

EDS 217: Python for Environmental Data Science (4 units, Summer 2025)

Course Catalog: <https://bren.ucsb.edu/courses/eds-217>

Prerequisites: None required for MEDS.

Meeting Time & Location

Course Dates: Tuesday (2024-09-02) - Friday (2024-09-12)

Location: NCEAS 1st floor classroom

EDS 217 is an intensive 2-week long 2-unit course. **Students should plan to attend all scheduled sessions.** All course requirements will be completed between 10 am and 4:30 pm PT (M - F), i.e., you are not expected to do additional work for EDS 217 outside of those hours unless you are with the Teaching Assistant during student hours.

Instructor & TA Information

	Kelly Caylor (Instructor)	Anna Boser (TA)
Email	caylor@ucsb.edu	annaboser@ucsb.edu
Student Hours	By appointment	Immediately after class
*The best way to contact me is	MEDS Slack #eds-217-python channel	MEDS Slack #eds-217-python channel
Learn more about me	waves.eri.ucsb.edu	anna-boser.github.io

***If you have a question about course-related content, we ask that you reach out about it in #eds-217-python channel rather than a direct message or email --** often, others have the same question and will benefit from seeing the discussion! Of course, please send a direct message or email with any personal questions or concerns.

Course Details

Course Website:

<https://eds-217-essential-python.github.io/>

All course content and information will be posted on this course website. Be sure to bookmark it so you can easily find it!

Course Description & Learning Objectives:

Programming skills are critical when working with, understanding, analyzing, and glean insights from environmental data. In the intensive EDS 217 course, students will develop fundamental skills in Python programming, data manipulation, and data visualization, specifically tailored for environmental data science applications.

The goal of EDS 217 (Python for Environmental Data Science) is to equip incoming MEDS students with the programming methods, skills, notation, and language commonly used in the Python data science stack, which will be essential for their Python-based data science courses and projects in the program as well as in their data science careers. By the end of the course, students should be able to:

- **Manipulate** and analyze data using libraries like pandas and NumPy
- **Visualize** data using Matplotlib and Seaborn
- **Write, interpret, and debug** Python scripts
- **Implement** basic algorithms for data processing

- **Utilize** logical operations, control flow, and functions in programming
- **Collaborate** with peers to solve group programming tasks and **communicate** the process and results to the rest of the class

Computing requirements:

Reminder: You can reference the [MEDS installation guide](#) if you need to (re)install / (re)configure any software.

- [Minimum MEDS device requirements](#)
- GitHub account (connected to your local git)

Recommended materials/resources:

There are no required textbooks or readers for this course.

Class structure:

Daily class structure may vary a bit day-to-day. However, you can *generally* expect one or two lectures, 2-3 interactive sessions, and an end-of-day activity to practice/reinforce concepts learned. There is no take-home homework.

Grades:

Grades for EDS 217 are assigned as either [Satisfactory / Unsatisfactory](#) (and are not included in the computation of your GPA). You must still earn a satisfactory grade to fulfill the requirements of your MEDS degree. Attendance each day is required to earn a Satisfactory grade. Please see the MEDS summer absence policy, below, for more details:

For summer Environmental Data Science (EDS) courses, graduate students are expected to be present in person for every day of class. The intensive nature of the summer session means that missing even a day or two can significantly hinder your progress in the program -- each day is equivalent to a week of instruction during which you will be learning crucial fundamentals. There is no online option to attend class remotely. Students should only miss a class if they are experiencing an illness or family emergency. If a student will miss part or all of a class, they must inform the instructor as

soon as possible and devise a strategy to complete the coursework or risk not receiving a grade (including a “Satisfactory” grade) for the course. If you are feeling ill, please do not come to class and contact the instructor to arrange accommodations.

Student Resources

There are *many* on-campus resources for helping students navigate different challenges and grow the community. I am always available to discuss your needs and help guide you toward a campus resource that may be best suited to your situation. A number of those resources are listed below:

Basic Needs Resources & Food Insecurity

UCSB has a dedicated team for helping students navigate and find help meeting basic needs. Explore the [Basic Needs Resources](#) web page for more information on their many resources, including information on the [CalFresh Program](#) and [The Associated Students food bank](#).

- **NOTE: Booking an appointment with a CalFresh representative or Basic Needs Advising counselor is highly recommended!**
 - You can schedule a [CalFresh](#) appointment to help start an application or receive guidance on applying for CalFresh.
 - Schedule a [Basic Needs Advising Session](#) to help identify which basic needs resources might best fit your needs/information on how to access those resources.
 - See the [Basic Needs Resources page](#) for other appointment options.

Counseling and Psychological Services (CAPS)

As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating, and lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce your ability to participate in daily activities. CAPS is available to assist you with addressing these and other concerns you may be experiencing. You can learn more about the broad range of confidential mental health services available on campus. They can be reached by phone

at 805.893.4411 or online at <http://caps.sa.ucsb.edu>. The CAPS building is the pink building next to the Humanities and Social Science Building (HSSB)

Resource Center for Sexual and Gender Diversity (RCSGD)

In the Student Resource Building (SRB), RCSGD offers various services for LGBTQ+ students, including a library and many events throughout the year. Learn more at: <https://rcsgd.sa.ucsb.edu/>

Undocumented Student Services (USS) Program

The USS Program and associated [Dream Scholars Resource Team](#) (DSRT) offer workshops, help students find scholarships and financial support, and work to provide a community for undocumented students. Learn more at: <https://uss.sa.ucsb.edu/>

Campus Learning Assistance Services (CLAS)

CLAS helps students grow academically by offering workshops, walk-in and pre-scheduled tutoring, and writing help for native and non-native (ESL) speakers of English as a second language. Over 50% of students will stop by CLAS at one time or another. <http://clas.sa.ucsb.edu>

Student Resource Building (SRB)

The SRB houses many campus resource offices, including the African Diasporic Cultural Resource Center, the American Indian Resource Center, the Asian Resource Center, the Middle Eastern Resource Center, and the Non-Traditional and Re-Entry Student Resource Center. <http://www.sa.ucsb.edu/student-resource-building/home>

Multicultural Center (MCC)

The MCC, located in UCEN, hosts a wide variety of cultural events and educational programming throughout the year, including film showings, lectures, musical performances, and more: <http://mcc.sa.ucsb.edu/>

Campus Advocacy, Resources, & Education (CARE)

CARE offers 24/7 confidential support and advocacy in situations of sexual assault, dating and domestic violence, and stalking. Located in the SRB, they can be reached at 805.893.4613 or <http://wgse.sa.ucsb.edu/care/home>

Financial Crisis Response Team

If you are experiencing housing insecurity, contact the Financial Crisis Response Team at financialcrisis@sa.ucsb.edu to begin an application for assistance.

Health and Wellness

Student well-being is integral to academic success, development, and life satisfaction. On this website, students will find links to a range of services related to well-being, such as: assistance with basic needs (food, housing, finances); counseling and physical health resources, daily wellness centers and programs; social connection, and personal safety. <https://wellbeing.ucsb.edu/>