

# AST 203: Astronomy / Spring 2012

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

**Teaching Assistant:** Kendra Kellogg

**Class Meeting Time/Place:** Tues. and Thurs., 11:20 am to 12:40 pm, location: Math S-240

**Recitation Meeting Time/Place:** Fri., 2:20 to 3:15 pm, location: SB Union 231

## Course Description:

This course provides a math-based introduction to astronomy, covering stars, galaxies, and the Universe.

*As this is a 4 credit course, you should expect to spend 8-12 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 203 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 to 11:30 am; *Wed.* 1:00 to 2:30 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 "Astronomy: A Physical Perspective, 2nd Ed." by Kutner (Cambridge). 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: Stars, Galaxies, Universe" by Bennett et al. (Addison-Wesley). Any of the 4th, 5th, or 6th editions will work.

## Recitation:

There is a 55 minute weekly recitation associated with this course. The primary purpose of the recitation is to review the lecture material and discuss the homeworks. Occasionally, a small amount of new material related to the week's lectures will be introduced. *All students are required to attend.* The topic of each recitation will be announced each week in class.

## Homework:

Homework is an essential part of this class. There will be 9 homework assignments throughout the course (see the course schedule for due dates). Each homework assignment will have the same weight in your total grade.

While it is recognized that students sometimes discuss the homework as part of the learning process, you are expected to work out the problems on your own. Discussions should be limited to the qualitative aspects of the problem (i.e., what is it asking? how do you approach the problem?). All calculations (including entering stuff into your calculator) and writing up of the problem solution must be done alone. *Copying will not be tolerated.*

*Homeworks must be turned in by the date and time on the assignment—typically during a lecture period.* If you cannot make the lecture, you can bring your assignment to the instructor's office before the due date/time. Late homeworks turned by noon on the following day will be assessed a 20% penalty (i.e. the homework will be graded as usual and then 20% of your score will be subtracted). Anything turned in after this grace period will receive no credit.

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.

## Observing Sessions:

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

## Course Schedule:

class #	month	day	Kutner Ch.	Bennett Ch.	topic	hwk / EC due
1	Jan.	24	1	1-3	Organization/Basic Concepts Radiation	-
2	Jan.	26	2	5		-
-	Jan.	27	recitation 1			-
3	Jan.	31	2	5	Radiation	-
4	Feb.	2	3	5	Spectral Lines	-
-	Feb.	3	recitation 2			-
5	Feb.	7	3	15.2	Spectral Lines and the H-R Diagram	hwk #1 due
6	Feb.	9	4	6	Telescopes	-
-	Feb.	10	recitation 3			-
7	Feb.	14	5	15.1 (and 3.3)	Binary Stars	hwk #2 due
8	Feb.	16	5	15.1 (and 3.3)	Binary Stars	-
-	Feb.	17	recitation 4			-
9	Feb.	21	6	14	The Sun	hwk #3 due
10	Feb.	23	-	-	<b>Exam # 1</b> (Kutner Ch. 1 to 5)	exam 1 EC due
-	Feb.	24	recitation 5			-
11	Feb.	28	6, 9	14	The Sun / Main-Sequence	-
12	Mar.	1	9	14, S4	Main-Sequence & Stellar Structure	-
-	Mar.	2	recitation 6			-
13	Mar.	6	9, 10	14, S4, 17	Stellar Structure / Stellar Old Age	hwk #4 due
14	Mar.	8	10	17	Stellar Old Age	-
-	Mar.	9	recitation 7			-
15	Mar.	13	10	18	White Dwarfs	hwk #5 due
16	Mar.	15	11	17	Type II Supernovae / Neutron Stars	-
-	Mar.	16	recitation 8			-
17	Mar.	20	11	18	Neutron Stars/Pulsars/Black Holes	-
18	Mar.	22	12	18	Evolution in Close Binaries / Type Ia Supernovae	hwk # 6 due
-	Mar.	23	recitation 9			-
19	Mar.	27	-	-	<b>Exam # 2</b> (Kutner Ch. 6, 9-12)	exam 2 EC due
20	Mar.	29	13	15.3	Clusters of Stars	-
-	Mar.	30	recitation 10			-
<b>Spring Break</b>						
21	Apr.	10	14	19.2	Clusters/Interstellar Medium	-
22	Apr.	12	14, 15	16	ISM	-
-	Apr.	13	recitation 11			-
23	Apr.	17	15	16	Star Formation	-
24	Apr.	19	16	19	The Milky Way	hwk # 7 due
-	Apr.	20	recitation 12			-
25	Apr.	24	17	20	Normal Galaxies	-
26	Apr.	26	18	20	Clusters of Galaxies	hwk # 8 due
-	Apr.	27	recitation 13			-
27	May	1	20/21	22/23	Cosmology	-
28	May	3	20/21	22/23	Cosmology	hwk #9 due
-	May	4	recitation 14			final EC due
finals	May	8	<b>Final exam</b> (all course material)			

### Lecture Notes:

The lecture notes used in class are based on the course texts. *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.* PDFs of a subset of the lectures will be posted to the course Blackboard site. *The course notes are intended for AST 203 students only.*

### Assigned Reading:

Each lecture in the course schedule has chapter numbers listed next to it for both texts—this is your assigned reading. Students are expected to have read the assigned chapters in the required text before the corresponding lecture. Occasionally we will not cover a few sections in a chapter—this will be pointed out in class.

**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., May. 8 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.*

**Extra Credit:**

There will be a few opportunities for extra credit throughout the semester. These will be described in class. *A maximum total of 3 extra credit points per student will be allowed.* Extra credit points will be added to the overall course grade.

**Course Grade:**

The final grade will be based on the homeworks, midterms, and final exam. The final grade will use the following weighting:

- homework: 25%
- midterms: 45% (equally weighted)
- final exam: 30%

Computed this way, the overall course grade will range from 0–100. Any extra credit points (up to 3 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 or phone.*

**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.