ASTR 196 Astronomical Problem Solving - Fall 2022

Instructor: Dr. Yancy Shirley (yshirley@arizona.edu – include "ASTR 196" in Title/Subject)

- **Class meetings**
  - This class is scheduled to be taught in the in-person modality
  - Sec 3 Monday 7:30-8:45pm Steward 204
  - Sec 4 Wednesday 7:30-8:45pm Steward 204
  - **Please only attend the section you signed up for**

- **Drop-In Office Hours (In-person Steward 360*):** Wednesday 3:30-5pm
- **Office Hours (By email appointment: Zoom/Steward 360):** Tu/Th 10am-5pm

Course Description: ASTR 196 is a weekly, one-unit seminar in problem-solving and critical thinking available to students planning to major in astronomy. It is designed to introduce you to astrophysics and the types thought processes you will need to succeed in future courses and careers. Based on topics involving astronomical and natural phenomena, this course emphasizes basic reasoning and numerical skills using pre-calculus mathematics. Expected learning outcomes include mastery of techniques for analyzing questions, formulating logical solutions, physical intuition, the scientific method, and the use of numerical techniques, both mental and electronic.

Course Learning Outcomes: Upon completion of this course, you will be able to:

1. Demonstrate the ability to meaningfully analyze, apply and integrate the principal findings, common applications, current problems, fundamental techniques, and underlying theory of the astronomy discipline.
2. Employ discipline skills related to the observational techniques, instrumentation, computational methods, and software applications used to investigate modern astrophysical phenomena and problems.
3. Participate in the scholarly, ethical, and discipline specific practices of the field at an emergent level.
4. Develop proficiency with communicating, translating, and interpreting fundamental astronomical concepts and research results in oral and/or written formats.
5. Conduct guided research and/or develop mastery-knowledge of a specific area of the discipline of astronomy.

Let's work together!

Emergencies and life circumstances happen, especially during this pandemic! Please contact me (yshirley@arizona.edu ; include ASTR 196 in the email subject line) if you know you will miss a class or cannot turn in a homework, and we can work out a solution. Please communicate with me during the semester – I will help you to succeed!

*Steward 360 is my temporary office until the water leaks in Steward N326 are fixed.

- **Statement on compliance with COVID-19 mitigation guidelines:** As we enter the Fall semester, the health and wellbeing of everyone in this class is the highest priority. Accordingly, we are all required to follow the university guidelines on COVID-19 mitigation. Please visit www.covid19.arizona.edu for the latest guidance.

- **Classroom attendance:**
  - If you feel sick, or if you need to isolate or quarantine based on University protocols, ***stay home***. Except for seeking medical care, avoid contact with others and do not travel.
  - Notify Dr. Shirley (yshirley@arizona.edu ASTR 300B in the email title/subject line) if you will be missing a course meeting or an assignment deadline before the deadline.
  - Non-attendance for any reason does **not** guarantee an automatic extension of due date or rescheduling of examinations/assessments.
    - Please communicate and coordinate any request directly with Dr. Shirley.
  - If you must miss the equivalent of more than one week of class, please contact the Dean of Students Office DOS-deanofstudents@email.arizona.edu to share documentation about the challenges you are facing.
  - Voluntary, free, and convenient COVID-19 testing is available for students on Main Campus.
  - If you test positive for COVID-19 and you are participating in on-campus activities, you must report your results to Campus Health. To learn more about the process for reporting a positive test, visit the Case Notification Protocol.
  - The COVID-19 vaccine and boosters are available for all students at Campus Health.
  - Visit the UArizona COVID-19 page for the most up-to-date information.

Behavior: 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 (Ahoy-hoy), Web surfing, etc.).

Dr. Shirley promises to be respectful of all students. He expects you will do the same as stated in the Student Code of Conduct and other University guidelines concerning disruptive and threatening behavior.

https://policy.arizona.edu/education-and-student-affairs/disruptive-behavior-instructional-setting

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

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.

Please meet with Dr. Shirley to discuss your accommodations.

Nondiscrimination and Anti-harassment: Dr. Shirley is committed to creating and maintaining an environment free of discrimination as described in the University's policy at the link posted below. Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. He also wants to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

Grading: Homework/In-class Activities/Projects (100%)
The final grade maximum scale is set at: A(>88%), B(>75%), C(>62%), D(>50%).

