FAU
FLORIDA ATLANTIC UNIVERSITY

COURSE CHANGE REQUEST
Undergraduate Programs

Department Geosciences

College College of Science

Current Course Prefix and Number MET 4142	**Current Course Title** Climate Data Applications

*Syllabus must be attached for **ANY** changes to current course details. See Template. Please consult and list departments that may be affected by the changes; attach documentation.*

Change title to:

Change prefix

    From: **To:**

Change course number

    From: **To:**

Change credits*

    From: **To:**

Change grading

    From: **To:**

Change WAC/Gordon Rule status**

    Add ☐   **Remove** ☐

Change General Education Requirements***
    Add ☐   **Remove** ☐

  *See Definition of a Credit Hour.
  **WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See WAC Guidelines.
  ***GE criteria must be indicated in syllabus and approval attached to this form. See Intellectual Foundations Guidelines.

Change description to:

Change prerequisites/minimum grades to:

MET 2010, minimum of D-, AND
GIS 4102C, minimum of D-

Change corequisites to:

Change registration controls to:

Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).

Effective Term/Year for Changes: Fall 2025	**Terminate course? Effective Term/Year for Termination:**

Faculty Contact/Email/Phone Yijie Zhu/yijiezhu@fau.edu/8138929674

Approved by		**Date**
Department Chair	*[signature]*	11/22/24
College Curriculum Chair	*[signature]*	02/13/25
College Dean	*[signature]*	02/13/25
UUPC Chair	Korey Sorge	2/24/25
Undergraduate Studies Dean	Dan Meeroff	2/24/25
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
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
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.

PREREQUISITES/COREQUISITES
MET 2010 (Minimum Grade of D-)
GIS 4102C (Minimum Grade of D-)

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.

CODE OF ACADEMIC INTEGRITY
Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty 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.

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.

ARTIFICIAL INTELLIGENCE PREAMBLE
AI Language Specific To This Course:
AI Flexible

- AI Flexible: The use of AI to assist in work assigned in this specific course is permitted only for specific assignments as indicated by the instructor. Use must be properly documented and cited per instructor guidelines (https://fau.edu/ai/citation).

FAU recognizes the value of generative AI in facilitating learning. However, output generated by artificial intelligence (AI), such as written words, computations, code, artwork, images, music, etc., for example, is drawn from previously published materials and is not your own original work.
FAU students are not permitted to use AI for any course work unless explicitly allowed to do so by the instructor of the class for a specific assignment. [Policy 12.16 Artificial Intelligence]
Class policies related to AI use are decided by the individual faculty. Some faculty may permit the use of AI in some assignments but not others, and some faculty may prohibit the use of AI in

their course entirely. In the case that an instructor permits the use of AI for some assignments, the assignment instructions will indicate when and how the use of AI is permitted in that specific assignment. It is the student's responsibility to comply with the instructor's expectations for each assignment in each course. When AI is authorized, the student is also responsible and accountable for the content of the work. AI may generate inaccurate, false, or exaggerated information. Users should approach any generated content with skepticism and review any information generated by AI before using generated content as-is.

If you are unclear about whether or not the use of AI is permitted, ask your instructor before starting the assignment.

Failure to comply with the requirements related to the use of AI may constitute a violation of the Florida Atlantic Code of Academic Integrity, Regulation 4.001.

Proper Citation: If the use of AI is permitted for a specific assignment, then use of the AI tool must be properly documented and cited. For more information on how to properly cite the use of AI tools, visit https://fau.edu/ai/citation

RELIGIOUS ACCOMMODATION POLICY STATEMENT

In accordance with the rules of the Florida Board of Education and Florida law, students have the right to reasonable accommodations from the University in order to observe religious practices and beliefs regarding admissions, registration, class attendance, and the scheduling of examinations and work assignments. University Regulation 2.007, Religious Observances, sets forth this policy for FAU and may be accessed on the FAU website at www.fau.edu/regulations.

Any student who feels aggrieved regarding religious accommodations may present a grievance to the executive director of The Office of Civil Rights and Title IX. Any such grievances will follow Florida Atlantic University's established grievance procedure regarding alleged discrimination.

TIME COMMITMENT PER CREDIT HOUR

For traditionally delivered courses, not less than one (1) hour of classroom or direct faculty instruction each week for fifteen (15) weeks per Fall or Spring semester, and a minimum of two (2) hours of out-of-class student work for each credit hour. Equivalent time and effort are required for Summer Semesters, which usually have a shortened timeframe. Fully Online courses, hybrid, shortened, intensive format courses, and other non-traditional modes of delivery will demonstrate equivalent time and effort.

GRADE APPEAL PROCESS

You may request a review of the final course grade when you believe that one of the following conditions apply:

• There was a computational or recording error in the grading.
• The grading process used non-academic criteria.
• There was a gross violation of the instructor's own grading system.

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/.

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/

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	Open Time for Final Project Report	
04/23	Reading Days	
04/30		Final Project Report Due