

AS 203: Principles of Astronomy 2 (Spring 2015)

Instructor:

Professor Catherine Espaillat

Office: CAS 404

Phone: 617-358-3441

Email: cce@bu.edu

Office hours:

Tuesdays 1:30-3:30 pm, Wednesdays 2:30-3:30 pm, and by appointment

Teaching fellows:

Mr. Phillip Phipps

Office: 524

Email: pPhillips@bu.edu

Office hours: Tuesdays 11-noon, Wednesdays 1-2 pm, Thursdays 2-3 pm, and by appointment

Mr. Connor Robinson

Office: 524

Email: connorr@bu.edu

Office hours: Thursdays 11-12:30pm and Friday noon-1:30pm

Class meeting times and locations:

Lectures: Mondays, Wednesdays, and Fridays at 11-noon in CAS 502.

Indoor Labs: You must sign up for one section. Labs meet in CAS 521.

B1 Mondays 5-6:30pm

B2 Tuesdays 5-6:30pm

B3 Wednesdays 5-6:30pm

Observing (night) labs: These meet directly after the indoor lab from 6:30-8 pm and are held on the CAS roof or CAS 606. Later in the semester, the night lab will be moved to 7:30-9 pm since the sun will be setting later. In case of poor weather, observing labs will not be held. Your TFs will announce in the indoor lab whether or not the observing lab will be held that evening.

A more detailed lecture schedule can be found below. Lab schedules will be provided by your TFs at your first lab meeting. Labs start the week of January 26th.

Course Description:

In this course, we will study the properties, formation, and evolution of stars and galaxies. We will also study the Universe as a whole (i.e., cosmology) and dark matter and dark energy. The goal of the course is to help students understand some basic physical principles, the scientific process, and to prepare students for more in depth study of

Astronomy in future courses. Note that the syllabus may change based on class progress and changes will be announced in class.

Prerequisites:

This course is taught at the introductory level for those intending to major in Astronomy or Astrophysics & Physics, those with a serious interest in Astronomy, or those with some background in mathematics. Students wishing to take a less quantitative course should look into the Astronomy Department's 100-level introductory courses.

Required Textbook:

For this course we will be using the Seventh Edition of "The Cosmic Perspective: Stars, Galaxies, and Cosmology," by Bennett, Donahue, Schneider, and Voit published by Pearson.

Website:

Lecture materials and grades will be posted on the Blackboard Learn site at <http://learn.bu.edu>

Grading:

50% exams
25% homeworks
5% participation
20% labs

Exams: The exams will test your knowledge of ideas discussed, problem solving skills, and your ability to write about Astronomy. We will have 3 in-class exams and one final exam. The exams (including the final exam) will not be cumulative. The final exam will be held on May 5th in CAS 502 from 12:30-2:30pm (subject to change at the discretion of the Registrar). The lowest score of the four exams will be dropped. No make-up exams will be given. If you need to miss an exam for any reason, it will be the exam that you drop as your lowest score. If you have been certified as needing to take an exam under special circumstances, please see me privately.

Homeworks: The purpose of the homeworks is to keep you on track with the course, give you frequent feedback on how you are doing, and prepare you for the exams. Homeworks will be assigned in class and will be due before the beginning of class on the following Academic Monday, except on weeks when exams are scheduled. There will be 7 homeworks and your lowest score will be dropped. If you miss a class when homework is assigned, it is your responsibility to get the assignment from a classmate or your TF. Homeworks that are handed in during or after class will be considered late. Late homeworks will have 25% deducted for each day they are late. Also, homeworks must be done entirely in blue/black ink or in pencil. They should show all work and should

contain your name, BUID, and should be stapled. Homeworks that do not satisfy these requirements will be returned and considered late.

Participation: In order to help engage you in the material, it is expected that you participate in class. Your participation grade will be based on the completion of in-class activities such as individual minute papers and group written exercises. These in-class activities will be done randomly and cannot be made up so attendance is strongly encouraged. Your four lowest participation grades will be dropped. If you need to miss a class for any reason, this will be one of the four that is dropped. Any additional absences will not be excused without a letter from your Dean.

Lab Exercises: This is a laboratory course where lab reports constitute a major part of your final grade. The lab grade will be based on 4 indoor lab exercises and 2 observing lab exercises. All labs will be used to calculate your final lab grade (i.e., no labs will be dropped). Note that since this is a lab course, if you fail the lab component, you fail the class. That is, if you have an A on all your homeworks, exams, and participation, but fail the lab component, you will get an F in this course.

