

Instructor: Ying-Ling Liu, 劉英麟, Ph.D. Dept. of Chemical Engineering  
E-mail: to be announced in the ChE Department website

**Course description:** Instrumental analysis is linked with many fields of science and engineering. Due to the large number and diversity of instrumental methods, beginners typically will need a large amount of work to collect the necessary knowledge in order to understand of the fundamentals of the methods.

**ChE 3090-02 Instrumental Analysis** is an integrated course of lectures and laboratories and you will be exposed to a wide variety of analytical instrumentation and techniques.

### **Required Text Book**

**Principles of Instrumental Analysis**, 6th Ed., by Douglas A. Skoog et al.  
Thomson Brooks/Cole, CA

### **Course introduction**

#### **Part I**

Chapter 1,6: An Introduction to Spectrometric Methods  
Chapter 9: Atomic Absorption Spectrometry  
Chapter 12: Atomic X-ray Spectrometry  
Chapter 13,14: Ultraviolet Molecular Absorption Spectrometry

#### **Exam #1**

#### **Part II**

Chapter 16,17: Infrared Spectrometry  
Chapter 19: Nuclear Magnetic Resonance Spectrometry  
Chapter 26: Chromatographic Separation; TA comes in for lab arrangement  
Chapter 27,28: Gas Chromatography/Liquid Chromatography

#### **Exam #2**

#### **Part III**

#### **Wet Lab**

Laboratory 1  
Laboratory 2  
Laboratory 3  
Laboratory 4  
Laboratory 5  
Laboratory 6; **Lab Exam.**

**Grading:** Exam #1 (30%), Exam #2 (40%), Laboratory (25%), Homework + Attendance (5%)

**Make-Up Exam:** If you miss an exam for medical reasons, you will need a description from a doctor in order to take a make-up. Exams missed for personal reasons will be judged based upon situations. Anyone unable to take an exam must make every effort to contact me before the test through phone or e-mail to be considered for a make-up.

**Office hours:** Thursday, 11:00-12:00 AM (Chemical Eng. Building, 4F), and by e-mail appointment.