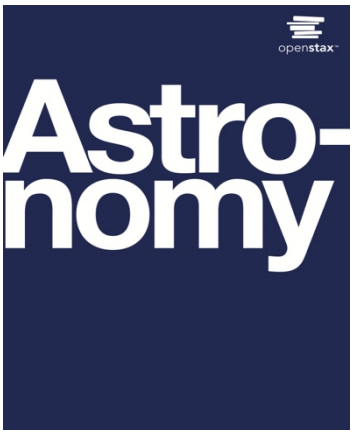
Your grade in this course will depend on your performance on the homework/in-class activities/projects (100% of total). We will be working on homework in class. Homework assignments are due at the beginning of class and **may be turned in by replying directly to the email in which they are sent as an attachment (either take a photo with your phone/tablet/computer or save as a pdf = preferrable).** ***Please do not send a separate email.*** Late homework will receive a maximum of half credit unless a prior arrangement has been agreed upon via email prior to the deadline. Grades for homework may be disputed up to one week after they have been graded. All homework will be graded by Dr. Shirley. If you incorrectly solve a homework problem, I will email you suggestions and you may correct the problem and turn it back in for half additional credit within the next week (reply to the original email). Please be reasonable – don't turn-in a bunch of homework to re-grade near the end of the semester. I will not be handing out solutions to the homework – it is expected that you will solve all the problems yourself. The final score for the class is the average of all homework/in-class activity/project grades. There is no final exam for ASTR 196.

Collaborative Learning
Active engagement in collaborative learning activities during class is ***expected***. You are encouraged to share intellectual views and discuss freely the principles and applications of course materials. Modern science is collaborative, and people learn from talking to each other. However, graded work/exercises must be the product of independent effort unless otherwise

instructed. What this means specifically for our class is: Do your own work for homework assignments. Feel free to talk to the instructor or other students about homework assignments. We will have in-class collaborative homework assignments where you strongly encouraged to work together ***during*** the class period. However, don't just copy someone else's solutions. Always write up your own solutions. *Using or copying homework solutions from previous year's class is cheating*. *Sharing homework solutions (for instance on a Discord server, by email, etc.) is cheating.* The repercussions for those found guilty of violating the Code will include loss of credit for the work and may include failure of the course. Students are expected to adhere to the UA Code of Academic Integrity.

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
http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal

Equipment and software requirements: The free online (also see D2L PDF link) reference textbook for the course may be downloaded from: https://openstax.org/details/astronomy



Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

- **Class Recordings:**
  - For any lecture recordings, which are used at the discretion of the instructor, students must access content in D2L only. Students may not modify content or re-use content for any purpose other than personal educational reasons. 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 (Code of Academic Integrity and the Student Code of Conduct) are also subject to civil action.

- **Academic advising:** If you have questions about your academic progress this semester, please reach out to your academic advisor (https://advising.arizona.edu/advisors/major). Contact the Advising Resource Center (https://advising.arizona.edu/) for all general advising questions and referral assistance. Call 520-626-8667 or email to advising@arizona.edu.

- **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.

- **Physical and mental-health challenges**: If you are facing physical or mental health challenges this semester, please note that Campus Health provides quality medical and mental health care. For medical appointments, call (520) 621-9202. For After Hours care, call (520) 570-7898. For the Counseling & Psych Services (CAPS) 24/7 hotline, call (520) 621-3334.

- **Food Insecurity:** Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course, is urged to contact the Dean of Students for support. In addition, the University of Arizona Campus Pantry is open for students to receive supplemental groceries at no cost. Please see their Web site: http://campuspantry.arizona.edu

The University of Arizona provides a wide variety of resources to help you feel more at home in the UA environment. Examples of student resource/cultural centers include:

- The African-American Student Center
- The Asian & Pacific American Student Center
- The Guerrero Student Center
- The Immigrant Student Resource Center
- The LGBTQ+ Student Center
- The Native American Student Center
- The Transfer Student Center
- The Veterans Education and Transition Services Center
- The Women & Gender Resource Center

Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.