

Department of Astronomy and Planetary Science

Introduction to Astronomy

General Information

- Department: Astronomy and Planetary Science
- Course: AST 180 (Introduction to Astronomy) – Class Number 1955 Section 001
- Term: Spring 2022
- Total Units Of Course Credit: 3
- Pre- and Co-Requisite(s): None
- Mode of Instruction: Synchronous and Online
- Meeting Time: T,TH 4:00 – 5:15 p.m.
- Instructor: Stephen Tegler
- Phone: 928-523-9382; Email: Stephen.Tegler@nau.edu
- Tegler's Office hours: T,TH 5:15-6:15 p.m.
- Teaching Assistant – Izacc Villalpando (ilv22@nau.edu) Office Hours: TBD

Course Purpose:

AST 180 surveys the observable Universe. Core topics include the scale of the Universe, the celestial sphere, lunar and solar eclipses, phases of the Moon, origin of modern astronomy, light and telescopes, atoms and spectra, the life cycle of stars, white dwarfs, neutron stars, black holes, the Milky Way, structure of galaxies, Big Bang cosmology, and origin and evolution of the Solar System.

The course meets a 3-hour liberal studies science requirement. It also meets the lab-science requirement when taken together with the 1-credit-hour lab, AST 181. Essential liberal studies skills that are addressed include the logic of scientific inquiry, quantitative and spatial reasoning, critical reading and thinking, technology and its impact, and environmental consciousness.

Student Learning Outcomes:

- Know enough basic facts in astronomy and have sufficiently developed your ability to apply the logic of scientific inquiry, to be able to *critically* read an article on astronomy in news outlets.
- Use your knowledge of the Solar System and spatial reasoning to know where to look in the sky to find the Moon, planets, and constellations.
- Use conceptual and quantitative reasoning to be able to solve various problems and be able to interpret the results.
- Use astronomical concepts and critical thinking skills to describe, using specific examples, not only our geometric place in the universe but also our evolutionary place, and how our understanding of that place has changed with changing technology.

Assignments/Course Structure/Approach

Students are required to read assigned chapters before class. During class, the professor will emphasize important material, and in-class activities will assess comprehension of important material and help prepare students for homework.

Grading

Percentages Toward Final Grade:

- In-Class Activities: ~40%
- Homework: ~60%

Approximate Grading Scale:

- >90% A
- >80% B
- >70% C
- >60% D

In-class activities and homework scores are kept up to date in TopHat. It is the student's responsibility to frequently check their scores in TopHat for accuracy. Any score in question must be discussed with me within one week of the due date. After one week, I will not entertain any challenges to the scores in TopHat

Makeup Work:

There will be no makeups for in-class activities or homework assignments. An institutional excuse is required to be excused from an in-class assignment or homework assignment.

Textbook and Required Materials:

You are required to purchase TopHat (www.tophat.com) which is the platform we will use to access (1) the online textbook, (2) in-class activities, and (3) online homework. You can visit <https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide> for information on how to register as well as how to get up and running in TopHat. A subscription to TopHat costs \$20 for the semester. There are no other costs for AST 180.

Tutorial Assistance

Help will be available through office hours held by the FYLI TA and the professor.

Academic Dishonesty:

A finding of academic dishonesty will result in a zero for the assignment and a record of the student's offense in NAU Academic Dishonesty Database. A repeat of a finding of academic dishonesty will result in a failing grade for the class.

Course Outline:

- Ch. 1 – Distant Galaxies
- Ch. 2 – Night Sky
- Ch. 3 – International Space Station
- Ch. 4 – Southern Summer
- Ch. 5 – Our Sun In Ultraviolet Light
- Ch. 6 – Hubble Space Telescope

- Ch.17– Star Colors
- Ch.18 – Variety of Stars
- Ch.19 – Celestial Distance
- Ch.20 – Interstellar Matter
- Ch. 21 – Star and Planet Formation
- Ch. 22 – Lifecycle of Stars I
- Ch. 23 – Lifecycle of Stars II
- Ch. 24 – Gravity, Relativity, Blackholes

- Ch. 25 – Our Galaxy
- Ch. 26 – Other Galaxies
- Ch. 27 – Quasars
- Ch. 28 – Colliding Galaxies
- Ch. 29 – History of Our Universe
- Ch. 30 – Astrobiology

University Policies:

COVID-19 REQUIREMENTS AND INFORMATION

Additional information about the University's response to COVID-19 is available from the Jacks are Back! web page located at <https://nau.edu/jacks-are-back>.

SYLLABUS POLICY STATEMENTS

ACADEMIC INTEGRITY

NAU expects every student to firmly adhere to a strong ethical code of academic integrity in all their scholarly pursuits. The primary attributes of academic integrity are honesty, trustworthiness, fairness, and responsibility. As a student, you are expected to submit original work while giving proper credit to other people's ideas or contributions. Acting with academic integrity means completing your assignments independently while truthfully acknowledging all sources of information, or collaboration with others when appropriate. When you submit your work, you are implicitly declaring that the work is your own. Academic integrity is expected not only during formal coursework, but in all your relationships or interactions that are connected to the educational enterprise. All forms of academic deceit such as plagiarism, cheating, collusion, falsification or fabrication of results or records, permitting your work to be submitted by another, or inappropriately recycling your own work from one class to another, constitute academic misconduct that may result in serious disciplinary consequences. All students and faculty members are responsible for reporting suspected instances of academic misconduct. All students are encouraged to complete NAU's online academic integrity workshop available in the E-Learning Center and should review the full Academic Integrity policy available at <https://policy.nau.edu/policy/policy.aspx?num=100601>.

