

you will miss a quiz because of attendance at a university-sponsored activity, please contact the professor prior to the scheduled quiz date in order to schedule a makeup quiz. If you miss a quiz due to a sudden illness or other emergency, contact the professor as soon as possible after the missed exam, in order to schedule a makeup quiz.

Problem sets will be handed out on Monday, October 11, Monday, October 25, Monday, November 8, and Monday, November 22; they will be due the Monday after they are handed out, at class time. Problem sets may be handed in early without penalty. Late problem sets may be handed in at Professor Ryden's office (4035 McPherson); if they are handed in before 5 pm on the due date, 10 points (out of 100) will be deducted; if they are handed in between then and 5 pm on the day after the due date, 30 points will be deducted. No problem sets will be accepted later than 5 pm on the day after the due date.

The final exam will be held on **Tuesday, December 7, at 1:30 pm**. The final exam will be cumulative, covering the entire course. If you miss the final exam, you will receive a grade of incomplete (I) for the course; it will be your responsibility to contact the professor during Winter Quarter to schedule a makeup exam.

The quizzes and final exam will be closed-book, closed-notes tests. Problem sets are open-book, open-notes, open-internet homework. Formation of study groups to work on the problem sets is permitted. (However, beware of copying someone else's results without understanding them – this is not going to help you in the long run!)

The course will be graded on a standard C+ curve; this means that the median grade of the class will approximately correspond to a C+.

General Education Curriculum (GEC) Goals: Astronomy 141 is a GEC Physical Science Course in the Natural Science category. The goals for this course include:

- Understanding the basic principles and facts of astronomy, and their relation to other ideas in the physical and biological sciences.
- Understanding how people discovered the basic principles and facts of astronomy, leading to an understanding of the history of science and the methodology of science.
- Investigating the relation between science and technology.

- Understanding the social and philosophical implications of scientific discoveries.

In Astronomy 141, the specific learning objectives to achieve these course goals include:

- Investigating the basic facts, principles, theories, and methods of modern science as practiced in astrobiology.
- Learning about the basic observations of the natural world that underlie our inquiry into the nature of life in the universe.
- Learning important events in the history of astronomy, biology, geology, and chemistry, and how they have caused our views of life in the universe to change with time.
- Explaining the role of modern technology in our investigation of the universe, and the search for life beyond the Earth.

Academic Misconduct: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and cheating on examinations. Instructors shall report all instances of alleged misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (studentaffairs.osu.edu/resources).

Disability Services: Students with disabilities that have been certified by the Office for Disability Services will be accommodated; please inform the professor as soon as possible of your needs. The Office for Disability Studies is located in 150 Pomerene Hall, 1760 Neil Avenue, telephone 292-3307, TDD 292-0901, www.ods.ohio-state.edu.

Tentative Course Outline: Astronomy 141

- **Week 1 - Introductory Matters** (Chapter 1)
 - Wed, Sep 22: Introduction
 - Thu, Sep 23: Astronomical Numbers
 - Fri, Sep 25: Imagining Life Beyond Earth
- **Week 2 - Scientific Revolutions** (Ch. 2 & 3)
 - Mon, Sep 27: Copernican Revolution
 - Tue, Sep 28: Geological Revolution
 - Wed, Sep 29: Cosmological Revolution
 - Thu, Sep 30: Chemical Revolution
 - Fri, Oct 1: Biological Revolution
- **Week 3 - Our Earthly Habitat** (Ch. 4)
 - Mon, Oct 4: The Earth We Stand On
 - Tue, Oct 5: The Air We Breathe
 - Wed, Oct 6: The Geological Record
 - Thu, Oct 7: Climate Change
 - Fri, Oct 8: *QUIZ*
- **Week 4 - Life on Earth** (Ch. 5)
 - Mon, Oct 11: What is Life? (Problem Set 1 handed out)
 - Tue, Oct 12: Cells – Building Blocks of Life
 - Wed, Oct 13: Metabolism – Fueling the Fire
 - Thu, Oct 14: Heredity
 - Fri, Oct 15: Extreme Life
- **Week 5 - History of Life on Earth** (Ch. 6)
 - Mon, Oct 18: Origins of Life (PS 1 due)
 - Tue, Oct 19: Evolution

- Wed, Oct 20: Mass Extinction
- Thu, Oct 21: Origins of Us
- Fri, Oct 22: *QUIZ*
- **Week 6 - Life in the Solar System (I)** (Ch. 7 & 8)
 - Mon, Oct 25: Solar System Review (PS 2 handed out)
 - Tue, Oct 26: Requirements for Life
 - Wed, Oct 27: Terrestrial Planets
 - Thu, Oct 28: Mars
 - Fri, Oct 29: Life on Mars??
- **Week 7 - Life in the Solar System (II)** (Ch. 9 & 10)
 - Mon, Nov 1: Jovian Planets (PS 2 due)
 - Tue, Nov 2: Life on Europa??
 - Wed, Nov 3: Life on Titan??
 - Thu, Nov 4: Goldilocks & the Habitable Zone
 - Fri, Nov 5: *QUIZ*
- **Week 8 - Beyond the Solar System** (Ch. 11)
 - Mon, Nov 8: Properties of Stars (PS 3 handed out)
 - Tue, Nov 9: Meet the Neighbors
 - Wed, Nov 10: “Life” and “Death” of Stars
 - Fri, Nov 12: Habitable Zones of Other Stars
- **Week 9 - Life Around Other Stars** (Ch. 12)
 - Mon, Nov 15: Exoplanets (PS 3 due)
 - Tue, Nov 16: Properties of Exoplanets
 - Wed, Nov 17: Seeking Earth-like Planets
 - Thu, Nov 18: Intelligent Life
 - Fri, Nov 19: *QUIZ*

- **Week 10 - Extraterrestrial Intelligence** (Ch. 13)
 - Mon, Nov 22: Drake Equation (PS 4 handed out)
 - Tue, Nov 23: Search for Extraterrestrial Intelligence
 - Wed, Nov 24: Colonizing the Galaxy

- **Week 11 - Speculations** (no reading)
 - Mon, Nov 29: Have Aliens Visited Earth? (PS 4 due)
 - Tue, Nov 30: The Fermi Paradox
 - Wed, Dec 1: Life As We Don't Know It
 - Thu, Dec 2: The Future of the Solar System
 - Fri, Dec 3: The Future of the Universe