

The Hebrew University of Jerusalem

Syllabus

FUNDAMENTAL LAB OF ORGANIC SYNTHESIS - 69950

Last update 04-08-2019

HU Credits: 4

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Chemistry

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Prof. Raed Abu-Reziq

Coordinator Email: Raed.Abu-Reziq@mail.huji.ac.il

Coordinator Office Hours: By appointment

Teaching Staff:

Prof Raed Abu-Reziq
Ms. Sofie De-Botton
Mr. Gal Horesh
Mr. Ori Shalev

Course/Module description:

The primary goal of this course is to foster independence in design and safe implementation of multistep experimental procedures to achieve a stated objective. Supporting this are many other goals including meticulous recordkeeping in a laboratory notebook and of spectral data. New experimental techniques will be introduced including macro-scale synthesis and the handling of air-sensitive compounds. Finding relevant information using databases such as SciFinder and Science Citation Index is focused.

Course/Module aims:

See Learning Outcomes.

Learning outcomes - On successful completion of this module, students should be able to:

Independently design multistep experimental procedures to achieve a stated objective.

Safely synthesize organic compounds in multistep procedures.

Meticulously document experimental procedures and spectral data of organic compounds.

Search and find relevant information for organic syntheses using known databases.

Attendance requirements(%):

100%

Teaching arrangement and method of instruction: Laboratory.

Course/Module Content:

The students will perform individual experiments, which include separation of a mixture of two organic compounds by chromatographic methods, and identify each of them spectroscopically. They will carry out syntheses that include selective oxidations, hydrogenation, resolution of chiral compounds, diazotizations, various rearrangements, preparation of heterocyclic and organometallic compounds,

experiments that involve sulfur, phosphorus or boron moieties, experiments that include special technologies (low temperature syntheses, work with gaseous reagents), and syntheses that include reactive intermediates (carbenes, carbonium etc.). The student will have to report on the results and deliver their purified products.

Required Reading:

Will be defined specifically for each experimental procedure.

Additional Reading Material:

Course/Module evaluation:

End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 100 %
general evaluation

Additional information:

The lab will take place in the first 7 weeks of the semester.

Evaluation and grading criteria will be described to the students in the beginning of the course.

When evaluating students' grades, the complexity and difficulty of synthetic methods will be taken into account.