

ASTRONOMY C10 / L&S C70U: FALL 2019

Syllabus

The schedule below gives the textbook page numbers (Pasachoff & Filippenko 2019 – *The Cosmos*, 5th edition) and the slide page numbers (this Reader) for each lecture. The exact timing of the lectures may drift a little ahead or behind this schedule.

Discussion sections will normally concentrate on the material of the three previous class meetings. Discussion sections before the midterm exams will be for general review.

Lecture	Date	Title	Pages in: Textbook / Slides
PART I: INTRODUCTION			
1.	Wed., 28 Aug	A Grand Tour of the Cosmos	v-xxiii / 1-2
2.	Fri., 30 Aug	Journey Through Space and Time	1-21 / 3-16
	Mon., 2 Sep	LABOR DAY HOLIDAY!	
3.	Wed., 4 Sep	Light – The Supreme Informant	22-25 / 17-27
4.	Fri., 6 Sep	The Fingerprints of Atoms	26-32 / 28-37
5.	Mon., 9 Sep	Doppler Effect; Thermal Radiation	26-39, 329-334 / 38-46
6.	Wed., 11 Sep	Telescopes: Tools of the Trade	40-73 / 47-54
7.	Fri., 13 Sep	Twinkling; Lunar Phases	74-78, 87 / 55-59
8.	Mon., 16 Sep, 3-4	Glorious Total Solar Eclipses	79-80, 82-86, 307-311 / 60-64
9.	Mon., 16 Sep, 4-5	Lunar Eclipses; Celestial Phenomena	81, 87-105 / 65-73
PART II: THE SOLAR SYSTEM			
10.	Wed., 18 Sep	The Copernican Revolution	106-124 / 74-84
11.	Fri., 20 Sep	Newton: On the Shoulders of Giants	124-131 / 85-91
12.	Mon., 23 Sep	Origin of the Solar System; Earth	263-266, 132-144 / 92-99
13.	Wed., 25 Sep	The Moon, Mercury, Venus, Mars	144-187 / 100-108
14.	Fri., 27 Sep	Jupiter, Saturn, Uranus, Neptune	188-223 / 109-116
15.	Mon., 30 Sep, 3-4	Pluto, Comets, Asteroids	224-244, 249-254 / 117-123
16.	Mon., 30 Sep, 4-5	Meteors, Collisions	244-249, 254-261 / 124-131
17.	Wed., 2 Oct	Exoplanets: Other Worlds	262-287 / 132-142
PART III: THE STARS AND THEIR LIVES			
18.	Fri., 4 Oct	Our Sun and Distant Stars	288-328 / 143-152
19.	Mon., 7 Oct	“Social Stars”: Binaries and Clusters	329-355 / 153-162
20.	Wed., 9 Oct	How Stars Shine: Cosmic Furnaces	356-380 / 163-170
	Fri., 11 Oct	MIDTERM I! Through “Exoplanets” (Slide 142)	
21.	Mon., 14 Oct	The Fate of Our Sun: Stellar Evolution	381-388 / 171-178
22.	Wed., 16 Oct	Exploding Stars: Celestial Fireworks!	388-397 / 179-185
23.	Fri., 18 Oct	SN 1987A; the Corpses of Massive Stars	397-413 / 186-194
24.	Mon., 21 Oct, 3-4	Black Holes: Hearts of Darkness	414-422 / 195-203
PART IV: A UNIVERSE OF GALAXIES			
25.	Mon., 21 Oct, 4-5	The Milky Way Galaxy; Other Galaxies	83, 446-491 / 208-221
26.	Wed., 23 Oct	The Dark Side of Matter	491-503 / 222-231
27.	Fri., 25 Oct	The Expansion of the Universe	503-521 / 232-242

Lecture	Date	Title	Pages in: Textbook / Slides
28.	Mon., 28 Oct	Quasars – Cosmic Powerhouses	522-530 / 242-249
29.	Wed., 30 Oct	The Quest for Black Holes	422-445 / 204-207
30.	Fri., 1 Nov	Quasar Engines: Supermassive Black Holes	531-551 / 250-255
PART V: THE BIRTH AND LIFE OF THE UNIVERSE			
31.	Mon., 4 Nov	Cosmology and the Dark Night Sky	552-559 / 256-265
32.	Wed., 6 Nov	The Age of the Universe	559-567 / 266-273
	Fri., 8 Nov	MIDTERM 2! Through "Quasars" (Slide 255)	
	Mon., 11 Nov	VETERANS DAY HOLIDAY!	
33.	Wed., 13 Nov	The Geometry of the Universe	567-574 / 274-281
34.	Fri., 15 Nov	Einstein's Biggest Blunder?	574-587 / 282-289
35.	Mon., 18 Nov, 3-4	The Original Big Bang Theory; CMBR	588-594, 600-606 / 290-299
36.	Mon., 18 Nov, 4-5	The Contents of the Universe	594-600 / 300-310
37.	Wed., 20 Nov	Refinements to the Original Big Bang Theory	606-609 / 311-318
38.	Fri., 22 Nov	The Inflationary Universe	609-613 / 319-326
	Mon., 25 Nov	NO LECTURE! (Enjoy a long Thanksgiving holiday!)	
	Wed., 27 Nov	NON-INSTRUCTIONAL DAY!	
	Fri., 29 Nov	THANKSGIVING HOLIDAY!	
39.	Mon., 2 Dec	The Ultimate Free Lunch, and a "Multiverse"?	613-621 / 327-334
40.	Wed., 4 Dec	The Search for Extraterrestrial Life	622-633 / 335-338
41.	Fri., 6 Dec	Interstellar Travel; Conclusion	628-629, 633-644 / 339-345

