

## PHYSICS 109

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**Web site:** <http://www.wfu.edu/~anderson/astronomy/>

**Office Hours:** After class or by appointment.

**Text:** *The Essential Cosmic perspective, Fifth Edition*, by Bennett, Donahue, Schneider, and Voit.

**Description:** Physics 109 is an intensive introductory course in astronomy. Topics covered include the solar system, stars and stellar systems, galaxies and the universe as a whole. Elementary physics and mathematics are used to obtain both a qualitative and a quantitative understanding of astronomy.

**Online Homework:** To encourage you to keep up with the reading assignments online homework assignments will be given before most classes. **You must have finished the assignment by 11am on the day the assignment is due.** Failure to do so will result in a grade of zero for that assignment. You are allowed to use the textbook to help you answer the questions **but you may not get help from any other person.** The homework assignments will be accessed through the web site at [www.masteringastronomy.com](http://www.masteringastronomy.com). **You will need to register for this web site.** If you purchased a new copy of the text from the campus bookstore then this will be free. If you purchased a used copy then you can either purchase an access kit from the campus bookstore (which may be slightly less expensive) or you can go online and pay for the registration.

**Exams:** There will be three in-class exams during the semester and a comprehensive final exam. The in-class exams will be on **Wednesday June 3, Monday June 15, and Friday June 26.** The final exam will be on **Thursday July 2 at 2pm.** Calculators may not be used for the exams.

**Grading:** Class attendance counts 5% towards the final grade. The homework assignments count 5% towards the final grade with the lowest three scores dropped. Each in-class exam counts 20%. The final exam counts 10%. However if you get a numerical score on the final which is higher than your lowest in-class exam then the score on that exam will be replaced by the score on your final exam. This also applies to your second-lowest in-class exam. The lab counts 20% of the final grade. **However, Physics Department policy is that if you fail the lab then you will automatically fail the course.**

**Labs:** Labs will be held in Room 105, Olin Physical Laboratory. **All students must bring their laptop computers to every lab.** Failure to do so may result in you being sent home to get it.

**Lab Manual:** The lab manual is available online at the web site given above. **You must print out each of the possible labs that you will do before coming to lab.** If you fail to do so and need to print out a lab when you get there **a fee of \$5.00 will be charged.**

You are expected to attend and complete all twelve of the labs. Your lowest lab grade will be dropped. You are further expected to complete and hand in the work for each lab at the end of that lab session. **If you finish the work at home and hand it in late you will get a zero for that lab.**

**Absences:** You will receive a grade of **zero** for any exam, homework assignment, or lab for which you do not have an excused absence. Further it is your responsibility to contact me immediately if you miss an exam. **If you miss an exam for some trivial reason such as oversleeping or your car won't start then you must, regardless of your schedule that day, take the exam on the day you missed it. Failure to do so will result in a grade of zero.** Further, if you do not make up the exam before it is gone over in class you will be required to take an oral exam as a make-up. If you miss a quiz or a lab because you forgot to take it you should contact me immediately or your grade will be zero. Forgetting quizzes or labs more than once will also result in grades of zero for those quizzes or labs. Unless you have an excused absence or an acceptable reason for coming late or leaving early, you must be in class by 10 minutes after the beginning of class and you must not leave early in order to obtain credit for being there.

**If you have an excused absence for a lab you will have to get written permission from me in order to make it up.** The TA does not have the authority to excuse absences! There will be one or more make-up labs towards the end of the session.

Examples of **acceptable excuses** include illness, family or other emergency, and participation in certain school functions. Examples of **unacceptable excuses** include studying for an exam, dinner with a family member or friend, and **any fraternity or sorority function.**

As soon as you know that you will miss an exam, quiz, or lab you should either send me an email message or call 758-4992 and let me know that you are going to miss it and why. Whenever possible the absence should be excused ahead of time. You may be requested to provide proof of illness, etc.

## Tentative Schedule

Week	Date	Topics	Chapter
1	Wed. May 27	Motions of celestial objects	2
	Thurs. May 28	Motions cont., Eclipses, Greek astronomy	2, 3
	Fri. May 29	Copernican revolution, Physics of motion	3, 4
	Sat. May 30	Energy, gravity, orbits, tides	4
2	Mon. June 1	Basic properties of light, Thermal spectra	5
	Tues. June 2	Types of spectra, Doppler shift	5
	Wed. June 3	<b>In-class exam</b> , Brief overview of the solar system	6
	Thurs. June 4	Formation of the solar system	6
	Fri. June 5	Sun	10
3	Mon. June 8	Sun continued, Observational properties of stars	10, 11
	Tues. June 9	Classification of stars, multiple star systems	11
	Wed. June 10	Formation of stars, main sequence phase	12
	Thurs. June 11	Lives of low mass stars and high mass stars	12
	Fri. June 12	Stellar corpses	13
4	Mon. June 15	<b>In-class exam</b> , Milky Way galaxy	14
	Tues. June 16	Milky Way galaxy, Galaxies, Distances	14, 15
	Wed. June 17	Galaxy formation and evolution, Active galaxies	15
	Thurs. June 18	Dark matter, Large scale structure of the universe	16
	Fri. June 19	Big bang theory, Early universe	16, 17
5	Mon. June 22	Very early universe, Earth	17
	Tues. June 23	Life on Earth, Solar system debris and impacts	18, 9
	Wed. June 24	Moon, Mercury, Venus	7
	Thurs. June 25	Mars and Jovian planets	7, 8
	Fri. June 26	<b>In-class exam</b> , Rings of the Jovian planets	8
6	Sat. June 27	Moons of the Jovian Planets, Kuiper belt objects	8, 9
	Mon. June 29	Life outside the solar system	18
	Tues. June 30	Review	

## **Tips on How to Study For This Course**

In this course there is a large amount of material that you are expected to assimilate. The two things that will help you the most are to **attend all of the lectures** and **keep up with the reading**. It is usually difficult to understand everything in a science course the first time it is presented. Therefore it is important to be exposed to the material a number of times in different ways. When studying it is best to **avoid highlighting** parts of the text. This is because science texts tend to be very densely written and you will miss important information. Instead it is best to **take notes** on what you read. This slows you down and gives you a chance to ask yourself whether you really understand the material you are reading.