

Theoretical Mechanics II

理論力學二

Spring 2022

Last update: February 22, 2022

Lectures: 10:10 – 11:30 Wednesday and Friday, 124 Physics
Webpage: <http://orion.astr.nthu.edu.tw/mech/>
Sessions: Thursday 6 – 7:30 PM in 504 Physics
eLearn: class page

Instructor: Vivien Chen (陳惠茹)	Office: 513 2 nd General Building
Email: hchen@phys.nthu.edu.tw	Office hour: Tuesdays 4 – 5 PM
GSI: 郝鴻	Office: 604 Physics
Email: physicsred@gmail.com	Office hour: Mondays 6 – 7 PM
GSI: 倪宇強	Office: 物圖小討論室
Email: apocalypse2066@gmail.com	Office hour: Tuesdays 11 – 12 PM
GSI: 呂長益	Office: 405 Physics
Email: a0975325948@gmail.com	Office hour: Wednesday 3 – 4 PM

Handouts:

Lecture slides will be provided on the course website before class.

Textbooks:

Classical Dynamics of Particles and Systems by Stephen T. Thornton & Jerry B. Marion
(5ed, Brooks/Cole, Cengage Learning)
ISBN: 0495556106

References:

Calculus and Physics at first-year college level.

Grading policy:

40% problem sets and 60% examinations, including two midterms and one final. *Tentative* exam dates are on March 23, May 11, and June 15. A detailed schedule is available online. Problem sets are announced in class and online.

No late problems will be accepted without a valid excuse approved by the instructor prior to the deadline.

Course outline (for two semesters):

1. Newtonian mechanics
2. Oscillations
3. Nonlinear oscillations and chaos
4. Gravitation
5. Calculus of variations
6. Lagrangian and Hamiltonian dynamics
7. Central-force motion
8. Dynamics of a system of particles
9. Motion in a noninertial frame
10. Dynamics of rigid bodies
11. Coupled oscillations
12. Continuous systems and waves (optional)