

理論力學(二) – 10720PHYS222000

Theoretical Mechanics (II)

授課老師：吳國安教授 Email: kuoan.wu@gmail.com

課程大綱：

This course is a sequel to the Theoretical Mechanics (I). We will continue to study basic/advanced classical mechanics topics based on materials covered in the previous semester. Tentative topics include important oscillation phenomena, nonlinear systems, non-inertial frame, rigid body rotation, special relativity, continuum mechanics, quick review of Hamiltonian mechanics, Hamilton-Jacobi equation, etc. In addition, we will discuss connections between analytical mechanics and quantum/statistical mechanics, so we have a broad view of physics. Numerical implementation of dynamical systems will be covered if time permits. This course is aimed to shorten the gap between undergraduate and graduate physics training.

上課時間：M3M4W2 (週一 10:10 – 12:00、週三 9:00 – 9:50)、教室：物理館 019

課程用書：筆記為主

參考書目：

1. “Classical Dynamics of Particles and Systems” by *S. T. Thornton* and *J. B. Marion*
2. “Analytical Mechanics” by *L. N. Hand* and *J. D. Finch*
3. “Mechanics” by *L. D. Landau* and *M. Lifshitz*
4. “Nonlinear Dynamics and Chaos” by *S. H. Strogatz*

Office Hour: 3:30PM – 5PM every Wednesday in my office (R610, Physics Building).

演習課: 6:30PM – 8:00PM every Tuesday in R620, Physics Building.

評分方式：

The course grade will be composed of

- Homework Sets (30%). Collaboration on homework set is encouraged, however each student must write up his or her own reasoning independently.
- Exams: A midterm (35%) and a final (35%).
- You’re encouraged (but not required) to devote your time to learn any **classical physics** topics you’re particularly interested in and make an oral presentation, which will be counted as one of exams.

助教：劉明威(ewanliu718@gmail.com)、王培儒(louisamry@gmail.com)