

Introduction to Nanotechnology (A)

Credits: 3

Instructors: Dr. Wang, Pen-Cheng 王本誠教授, Dr. Yang, Chung Shi 楊重熙教授

Class hour: Friday **13:10-16:10**

Classroom: Room **302**, ESS, NTHU

Introduction:

- Ability to apply professional engineering and science knowledge.
- Apply knowledge proficiently in the fields of low-carbon green energy, nanotechnology and system technology.
- Ability to conduct experiments and simulations to survey engineering problems, and solve them independently.
- Be able to read and write technical papers and give technical presentations.
- Be able to integrate engineering systems, devices and processes.
- Enable students to plan, lead and collaborate.
- Analyze engineering problems and propose innovation solutions.
- Know global development trends of industries, understand how engineering techniques influence the environment, society and world, and develop the ability to continue learning.
- Understand one's professional ethics and social responsibility.

This course is offered for junior/senior undergraduate students and graduate students with physical science or engineering backgrounds who previously have no extensive exposure to biochemistry. This course consists of lecture series and hands-on experiments. The topics covered in this course include:

- (1) Basic Organic Chemistry
- (2) Biomolecules
- (3) Modern Bioanalytical Techniques

Reference:

1. General, Organic and Biochemistry, Katherine J. Denniston, Joseph J. Topping and Robert L. Caret, McGraw Hill, 2004.
2. Bioanalytical Chemistry, Susan R. Mikkelsen and Eduardo Corton, John Wiley & Sons, 2004.

Method:

Lectures and hands-on experiments (Protein Adsorption on Modified Silica Surfaces with Various Self-Assembled Organosilane Coatings, Fabrication of Protein Arrays, Fluorescence Immunoassays Using Protein Biochips)