

ASTRONOMY 403: Galactic and Extragalactic Astronomy

Fall 2011

Instructor: Edward Schmidt
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Required Text: *An Introduction to Modern Astrophysics (Second Edition)*
by Carroll & Ostlie
Class: Tuesday/Thursday, 14:00-15:15, Jorgensen 145
Office Hours: Tuesday/Thursday, 13:00-13:45 (in Jorgensen 310K)
Other times by appointment
Prerequisites: ASTR 204, PHYS 213 or permission
Attendance policy: Students are expected to attend and participate in all classes.
No make-up exams will be allowed except in extraordinary circumstances.

COURSE DESCRIPTION: The contents, structure and history of the Milky Way Galaxy. The cosmic distance scale, the characteristics of other galaxies and the history and nature of the universe.

GRADING:

25 % Midterm exam
25% Final exam (comprehensive)
25% Homework assignments and in-class activities
25% Literature discussions

EXAMINATIONS: The examinations will be open book—bring any written materials you feel may be helpful including the text, the discussion articles, your notes, etc.

Most of the exam will consist of quantitative problems but there will also be at least one essay question on each exam.

JOURNAL DISCUSSIONS: We will discuss an article from the astronomical literature approximately every two or three weeks. The purpose of this is to learn about recent developments in the field and to explore issues that go beyond what is covered in the text. Thus, the emphasis of the discussion should be on what the article contributes to our understanding of galaxies.

The articles will be distributed at least a week before the in-class discussion. Read each one thoroughly and come to class ready to discuss it. Prepare a summary of the main points of the article (again, with the emphasis on the scientific issues and how the article tries to address them) and at least one question that we can discuss together. The summary and question are to be handed in following the discussion.

SCHEDULE AND READING ASSIGNMENTS: It will be assumed that students will read the assigned material before coming to class. **The class is not a substitute for reading the book. Nor is the book a substitute for the class.** Rather, they supplement each other; some things from the book will not be covered in class and conversely some things will be discussed in class that are not in the book. The exams will cover material from class, the book and the literature articles. The schedule of topics below indicates the chapters from the book you should read. However, as we go along, the instructor will direct you to pages or sections of special importance and you should pay particular attention to them. Be sure to ask questions in class regarding any things from the reading that you have difficulty understanding or would like to have clarified.

Tentative Schedule of Topics and Reading

Class Dates	Topic	Reading
Aug 23 – Sep 1	Introduction, Review of relevant astrophysics	Sections 3.1, 3.2, 3.6, 8.2 Pages 16–19, 202–204, 399–404
Sep 6 -- Sep 27	The structure, dynamics, and history of the Milky Way	Chapter 24
Sep 29 – Oct 4	The cosmic distance scale and expansion of the Universe	Sections 27.1, 27.2
Oct 6 – 11	The Local Group	pp. 1059-1061
Oct 13 – 25	Morphology and evolution of galaxies	Chapters 25, 26
Oct 27	Midterm exam	
Nov 1 – 3	Clusters of galaxies and large scale structure of the universe	Section 27.3
Nov 8 – 10, 17	Active galaxies	Chapter 28
Nov 15	Second Exam	
Nov 22 – Dec 1	Cosmology and the early universe	Chapters 29, 30
Dec 6 – 8	Special topics, review and catch-up	
Dec 13 from 13:00 to 15:00	Final Exam	

