

Syllabus for PHYS 4330:

Introduction to Astrophysics

Fall 2022

Last update: September 13, 2022

Lectures: Tuesdays 14:20 – 17:20 PM, 521 2nd General Building
Web page: <http://orion.astr.nthu.edu.tw/ita/>

Instructor: Huei-Ru Vivien Chen (陳惠茹) Email: hchen@phys.nthu.edu.tw
Office: 513 2nd General Building (Ext. 4-2518) Office hour: Tuesday 10:30 – 11:30

GSI: TBA Email:
Office: 2nd General Building Office hour:

Textbooks:

An Introduction to Modern Astrophysics (2nd edition) by B. W. Carroll & D. A. Ostlie 2017
(Cambridge University Press) ISBN: 9781108422161



Textbook website

References:

The Physical Universe by F. H. Shu (1982, University Science Books)

Grading policy:

60% problem sets, 30% final examination, and 10% attendance. Problem sets are due **5 PM Thursday** of the following week unless otherwise instructed. No late problems will be accepted without a valid excuse approved by the instructor prior to the deadline.

Course outline:

1. Tools of Astrophysics
 - (a) Overview
 - (b) Celestial sphere and celestial mechanism
 - (c) Telescopes
 - (d) Basic measurements and the nature of light
 - (e) Interaction of light and matter
2. Stars and Interstellar Medium
 - (a) Binary systems
 - (b) The classification of stellar spectra
 - (c) Stellar atmospheres
 - (d) Main-sequence stars and their interior structures
3. Stellar evolution
 - (a) Interstellar medium and star formation
 - (b) Main sequence and post-main-sequence stars
 - (c) Pulsating stars
 - (d) The fate of massive stars