

27111 - Organic Chemistry

Información del Plan Docente

Academic Year	2017/18
Faculty / School	100 - Facultad de Ciencias
Degree	446 - Degree in Biotechnology
ECTS	6.0
Year	2
Semester	Half-yearly
Subject Type	Compulsory
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

Global methodological presentation

The learning process is based on the following points:

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The theoretical sessions consist mainly in lectures with the whole students group. (3.5 ECTS)

The sessions devoted to solve problems and practical cases could be developed individually or in groups depending on the proposed case. It is compulsory the participation of the students. (1.9 ECTS). In the practical cases, it is fundamental the correct interpretation of the experimental results. (0.6 ECTS)

The students are expected to participate actively in the class throughout the semester .

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other learning resources such as news related with Biotechnology.

Further information regarding the course will be provided on the first day of class.

5.2.Learning tasks

The program includes the following learning activities:

Acquisition of basic knowledge on Organic Chemistry. This activity is developed in 35 hours of theoretical lectures. The particular questions could be solved in tutorial activities in both individual or small groups.

The material used in the lectures as well as some complementary resources will be available to the student in the Digital Teaching Ring.

Some activities devoted to solving problems and practical questions could be developed in small groups. This activity will involve 19 hours.

5.3.Syllabus

The training activities will follow the next program content:

BASIC CONCEPTS IN ORGANIC CHEMISTRY.

NOMENCLATURE.

STEREOMERISM: Conformation and configuration in Organic Chemistry. Constitutional isomers and stereoisomers.

CHARACTERIZATION OF ORGANIC COMPOUNDS. SPECTROSCOPIC METHODS.

ORGANIC REACTIONS: Classification. Reaction mechanisms. Reaction intermediates. Thermodynamic and Kinetic control in organic reactions. Acids and bases, Electrophiles and nucleophiles.

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REACTIVITY OF ORGANIC COMPOUNDS.

ALKANES AND CYCLOALKANES: Conformational analysis. Radical reactions.

INSATURATED ALIPHATIC HYDROCARBONS: Alkenes and alkynes. Electrophilic additions. Radical additions. Cycloaddition reactions.

AROMATIC HYDROCARBONS: Electrophilic aromatic substitution.

ALKYL HALIDES: Nucleophilic aliphatic substitution S_N1 and S_N2. Elimination reactions E1 and E2.

ALCOHOLS, PHENOLS AND ETHERS: Activity as nucleophiles. Elimination and oxidation reactions.

AMINES AND ANILINES: Activity as nucleophiles. Dyazonium salts.

CARBONYL COMPOUNDS: Aldehydes and ketones. Nucleophilic addition.

CARBOXYLIC ACIDS AND DERIVATIVES: Nucleophilic substitution. Reduction reactions. Activity of enolates as nucleophiles.

BIOORGANIC CHEMISTRY.

The contents related with this subject will be addressed in the previous ones as specific examples.

5.4.Course planning and calendar

The period of lectures and practical classes corresponds to that officially established.

It is possible to consult this information in: <http://ciencias.unizar.es/grado-en-biotecnologia>

5.5.Bibliography and recommended resources