

# Spectroscopic Identification of Organic Compounds

1 credit hours, Summer 2018

**Lectures:** Two hours every day

**Instructor:** Dr. Yi Pang

**Textbook:** Spectrometric Identification of Organic Compounds 8<sup>th</sup> ed; Silverstein; John Wiley & Sons

Due to the short time period, we do not go through the topic in the same order as outlined in the textbook. The book is intended as a reference, and for further study.

## **Course description:**

The class will be focusing on the basic concepts and principles used for the spectral analysis of organic compounds. Specifically, the lectures will be concentrated on how to use the modern instrumentation as a powerful tool for structural determination of complicated organic compounds. The class discussion will include the most commonly used techniques and instrumentations, including Infrared (IR) Spectroscopy, Nucleus Magnetic Resonance (NMR) and Mass Spectroscopy. The discussion will also discuss the practical tips about acquiring the desired spectral information, in order to solve the challenging problems.

**Course goal:** To help students to gain basic knowledge and skills in using the spectroscopic methods

- in acquiring the spectral information by using available modern instrumentation(s), e.g. IR and NMR;
- in routine identification of the organic compound structure based on given spectral information;
- and in seeking advanced spectral information for solving the challenging structural problems.

## **Estimated Course Contents Coverage/Progress**

Infrared Spectroscopy	(4 hours)
Proton NMR spectra and analysis	(8 hours)
Carbon-13 NMR	(4 hours)
Basic concepts in Correlation NMR (2-D NMR)	(2 hours)

## ***Work Problems***

Work on the assigned problems from the book.

## **Grading**

## **Typical Grade Cut-offs**

- A: 90 and above
- B: 80
- C: 70
- D: 60
- F: below 60

You are required to attend the class. The only valid reasons for missing an exam are illness. Make-up exams can only be given if advanced notification is provided or upon presentation of a doctor's note. All make-up exams must be administered before the exams are returned to the class. Exams not made-up by this time for any reason will receive a score of zero.

### ***Working in Groups***

Most learning takes place *outside* of the classroom. Although lectures should put things in perspective, working through the textbook, and solving the problems is when you will learn more from the discussed topics. We encourage you to work together on these reading and problem assignments. Although you might study in groups, remember that you are ultimately responsible for your learning.