

Astronomy & Cosmology
01:750:110
Fall 2020

Instructor: Professor Eric Gawiser

Summary: A predominantly descriptive introduction to current ideas concerning the nature and origin of the earth, the solar system, the galaxy, and the universe; neutron stars and black holes; the "big-bang"; the possibility of life outside the Earth. The emphasis is on our current understanding of stars, galaxies and the universe.

This course is independent of 01:750:109 (which has an emphasis on the solar system) and the two may be taken in either order, or concurrently.

Pre-requisites: None.

For non-science majors, may not be taken for major credit.

Meeting times: Two 80 minute lectures per week.
Lecture: T-F 3 (12:00-1:20 pm)
Recitations: None

Text: Astronomy from Openstax Access (<https://openstax.org/details/books/astronomy>). It is *free*, online, and full of additional material such as links to websites and videos.

LMS: Canvas

Provisional Plans for Remote Instruction:

Synchronous lectures will be presented via Zoom at the scheduled times of T-F 12-1:20pm. The lectures will feature slides and occasional videos and will be interactive via use of breakout rooms, polls, and real-time answering of questions posted in the chat. Lectures will be recorded to be (re-)viewed asynchronously. Homework will be submitted via Canvas shortly before the beginning of each lecture and will consist of questions about the required textbook readings. The mid-term exam will be a collaborative effort of small groups, and the final exam will be an oral videoconference exam. Office hours will be determined via Zoom poll during the first week of lectures.

Technology requirements: Required: capability to view and listen to Zoom meetings, to type questions/comments in Zoom chat, and to view and provide input to Canvas. Optional: capability to speak and send video via Zoom.

Provisional Grading Plans:

Homework: 30%
Class participation: 20%
Mid-term: 25%
Final Exam: 25%

Tentative syllabus:

- Week 1: Introduction to the sky
- Week 2: Seasons, moon phases, and eclipses
- Week 3: Gravity and planetary motion
- Week 4: The nature of light
- Week 5: Our Sun and other stars
- Week 6: The lives of stars
- Week 7: The death and afterlife of stars
- Week 8: Midterm
- Week 9: Relativity and black holes
- Week 10: The Milky Way and other galaxies
- Week 11: Exploring the universe
- Week 12: The Big Bang
- Week 13: Dark matter and dark energy
- Week 14: Life in the universe

Academic Integrity:

Students are expected to maintain the highest level of academic integrity. You should be familiar with the university policy on academic integrity: <http://academicintegrity.rutgers.edu/academic-integrity-policy/> Violations will be reported and enforced according to this policy.

Use of external sources to obtain solutions to homework assignments or exams is cheating and is a violation of the University Academic Integrity policy. Cheating in the course may result in penalties ranging from a zero on an assignment to an F for the course to expulsion from the University. Posting of homework assignments, exams, recorded lectures, or other lecture materials to external sites without the permission of the instructor is a violation of copyright and constitutes a facilitation of dishonesty, which may result in the same penalties as explicit cheating.

Not only does the use of such sites violate the University's policy on Academic Integrity, using such sites interferes with your achievement of the learning you are paying tuition for. Assignments, quizzes, and exams are given not simply to assign grades, but to promote the active learning that occurs through completing assignments on your own. Getting the right answer is much less important than learning how to get the right answer. This learning is critical to your success in subsequent courses and your careers.

Student wellness Services

Student Counseling, ADAP & Psychiatric Services (CAPS) wellness for non-emergency psychological health issues services (848) 932-7884, 17 Senior Street, New Brunswick, NJ 08901
<http://health.rutgers.edu/medical-counseling-services/counseling/>

Violence Prevention & Victim Assistance (VPVA), (848) 932-1181, 3 Bartlett Street, New Brunswick, NJ 08901, <http://www.vpva.rutgers.edu/>

Office of Disability Services (848) 445-6800, Lucy Stone Hall, Suite A145, Livingston, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854, <https://ods.rutgers.edu/>

Scarlet Listeners for confidential peer counseling and referral hotline, (732) 247-5555,
<http://www.scarletlisteners.com>