國立東華大學

課　　綱　Course Outline

物理學系物理組

中文課程名稱 Course Name in Chinese	統計物理				
英文課程名稱 Course Name in English	Introductory Statistical Mechanics				
科目代碼 Course Code	PHYS30700	班 別 Degree	學士班 Bachelor’s		
修別 Type	學程 Program	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite	熱物理學				

課程目標 Course Objectives	

系教育目標 Dept.’s Education Objectives	
1	物理科學人才培育，奠定物理及相關科學領域專業知識 To provide integrated education programs in view of fundamental knowledge of physical sciences and associated fields
2	培養高科技人才 To train the talent for knowledge-intensive industries.
3	培養繼續進修的理工人才 To train the talent for taking higher educational program in physical sciences.

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

課程大綱
Course Outline

1.Statistical thermodynamics
2.Classical and quantum statistics
3.The classical statistical treatment of an ideal gas
4.The heat capacity of a diatomic gas
5.The heat capacity of a solid
6.The thermodynamics of magnetism
7.Bose-Einstein gases
8.Fermi-Dirac gases
9.Modern approaches to phase transitions

資源需求評估（師資專長之聘任、儀器設備的配合・・・等）
Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)

課程要求和教學方式之建議
Course Requirements and Suggested Teaching Methods

講授、課堂及課後討論、作業、隨堂考試、期中考、期末考

其他
Miscellaneous