Extragalactic Astrophysics / PHYS-GA 2051 / Fall 2018 / Syllabus

This course teaches the astrophysics of galaxies and quasars at the graduate level.

You can find the course notes at the course web site. Please read the introduction posted on the web site.

A useful textbook is *Extragalactic Astronomy and Cosmology*, by Peter Schneider. A good fraction of my notes are drawn from that book.

Class meets Tuesday and Thursday at 11:00am in Room 1045 of 726 Broadway, according to Albert.

The classes will proceed as shown on the next page (subject to revision!).

There will be two types of assignments in this course:

- *Homework* will be based on exercises described in the notes. There are answers that I will make available, but only to a small number of the exercises. You will help complete the answers (with proper attribution to you of course). Each week I will assign one of the questions to each of you in the notes we covered, and you will submit an answer in the form of a LaTeX file or Python notebook, emailed to me.
- You will each write a short *Review Paper* describing the significance of some recent finding in extragalactic astrophysics. The paper should be 5–6 pages of text plus references and (if appropriate) figures. During the first week or so of the course I will assign each of you a topic. Mid-semester a FULL DRAFT of this paper will be due. I expect to give substantial feedback on the draft in preparation for the final version due at the semester's end.

Sep. 3	Inventory	
Sep. 8	Light I & II	
Sep. 10	Telescopes & Atmosphere	
Sep. 15	Detectors, Images, Spectra	**Exercise #1 due**
Sep. 17	Distance Ladder	
Sep. 22	Cosmology	**Exercise #2 due**
Sep. 24	Structure Formation	
Sep. 29	Galaxy Demographics	**Exercise #3 due**
Oct. 1	Galaxy Morphology	
Oct. 6	Galaxy Scaling Relations	**Exercise #4 due**
Oct. 8	Stellar Evolution	—
Oct. 13	Stellar Populations	**Exercise #5 due**
Oct. 15	Stellar Populations	
Oct. 20	Stellar Dynamics	**Exercise #6 due**
Oct. 22	Stellar Dynamics	
Oct. 27	Stellar Dynamics	**Full paper draft due**
Oct. 29	ISM & Dust in Galaxies	
Nov. 3	Gravitational Lensing	**Exercise #7 due**
Nov. 5	Gravitational Lensing	
Nov. 10	Groups & Clusters	**Exercise #8 due**
Nov. 12	Mass in Galaxies	
Nov. 17	Star Formation in Galaxies	**Exercise #9 due**
Nov. 19	Active Galatcic Nuclei	
Nov. 24	Quasars	**Exercise #10 due**
Dec. 1	High Redshifts	
Dec. 3	Theory of Galaxy Formation	**Exercise #11 due**
Dec. 8	Chemical Evolution	
Dec. 10	Feedback	
Dec. 17	—	**Final paper due**