

# Advanced Organic Chemistry---2022 spring semester

## A. Course Description

The course in advanced organic chemistry gives comprehensive 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. Lecturer

Dr. Jiun-Jie Shie 謝俊結 ([shiej@gate.sinica.edu.tw](mailto:shiej@gate.sinica.edu.tw))

## C. Lecture time & place

Thursdays 13:30–16:30, classroom B105, Institute of Chemistry, Academia Sinica  
(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. 5<sup>th</sup> edition. New York, NY: Springer, 2007.

## E. References

I. "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

**April 14** Nucleophilic Substitution and Elimination

**April 21** Oxidations and Reductions

**April 28** Reactions of Aromatic Compounds

**May 5** Cycloadditions and Rearrangements

**May 12** Photochemistry and Free-Radical Reactions

**May 19** Organometallic Compounds in Organic Synthesis

**May 26** Transition Metal-Catalyzed and Mediated Reactions

**June 2** Final Exam