



<http://www.scripps.edu/rebek/>

## Department of Chemical Sciences

Graduate Course on

### Organic and Inorganic Chemistry

#### How to plan synthesis of new molecules?

This course will highlight tools and methodologies that aid in sculpting molecules. I will provide a comprehensive insight into advanced organic and inorganic chemistry starting with a brief overview of basic concepts and then delve into recent applications in allied fields of chemical biology, bio-organic, and bio-inorganic chemistry.

#### Course Contents

- How to introduce new functionalities into a molecule? Functional group interconversions and bio-conjugation reactions
- Tracking and trapping reactive intermediates
- Methodologies for making receptors and ligands
- Organometallic chemistry and applications in biology
- How to design new molecules: Principles of retrosynthetic analysis and multistep synthesis
- Special topics on chemistry within cells, chemical probes, carbon-hydrogen bond activation, catalysis, light-activated reactions, supramolecular chemistry, and routes from synthetic biology to new chemistry.

#### Prescribed Text:

1. Advanced Organic Chemistry, Francis A. Carey and Richard J. Sundberg, Part B: Reactions and Synthesis
2. The Organometallic Chemistry of the Transition Metals, Robert H. Crabtree, 5<sup>th</sup> Edition

(For detailed course content, see Courses in the webpage of the Chemistry Subject Board)

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**Venue:** Lecture room AG-80

**Days:** Tuesdays; Time: 11 hr to 12:30 hr

Thursdays; Time: 11 hr to 12:30 hr

*The first lecture starts on August 24<sup>th</sup>, 2023.*