COURSE TIME COMMITMENT

Pursuant to Arizona Board of Regents guidance (ABOR Policy 2-224, Academic Credit), each unit of credit requires a minimum of 45 hours of work by students, including but not limited to, class time, preparation, homework, and studying. For example, for a 3-credit course a student should expect to work at least 8.5 hours each week in a 16-week session and a minimum of 33 hours per week for a 3-credit course in a 4-week session.

DISRUPTIVE BEHAVIOR

Membership in NAU's academic community entails a special obligation to maintain class environments that are conducive to learning, whether instruction is taking place in the classroom, a laboratory or clinical setting, during course-related fieldwork, or online. Students have the obligation to engage in the educational process in a manner that does not interfere with normal class activities or violate the rights of others. Instructors have the authority and responsibility to address disruptive behavior that interferes with student learning, which can include the involuntary withdrawal of a student from a course with a grade of "W". For additional information, see NAU's Disruptive Behavior in an Instructional Setting policy at <https://nau.edu/university-policy-library/disruptive-behavior>.

NONDISCRIMINATION AND ANTI-HARASSMENT

NAU prohibits discrimination and harassment based on sex, gender, gender identity, race, color, age, national origin, religion, sexual orientation, disability, or veteran status. Due to potentially unethical consequences, certain consensual amorous or sexual relationships between faculty and students are also prohibited as set forth in the Consensual Romantic and Sexual Relationships policy. The Equity and Access Office (EAO) responds to complaints regarding discrimination and harassment that fall under NAU's Nondiscrimination and Anti-Harassment policy. EAO also assists with religious accommodations. For additional information about nondiscrimination or anti-harassment or to file a complaint, contact EAO located in Old Main (building 10), Room 113, PO Box 4083, Flagstaff, AZ 86011, or by phone at 928-523-3312 (TTY: 928-523-1006), fax at 928-523-9977, email at equityandaccess@nau.edu, or visit the EAO website at <https://nau.edu/equity-and-access>.

TITLE IX

Title IX is the primary federal law that prohibits discrimination on the basis of sex or gender in educational programs or activities. Sex discrimination for this purpose includes sexual harassment, sexual assault or relationship violence, and stalking (including cyber-stalking). Title IX requires that universities appoint a "Title IX Coordinator" to monitor the institution's compliance with this important civil rights law. NAU's Title IX Coordinator is Elyce C. Morris. The

Title IX Coordinator is available to meet with any student to discuss any Title IX issue or concern. You may contact the Title IX Coordinator by phone at 928-523-3515, by fax at 928-523-0640, or by email at elyce.morris@nau.edu. In furtherance of its Title IX obligations, NAU will promptly investigate and equitably resolve all reports of sex or gender-based discrimination, harassment, or sexual misconduct and will eliminate any hostile environment as defined by law. Additional important information about Title IX and related student resources, including how to request immediate help or confidential support following an act of sexual violence, is available at <https://in.nau.edu/title-ix>.

ACCESSIBILITY

Professional disability specialists are available at Disability Resources to facilitate a range of academic support services and accommodations for students with disabilities. If you have a documented disability, you can request assistance by contacting Disability Resources at 928-523-8773 (voice), 928-523-6906 (TTY), 928-523-8747 (fax), or dr@nau.edu (e-mail). Once eligibility has been determined, students register with Disability Resources every semester to activate their approved accommodations. Although a student may request an accommodation at any time, it is best to initiate the application process at least four weeks before a student wishes to receive an accommodation. Students may begin the accommodation process by submitting a self-identification form online at <https://nau.edu/disability-resources/student-eligibility-process> or by contacting Disability Resources. The Director of Disability Resources, Jamie Axelrod, serves as NAU's Americans with Disabilities Act Coordinator and Section 504 Compliance Officer. He can be reached at jamie.axelrod@nau.edu.

RESPONSIBLE CONDUCT OF RESEARCH

Students who engage in research at NAU must receive appropriate Responsible Conduct of Research (RCR) training. This instruction is designed to help ensure proper awareness and application of well-established professional norms and ethical principles related to the performance of all scientific research activities. More information regarding RCR training is available at <https://nau.edu/research/compliance/research-integrity>.

MISCONDUCT IN RESEARCH

As noted, NAU expects every student to firmly adhere to a strong code of academic integrity in all their scholarly pursuits. This includes avoiding fabrication, falsification, or plagiarism when conducting research or reporting research results. Engaging in research misconduct may result in serious disciplinary consequences. Students must also report any suspected or actual instances of research misconduct of which they become aware. Allegations of research misconduct should be reported to your instructor or the University's Research Integrity Officer, Dr. David Faguy, who can be reached at david.faguy@nau.edu or 928-523-6117. More information about misconduct in research is available at <https://nau.edu/university-policy-library/misconduct-in-research>.

SENSITIVE COURSE MATERIALS

University education aims to expand student understanding and awareness. Thus, it necessarily involves engagement with a wide range of information, ideas, and creative representations. In their college studies, students can expect to encounter and to critically appraise materials that may differ from and perhaps challenge familiar understandings, ideas, and beliefs. Students are encouraged to discuss these matters with faculty.

Last revised August 1, 2021