

## ASTRONOMY C10 / L&S C70U: SPRING 2015

### ----- Syllabus -----

The schedule below gives the textbook page numbers (Pasachoff & Filippenko 2014 – The Cosmos, 4th 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
<b>PART I: INTRODUCTION</b>			
1.	Wed., 21 Jan	A Grand Tour of the Cosmos	vii-xxiii / 1-2
2.	Fri., 23 Jan	Journey Through Space and Time	1-19 / 3-18
3.	Mon., 26 Jan	Light – The Supreme Informant	20-23 / 19-27
4.	Wed., 28 Jan	The Fingerprints of Atoms	25-32 / 28-37
5.	Fri., 30 Jan, 3-4pm	Thermal Radiation; Doppler Effect	22-35, 290-293 / 38-46
6.	Fri., 30 Jan, 4-5pm	Telescopes: Tools of the Trade	36-65 / 47-54
7.	Mon., 2 Feb	Twinkling; Lunar Phases	66-70, 76-78 / 55-59
8.	Wed., 4 Feb	Glorious Solar and Lunar Eclipses	71-76, 270-273 / 60-67
9.	Fri., 6 Feb	Celestial Phenomena	78-93 / 68-73
<b>PART II: THE SOLAR SYSTEM</b>			
10.	Mon., 9 Feb	The Copernican Revolution	94-108 / 74-84
11.	Wed., 11 Feb	Newton: On the Shoulders of Giants	108-117 / 85-92
	Fri., 13 Feb	MIDTERM 1 ! Through “Celestial Phenomena” (Slide 73)	
	Mon., 16 Feb	PRESIDENTS’ DAY HOLIDAY!	
12.	Wed., 18 Feb	Origin of Solar System; Earth, Moon	234-236, 118-136 / 93-101
13.	Fri., 20 Feb, 3-4pm	Mercury, Venus, Mars, Jupiter	137-177, 231 / 102-111
14.	Fri., 20 Feb, 4-5pm	Saturn, Uranus, Neptune, Pluto	178-204 / 112-122
15.	Mon., 23 Feb	Comets, Space Debris, Collisions	204-230 / 123-134
16.	Wed., 25 Feb	Exoplanets: Other Worlds	232-253 / 135-142
<b>PART III: THE STARS AND THEIR LIVES</b>			
17.	Fri., 27 Feb	Our Sun: The Nearest Star	254-277 / 143-149
18.	Mon., 2 Mar	Stars: Distant Suns. Binaries and Clusters	278-292 / 150-157
19.	Wed., 4 Mar	“Social Stars”: Binaries and Clusters	292-309 / 158-164
20.	Fri., 6 Mar	How Stars Shine: Cosmic Furnaces	310-329 / 165-171
21.	Mon., 9 Mar	The Fate of Our Sun: Stellar Evolution	330-336 / 172-179
22.	Wed., 11 Mar	Exploding Stars: Celestial Fireworks!	336-344 / 180-186
23.	Fri., 13 Mar	The Corpses of Massive Stars	343-359 / 187-195
	Mon., 16 Mar	MIDTERM 2 ! Through “The Fate of Our Sun” (Slide 179)	
24.	Wed., 18 Mar	The Milky Way and Other Galaxies	74, 382-427 / 208-221
25.	Fri., 20 Mar	The Dark Side of Matter	428-434 / 222-230

Lecture	Date	Title	Pages in: Textbook / Slides
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Mon., Mar. 23 – Fri., Mar. 27: SPRING BREAK! No classes.

#### PART IV: A UNIVERSE OF GALAXIES

26.	Mon., 30 Mar	The Expansion of the Universe	434-449 / 231-239
27.	Wed., 1 Apr	Black Holes: Hearts of Darkness	360-365 / 196-201
28.	Fri., 3 Apr	The Quest for Black Holes	365-381 / 202-207
29.	Mon., 6 Apr	Quasars – Cosmic Powerhouses	450-460 / 240-247
30.	Wed., 8 Apr	Quasar Engines: Supermassive Black Holes	460-475 / 248-255

#### PART V: THE BIRTH AND LIFE OF THE UNIVERSE

31.	Fri., 10 Apr, 3-4pm	Cosmology and the Dark Night Sky	476-482 / 256-265
32.	Fri., 10 Apr, 4-5pm	The Age of the Universe	483-490 / 266-273
33.	Mon., 13 Apr	The Geometry of the Universe	490-496 / 274-281
34.	Wed., 15 Apr	Einstein's Biggest Blunder?	496-507 / 282-288
35.	Fri., 17 Apr	The Big Bang Theory	508-510, 522-526 / 289-297
	Mon., 20 Apr	MIDTERM 3 ! Through “Geometry of the Universe” (Slide 281)	
36.	Wed., 22 Apr	The Cosmic Microwave Background Radiation	511-522 / 298-310
37.	Fri., 24 Apr	The Inflationary Universe	526-529 / 311-321
38.	Mon., 27 Apr	The Ultimate Free Lunch?	528-533 / 322-329
39.	Wed., 29 Apr	A “Multiverse”? The Search for Life	533-550 / 330-341
40.	Fri., 1 May	Interstellar Travel; Conclusion	546, 550-559 / 342-345

**Final exam (cumulative):** Wednesday, 13 May 2015, 7:00–10:00 pm (Exam Group 12).

If you have a DIRECT conflict, the exam will be during Group 11 (3:00–6:00 pm).

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

The website also includes many other tools not described here, including discussion forums, live chat, and general information.

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

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Week 1: 19 – 23 Jan.	Enrollment. Overview of the course. Math review. Martin Luther King Day holiday: Monday, Jan. 19.
Week 2: 26 – 30 Jan.	Math review. Discussions. Homework #1 due on Friday, Jan. 30.
Week 3: 2 – 6 Feb.	Finalize section enrollment. Discussions, review. Homework #2 due on Friday, Feb. 6.
Week 4: 9 – 13 Feb.	Review for midterm exam. Homework #3 due Friday, Feb. 13. MIDTERM #1 ON FRIDAY, FEBRUARY 13.
Week 5: 16 – 20 Feb.	Discussions, review. Homework #4 due on Friday, Feb. 20. Presidents' Day holiday: Monday, Feb. 16.
Week 6: 23 – 27 Feb.	Discussions, review. Homework #5 due on Friday, Feb. 27.
Week 7: 2 – 6 Mar.	Quiz #1. Discussions. Homework #6 due on Friday, Mar. 6.
Week 8: 9 – 13 Mar.	Review for midterm exam. Homework #7 due on Friday, Mar. 13.
Week 9: 16 – 20 Mar.	First set of labs due on Friday, Mar. 20, by 5:00 pm. Discussions, review. MIDTERM #2 ON MONDAY, MARCH 16.
23 – 27 Mar.	SPRING BREAK!
Week 10: 30 Mar. – 3 Apr.	Discussions, review. Homework #8 due on Friday, Apr. 3.
Week 11: 6 – 10 Apr.	Quiz #2. Discussions. Homework #9 due on Friday, Apr. 10.
Week 12: 13 – 17 Apr.	Review for midterm exam. Homework #10 due on Friday, Apr. 17.
Week 13: 20 – 24 Apr.	Discussions, review. Second set of labs due on Friday, Apr. 24, by 5:00 pm. MIDTERM #3 ON MONDAY, APRIL 20.
Week 14: 27 Apr. – 1 May	Discussions, review for final exam. Homework #11 due on Friday, May 1.

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 GSIs will get to know you. (A small part of your overall grade will be based on your participation in section.)