UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Laboratory of Organic Chemistry III

2021-3-E2702Q101-E2702Q103M

Aims

Elements of functional groups elaboration and organic synthesis

Contents

examples of single and/or multi step organic reactions involving functional group transformations (dehydration, reduction, oxidation), diazocopulation reaction (synthesis of methylorange dye), and an aldol condensation

Detailed program

- reduction of a keton

- Friedel Crafts Alkylation

- Oxidation of an aldehyde under green conditions

- dehydration of an alchool

- synthesis of an azo dye

- Diels Alder reaction

- Aldol condensation

Prerequisites

Sound knowledge of basic organic chemistry, common glassware, basic lab techniques and physicochemical principles of purification techniques and qualitative analysis (i.e. simple and fractional distillation, steam distillation, melting point). Such knowledge is summarized in the recommended books.

Teaching form

Lab experiences about the reactions and processes described in the detailed program

During the period of covid-19 pandemic the lessons will be delivered in a blended mode: part of the lessons and activities in the lab and part of them with videorecorded media.

In detail, the students will be assigned to 3 shifts according to the reduced capacity of the lab in order to comply with social distancing and safety rules. Every student will be part of a virtual group with other 2 students from different shifts. Each of them will execute only a fraction of activities in the lab while sharing data and feedbacks relative to the other ones with other members of the same virtual group through the online platform (LMS or other).

The students will be advised to realize and share their own media amongts the virtual group.

This material will be supported by edited videorecordings made available by the teacher for every activity.

In the case of a new stricter lockdown preventing the presence of students in the lab, the course will be issued using the pre-recorded videos along with remote discussion activities.

Textbook and teaching resource

lab book prepared by the teacher.

Suggested books:

Understanding the Principles of Organic Chemistry: A Laboratory Course, Reprint, 1st Edition Steven F. Pedersen, Arlyn M. Myers ISBN 9781111428167

A Small Scale Approach to Organic Laboratory Techniques, 4th Edition Donald L. Pavia, George S. Kriz, Gary M. Lampman, Randall G. Engel ISBN 9781305253926

Semester

third year first semester

Assessment method

In details, the student will be evaluated on the basis of the capability to safely work in an organic chemistry lab, according to the best practices for every procedure. The capability to work in a team as well as the experimental results will be evaluated Finally, the quality and clarity of (individual) lab reports will be evaluated according to these points:

- handling of errors in calculations

- comprehension of basic principles of the lab procedures

- exhaustive and correct exposition of experimental observations and results along with their discussion

A description of the report structure with a short description of the sections will be made available.

Office hours

upon request