



## 教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	統計物理AA		學年/學期 Academic Year/Semester	112/2
課程名稱(英文) Course Name in English	Introductory Statistical Mechanics			
科目代碼 Course Code	PHYS3070AA	系級 Department & Year	學三	開課單位 Course-Offering Department
物理學系				
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0	
授課教師 Instructor	/張俊明			
先修課程 Prerequisite				
課程描述 Course Description				
從微觀的角度出發, 利用統計力學的方法來處理大量粒子集合之系統, 並推得系統的巨觀熱力學性質				
課程目標 Course Objectives				
系專業能力 Basic Learning Outcomes				課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	具備物理之基礎背景知識 Possessing fundamental knowledge in physical sciences.			●
B	能運用基本物理知識與邏輯推理, 分析解決物理問題 Being able to analyze and solve physics problems based on basic knowledge in physics as well as logical reasoning.			●
C	對目前測量器材有基礎認識, 且具有操作物理實驗儀器的能力 Being acquainted with modern equipment and being able to operate them for performing physics experiments.			
D	能使用基礎電腦程式語言解決物理問題 Being able to use basic computer programming for solving physics problems.			○
E	善用各種資訊平台進行論文資料蒐集的能力 Being able to use various platforms for data collection benefiting a topical research.			
F	具備科技發展的國際視野以及外語溝通的能力 Having an international view of the technology developments and being able to use a foreign language for communications			
G	能整合物理與其它領域知識 Being able to integrate the knowledge of physics with that of other fields.			
圖示說明 Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated				
授課進度表 Teaching Schedule & Content				
週次 Week	內容 Subject/Topics			備註 Remarks
1	Preparation & Introduction & The kinetic theory of gases			
2	The kinetic theory of gases			
3	Statistical thermodynamics			
4	Statistical thermodynamics			

5	Classical and quantum statistics	
6	The classical statistical treatment of an ideal gas	
7	REVIEW TEST (4/2) & 春假 4/4	
8	春假調整放假 (4/9) & Discussion of REVIEW TEST (4/11)	
9	期中考	
10	The heat capacity of a diatomic gas	
11	The heat capacity of a solid	
12	Fermi-Dirac gases	
13	Fermi-Dirac gases	
14	Bose-Einstein Gases	
15	TEST & REVIEW	
16	統物期末考	
17	學校期末考試週 Final Exam	
18	自主學習週	

### 教學策略 Teaching Strategies

- 課堂講授 Lecture
  分組討論 Group Discussion
  參觀實習 Field Trip
- 其他 Miscellaneous:

### 教學創新自評 Teaching Self-Evaluation

#### 創新教學 (Innovative Teaching)

- 問題導向學習 (PBL)
  團體合作學習 (TBL)
  解決導向學習 (SBL)
- 翻轉教室 Flipped Classroom
  磨課師 Moocs

#### 社會責任 (Social Responsibility)

- 在地實踐 Community Practice
  產學合作 Industry-Academia Cooperation

#### 跨域合作 (Transdisciplinary Projects)

- 跨界教學 Transdisciplinary Teaching
  跨院系教學 Inter-collegiate Teaching

- 業師合授 Courses Co-taught with Industry Practitioners

其它 other:

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學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績 General Performance									
期中考成績 Midterm Exam	35%	✓							
期末考成績 Final Exam	35%	✓							
作業成績 Homework and/or Assignments	30%	✓							
其他 Miscellaneous (_____)									

評量方式補充說明

Grading & Assessments Supplemental instructions

教科書與參考書目 (書名、作者、書局、代理商、說明)

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Textbook: "Classical and Statistical Thermodynamics", Ashley H. Carter (Prentice Hall).

課程教材網址(含線上教學資訊, 教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website(Including online teaching information.  
Personal website can be listed here.)

其他補充說明 (Supplemental instructions)