

Teachers' guide – summary sheet

Initial Identification details:

Title:	Degree in Biotechnology (Plan 2009)
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Faculty/School:	Bio-Health Sciences
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Course subject:	Organic Chemistry
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Type (3):	Basic Teaching
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Credits ECTS:	6
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Year / Semester (4):	1st Year-2nd Semester
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Code (1):	2019
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Subject (2):	Chemistry
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Module (2):	Fundamental Sciences
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Language (5):	Spanish
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Total Number of hours undertaken by pupil (6):	150
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Brief description of the course (7):

<p>Chemistry is one of the basic disciplines of science focused on the study of matter and its transformations.</p> <p>Within the different branches of chemistry Organic chemistry is defined as part of chemistry devoted to the study of carbon chemistry and its transformations.</p> <p>Therefore, the study of this area is needed to understand many of the reactions involved in processes of high biotechnological interest.</p>

Prior Knowledge (8):

<p>The student submitting the field of organic chemistry will make optimal use of subject if you have knowledge level of 2^o Spanish High School for the subject of chemistry.</p>
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General objective (9)

<p>Knowing the atomic structure of carbon, its various links and possible spatial distributions of the same together with possible functional groups, reactivity and reaction mechanisms of these functions.</p>
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Skills / Abilities:

General (10):

Acquire a solid technological and humanistic training necessary for the development of the professional activities.
Encourage the restlessness for knowledge as a key tool in the process of personal and professional growth for the student.
Develop the ability to search, assimilation, analysis, synthesis and reporting relationship.
Know the principles and basic tenets of the experimental sciences and humanities
Develop skills of oral and written communication.
Understand the principles and fundamental laws of physics, mathematics, chemistry and biology as the basis of the mental structure of biotechnologist.
Acquire the skills required for experimental work: conducting, collecting and drawing conclusions, understanding the limitations of the experimental approach.
Ability to work in a team and manage groups.
Acquiring the ability to think analytically, synthetically, reflectively, critically, theoretically and practically.
Capacity for problem solving and decision making.
Know how to plan time effectively.
Develop the capacity and commitment for own learning and personal development.

Specific (10):

Identify the structure and reactivity of the major physiological functions.
Understand the basic principles of organic reaction mechanisms and be able to propose plausible synthetic routes.
Work properly in a laboratory with biological material (bacteria, fungi, viruses, animal and plant cells, plants and animals) including security, handling and disposal of biological waste.
Properly organize and plan work in the laboratory.
Identify and define instruments and laboratory materials.
Able to describe, quantify, analyze and critically evaluate the results of experimental work in the laboratory.
Develop habits of rigorous thought.
Ability to communicate orally and in writing the acquired knowledge.
Know how to apply theoretical knowledge to problem solving and case studies related to various subjects.
Learn teamwork and coordinated effectively.
Being able to self-evaluate the knowledge acquired.

Complementary (11):

Identify the various asymmetric centers and their configuration in an organic compound.
Mechanistically complete an organic reaction.
Know and apply rules and general principles of health and safety in laboratories.

Brief index to subjects (12):

- Item 1. Atomic structure and chemical bonding
- Item 2. Physiological functions and isomerism
- Item 3. Alkanes, alkenes and alkynes
- Item 4. Aromatics
- Item 5. Halogenated
- Item 6. Alcohols, phenols and thiols
- Item 7. Aldehydes and ketones
- Item 8. Carboxylic acids and derivatives
- Item 9. Nitrogen compounds

- Item 10. Cyclization reactions
- Item 11. Synthetic routes of interest

Laboratory practicals

Teaching Activities (13) (Approximate % as a function of total credits, considering solely those activities where the student's presence is required and that these represent between 30% and 40%)

Theory classes:	65%
Practical Classes:	30%
Workshops/Labs/Presentations:	5%
Others:	0%
Total:	100%

Evaluation system:

Examinations:	60%
Assistance and participation:	0%
Course work:	10%
Others:	30%
Total:	100%

Specifics of evaluation (14):

- Written exam consisting of short questions to develop and solve practical cases: 60%
- Preparation and submission of papers: 10%
- Implementation for practical work in the laboratory: 20%
- Preparation and presentation of exercises and case studies: 10%

Basic bibliography (15):

- Clayden, J; Greeves, N.; Warren S.; Wothers P. (2006). *Organic Chemistry*. Oxford University Press, Oxford.
- Loudon, M. (2006). *Organic Chemistry*. 4a ed. Oxford University Press, Oxford.
- Wade, LG. (2004). *Química Orgánica*. 5ª ed. Pearson Prentice Hall, Madrid.
- Hart, Craine & Hart. (1999). *Química Orgánica*. 9ª ed. Mc. Graw Hill/Interamericana, Madrid.
- Morrison RT, Boyd RN. (1998). *Química Orgánica*. 5ª ed. Pearson Prentice Hall, Madrid.

- (1) Code of the course
- (2) Description as per the Verified Memorandum
- (3) May be either: Basic Teaching, Obligatory, Optional, External Practices, or Final Degree Work.
- (4) May be either: First Year - 1st semester and (or) 2nd semester; Second Year - 3rd semester and (or) 4th semester; Third Year - 5th semester and (or) 6th semester; Fourth Year – 7th semester and (or) 8th semester.
- (5) The language in which the course will be taught
- (6) The total number of hours that the student will dedicate to the course. Being approximately twenty-five hours for each ECTS, accounting for all activities.
- (7) Between three and five phrases that summarize the description of the course.
- (8) Corresponds to those recommendations to aid taking the course. A brief recommendation is written. If they are not required, one specifies "those corresponding to the degree".
- (9) Set out the general objective of the course, writing a sole objective.
- (10) The skills as set out in the Verified Memorandum along with the abbreviations corresponding to each of them
- (11) One can add various other skills that are not in the Verified Memorandum and which the teacher deems relevant
- (12) The main thematic blocks of the course
- (13) In this case neither tutorials nor evaluations are included. Only those activities where the student is present.
- (14) Explain the process of evaluation that has been set out previously in percentages with three brief phrases
- (15) Three to ten references should be detailed.

