ASTR 210
Introduction to Astrophysics
Syllabus

Spring 2023
Prerequisites: PHYS 160 (University Physics)
Credits: 3

Date and Time: 09:00 AM – 10:15 AM, Tuesday and Thursday
Location: Horizon Hall 5001

Instructor: Prof. Jie Zhang
Contact Info: jzhang7@gmu.edu (e-mail)
Office Hour: 2:00 PM to 3:00 PM, Thursday, or by appointment
Office: Room 257, Planetary Hall

Catalog Description:
Introduction to astrophysics for scientists. Topics include astronomical measurement, celestial mechanics, electromagnetic radiation, stellar structure and evolution, the interstellar medium, galaxies, and a selection of topics at the forefront of astrophysics including space physics, exoplanets, galaxies, and cosmology.

Course Objectives:
1. Develop a physical understanding of astrophysical objects and processes
2. Develop quantitative problem-solving skills on astrophysical objects and processes
3. Prepare for upper-level coursework and/or research experiences in astronomy and astrophysics.

Text Book (required): "Foundations of Astrophysics", by Barbara Ryden and Bradley M. Peterson, Addison-Wesley, 2009. ISBN-13: 978-0-321-59558-4. ISBN-10: 0-321-59558-0

Course Content:
CH1: Early Astronomy
CH2: Emergence of Modern Astronomy
CH3: Orbital Mechanics
CH4: The Earth-Moon System
CH5: Interaction of Radiation and Matter
CH13: Properties of Stars
CH14: Stellar Atmosphere
CH15: Stellar Interiors
CH17: Formation and Evolution of Stars
CH18: Stellar Remnants
CH19: Our Galaxy
CH20: Galaxies

Homework: There are weekly assignments of homework, each of which consists of 2 to 5 short questions that require quantitative reasoning and/or proof. It will be assigned on Thursdays, and due at the beginning of class on the next Tuesdays. Please write your work properly to get a fair grading.

Exams: There will be one midterm and one final exam. Both are closed-book exams.

Grades: Homework (40%), Midterm (25%), Final Exam (35%)

Class URL: https://mymasonportal.gmu.edu/