



PH262U & SCI316U: General Astronomy II

Stellar, Galactic, and Extra-galactic Astronomy

Instructor: Chris Butenhoff

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Office hours: W, 10:30-12:30h, or by appointment. If this time does not work for you, please contact me to arrange a meeting.

TAs David Radford, drr@pdx.edu

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Text: Astronomy Today, Chaisson and McMillan, Pearson/Prentice Hall, 5th Edition.

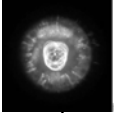
Term: Spring 2007

Room: Science Bldg 2: Room 101

Class Meeting: TR, 10:00-12:50h

WebCT: <http://psuonline.pdx.edu> . If you are pre-registered, you are automatically added to the WebCT site, otherwise email me your ODIN username.

WELCOME!



Astronomy is among the oldest of sciences but also perhaps the most modern, as rapid advancements in telescopes and instruments take us deeper and farther into the Universe with eyes that can probe all wavelengths and with more clarity than ever before. From both new and ancient light we are learning more everyday about how stars live, galaxies evolve, and what the ultimate fate of the universe may be. It's a good time to take an interest in astronomy!

This is the second class in the two-term astronomy sequence. As such we will skip over some of the opening chapters that were covered in the first term (PH261/SCI315), most importantly those chapters covering the Solar System and planets. Instead our emphasis will be primarily on stars, galaxies, and the universe at large --- cosmology. These are large enough topics on their own, so we will be forced to skip over some sections throughout the chapters. Though I encourage you to read all sections, only those specified in the reading list (see WebCT) will be required for quizzes and exams.

This course will use mathematics at the algebra level. No previous knowledge of physics is assumed. Homework problems will be a mixture of qualitative and quantitative questions (more the latter for PH262 students).

Some goals of this course include (in no particular order):

- To better appreciate the richness and beauty of the Universe.
- To understand how distances to astronomical objects are determined.
- To understand how astronomers know what they do about the Universe
- To better understand the patterns and cycles of stars in our sky.
- To appreciate the structure of the Universe, from small to large scales.
- To understand how stars evolve from birth to death.
- To appreciate the connections between the elements in our body and the physical processes in the stars.
- To have a basic understanding of the evolution of the Universe.
- To learn and to use physical laws to solve mathematical problems.
- To familiarize yourself with the night sky.
- To incorporate what we know about the Universe into your own worldview.



Homework sets - Homework sets will consist primarily of end-of-chapter questions. In addition, some questions will be assigned based on the Starry Night Pro planetarium software. This is a fun and very educational tool that can dramatically aid your understanding of the night sky. If you didn't get a copy of the software with your book, I will put some copies on reserve in the library so you can install it on your computer. Homework sets will be collected every other week and late homework will not be accepted. I will drop your lowest homework score. Feel free to use the *Discussion* page on WebCT for hints and tips from fellow classmates, but do not post solutions to the homework on WebCT.

Quizzes - There will be short (eight multiple-choice questions) quizzes every Tuesday. These are a good way for you to keep up-to-date with the material and for me to assess how well the class is comprehending the material. It also alleviates some of the stress of putting all the exam weight on just the midterm and final. The quizzes will be based on material presented in the lectures and text since the previous quiz. Please bring Scantrons for these to ease the grading burden. The quizzes are given at the beginning of class and no allowance will be made for late arrivals. I will drop your two lowest quiz scores.

Exams – There will be one midterm and the final. Exams will contain both multiple-choice and short answer questions. The final will be comprehensive with an emphasis on the material covered after the midterm. You are allowed to use one sheet of notes --- front and back --- for the exams.

Observations - Weather permitting, we will schedule a number of observing sessions throughout the term. One will be during class to look at the Sun and its sunspots; the others will be at night, typically around 9 pm at the community rec. field on campus. On one occasion we may go to an area park for better observing conditions. You are required to attend at least one nighttime observing session. You will have the chance to look through binoculars and telescopes at various astronomical objects. You will need to write a brief summary of a minimum of ten objects that we observed, assuming conditions were good enough to observe this number.

Essay: PH316 students are required to write an essay on a topic of their own choosing or from a list provided from me. These are expected to be thoughtful and well-researched. Details to follow. This will be extra credit for the PH262 students.

Lecture notes: These will be available online through the Course Reserves at the library website: www.pdx.edu/library. Go to *Course Reserves*, then type PH262 (or SCI316) into the search engine. The password needed to access the material is my last name *Butenhoff*. It usually takes a day or two after the lecture for the notes to appear online. There is also a link to the lecture notes from the WebCT site.

Extra Credit –

Group exercises – If space and time permits, we will break down periodically into groups and work on a set of problems or exercises. At the end of each session you will submit your collective group responses. This is primarily a participation exercise as your responses will not be graded.

Presentations – About a 10-minute presentation on a topic of your choice at the beginning of the class. If you choose to do this, please consider doing it early in the term to prevent a log-jam of presentations at the end of the term. Let me know about your presentation at least one lecture period in advance.

Absences - To establish a fair make-up policy, only officially excused absences will be allowed the opportunity to do missed work. These include doctor-excused illnesses or family emergencies. Missing an assignment due to work or other conflicting appointments are not valid absences. If you think you will be missing significant amount of class due to work, please be aware of this policy.

WebCT Mail: Class announcements will be distributed through WebCT mail. Please check your WebCT mail often for updates.

TENTATIVE SCHEDULE - See WebCT for up-to-date schedule

Week of	Quiz/Exam	Readings	Due
3-Apr		Motions and patterns in the sky (Ch 1)	
10-Apr	Quiz 1 (T)	Radiation (Ch 3)	
		Field guide to stars (Ch 17)	
17-Apr	Quiz 2 (T)	Field guide to stars (Ch17)	HW1 (T)
		Spectra (Ch 4)	
24-Apr	Quiz 3 (T)	The Sun (Ch 16)	
1-May	Quiz 4(T)	Interstellar medium (Ch 18)	HW2 (T)
		Star formation (Ch 19)	
8-May	Midterm (T)	Stellar evolution (Ch 20)	
15-May	No quiz	Death of stars (Ch 21, 22)	HW3 (T)
22-May	Quiz 5 (T)	Black holes (Ch 22)	
		Milky Way (Ch 23)	
29-May	Quiz 6 (T)	Galaxies (Ch 24, 25)	HW4 (T)
5-Jun	Quiz 7 (T)	Cosmology (Ch 26, 27)	
		Life in the Universe (Ch 28)	HW5 (R)
			Essays (R)
			Observations(R)
12-Jun	Final Exam , 1015-1205 (T)		

Point Distribution

	PH262	SCI316
Midterm	25	20
Final Exam	25	25
Homework (drop one)	20	20
Quizzes (drop two)	25	20
Observations	5	5
Essay	—	10
<i>Extra Credit</i>		
GW/Participation	2	2
Presentation	2	2
Essay	5	—

Grading:

100-90	A
80-89	B
70-79	C
60-69	D
<60	F

“+” for top three percentages in each range

“-“ for bottom three percentages in each range

NOTE: If the class average is less than a middle C (75) (before extra credit is considered), all scores will be adjusted upwards to meet this criterion.

Important dates:

Apr 8:	Last day to drop class for 100% refund.
Apr 29:	Last day to drop class (class does not show up on transcript)
May 4:	Last day to change grading option. Last day to withdraw from class (no instructor approval required) (class shows up on transcript)
May 25:	Last day to withdraw from class (“w” on transcript)
Jun 12 :	Final Exam, 1015-1205, Same room