the world of climate data. Students will explore the differences between various types of climate data, understand their sources and multiple formats, and gain hands-on experience in data handling, visualization, and interpretation. With an emphasis on practical applications, students will develop basic programming skills (Python) to assess, analyze, and utilize climate data effectively for research and decision-making.	
Effective Date *(TERM & YEAR)* Spring 2025			

Prerequisites, with minimum grade*	**Corequisites**	**Registration Controls** *(Major, College, Level)*
MET 2010, D-		

***Default minimum passing grade is D-.** **Prereqs., Coreqs. & Reg. Controls are enforced for all sections of course**

WAC/Gordon Rule Course

☐ **Yes** ☑ **No**

WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to proposal. See WAC Guidelines.

Intellectual Foundations Program (General Education) Requirement *(Select One Option)*

None

General Education criteria must be indicated in the syllabus and approval attached to the proposal. See Intellectual Foundations Guidelines.

Minimum qualifications to teach course

Masters degree (with 18 credit hours of relevant coursework).

Faculty Contact/Email/Phone

Yijie Zhu/yijiezhu@fau.edu/8138929674

List/Attach comments from departments affected by new course

Approved by	***Date***
Department Chair	1/31/24
College Curriculum Chair	2/15/24
College Dean	2/16/24
UUPC Chair Korey Sorge	2/26/24
Undergraduate Studies Dean Dan Meeroff	2/26/24
UFS President	
Provost	

Email this form and syllabus to mjenning@fau.edu seven business days before the UUPC meeting.

MET 4142 - Climate Data Applications

Instructor: Yijie Zhu
Email: yijiezhu@fau.edu
Term: Spring 2025
Credit Hours: 3
Time/Location: Tuesday 2 pm-4:50 pm; SE 457, Boca Raton
Office Hour: Thursday 2 pm-4 pm

INSTRUCTIONAL METHOD

In-Person
Traditional concept of in-person. Mandatory attendance is at the discretion of the instructor.

COURSE DESCRIPTION

Prerequisite: MET 2010
This course offers a comprehensive introduction to the world of climate data. Students will explore the differences between various types of climate data, understand their sources and multiple formats, and gain hands-on experience in data handling, visualization, and interpretation. With an emphasis on practical applications, students will develop basic programming skills (Python) to assess, analyze, and utilize climate data effectively for research and decision-making.

COURSE OBJECTIVE

Upon successful completion of this course, students will be able to:

- Recognize major repositories and sources of climate data.
- Understand the pros and cons of using each type of data for different applications.
- Familiarize with various climate data formats, such as netCDF, GRIB, and ASCII.
- Analyze patterns, anomalies, and trends in climate data.
- Present findings effectively using Python-based visualization techniques.

REQUIRED TEXTS/MATERIALS

There is no required textbook for this course. The instructor will provide weekly readings on Canvas.

COURSE EVALUATION METHOD

Lab Assignments	*50%*
Midterm Exam	*15%*
Final Project	*35%*
Extra Credit	*+3%*

1. Lab Assignments

A total of **five lab assignments** will be delivered throughout the semester. Each assignment will include **three tasks** that are closely relevant to the course materials. These lab assignments are designed to help students build skills and techniques to handle and analyze climate data. Students will be given a set of instructions to follow with specific items required for the submission.

2. Midterm Exam

A closed-book exam will be held during the regular class time on **February 27th, 2024**. It will be a mix of practical programming examination and interpretation of the programming output. A cheat sheet including essential Python functions will be provided.

3. Final Project

Students can work on any topics or applications of climate data, either covered or not covered during the semester. However, the project must be an original piece of work developed for this course, and it cannot be as simple as visualizing a set of data. You may choose to team up with another student to finish the project.

A 1-page proposal will be required and should be approved by the instructor before starting to work on the project. The one-page proposal should include: *1. The purpose of this study; 2. Data source and proposed methods; 3. Expected outcome.* The proposal is due **March 12th, 2024**

A 10-minute presentation with a 5-minute Q&A will be required for each individual/group to showcase the project. All team members need to show up during the presentation session on **April 16th, 2024.**

A 10-page double-spaced project report is due **April 30th, 2024** via Canvas.

- Grading scheme for the final project.

Components	**Weight**
Proposal	*20%*
Presentation	*30%*
Project Report	*50%*

GRADING SCALE

A:	>92%	C	73-76%
A-:	90-92%	C-	70-72%
B+:	87-89%	D+	67-69%
B	83-86%	D	63-66%
B-	80-82%	D-	60-62%
C+	77-79%	F	<60%

LATE ASSIGNMENTS POLICY

Assignments will be deducted 5% for each day that they are late unless arranged in advance and with good reason. Also, note that grades of Incomplete ("I") are reserved for students who are passing a course but have not completed all the required work because of exceptional circumstances.

ATTENDANCE POLICY STATEMENT
Students are expected to attend all their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations, or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances, and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

DISABILITY POLICY
In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

CLASS COMPUTER USE
During classes, computers should only be used for class-related activities. Unless actively coding in response to assigned class work, the computers should not be being used. Use of email, social media, online shopping, internet surfing etc is not allowed. This policy is strictly enforced and the instructor reserves the right to grade penalize students who transgress.

PERSONAL LAPTOP USE
Students may use their own laptops in place of the desktop lab computers, subject to the same limitations regarding note-taking, internet use etc noted above.

CLASSROOM ETIQUETTE POLICY
University policy on the use of electronic devices states: "In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions."

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS) CENTER
Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to
https://www.fau.edu/counseling/

HONOR CODE POLICY STATEMENT
Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty.
For more information, see University Regulation 4.001 at
https://www.fau.edu/ctl/documents/4.001-code-of-academic-integrity.pdf

COURSE SCHEDULE *(subject to revision)*

Class	Topic	Event
01/09	Course Introduction & the Climate System	
01/16	Exploring Climate Data Types	Releasing Assignment 1
01/23	Introducing Python I	Releasing Assignment 2; Assignment 1 Due
01/30	Introducing Python II	Releasing Assignment 3; Assignment 2 Due
02/06	Multidimensional Data	Releasing Assignment 4; Assignment 3 Due
02/13	Climate Data: Reading and Manipulating	Releasing Assignment 5
02/20	Climate Data: Visualization and Interpretation	Assignment 5 Due
02/27	Mid-Term	
03/05	Spring Break	
03/12	Case Study I: Global Temperature Trend	Final Project Proposal Due
03/19	Case Study II: The Size of a Hurricane	Releasing mini tasks for Extra Credit
03/26	Cade Study III: GFS Weather Forecasting	
04/02	Open Time for Final Project	
04/09	Final Project Presentation	
04/16	No Class: Open Time for Final Project Report	
04/23	Reading Days	
04/30	No Class	Final Project Report Due