



課 綱 Course Outline  
物理學系應用物理碩士班國際組

|   |   |                  |                  |  |     |
|---|---|------------------|------------------|--|-----|
| 中文課程名稱<br>Course Name in Chinese  | 質譜技術原理與應用   |                  |                  |  |     |
| 英文課程名稱<br>Course Name in English  | Mass spectrometry: principle and applications   |                  |                  |  |     |
| 科目代碼<br>Course Code   | APH_M0180   | 班 別<br>Degree    | 碩士班<br>Master' s |  |     |
| 修別<br>Type  | 選修<br>Elective  | 學分數<br>Credit(s) | 3.0              | 時 數<br>Hour(s)   | 3.0 |
| 先修課程<br>Prerequisite  |   |                  |                  |  |     |
| 課程目標<br>Course Objectives   |   |                  |                  |  |     |
| 1. Essential training of professionals for research and development knowledge intensive industries. |   |                  |                  |  |     |
| 2. Professional training for college physics teaching.  |   |                  |                  |  |     |
| 3. Promoting the teaching and researching potential of the department and the college.              |   |                  |                  |  |     |
| 4. Professional training in mass spectrometry research.   |   |                  |                  |  |     |
| 系教育目標<br>Dept.' s Education Objectives  |   |                  |                  |  |     |
| 1   | 培養具有研發能力的高科技人才<br>Essential training of professionals for research and development knowledgeintensive industries. |                  |                  |  |     |
| 2   | 培養繼續進修的物理人才<br>Inspiring young people to take a higher education program in physics.                              |                  |                  |  |     |
| 3   | 厚植本系所及理工學院之教學與研究水準<br>Promoting the teaching and researching potential of the department and the college.         |                  |                  |  |     |
| 4   | 培養物理專業研究人才<br>Professional training in physics research.  |                  |                  |  |     |
| 系專業能力<br>Basic Learning Outcomes  |   |                  |                  | 課程目標與系專業能力相關性<br>Correlation between Course Objectives and Dept.' s Education Objectives |     |
| A   | 具備物理與相關應用領域之專業知識<br>Possessing professional knowledge in physics and related application fields.                  |                  |                  | ●  |     |

|   |   |   |
|---|---|---|
| B | 能以物理知識與邏輯推理，分析解決物理問題<br>Being able to analyze and solve physics problems based on basic knowledge in physics as well as logical reasoning.          | ● |
| C | 瞭解當代實驗儀器之原理，並具備操作實驗儀器之能力<br>Understanding the principles of up-to-date equipment and being able to operate them for performing physics experiments. | ○ |
| D | 能利用電腦處理各類物理問題<br>Being able to use computers for solving various physics problems.  | ○ |
| E | 對學術倫理有清楚正確之認知<br>Properly and clearly acknowledging the academic ethics.  | ○ |
| F | 具備以口頭報告及論文寫作發表研究成果之能力<br>Possessing the skills of oral presentation and scientific writing for publishing research findings.                        | ○ |
| G | 具備科技發展之國際觀及外語溝通能力<br>Having an international view of the technology developments and being able to use a foreign language for communications.       | ○ |

圖示說明Illustration：● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

課程大綱  
Course Outline

1. Introduction
2. Ionization methods
3. Mass analyzers
4. Tandem mass analysis
5. Separation techniques with mass spectrometry and chromatography

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.)

Mass spectrometry equipment including ion trap, time-of-flight mass spectrometers.

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

Lecture, homework, midterm and final examinations.

其他  
Miscellaneous