

AST 205: Introduction to Planetary Sciences / Fall 2010

Instructor: Prof. Michael Zingale, ESS 440, mzingale@mail.astro.sunysb.edu

Teaching Assistant: TBD

Class Meeting Time/Place: Tues. and Thurs., 11:20 am to 12:40 pm, location: ESS 069

Course Description:

This course provides a math-based introduction to the solar system.

As this is a 3 credit course, you should expect to spend 6-9 hours per week on this course.

Prerequisite:

PHY 125 or 131/133 or 141. It is very important that you have the necessary prerequisites—we will assume a knowledge of mechanics from your physics class. Any other material needed from physics will be introduced during the course.

Course Website:

All course material/class announcements will be available on the AST 205 Blackboard webpage.

Syllabus:

Any changes to this syllabus (e.g. lecture topic changes) will be announced in class and on Blackboard.

Office Hours:

instructor: *Mon.* 10:00 am to 12:00 pm; *Wed.* 10:30 to 11:30 am

There is no way to pick a set of office hours that can accommodate the schedule of all students in this class. If you cannot make these office hours, you are encouraged to contact the instructor to make an appointment or just come by the office.

Textbook:

The required text is “Planetary Science: The Science of Planets Around Stars” by Cole and Woolfson (IoP). This book is at the appropriate mathematical level for our course. To provide a complimentary discussion of the course topics, the recommended text is “Cosmic Perspective: The Solar System, 5th Ed.” by Bennett et al. (Addison-Wesley). The 4th and 6th editions will also work.

Homework:

There will be between 6 and 8 homework assignments throughout the course. Not all assignments will carry the same weight—point values for each problem will be indicated on the assignment. Students will typically have 1 week to complete an assignment. All assignments will be announced on blackboard. While it is recognized that students sometimes work together and discuss the homeworks as part of the learning process, *what you turn in must be your own work. Copying will not be tolerated.*

No late homeworks will be accepted.

Homework grades will be posted to the Blackboard gradebook approximately 1 week after the due date, and the graded assignments will be returned in class. Students should report any errors/missing grades promptly. At the end of the semester, a total homework percentage will be computed by adding up the number of points you received and dividing by the total possible points.

Exams:

There are two midterms and a final exam. The midterms will focus on the material since the previous exam. The final will cover the entire course. For each of the exams, students are responsible for knowing the material presented in the lectures, recitations, assigned as homework, and in the assigned chapters of the text. Students are expected to come to class on-time on exam days. *Students arriving late may be denied the opportunity to take the exam.*

Students should not expect that they will be allowed to make up an exam. Reasons for wanting to make-up an exam will be judged on a case-by-case basis. Students wanting to make up an exam must have a *valid* excuse (e.g. athlete in University-related sporting event, jury duty, medical emergency), notify the instructor *before* the scheduled exam, and be prepared to provide documentation supporting their excuse. *No make-ups will be allowed more than one week after the original exam date.*

Final Exam:

According to the University Registrar (<http://stonybrook.edu/registrar/finals.shtml>), the final exam is scheduled for Tues., Dec. 14 from 2:15 pm to 4:45 pm. *In the event of a discrepancy between what is listed here and what is on the Registrar's site, the date/time given by the Registrar will be used.*

Any changes to the time, as well as the location of the exam will be announced in class toward the end of the semester. The final exam will be cumulative. *All students must take the final exam at the scheduled time.*

Course Schedule:

class #	month	day	C&W Ch.	Bennett Ch.	topic
1	Aug.	31	-	1	Organization/Overview/Basic Definitions
2	Sep.	2	6.3	2	Basic Observations (seasons, lunar phases, eclipses)
3	Sep.	7	L	3	History of Astronomy / Overview of Planets
-	Sep.	9	-	-	no class—holiday
4	Sep.	14	3, M	3, 4	Kepler's Laws
5	Sep.	16	1, X	6	Albedos , Composition
6	Sep.	21	1, A, B	15.1	Minerals/ Radioactive Decay
7	Sep.	23	-	4, 5	Concepts from Astrophysics
8	Sep.	28	2, C, D, E	8, 14	The Sun and Stars
9	Sep.	30	2, F, G	8, 14	The Sun and Stars
10	Oct.	5	3.4, W	9	Planetary Structure / Magnetism
11	Oct.	7	-	-	Exam 1
12	Oct.	12	4, R	9	Terrestrial Planets
13	Oct.	14	4,	9	Terrestrial Planets
14	Oct.	19	4, O	10	Terrestrial Atmospheres
15	Oct.	21	6, Y, S	4, 9	Moon and Tides
16	Oct.	26	5 P	11	Jovian Planets
17	Oct.	28	5	11	Jovian Planets
18	Nov.	2	5	11	Jovian Planets / Satellites
19	Nov.	4	7, AA, AB	11	Satellites
20	Nov.	9	-	-	Exam 2
21	Nov.	11	7	11	Rings
22	Nov.	16	8, 9, AD, AE	12	Asteriods & Meteorites
23	Nov.	18	10, AF	12	Comets, the Kuiper Belt, & Pluto
24	Nov.	23	11, AG	-	Dust
-	Nov.	25	-	-	no class—holiday
26	Nov.	30	12, AC, AH, AI	8	Origin and Evolution
27	Dec.	2	12, AJ, AK, AL	8	Origin and Evolution
27	Dec.	7	K	13	Exoplanets
28	Dec.	9	K	13	Exoplanets
finals	Dec.	14	Final exam (all course material)		

Lecture Notes:

The lecture notes used in class are based on the course texts (both the required and recommended books), as well as slides from previous instructors (Profs. Calder, Evans, and Peterson). *The course notes are not intended to replace the course text—you will be responsible for any information in the assigned readings that is not covered in the lectures.* PDF's of a subset of the lectures will be posted to the course Blackboard site. *The course notes are intended for AST 205 students only.*

Assigned Reading:

Each lecture in the course schedule has a chapter number listed next to it—this is your assigned reading. Students are expected to have read the assigned chapters before the corresponding lecture.

Extra Credit:

There will be one opportunity for extra credit during the semester. Students can pick an “astronomy current event” related to this course (e.g. new results from the Cassini mission, discovery of a new exoplanet, ...) and present a 2-3 slide / 5 minute summary of the result at the beginning of a class meeting. *Don't wait until the end of the semester!*. No more than 2 presentations per class will be scheduled. Topics and timeslots are on a first-come-first-served basis. *You must let the instructor know a week in advance that you wish to present, and submit the topic for approval.* Successful presentations will get 2 points of extra credit added to their final course grade. A PDF of the slides must be sent to the instructor atleast 24 hours in advance of the presentation.

Observing Sessions:

There will be several optional observing sessions throughout the semester. These will be announced in class.

Course Grade:

The final grade will be based on the homeworks, midterms, and final exam. The lowest homework score will be dropped in computing the overall homework average. The final grade will use the following weighting:

- homework: 30%
- midterms: 40% (20% each)
- final exam: 30%

Computed this way, the overall course grade will range from 0–100. Any extra credit points (up to 2 total) will then be added.

Letter grades will be based on a standard grade scale (i.e. an overall score > 90/100 would be an A- or better). However, if necessary, a curve will be applied to the overall course grade, considering the overall performance of the class.

Students who wish to discuss their grades or class performance should see the instructor in person. *For privacy reasons, grades will not be discussed via e-mail.*

Americans with Disabilities Act:

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Academic Integrity:

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>

Critical Incident Management:

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.