



## Syllabus

# ORGANIC CHEMISTRY B - 64311

*Last update 03-09-2018*

HU Credits: 4

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: School of Pharmacy

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Ein Karem

Course/Module Coordinator: Dr. Dmitry Tselikhovsky

Coordinator Email: [dmitryt@ekmd.huji.ac.il](mailto:dmitryt@ekmd.huji.ac.il)

Coordinator Office Hours: In coordination with a lecturer

Teaching Staff:

Prof Dmitry Tselikhovsky

Mr. David Lankri

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Course/Module description:

The course provides students with basic knowledge in organic chemistry. The course includes terminology methods, the properties and important reactions of families with the following functional groups: alkanes, alkenes and Alkynes, Halo-alkanes, aromatic systems, alcohols, ethers, aldehydes and ketones.

Course/Module aims:

The course provides the students with basic knowledge of organic chemistry that will enable them to cope with understanding the synthesis concepts

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

On successful completion of this module, students should be able to: 1) Identify functional groups and remember their most important reactions. 2) Examine an organic molecule and construct its systematic name. 3) Suggest reagents and plan a practical way to synthesize desired organic molecules.

Attendance requirements(%):

None

Teaching arrangement and method of instruction: 3 hours lecture and one hour exercise

Course/Module Content:

1. Reactions of Alcohols, Ethers, Epoxides and Thiols
  - Nucleophilic substitution reactions: forming Alkyl halides
  - Elimination reactions: Dehydration
  - Oxidation
  - Reactions of ethers and epoxides
  - Thiols
2. Organometallic Compounds
3. Reactions of Aldehydes and Ketones
  - Nomenclature of aldehydes and ketones
  - Structures
  - Physical properties
  - Relative reactivity of carbonyl compounds
  - Reaction with nucleophiles

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#### 4. Reactions at the $\alpha$ -Carbon of Carbonyl Compounds

- Acidity of  $\alpha$ -Hydrogens
- Keto-Enol Tautomerism
- Halogenation of the  $\alpha$ -Carbon of Aldehydes and Ketones
- Enolate ion
- Alkylation of the  $\alpha$ -Carbon of Aldehydes and Ketones
- Enamines
- Michael Reactions
- Aldol addition
- Claisen Condensation

#### 5. Reactions of Carboxylic Acids and Carboxylic Derivatives

- Nomenclature
- Structures
- Physical properties
- Relative reactivity of acids and derivatives
- Nucleophilic additions-elimination reactions
- Acyl chlorides
- Esters
- Hydrolysis and Esterification

#### 6. Aromatic compounds

- Nomenclature
- Reactions

#### 7. Dienes

- Nomenclature
- Reactions

#### Required Reading:

Textbook-Paula Yurkanis Bruice (updated version)

#### Additional Reading Material:

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#### Course/Module evaluation:

End of year written/oral examination 100 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 0 %

Reports 0 %

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*Research project 0 %*  
*Quizzes 0 %*  
*Other 0 %*

*Additional information:*

*The obligation to submit 80% of the exercises.*