

390110 - FQ2 - Chemistry II

Coordinating unit:	390 - ESAB - Barcelona School of Agricultural Engineering
Teaching unit:	745 - EAB - Department of Agri-Food Engineering and Biotechnology
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN AGRONOMIC SCIENCE ENGINEERING (Syllabus 2018). (Teaching unit Compulsory) BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN AGRICULTURAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN AGRICULTURAL, ENVIRONMENTAL AND LANDSCAPE ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN BIOSYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
ECTS credits:	6
Teaching languages:	Catalan

Teaching staff

Coordinator:	JOSE SABATE REBOLL
Others:	PATRICIA JIMENEZ DE RIDDER TERESA COLL

Degree competences to which the subject contributes

Specific:

2. Knowledge of the basic concepts of general chemistry, inorganic and organic chemistry, and ability to use them in engineering applications.

Transversal:

1. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

Teaching methodology

The hours of learning aimed consist, firstly, to lectures (large group) in which teachers made a exhibition to introduce the learning objectives related to general concepts of the matter.

Later and through exercises we try to motivate and engage students to participate actively in their learning. Moreover, classes can also consist of solving numerical problems or exercises. The final type of hours of learning is to make laboratory practices in small group, which are generally coupled. These practices are designed as an application of theoretical concepts and develop basic skills with instruments in chemical laboratory and introduce generic competition team.

In general, after each meeting are proposed tasks outside the classroom, such as directed readings and resolution of questions and problems that have to work and are the basis of learning and self-guided.

Learning objectives of the subject

At the end of Chemistry 2 course, the student should be able to predict:

- the structure, geometry and polarity of molecules from the molecular formula
- the Intermolecular forces that are established between molecules
- the reactions of organic molecules and biomolecules



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Study load

Total learning time: 150h	Hours large group:	40h	26.67%
	Hours medium group:	0h	0.00%
	Hours small group:	20h	13.33%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

<p>MOLECULAR STRUCTURE</p>	<p>Learning time: 27h 30m Theory classes: 11h Self study : 16h 30m</p>
<p>Description: 1.1. Chemical bond 1.2. Molecular structure of organic compounds 1.3. Isomerism 1.4. Intermolecular forces</p>	
<p>ORGANIC REACTIONS</p>	<p>Learning time: 37h 30m Theory classes: 9h Laboratory classes: 6h Self study : 22h 30m</p>
<p>Description: 2.1. Reactions of the organic compounds</p> <p>Related activities:</p>	
<p>BIOMOLECULES</p>	<p>Learning time: 42h 30m Theory classes: 11h Laboratory classes: 6h Self study : 25h 30m</p>
<p>Description: 3.1. Carbohydrates 3.2. Proteins 3.3. Lipids 3.4. Nucleic acids</p> <p>Related activities:</p>	

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Planning of activities

ACTIVITY 1: CLASSROOM LESSONS	Hours: 36h Theory classes: 36h
ACTIVITY 2: INDIVIDUAL TESTS	Hours: 4h Theory classes: 4h
(ENG) ACTIVITY 3: LABORATORY	Hours: 50h Laboratory classes: 20h Self study: 30h

Qualification system

There will be two individual events in the classroom: a first test (P1, first part) include the first half of the matter and a second test will take two forms: second part (P2) and final (F).

Students who have obtained a proof P1 rating equal to or greater than 4, can choose to do the second test or the final one. The remaining students will do the final.

The final grade for the course, N_{final} , will be obtained by one of the following ways:

N1: test score P1

N2: qualification test P2

N3: F test score

N4: qualification of small group activities

CG: qualification of generic competition.

$N_{final} = 0.30N1 + 0.45N2 + 0.2N4 + 0.05CG$

or:

$N_{final} = 0.75N3 + 0.2N4 + 0.05CG$

In case of failing the course, the final (F) will be reassessed in the extraordinary period of reassessment of tests provided the final grade for the course more than one Absent.

Bibliography

Basic:

Saña Vilaseca, Josep. Química per a les ciències de la naturalesa i de l'alimentació. Barcelona: Vicens Vives, 1993. ISBN 8431632828.

Pando García-Pumarino, Concepción; Iza Cabo, Nerea; Petrucci, Ralph H. Química general : principios y aplicaciones modernas. 10a ed. Madrid [etc.]: Pearson Prentice Hall, 2011. ISBN 9788483226803.

Feduchi Canosa, Elena. Bioquímica : conceptos esenciales. Madrid: Editorial Médica Panamericana, 2010. ISBN 9788498353570.

Hart, Harold; García Martín, Tomás. Química orgánica. 12ª ed. Madrid [etc.]: McGraw-Hill, 2007. ISBN 9788448156572.