Metropolitan State University

CHEM 435: Advanced Organic Chemistry Lab

A. Course Description

Credits: 2

Prerequisites:
CHEM 231L Organic Chemistry I Lab AND
CHEM 332L Organic Chemistry II Lab

Lab Hours/ Weeks:
Corequisites: CHEM 433 - Advanced Organic Chemistry

Lecture Hours/ Week :

MnTC Goals: None

This upper-division elective laboratory course is designed for chemistry majors and minors who have completed Organic Chemistry 1 and 2 lab courses (CHEM 231L and CHEM 332L). This two credit lab course is designed to be taken concurrently with CHEM 433, Advanced Organic Chemistry lecture. Students will gain experience with techniques of multistep synthesis, handling of moisture and air sensitive reagents, solid phase chemistry, assymetric catalysis, chromatography, and further their understanding of analytical techniques such as simple and multidimensional NMR, mass spectrometry, GC or HPLC, and IR.

B. Course Effective Dates: 05/05/2015 - Present

C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Safely conduct a multistep synthesis using a chemical fume hood, characterizing intermediates and product.
2. Learn techniques of chemical handling for moisture and air-sensitive compounds.
3. Utilize solid support resins for either synthesis or reagent scavenging/purification processes.
4. Utilize assymetric catalysts to effect a stereospecific transformation.
5. Perform preparative scale column chromatography.
6. Interpret complex 1-D (APT and DEPT) and 2-D NMR (COSY, NOESY, HMBC/HSQC) experiments.
7. Utilize FTIR, MS data, and GC to characterize final products.
8. Understand the different methods (traditional and electronic) of laboratory recordkeeping.

E. Learning Outcomes (MN Transfer Curriculum)

This contains no goal areas.

F. Special Information

Corequisite: This Lab is designed to be taken concurrently with CHEM 433 Advanced Organic Chemistry Lecture. Note: First day attendance required except by instructor permission.