



OC301 Aug 3:0

Organic Synthesis -II

Instructor

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Department: Organic Chemistry

Course Time: Tue Thu 11:30-13:00

Lecture venue: MMCR Lecture hall, Organic Chemistry

Detailed Course Page:

Announcements

Brief description of the course

The course is designed to teach advanced organic chemistry for students who have registered for regular PhD. This is also a course for integrated PhD students who study advanced organic synthesis after completion of mandatory organic chemistry courses. UG students who completed the above courses taken by int. PhD students. The course is designed to give an in depth analysis of the growth of organic synthesis with special emphasis on the advances in contemporary organic synthesis.

Prerequisites

students who have registered for regular PhD after passing MSc examination, integrated PhD students who have completed the mandatory organic chemistry courses and UG students as an elective after completion of the required courses in organic chemistry

Syllabus

Organic synthesis and total synthesis of complex natural products: Advances in C-C bond forming reactions; Olefination reactions; Olefin metathesis including alkyne metathesis; Synthesis of alkynes; Asymmetric addition of Grignard reagents, organozinc and lithium reagents to carbonyl compounds; Directed lithiation,

chiral lithium reagents; alkylation of carbonyl compounds including asymmetric alkylation. Addition of organometallic reagents to imines, Asymmetric acetate/ propionate aldol reaction. Asymmetric allylation of carbonyl compounds; Ring forming reactions, Baldwin rules; cyclopentannulations with specific application to triquinanes. Advances in carbocation rearrangements. Inverse electron demand Diels Alder reaction/ Hetero Diels Alder reaction: Application of the above in the total synthesis of natural products including natural products of contemporary interest in current literature.

Course outcomes

After the completion of the course, the students would learn the application of retrosynthetic analysis in organic synthesis. The special emphasis on bio-active natural products synthesis gives them an idea of planning, design, understanding the mechanistic implications and execution of synthetic organic chemistry which is pivotal in organic chemistry. After the completion of the course the students would be able to theoretically devise strategies for the synthesis of simple to complex organic molecules synthesis.

Grading policy

The grading policy is based on mid term examination, assignment and final examination

Assignments

the students are asked to propose synthetic planning of a targeted natural product.

Resources

Wyatt P. and Warren S, Organic Synthesis, Strategy and Control,; Wiley 2007. Nicolaou, K.C., Sorensen, E.J., Classics in Total Synthesis, Wiley VCH, NY 1996. Warren S. Organic Synthesis: The Disconnection Approach, Wiley, NY, 1982. Nicolaou, K. C., Classics in Total synthesis I and II; Wiley-VCH, Weinheim 2003; Current literature