

ASTRONOMY 001 Section 1 Spring 2025
Tue/Thu 12 – 1:30 pm, DRL A6
Syllabus + Info
Professor Bernardi

TEXT: *The Cosmic Perspective, 9/e.*

Homeworks, are posted on Canvas and have to be completed/submitted online.
The tutorials can be previewed on the web at www.masteringastronomy.com

Date Lecture #	Bennett	Tutorials	Homework and Exams
Jan 16 #1	Ch 1: A modern view of the Universe	Scales of the Universe	
Jan 21 #2	Ch 2: Discovering the Universe for Yourself	Seasons	Homework #1 OUT Chap. 1, 2, 3
Jan 23 #3	Ch 2: Continued	Phases of the Moon Eclipses	
Jan 28 #4	Ch 3: The Science of Astronomy S1: sections: 1		
Jan 30 #5	Ch 3: Continued	Orbits and Kepler's Laws	
Feb 4 #6	Ch 4: Making Sense of the Universe	Motion and Gravity	Homework #1 DUE Homework #2 OUT Chap 4, 5
Feb 6 #7	Ch 5: Light and Matter	Light and Spectroscopy Doppler Effect	
Feb 11 #8	Ch 5: Continued		
Feb 13 #9	Ch 6: Telescopes	Telescopes	Homework #2 DUE
Feb 18 #10	Ch 7: Our Planetary System Ch 8: Formation of the Solar System Review for first midterm	Formation of the Solar System Detecting Extrasolar Planets	Homework #3 OUT Chap 6, 7, 8, 9, 10, 11, 12, 13
Feb 20	First midterm: 12 pm – 1 pm in class Chapters 1, 2, 3, S1, 4, 5		
Feb 25 #11	Ch 9 - 10: Planetary Geology & Atmospheres: Earth and the Other Terrestrial Worlds	Shaping Planetary Surfaces Surface Temperature of Terrestrial Planets	

Date	Bennett	Tutorials	Homework and Exams
Lecture #			
Feb 27 #12	Ch 11: Jovian Planet Systems		
Mar 4 #13	Ch 12: Asteroids, Comets and Dwarf Planets Ch 13: Other Planetary Systems		
Mar 6 #14	Ch 14: Our Star	Nuclear Fusion in the Sun	
Mar 11 and 13	Spring Break		
Mar 18 #15	Ch 15: Surveying the Stars		Homework #3 DUE Homework #4 OUT Chap 14, 15, 16, 17
Mar 20 #16	Ch 15: Continued Ch 16: Star Birth	The H-R Diagram	
Mar 25 #17	Ch 17: Star Stuff	Stellar Evolution	
Mar 27 #18	Ch 18: The Bizarre Stellar Graveyard S3: sections 1, 2, 3 and 4	Black Holes	
Apr 1 #19	Ch 18: Continued Review for second midterm		Homework #4 DUE
Apr 3	Second Midterm: 12 pm – 1 pm in class Chapters 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17		
Apr 8 #20	Ch 19: Our Galaxy		
Apr 10 #21	Ch 20: Galaxies and the Foundation of Modern Cosmology Ch 21: Galaxy Evolution	Measuring Cosmic Distances	Homework #5 OUT Chap 18, 19, 20, 21, 22, 23
Apr 15 #22	Ch 20-21: Continued	Hubble's Law	
Apr 17 #23	Ch 22: The birth of the Universe		
Apr 22 #24	Ch 22: Continued		

Date	Bennett	Tutorials	Homework and Exams
Lecture # Apr 24 #25	Ch 23: Dark Matter, Dark Energy and the Fate of the Universe	Detecting Dark Matter in Spiral Galaxies Fate of the Universe	
April 29 #26	Review		Homework #5 DUE
May	FINAL EXAM: Cumulative		

COURSE INFO

Instructor: Mariangela Bernardi

Office: DRL 4N2b

Contact Information:

E-mail: bernardm@sas.upenn.edu

Class Time/Room: Tue/Thu 12 – 1:30 pm, DRL A6

Text: The Cosmic Perspective, 9th Ed.

Webpage/Syllabus: <http://canvas.upenn.edu/>

Office hours: By appointment (just email me)
We can meet in my office (DRL 4N2b) or use Zoom
Join Zoom Meeting:
<https://upenn.zoom.us/my/bernardm>
or Meeting ID: 7023995066

This course will be taught **in person**. All the material will be posted on Canvas (except for the Tutorials which are on the masteringastronomy.com website – see below). Assignments have to be completed/submitted online as .pdf files (on Canvas).

Slides will be posted on Canvas prior to each nominal class date as listed in the syllabus. To see the slides click on “Files”.

Grading:

- Exam 1: 15%; Exam 2: 15%; Final exam: 30%
- Homework: 15%
- Observing Lab: 5%
- Tutorials: 10%
- In class questions: 10%
- Total: 100%

– **Exams:** Two midterms and one final. The final exam is cumulative (i.e. it will cover the material of the full semester).

Midterm #1: Thursday February 20, 12 pm – 1 pm ET (in class)

Midterm #2: Thursday April 3, 12 pm – 1 pm ET (in class)

Final: May

– **Homework:** Schedule on syllabus. Assignments/solutions posted on Canvas.

Assignments will typically consist of about 10 problems.

Solutions will be posted soon after the homework is due.

No late homework will be accepted.

Each homework problem is worth 4 points, and is graded on the following scale:

0 (missing or totally wrong)

1 (something there, mostly wrong)

2 (good try, partly right)

3 (almost, but not quite, correct)

4 (totally right)

– **Observing Lab:** To be scheduled during the semester. Telescope- and computer-based exercise.

– **Tutorials and in class questions:**

Each student MUST register for a Student ID on the Pearson website

(<http://www.masteringastronomy.com/>).

The Course ID is: **bernardi56584**

a. Students Registration Instructions are

■ provided on Canvas (see

MastringAstronomy_Students_Registration_Instructions.pdf)

■ included with your text

b. Make sure you pick the right book (THE COSMIC PERSPECTIVE, 9th Ed.)!

Tutorials: The tutorials are worth a total of 10% of the final grade. The tutorials are divided in three sets. Each set must be completed by the due date (given on the webpage; the due date corresponds to the date of the first, second and final exams). Students are responsible for following the syllabus and completing the tutorials. No grade is assigned, just a check to see if it was done.

In class questions: during each lecture students will have to answer a few questions related to the material using their laptops or phones. These are worth a total of 10% of the final grade (half of this is participation and half is correctness). For this you can directly login to <https://learningcatalytics.com/> using the same Student ID and password of the Addison-Wesley website <http://www.masteringastronomy.com/>