

# COURSE SYLLABUS

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**YEAR COURSE OFFERED:**

**SEMESTER COURSE OFFERED:**

**DEPARTMENT:** Physics

**COURSE NUMBER:** ASTR 1304/1104

**NAME OF COURSE:** Introduction to Astronomy: The Solar System

**NAME OF INSTRUCTOR:**

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**The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.**

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## **Learning Objectives**

### The Solar System (ASTR 1304)

Upon completion of this course, students will be able to:

- (C) Describe Earth's location in the universe
- (C) Demonstrate a familiarity with prominent stars and constellations appearing in the night sky
- (CT, C) Use the orbital motion of the moon to explain the phases of the moon, lunar and solar eclipses, and tides
- (CT, C) Compare the geocentric and heliocentric models of the universe, applying the scientific method
- (CT, C) Explain how we know the Earth moves
- (C) Give a history of the development of modern astronomy including the major contributions by Ptolemy, Copernicus, Galileo, Brahe, Kepler, Newton, and Einstein
- Describe the major components of the solar system and their orbital properties
- (CT, C) Explain how Newton's laws of motion and gravity explain the orbital motions of planets and satellites
- (C) Describe the stages of solar system formation explaining how its current properties came to be
- (C) Compare the surfaces and interiors of rocky or icy solid-surface planets and moons
- (CT, C) Compare the atmospheres of Venus, Earth, and Mars giving explaining how they came about and giving reasons for their differences
- (C) Describe the major similarities and differences between the terrestrial and Jovian planets
- (CT, C) Explain the causes and potential results of impacts between bodies in the solar system
- (CT, C) Compare the atmospheres and interiors of the Jovian planets

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## Laboratory for Solar System Astronomy (ASTR 1104)

Upon completion of this course, students will be able to:

- (CT) Develop a hypothesis to explain data/observations related to the solar system and apply the scientific method to test it and compare with currently accepted explanations
- (C, CT) Perform a relative dating analysis of a planet's surface to determine the chronological sequence of appearance of its surface features
- (C) Write laboratory reports to effectively communicate results of experiments/projects performed, including experimental/project design, reporting data and calculations in tabular or graphical form, and discussion of results
- (EQ) Use experimental/observational data and perform calculations to determine other properties of astronomical objects and interpret results
- (T) Work effectively with one or more students, considering different points of view, to reach conclusions about the interpretation of astronomical data, observations, or events

## Major Assignments/Exams

(Please remove blue text and insert all major course assignments and their weight in the final class grade for any assignments worth 10% or more)

## Required Reading

(Please remove blue text and list the Title, Author, and Year of all required readings for the course)

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## List of discussion/lecture topics

(Please remove blue text and include here all main lecture topics for the semester - dates optional)