Final exam (cumulative): Tuesday, 17 December 2019, 7:00–10:00 pm (Exam Group 8).

If you have a DIRECT conflict, the exam will be during Exam Group 7 (3:00–6:00 pm, 17 December).

The dates when the double lectures will be given are tentative; they depend on whether the campus scheduler changes them. There are some backup dates if some of the provisionally scheduled ones don't occur.

All students are automatically signed up with bCourses when they enroll (or waitlist) the course on SIS.

To access the course website on bCourses, simply follow these steps:

1. Open your web browser to <http://bcourses.berkeley.edu>.
2. Enter your CalNet ID and Passphrase to authenticate.
3. Click on the "courses" tab and then "Introduction to General Astronomy" to access the course website.

From inside the site, you can use the links on the left side of the screen to access various features. Some of the most important ones are as follows.

- Announcements: Important notifications from Alex and from the GSIs during the semester.
- Grades: Allows you to check your scores. You should examine this regularly to be sure that your homework assignments, exam scores, and quizzes have been correctly entered. [Note, however, that in many cases the point values for assignments posted there do not follow the grading system outlined in the Reader. For example, each 50-point homework assignment is actually worth only about 3 course points.]
- Files: Where homework solutions, practice exams, and other supplementary documents will be posted over the semester. (The assignments themselves are in the Course Reader.)

The website also includes many other tools, including discussion forums, live chat, and general information.

Weekly Schedule of Discussion Sections, Exams, Homework and Lab Assignments

Week 1: 28 – 30 Aug.	Overview of the course. Math review. No classes Aug. 26 and 27.
Week 2: 2 – 6 Sep.	Math review. Discussions. Homework #1 due on Friday, Sep. 6. Labor Day holiday: Monday, Sep. 2 (no classes). Students in Monday sections are encouraged (but not required) to attend any other discussion section this week.
Week 3: 9 – 13 Sep.	Discussions, review. Homework #2 due on Friday, Sep. 13.
Week 4: 16– 20 Sep.	Discussions, review. Finalize section enrollment. Homework #3 due Friday, Sep. 20.
Week 5: 23 – 27 Sep.	Quiz #1. Discussions. Homework #4 due on Friday, Sep. 27.
Week 6: 30 Sep. – 4 Oct.	Discussions, review. Homework #5 due on Friday, Oct. 4.
Week 7: 7 – 11 Oct.	Review for midterm exam. Homework #6 due on Friday, Oct. 11. MIDTERM #1 ON FRIDAY, OCTOBER 11!
Week 8: 14 – 18 Oct.	Discussions, review. Homework #7 due on Friday, Oct. 18.
Week 9: 21 – 25 Oct.	Discussions, review. First set of labs due on Friday, Oct. 25.
Week 10: 28 Oct. – 1 Nov.	Quiz #2. Discussions. Homework #8 due on Friday, Nov. 1.
Week 11: 4 – 8 Nov.	Review for midterm exam. Homework #9 due on Friday, Nov. 8. MIDTERM #2 ON FRIDAY, NOVEMBER 8!
Week 12: 11 – 15 Nov.	Discussions; review. Second set of labs due on Friday, Nov. 15. Veterans Day holiday: Monday, Nov. 11 (no classes). Students in Monday sections are encouraged (but not required) to attend any other discussion section this week.
Week 13: 18 – 22 Nov.	Discussions, review. Homework #10 due on Friday, Nov. 22.
Week 14: 25 – 29 Nov.	Thanksgiving break, Wed., Nov. 27, through Fri., Nov. 29. Discussion sections ALL WEEK are CANCELLED. Have a relaxing holiday!
Week 15: 2 – 6 Dec.	Review for final exam. Homework #11 due on Friday, Dec. 6.

NOTE 1: Please don't turn in the homework (or labs) for a particular week until at least Monday of that week, otherwise, it could get mixed with the previous week's homework and may be lost.

NOTE 2: It is to your advantage to attend discussion sections. You will learn the material better, and the C will get to know you. (A small part of your overall grade will be based on your participation in section.)