Indoor Labs

The indoor labs will be performed in assigned sections lead by your TF. You must be enrolled in one of the lab sections (B1-3) in addition to the lecture (A1). The lab report will be due in lab one week after completion of the lab. Late lab reports will have 25% of the maximum possible score deducted for each day they are overdue. The indoor lab schedule can be found below. Labs must be printed out and brought to lab from <http://www.bu.edu/astronomy/academics/undergraduate-studies/manuals/>

Observing (Night) Labs

The Department of Astronomy's J. B. Coit Observatory is located on the roof of the CAS building. Observing labs will be done here and each lab should take about an hour to complete. Your TF will announce in the indoor lab if the observing lab will be held that evening. You can also check if the observatory will be open on a given night by calling 617-353-2630 for a recorded message about 1 hour before the lab start time. The observing lab report will be due at the beginning of the indoor lab one week after completion of the lab. Late lab reports will have 25% of the maximum possible score deducted for each day they are overdue. The observing lab schedule can be found below. Labs must be printed out and brought to lab from <http://www.bu.edu/astronomy/academics/undergraduate-studies/manuals/>

Attendance & late policy:

You are expected to attend class. If you miss a class, talk with a fellow student to learn what you missed. Late homeworks and labs will have 25% of the maximum possible score deducted for each day past the due date. The exams must be taken at the scheduled time.

Classroom etiquette:

Please arrive punctually for the start of class and remain for the duration of the class. If you arrive late or depart early, try to minimize the disruption this causes to other students. Turn phones off during class.

Academic integrity:

Group study is encouraged, but work you hand in must be your own and in your own words. Your lab reports and homework should not be copied. Work that is copied will not be given any credit. If an answer in a homework question or a lab report requires written sentences, do not copy your answer directly from the textbook, a website, or any other source. All students are expected to follow the BU Academic Conduct Code (www.bu.edu/academics/resources/academic-conduct-code/). Cases of suspected academic misconduct will be referred to the Dean's Office.

Class Schedule: Note that this is subject to change based on class progress.

Lectures

<i>Week</i>	<i>#</i>	<i>Date</i>	<i>Topic</i>	<i>Chapter</i>
1	1	Wed Jan 21	Welcome	-
	2	Fri Jan 23	A Modern View of the Universe	1
2	3	Mon Jan 26	continued	1
	4	Wed Jan 28	Light & Matter	5
	5	Fri Jan 30	continued	5
3	6	Mon Feb 2	Our Sun; HW#1 Due (Note: last day to add course)	14
	7	Wed Feb 4	continued	14
	8	Fri Feb 6	continued & Exam Review	14
4	9	Mon Feb 9	Exam #1	1, 5, 14
	10	Wed Feb 11	Surveying the Stars	15
	11	Fri Feb 13	continued	15
5		Mon Feb 16	NO CLASS	
	12	Tues Feb 17	Star Birth; HW#2 due	16
	13	Wed Feb 18	continued	16
	14	Fri Feb 20	continued	16
6	15	Mon Feb 23	Star Stuff; HW#3 due (Note: Feb 24 last drop day w/o W)	17
	16	Wed Feb 25	continued	17

	17	Fri Feb 27	continued & Exam Review	17
7				
	18	Mon Mar 2	Exam #2	15, 16, 17
	19	Wed Mar 4	The Bizarre Stellar Graveyard	18
	20	Fri Mar 6	continued	18
		Mon Mar 9	NO CLASS	
		Wed Mar 11	NO CLASS	
		Fri Mar 13	NO CLASS	
8	21	Mon Mar 16	continued	18
	22	Wed Mar 18	continued	18
	23	Fri Mar 20	continued	18
9	24	Mon Mar 23	Our Galaxy; HW#4 due	19
	25	Wed Mar 15	continued	19
	26	Fri Mar 27	continued	19
10	27	Mon Mar 30	Foundation of Cosmology; HW#5 due	20
	28	Wed Apr 1	continued	20
	29	Fri Apr 3	continued & Exam Review (Note: last drop day w/ W)	20
11	30	Mon Apr 6	Exam #3	18, 19, 20
	31	Wed Apr 8	Galaxy Evolution	21
	32	Fri Apr 10	continued	21
12	33	Mon Apr 13	Birth of the Universe; HW#6 due	22
	34	Wed Apr 15	continued	22
	35	Fri Apr 17	continued	22
13		Mon Apr 20	NO CLASS	
	36	Wed Apr 22	Dark Matter & Dark Energy; HW#7 due	23
	37	Fri Apr 24	continued	23
14	38	Mon Apr 27	Synthesis	
	39	Wed Apr 29	Exam Review	
		Tue May 5	FINAL EXAM	21, 22, 23