

Advanced Organic Chemistry---2020 spring semester

A. Course Description

The course in advanced organic chemistry gives extended knowledge in the field of organic synthesis. The students will gain a deeper understanding of advanced synthetic methods as well as a broader knowledge regarding organic reactivity. The important aspects of reactivity and selectivity of a particular transformation within the field of organic synthesis will be discussed in this course. In particular, organic reactions for controlling the chemo-, regio- and stereoselectivity are highlighted.

B. Lecturers

Dr. Wen-Shan Li 李文山 (wenshan@gate.sinica.edu.tw)

C. Lecture time & place

Thursdays 13:30 - 16:30, classroom B105 (3 sessions / week, 50 min / session)

D. Text Book

"Advanced Organic Chemistry, Part B: Reactions and Synthesis" by Francis A. Carey and Richard J. Sundberg. 5th edition. New York, NY: Springer, 2007.

E. References

1. "The Art of Writing Reasonable Organic Reaction Mechanisms" by Robert B. Grossman, New York, NY: Springer.
- II. "The Logic of Chemical Synthesis" by E. J. Corey and Xue-Min Cheng, John Wiley & Sons, Inc.

F. Teaching Method

Oral

G. Lecture Dates and Syllabus

May 7 Nucleophilic Substitution and Elimination

May 14 Oxidations and Reductions

May 21 Reactions of Aromatic Compounds

May 28 Photochemistry and Free-Radical Reactions

June 4 Cycloadditions and Rearrangements

June 11 Organometallic Compounds in Organic Synthesis

June 18 Transition Metal-Catalyzed and Mediated Reactions

June 20 (compensated for June 26th holiday) The Logic of Chemical Synthesis (retrosynthetic analysis and strategy in total synthesis) and Final Exam (**6/25 Dragon Festival holiday**)