

普通物理學 甲下

上課時間: Tuesday & Thursday 10:20 am – 12:10 pm

上課地點: 綜合教室 102

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Office Hour: Tuesday, Wednesday, and Thursday 5:00pm-7:00pm

Requirements: Midterm exam 50%; Final exam 50%

Textbooks: Fundamentals of Physics, by Halliday, Resnick, and Walker, 9th edition.

授課重點

本課程每週上課四小時，上課強調基本觀念的理解與獨立的思考，並加重微積分的使用於複雜問題之計算，尤其在公式的推導過程中瞭解物理基本概念如何引入與應用。課本內容有四十五章，大致可分為力學、熱學、電磁學、近代物理四部份，我們將略過其中部份章節，因為同學在高中時已學過。講課會比高中更為深入，而微積分是基本的工具。

下學期從電學(Ch21)開始，進度大約是每週一至二章，內容包括磁學、光學與近代物理。此外我們也很重視習題的演練，每章教完都會有習題。課本以外的科學新知也會不定期補充以增加同學們對普物學習之興趣。

課程內容

- Ch. 21 Electric Charge
- Ch. 22 Electric Fields
- Ch. 23 Gauss' Law
- Ch. 24 Electric Potential
- Ch. 25 Capacitance
- Ch. 26 Current and Resistance
- Ch. 27 Circuits
- Ch. 28 Magnetic Fields
- Ch. 29 Magnetic Fields Due to Currents
- Ch. 30 Induction and Inductance
- Ch. 31 Electromagnetic Oscillations and Alternating Current
- Ch. 32 Maxwell's Equations; Magnetism of Matter
- Ch. 33 Electromagnetic Waves
- Ch. 34 Images
- Ch. 35 Interference
- Ch. 36 Diffraction
- Ch. 37 Relativity
- Ch. 38 Photons and Matter Waves