UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Laboratory of Organic Chemistry III

2324-3-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 acid orange 7 dye), an aldol consensation and a simple multistep synthesis.

Detailed program

- reduction of a keton
- Friedel Crafts Alkylation
- Oxidation under green conditions
- dehydration of an alchool
- synthesis of an azo dye
- cyclohexene oxidation to adipic acid
- aldol condensation
- multistep synthesis of an amide (imine formation - reduction - acylation)

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

In detail, the students will be assigned to groups according to the maximum lab capacity (number of fume hoods). Whenever possible, shorts introductory videos aimed to highlight key aspects of the lab activities will be made available on the e-learning (LMS) platform. A short lesson (15-20 min) will also take place before each lab activity to further highlight key aspects.

Teaching language will be italian.

Textbook and teaching resource

Suggested books:

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

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

Semester

third year first semester. Start on september 25 2023

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 calculation
- 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.

The **limit report due date is February 1 2024**. After such deadline reports will still be accepted but a penalty up to

3 points will be applied on the final mark.

Office hours

upon request

Sustainable Development Goals

CLEAN WATER AND SANITATION