

PHYSICS 5 – THE UNIVERSE
UCSD – Fall 2007

Lecture Time: MWF 1:00 - 1:50
Instructor: Frank H. Shu (fshu@physics.ucsd.edu)
Telephone: 534-9085
Discussion Section: W 5:00-5:50
TA: Shin-Yi Lin (sylin.gibu@gmail.com)

Room: Warren Lecture Hall 2005
Office: SERF 409
Office Hours: MWF 10:00 - 10:50
Room: Warren Lecture Hall 2005
Office: SERF 381B

Course Description

An elementary discussion of modern astronomy with emphasis on the structure and evolution of the solar system, the stars, the galaxies, and the large-scale universe. Ideas are organized around the physical behavior of matter on microscopic and macroscopic scales. Extra topics include pulsars, black holes, x-ray sources, quasars, and the origin of life and intelligence in the cosmos. A special aspect about the course will be the attempt to place the development of scientific ideas in a historical, societal, and cultural perspective. In this way the student may gain a better appreciation of both the nature of the physical universe and the role that science has played in shaping modern civilization.

Prerequisites: None, but a knowledge of high-school algebra and geometry will be helpful. The background of physics, chemistry, and biology needed to understand various aspects of the lecture material will be developed within the course.

Textbook: Pasachoff and Filippenko, *The Cosmos, Astronomy in the New Millennium*, 3rd Edition (Thomson Brooks/Cole).

Lecture Notes: Available as pdf files at UCSD Physics website (www.physics.ucsd.edu). Click on “Course Web Pages”, then on “Fall 2007”, then on “Physics 5”. The lectures will not follow the plan of the book in exact detail or content. You will be responsible for the material in both.

Grading:

Best 3 of 4 quizzes (10 minutes each) – 30% (10% each)

Two class projects – 30% (15% each)

1 Final Exam (3 hours at end of term) – 20%

Outline of important points – 10% (1% per week)

Attendance and participation in discussion section – 10% (1% per week)

a) Grades will be assigned on an absolute scale (see below). The worst score of one of the four quizzes will be discarded to compute the final letter grade.

- b) There will be no make-up quizzes. If you have a good excuse (stronger if the TA is informed in advance), you will be assigned the average of the other quizzes for a missed quiz. Without a good excuse, you will get a zero.
- c) Answers for quizzes will be discussed in lecture right after quizzes are turned in. Grades will be ready in the following discussion section.
- d) Form teams of up to three people to do projects. Team members can work on project collaboratively, but each member of a team must turn in his or her own report.
- e) Discussion section credit will be assigned partially on following basis. At each lecture, there will be a summary of the three most important points covered in that lecture. Write down these points together with a short discussion (one paragraph) on what you know about these three points, and turn in these descriptions to the TA (nine items per week from three previous lectures).

Grading Key

Maximum score per quiz = 20 points.

Maximum score for each project = 30 points.

Maximum score for final exam = 40 points.

Maximum score for each important point summary = 2 points

Maximum participation credit in each discussion section = 2 points.

N = three best quizzes + two projects + final exam + ten important point summaries + ten discussion credits

N	Letter Grade
193-200	A+
185-192	A
177-184	A-
169-176	B+
161-168	B
153-160	B-
145-152	C+
137-144	C
129-136	C-
121-128	D+
113-120	D
105-112	D-
below 105	F