

* A100 * THE SOLAR SYSTEM

Tuesdays and Thursdays from 6:00-7:15 PM

Swain West Room 219

Section 13958

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Office Hours: Tuesdays, 11-12; Wednesdays 4-5; by appointment

General Introduction

Welcome to the wonderful world of solar system astronomy! As stated in the official department description, this course will cover a wide variety of topics pertaining to our general neighborhood of the universe. In addition to simply providing you with some pertinent facts, this class will also introduce you to the science of astronomy such that you may gain some deeper insight into what it is practitioners of the field actually do. Plus, since astronomy is a science that tends to be highly appreciated by society, this course will help you gain a deeper understanding of why that is the case and how you can become more involved in it.

Materials

The only required text for this course is *Universe: The Solar System; Second Edition* by Freedman and Kaufmann. It should be available in the campus bookstore, online, and from a multitude of other sources.

Requirements

Work for A100 comes in four flavors, described thusly:

☉ Projects

- ☞ Over the course of the semester, you will be asked to complete three separate projects. These are designed to expose you to some facets of astronomy not explicitly covered in class. Greater detail will be provided on each project over the duration of the class, but the general topics and due dates are:
 - ☞ Research a NASA mission, **Due Tuesday, September 26th**
 - ☞ Bad Astronomy, **Due Tuesday, November 7th**
 - ☞ Observing the night sky, **Due Tuesday, December 5th**
- ☞ Overall, these projects account for 21% of your final grade.

☉ Exams

- ☞ There will be **two** exams for the class
 - ☞ A midterm examination is scheduled for **Tuesday, October 17th**. It will account for 18% of your final grade.
 - ☞ A **comprehensive** final is scheduled for **Thursday, December 14th**. It will account for 22% of your final grade.
- ☞ The midterm exam will take place during normal class time on the indicated date. Please note that it will take place at 7:15 PM, which is NOT our normal class meeting time.

☉ Quizzes

- ☞ Periodically, you will be given quizzes in class. These will be brief (10-20 questions) evaluations covering only the material that has been discussed in class since the prior quiz.
- ☞ The dates for each quiz are listed in the schedule section of this syllabus.
- ☞ Averaged together, the quizzes will account for 23% of your grade.

☉ Homework assignments

- ☞ Periodically, questions from the textbook will be assigned. The questions chosen will **only** be mentioned in class and will be due by the next class period
- ☞ Assignments will be graded on a check system with the following numerical equivalents: ✓+ = 100%; ✓ = 80%, ✓- = 60%
- ☞ Averaged together, the assignments will account for 16% of your grade

Recommendations

It is absolutely *imperative* that you come to class. The lectures are what the quizzes and exams will be based on, where homework assignments will be presented, and when everything is due, so good attendance works purely towards your benefit. Besides, a true understanding of the material can only really come from experiencing the various demonstrations, examples, and other materials I intend to present in class. Outside of the classroom, there are office hours! Please feel free to use them. Astronomers like talking about astronomy (that's why we do this), so if ever you have any questions, quandaries, or figments, please share.

Restrictions

Since there is much material to be discussed and to avoid a major backup in grading, it is important that all work be completed in a timely manner. Therefore, the following policies will be enforced **without exception**:

- ☉ Late projects will be accepted, but the grade will be decreased by 15% for each day that passes beyond the due date.
- ☉ Missed quizzes and exams can be made up without penalty **only if you notify me of your absence from class PRIOR to the scheduled time of the evaluation**. Otherwise, you will be permitted to make up the missed work, but you will receive only 60% of the score you earn.
- ☉ Late homeworks will be accepted without penalty **only if you notify me of your absence from class PRIOR to the due date of the assignment**. Otherwise, they will **NOT** be accepted. Similarly, you must come to class in order to get the assignment. They will **not be available outside of class unless you notify me of your absence from class PRIOR to the date on which homework is assigned**.
- ☉ As per usual, you are expected to follow the IU standards of academic conduct. Therefore, such things as cheating, plagiarism, and other nasties will not be taken lightly.

Schedule

Tuesday, August 29th: Introduction to the course and our place in the Universe. Sections 1-1 through 1-4.

Thursday, August 31st: Some basics of astronomy. Sections 1-5 through 1-8.

Tuesday, September 5th: The night sky. Sections 2-1 through 2-2.

Thursday, September 7th: Motions in the sky and time. Sections 2-3 through 2-8.

Tuesday, September 12th: A brief history of astronomy. Sections 4-1 through 4-7. **Quiz**.

Thursday, September 14th: Electromagnetic radiation (aka, light). Sections 5-1 through 5-5.

Tuesday, September 19th: Doppler, et al. Sections 5-6 through 5-9.

Thursday, September 21st: Telescopes. Sections 6-1 through 6-7. **Quiz**.

Tuesday, September 26th: The physics of astronomy, part I. Sections 4-1 through 4-8.

NASA Mission Project Due.

Thursday, September 28th: The physics of astronomy, part II. Sections 4-1 through 4-8.

Tuesday, October 3rd: The physics of the Sun (aka, the physics of astronomy, part III).
Sections 18-1 and 18-2.

Thursday, October 5th: Formation of the Solar System. Sections 8-1 through 8-5.

Tuesday, October 10th: Structure of the Sun. Sections 18-5 through 18-10. **Quiz.**

Thursday, October 12th: Mercury. Sections 11-1 through 11-4.

Tuesday, October 17th: MIDTERM EXAM.

Thursday, October 19th: Venus. Sections 12-1 through 12-6.

Tuesday, October 24th: Earth and Moon, part I. Sections 3-1 through 3-5.

Thursday, October 26th: Earth and Moon, part II. Section 4-8.

Tuesday, October 31st: Mars. Sections 13-1 through 13-8. **Quiz.**

Thursday, November 2nd: Jupiter. Sections 14-1 through 14-8.

Tuesday, November 7th: Saturn. Sections 14-1 through 14-12. **Bad Astronomy Project Due.**

Thursday, November 9th: Some notable moons of the outer planets. Sections 15-1 through 15-10.

Tuesday, November 14th: Uranus & Neptune. Sections 16-1 through 16-8.

Thursday, November 16th: Pluto & Co. Section 16-9. **Quiz.**

Tuesday, November 21st: Junk of the Solar System. Sections 17-1 through 17-6.

Thursday, November 23rd: NO CLASS!

Tuesday, November 28th: Comets. Sections 17-7 through 17-9.

Thursday, November 30th: Extra-solar planets. Section 8-6. **Quiz.**

Tuesday, December 5th: Life in the Universe. Sections 30-1 through 30-6. **Observing the Night Sky Project Due.**

Thursday, December 7th: Space Exploration. In-Class material.

Thursday, December 14th: FINAL EXAMINATION, 7:15 PM

