

# AST 205: Introduction to Planetary Sciences / Fall 2016

Instructor: Prof. Michael Zingale, ESS 452, michael.zingale@stonybrook.edu

Teaching Assistant: TBD

Class Meeting Time/Place: Tues. and Thurs., 11:30 am to 12:50 pm, location: Frey 301

## Learning Outcomes

Students will use calculus to study the planets, comets, asteroids and the interplanetary medium.

## 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.

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

Tues. 2:00 to 4:00 pm; Fri. 2:00 to 3:00 pm

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 *Planets and Planetary Systems* by Stephen Eales. This book is at the appropriate mathematical level for our course. The *strongly* recommended text is *Cosmic Perspective: The Solar System* by Bennett et al. (Addison-Wesley). Any of the 4th–8th editions are fine.

## 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.*

Homeworks are due at the time/date listed on the assignment. Late homeworks received within 24 hours of the due date/time will be assessed a 20% penalty. *No late homeworks will be accepted after that 24-hour window.*

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 reading. 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://www.stonybrook.edu/registrar/finals.shtml>), the final exam is scheduled for Wed., Dec. 10 from 5:30 pm to 8:00 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	Eales Ch.	Bennett Ch.	topic
1	Aug.	30	-	1	Organization/ Overview/ Basic Definitions
2	Sep.	1	-	2, S1	Basic Observations (seasons, lunar phases, eclipses)
-	Sep.	6	-	-	no class—holiday
3	Sep.	8	-	3	Observations / History of Astronomy
4	Sep.	13	6, B	3, 4	Kepler's Laws
5	Sep.	15	6, B	3, 4	Kepler's Laws
6	Sep.	20	6	4	Moon and Tides
7	Sep.	22	1	5, 10.1	Concepts from Astrophysics / Albedos
8	Sep.	27	-	14	The Sun
9	Sep.	29	1	7	The Solar System
10	Oct.	4	-	-	<b>Exam 1</b>
11	Oct.	6	3	9	Terrestrial Planet Surfaces
12	Oct.	11	3	9	Terrestrial Planet Surfaces
13	Oct.	13	3	9	Mars
14	Oct.	18	4	9, 11	Planetary Interiors
15	Oct.	20	4	9, 11	Planetary Interiors
16	Oct.	25	5	10, 11	Planetary Atmospheres
17	Oct.	27	5	10, 11	Planetary Atmospheres
18	Nov.	1	6	11	Rings and Moons
19	Nov.	3	6	11	Rings and Moons
20	Nov.	8	7	12	Asteroids, Comets, the Kuiper Belt, & Pluto
21	Nov.	10	-	-	<b>Exam 2</b>
22	Nov.	15	7	12	Asteroids, Comets, the Kuiper Belt, & Pluto
23	Nov.	17	8	8	Solar System Formation
24	Nov.	22	8	8	Solar System Formation
-	Nov.	24	2	-	no class—holiday
25	Nov.	29	2	13	Exoplanets
26	Dec.	1	-	13	Exoplanets
27	Dec.	6	2	13	Exoplanets
28	Dec.	8	9	24	Life
finals	Dec.	14	<b>Final exam (all course material)</b>		

## Lecture Notes

The lecture notes used in class are based on the course texts (both the required and recommended books). *The course notes are not intended to replace the course texts—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 at least 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/commcms/academic\\_integrity/](http://www.stonybrook.edu/commcms/academic_integrity/)

### **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.

### **Electronic Communication**

Email to your University email account is an important way of communicating with you for this course. For most students the email address is 'firstname.lastname@stonybrook.edu'. *It is your responsibility to read your email received at this account.* For instructions about how to verify your University email address see this:

<http://it.stonybrook.edu/help/kb/checking-or-changing-your-mail-forwarding-address-in-the-epo>

You can set up email forwarding using instructions here:

<http://it.stonybrook.edu/help/kb/setting-up-mail-forwarding-in-google-mail>

If you choose to forward your University email to another account, we are not responsible for any undeliverable messages.

### **Religious Observances**

See the policy statement regarding religious holidays at

<http://www.stonybrook.edu/registrar/forms/RelHolPol%20081612%20cr.pdf>

Students are expected to notify the course professors by email of their intention to take time out for religious observance. This should be done as soon as possible but definitely before the end of the 'add/drop' period. At that time they can discuss with the instructor(s) how they will be able to make up the work covered.