

Physics 1004 Introduction to Astronomy

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Office Hours TTh 1-2

Prerequisites: Physics 1022, 1062 or 2021.

Any student who has a need for accommodation based on the impact of a disability should contact me privately to discuss the specific situation as soon as possible. Contact Disability Resources and Services at 215-204-1280 in 100 Ritter Annex to coordinate reasonable accommodations for students with documented disabilities.

Freedom to teach and freedom to learn are inseparable facets of academic freedom. The University has a policy on Student and Faculty and Academic Rights and Responsibilities (Policy #03.70.02) which can be accessed through the following link: http://policies.temple.edu/getdoc.asp?policy_no=03.70.02.

Course Goals:

The course is an introduction to astronomy for science students. About a third of the content will be on descriptive astronomy, basically what can you see in the sky, when and how. This will be spread over the semester as interesting celestial events occur. The remainder will be an introduction to the astronomy of stars and galaxies. The planets are interesting too, but will not be covered in this course to leave time for material on stars, black holes, galaxies and the like, which most students find more intriguing. Presenting this material involves both how we interpret observations to learn what we know about very distant objects, and what physics-based models can tell us about the structure and dynamics of the objects and the universe we observe.

Required Readings:

The textbook for the course will be *The Cosmos- Astronomy in the New Millennium*, by J. M. Pasachoff and A. Filippenko (4th Ed., Cambridge, 2014). Readings will be supplemented by information about what's in the sky during the semester, using Stellarium free planetarium software and various web and print resources. Time and weather permitting, an observing trip to a relatively dark site will be scheduled. This will allow students to experience the night sky with a good quality amateur telescope firsthand.

<u>Week:</u>	<u>Topic</u>	<u>Readings (textbook above)</u>
1. 25 Aug	Introduction to the sky	Ch. 1, 4
2. 1 Sept	Motion & Changes in the sky	Ch. 4
3. 8 Sept	Telescopes, amateur & pro	Ch. 3
4. 15 Sept	The magic of spectroscopy	Ch. 2
5. 22 Sept	Gravity, Orbits, and Heresy	Ch. 5
25 Sept.	In Class Midterm, The Sun	Ch. 10
6. 29 Sept	The nuclear Sun, analyzing starlight	Ch. 12.2-3, 12.7
7. 6 Oct	Stars- how we determine what they are	Ch. 11, 12
8. 13 Oct.	Life and death of stars	Ch. 13
9. 20 Oct.	Live Fast, Die Young and Leave a Black Hole	Ch. 14
10. 27 Oct.	The Milky Way Galaxy	Ch. 15
11. 3 Nov.	Beyond the Milky Way	Ch. 16
12. 10 Nov.	Quasars and Active Galaxies	Ch. 17
13. 17 Nov.	Cosmology I - the Structure of the Universe	Ch. 18
14. 1 Dec.	Cosmology II- the History of the Universe	Ch. 19

Grading Policy:

The course grade will be composed of 15% attendance, 25% in-class midterm, 30% online homework, and 30% for the final examination.