

ASTR 501

Introduction to Computing

(Fall 2023)

Lectures: 2:00 PM - 3:00 PM AZ time Tuesday

Location: Steward 208 or zoom <https://arizona.zoom.us/j/6849448207>

Instructor: Dr. Tim Eifler

Email: timeifler@arizona.edu

Office hours: Tue 3:00 PM - 4:00 PM AM, Steward 322 or 208, please email to set an appointment

Course description: ASTR 501 is an elective grad level course introducing basic concepts of computing in astrophysics. The course is structured as a discussion section of code repositories that were built to address astrophysics research problems. Participants are expected to showcase one of their own repositories that they have used in past research projects or that they are building right now for their first PhD research project, including a demo of the code. Alternatively, participants can also discuss a git repo that hosts code relevant to their research interests. The discussion sessions alternate with a help desk session, where participants can ask about specific coding problems that they have encountered in their research and ask for tailored training material to improve their coding abilities in specific areas of their interest.

Grading: Course grade will be based on presentation of the repository and related science.

Homework Assignments: No homework is assigned as part of this course.

Texts/resources: Some examples

- <https://docs.github.com/en/get-started/quickstart/hello-world>
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- <https://scikit-learn.org/stable/>
- <https://pythonnumericalmethods.berkeley.edu/notebooks/Index.html>
- <https://www.numfys.net/>
- <https://public.confluence.arizona.edu/display/UAHPC>

Course Objectives and Expected Learning Outcomes: The overarching goal of this course is for participants to become familiar with the HPC environment at UArizona and to learn about different techniques how to efficiently develop complex science software. The course aims to improve the participants research projects by discussing the specific code repos that the participants are currently working on (or alternatively code repos that are directly linked to their field). The course also provides a tailored self-study program for

python (and c or c++ upon request) depending on the participants knowledge.

Incomplete/Withdrawal: Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal> respectively.

Course Website: In this class we will make use of D2L. It is your responsibility to check D2L regularly for course announcements/updates and assignments.

Classroom Behavior Policy: To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Threatening Behavior Policy: The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

Code of Academic Integrity: Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

UA Nondiscrimination and Anti-harassment Policy: The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>.

Academic advising: If you have questions about your academic progress this semester, or your chosen degree program, please note that advisors at the Advising Resource Center can guide you toward university resources to help you succeed.

Life challenges: If you are experiencing unexpected barriers to your success in your courses, please note the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office can be reached at 520-621-2057 or DOS-deanofstudents@email.arizona.edu.

Make Time for Your Mental Health & Wellbeing - Some Resources

The semester ahead may come with ups and downs, but there are lots of ways to support yourself, like self-care, talking with friends and family, or getting a fresh perspective from a supportive group. Stress is a normal part of life and may even motivate you sometimes, but chronic or overwhelming stress can affect your mental health and wellbeing. Pay attention to your personal signs that you're overly stressed, like changes in your mood, appetite, sleep, behavior, or new physical symptoms (aches, pains, etc.) that interfere with school and daily life. If you notice these signs or have questions about helpful resources, I welcome you to talk with me. You can also visit caps.arizona.edu/mental-health for mental health tools and

resources.

Health & Wellness: Campus Health provides quality medical, mental health, and wellness services for students. Visit <https://health.arizona.edu> or call 520-621-9202 (520-570-7898 for help after hours)

Mental Health: Campus Health's Counseling & Psych Services offers a range of mental health support tools and services like self-care strategies, peer support, groups and workshops, and professional mental health services. Visit <https://caps.arizona.edu/mental-health> or call CAPS 24/7 at 520-621-3334 to learn more.

Crisis Support:

Suicide & Crisis Lifeline: call 988

Crisis Text Line: text TALK to 741-741

Visit <https://preventsuicide.arizona.edu> for more suicide prevention tips and resources

Accessibility and Accommodations: At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center (520-621-3268, <https://drc.arizona.edu/>) to establish reasonable accommodations.

Equipment and software requirements: For this class you might need access to the following hardware: laptop or web-enabled device with webcam, headphone, and microphone; regular access to reliable internet signal; ability to download and run software. Google CoLab, Jupyter lab, or jupyter notebook with some version of python 3 (please go for 3.7 if you are installing from scratch) are required for the term project and the exercises. The term project should be written in latex (overleaf). github username and access are also required.

Class Recordings: This class is not recorded. All recordings are subject to government and university regulations. Therefore, students accessing unauthorized recordings or using them in a manner inconsistent with UArizona values and educational policies are subject to suspension or civil action. You may record the class for your private notetaking purpose, but widely sharing/publication is disallowed.

Safety on Campus and in the Classroom For a list of emergency procedures for all types of incidents, please visit the website of the Critical Incident Response Team (CIRT): <https://cirt.arizona.edu/case-emergency/overview>
Also watch the video available at https://arizona.sabacloud.com/Saba/Web_spf/NA7P1PRD161/common/learningeventdetail/crtfy0000000000003560

Subject to Change Statement: Information contained in the course syllabus may be subject to change as deemed appropriate by the instructor. Updates will be announced.