

Advanced Chemical Biology (II) (3 hours/week)

Textbook:

- (1) Modern Organic Synthesis: An Introduction
George S. Zweifel and Michael H. Nantz
W. H. Freeman and Company, 2007
- (2) Organic Synthesis: The Disconnection Approach
Stuart Warren
Wiley, 1982

(1) Synthetic Design

Retrosynthetic analysis
Steps in planning a synthesis
Stereochemical considerations

(2) The Concept of Protecting Functional Groups

Protection of NH groups
Protection of OH groups of alcohols
Protection of carbonyl groups
Protection of carboxyl groups
Protection of double bonds

(3) Functional Group Transformations

Oxidation and reduction
The chemistry of π -bonds and related reactions

(4) Formation of Carbon-Carbon Single Bonds

Enolates
Organometallic reagents

(5) Formation of Carbon-Carbon π -Bonds

Formation of double bonds
Formation of triple bonds

(6) Synthesis of Biomolecules

Combinatorial chemistry
Peptide chemistry
Carbohydrate synthesis
Nucleoside and nucleotide chemistry

評分標準：本課程將依據上課進度及時程安排進行期中及期末兩次考試，各占40%，另有平時小考成績占20%，學期總成績將由此加總分數來評定。考試時學生需準時參加，並且不得有作弊的行為，除了因公務或疾病原因外（需醫院證明），缺考者該次考試成績以零分計算。