

HO#1

EE106-GP106/ACF-S

Spring 2005

PLANETARY EXPLORATION

MWF 2:15 to 3:05 pm Bldg. 540, Rm 108

Instructor

Antony C. Fraser-Smith, Packard 358, (650) 723-3684, acfs@alpha.stanford.edu

Course Description

This class investigates the other worlds of our solar system, particularly as revealed by recent space missions. It compares the properties of the terrestrial and Jovian planets and their moons, including the differences in their interiors, surfaces, atmospheres, and rings (if any). Also considered are planetary and satellite orbits, and spacecraft trajectories, as well as the properties of interplanetary gas and dust, asteroids, comets, and meteorites. We look into what the the planets can tell us about potential terrestrial catastrophies, including, for example, a collision with an asteroid or large comet. We also study the origin and evolution of planetary systems, and the advantages of remote sensing from spacecraft at radio, infrared, light, and ultraviolet wavelengths. The U.S., Russian, European, and Japanese space programs and their comparative engineering and scientific aspects are discussed. Prerequisites: one year of college engineering, mathematics, or physics.

Textbook

The textbook for the class is *Voyages to the Planets*, 3rd edition, by Andrew Fraknoi, David Morrison, and Sidney Wolff (Brooks/Cole, Thomson Publishing, 2004). A copy of this text will be kept on reserve in the Engineering Library. Use will also be made of handouts to supplement the text.

Teaching Assistant

You will have two TA's. They are both EE graduate student VOLUNTEERS from the Integrated Circuits Laboratory (ICL): Rafael Aldana (raldana@stanford.edu) and Dan Witte (dwitte@stanford.edu). Their office hours will be announced in class.

Auditors

Make sure you ask your instructor and are accepted as an auditor.

Homework

Homework will be issued on Fridays and will be due on the following Friday.

Grading

Your homework grader is Shalaka Bhuskute (shalakab@stanford.edu). Your final class grade will depend on your homework as well as on the results of your midterm and final exams. The following allocation will be used in computing the grade: 25% will depend on the midterm, 45% on the final, and 30% on the homework. All exams are open book/open notes.

Administrative Assistant

To obtain Class Notes (i.e., handouts) that were not picked up at time of issue, you will find a file cabinet containing handouts in the hallway outside Packard 359. Please enquire directly with my administrative assistant, Bernadette David, Packard 359 (Telephone: 723-3687; email: lbdavid@stanford.edu) if you have any problems obtaining handouts or with other class matters.

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CLASS SCHEDULE

		Homework Sets	
		Issued	Due
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March 30	Introduction	.	.
April 1	The Sky/Early Astronomy (Fraknoi, Ch. 1)	HWS 1	.
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April 4	Planetary Motion/Gravitation (Ch. 2)	.	.
April 6	Orbits 1	.	.
April 8	Earth, Moon, Sky (Ch. 3)	HWS 2	HWS 1
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April 11	Radiation and Spectra (Ch. 4)	.	.
April 13	Radiation and Spectra (Ch. 4)	.	.
April 15	Astronomical Instruments/Resolution (Ch. 5)	HWS 3	HWS 2
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April 18	Orbits 2	.	.
April 20	Solar System Overview (Ch. 6)	.	.
April 22	The Sun (Ch. 14)	HWS 4	HWS 3
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April 25	Earth as a Planet (Ch. 7)	.	.
April 27	Moon and Mercury (Ch. 8)	.	.
April 29	<u>MIDTERM</u>	.	HWS 4
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May 2	Venus (Ch. 9)	.	.
May 4	Mars (Ch. 9)	.	.
May 6	Orbits 3	HWS 5	.
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May 9	Asteroids (Ch. 12)	.	.
May 11	Jupiter/Jupiter's Moons (Ch. 10, 11)	.	.
May 13	Saturn/Saturn's Moons (Ch. 10, 11)	HWS 6	HWS 5
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May 16	Rings (Ch. 11)	.	.
May 18	Uranus and Neptune and Moons (Ch. 10, 11)	.	.
May 20	Pluto and Charon (Ch. 11)	HWS 7	HWS 6
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May 23	Kuiper Belt Objects, Oort Cloud, Comets (Ch. 12)	.	.
May 25	Meteors, Meteorites (Ch. 13)	.	.
May 27	Review of Course	.	HWS 7
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May 30	<u>MEMORIAL DAY HOLIDAY</u>	.	.
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June 8	<u>FINAL, 12:15-3:15 pm</u>	.	.