

## Advanced Analytical Chemistry

Credits: 3

Lecturer: Der-Lii Tzou 鄒德里老師 [tzougate@gate.sinica.edu.tw](mailto:tzougate@gate.sinica.edu.tw)

Classroom: A507, Institute of Chemistry, Academia Sinica

Class hour: Thursday, 09:00-12:00

### Major Topics:

- Basics of Analytical Chemistry
- Physical Methods for Structural Characterization (NMR, MS, EM)
- Optical Microscopy
- Biosensor

### Course Syllabus:

| Week | Date | Topic                                           | Professor                      |
|------|------|-------------------------------------------------|--------------------------------|
| 1    | 2/22 | Introduction                                    | Der-Lii Tzou                   |
| 2    | 3/1  | General Principles in Analytical Chemistry      | Yu-Ju Chen                     |
| 3    | 3/8  | Fundamental of Mass Spectrometry                | Yi-Sheng Wang                  |
| 4    | 3/15 | Application of Mass Spectrometry                | Yu-Ju Chen                     |
| 5    | 3/22 | NMR Spectroscopy-Fundamental and Application I  | Der-Lii Tzou                   |
| 6    | 3/29 | NMR Spectroscopy-Fundamental and Application II | Der-Lii Tzou                   |
| 7    | 4/5  | No Class (Ancestor Memorial Day)                |                                |
| 8    | 4/12 | Lab (MS & NMR)                                  | Der-Lii Tzou<br>Yu-Ju Chen     |
| 9    | 4/19 | Fundamentals of Light Microscopy                | Chau-Hwang Lee                 |
| 10   | 4/26 | Super-resolution Light Microscopy               | Chau-Hwang Lee                 |
| 11   | 5/3  | Surface Spectroscopy                            | Jing-Jong Shyue                |
| 12   | 5/10 | Electron Microscopy                             | Wei-Hau Chang                  |
| 13   | 5/17 | Nanotechnology                                  | Chun-Hong Kuo                  |
| 14   | 5/24 | Lab (LM & Biochip)                              | Jen-Tse Huang<br>Hsiung-Lin Tu |
| 15   | 5/31 | Midterm Exam                                    | Yu-Ju Chen                     |
| 16   | 6/7  | SPR sensing                                     | Pei-Kuen Wei                   |
| 17   | 6/14 | Biochip- Microarray and Microfluidic chip       | Ji-Yen Cheng                   |
| 18   | 6/21 | Final Presentation                              | Der-Lii Tzou                   |

**Grading:** Midterm Exam: 50%    Final Presentation: 40%    Attendance: 10%