

Fall Term 2009

**Ay202a Lecture Schedule**  
**GALAXIES & DYNAMICS**

*Mon+Wed 10:00-11:30*

Observatory Classroom

Sept 2 Wed — Introduction: History, Cosmological Principle, Newtonian Cosmology

Sept 9 Wed — Galaxies: Galaxy Morphology

Sept 14 Mon — Galaxies: Morphology & Structure, the Milky Way

Sept 16 Wed — Galaxies: Stellar/Gaseous Content

Sept 21 Mon — Structure & Dynamics of Elliptical Galaxies

Sept 23 Wed — Structure & Dynamics of Elliptical Galaxies

Sept 28 Mon — Structure & Dynamics of Spiral Galaxies

Sept 30 Wed — Structure & Dynamics of Spiral Galaxies

Oct 5 Mon — Numerical Simulations (JM)

Oct 7 Wed — Scaling Relations & Dynamics

Oct 12 Mon — Columbus Day —

Oct 14 Wed — Galaxy Mass & Luminosity Functions

Oct 19 Mon — Gravitational Lensing (JM)

Oct 21 Wed — Galaxy Centers & Black Holes

Oct 26 Mon — Active Galaxies Zoology

Oct 28 Wed — Active Galaxies The Unified Model

Nov 2 Mon — The Local and Other Groups

Nov 4 Wed — Galaxy Clusters

Nov 9 Mon — Galaxy Clusters & Cosmology

Nov 11 Wed — Veterans Day —

Nov 16 Mon — Large Scale Structure: Galaxies & the Cosmic Web

Nov 18 Wed — Large Scale Structure: Large Scale Flows

Nov 23 Mon — Galaxy Formation & Evolution

Nov 25 Wed — Galaxy Formation & Evolution

Nov 30 Mon — Large Scale Structure: Gas - Ly $\alpha$  Forest

Dec 2 Wed — The Cosmic Distance Scale

**Reading Period begins December 4th.**

**Final Exam due December 14th**

**Ay202a**

**GALAXIES & DYNAMICS**

JH = Prof. John Huchra, P-309, 495-7375  
JM = Joseph Munoz, P203 495-9501

There will be 6 problem sets, and a final exam. The problem sets will count for 50% of the course grade, class participation 10%, and the final exam the remainder. Assume class starting time is 10:00 sharp unless otherwise noted. We will organize sections as needed to review problem sets.

**Textbooks** — Required (will be at the COOP):

*Extragalactic Astronomy & Cosmology*, 2006, P. Schneider (Berlin: Springer). ISBN 10-3-540-33174-3

*Galactic Dynamics*, 2008, J. Binney & S. Tremaine, (Princeton: Princeton). ISBN-13 978-0-691-13027-9

*Galactic Astronomy*, 1998, J. Binney & M. Merrifield (Princeton: Princeton). ISBN 0-691-02565-7

Interesting (try Amazon or B&N or CUP) and easy:

*Galaxies in the Universe*, 2000, L. Sparke & J. Gallagher, (Cambridge: Cambridge). ISBN 0-521-59740-4 paper

Other Books of Interest:

*Galaxies and Cosmology*, 1995, by F. Combes, P. Boissé, A. Mazure and A. Blanchard, (Berlin: Springer).

*The Deep Universe*, 23rd Saas-Fee Advanced Course, 1995 (Sandage, Kron and Longair) (Berlin: Springer)

*Theoretical Astrophysics* T. Padmanabhan (Cambridge University Press), Volume I Chapter 2, Volume II Chapter 10, Volume III Chapter 2.

*Dynamics of Galaxies*, G. Bertin (Cambridge University Press)

*Gravitational Lensing and Microlensing*, S. Mollerach and E. Roulet (World Scientific)

*Galaxy Formation & Evolution*, 2008, M. Longair (Berlin: Springer).

*Cosmological Physics*, J. Peacock (Cambridge: Cambridge).

*Nucleosynthesis & Chemical Evolution of Galaxies*, 1997, B. Pagel, (Cambridge: Cambridge).

*Active Galactic Nuclei*, 1999, J. Krolik (Princeton: Princeton).