

Syllabus High Energy Astrophysics: ASTR/PHY 332 Lehigh University Department of Physics - Fall 2016

Instructor: Professor Rosi Reed

Office: 406 Lewis Lab, 83907 (direct), 83931 (main physics office), RosiJReed@lehigh.edu

Text: *High Energy Astrophysics*, by Fulvio Melia, 2009

Supplemental Text: *High Energy Astrophysics*, by Malcom S. Longair, 2011

Class Times: MWF 8:10 in RM 512

Office Hours: Fridays, 9:30 am – 10:30 am, and by appointment

Course Requirements: General requirements include:

- (i) Reading assigned materials prior to class
- (ii) Attending all classes
- (iii) Completing all assignments on time
- (iv) See me if you are having trouble!

Grading: Your numerical grade will be determined *approximately* as follows:

Final Exam	30%	
Homework	40%	You will be allowed to drop your two lowest homework scores
Midterm I	15%	
Midterm II	15%	

Primary Topics:

Special Relativity	Neutrinos	Accretion disks
General Relativity	Cosmic Rays	Black Holes
Radiative Processes	Nuclear Fusion	Neuron Stars
Gravity Waves	Interactions of particles and matter	

Initial Competences

Basic knowledge of special relativity, quantum mechanics, multivariate calculus

Final Competences

1. Students understand how special and general relativity effect what we observe in the universe today
2. Students can explain the basic physical processes involving high energy particles and/or creating high energy emission
3. Students will demonstrate an understanding of the basic physics in accretion processes observed for a variety of sources.
4. Students will have insight into current high-energy astrophysics research.
5. Know the methods and observing techniques to study high-energy emission.

Accommodations for Students with Disabilities:

If you have a disability for which you are or may be requesting accommodations, please contact both your instructor and the Office of Academic Support Services, University Center C212 (610-758-4152) as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted.

The Principles of Our Equitable Community:

Lehigh University endorses The Principles of Our Equitable Community (<http://www4.lehigh.edu/diversity/principles>). We expect each member of this class to acknowledge and practice these Principles. Respect for each other and for differing viewpoints is a vital component of the learning environment inside and outside the classroom.