

## Course guide

### 390211 - BQ - Biochemistry

Last modified: 05/07/2023

**Unit in charge:** Barcelona School of Agri-Food and Biosystems Engineering  
**Teaching unit:** 745 - DEAB - Department of Agri-Food Engineering and Biotechnology.

**Degree:** BACHELOR'S DEGREE IN BIOSYSTEMS ENGINEERING (Syllabus 2009). (Compulsory subject).

**Academic year:** 2023    **ECTS Credits:** 6.0    **Languages:** Catalan

#### LECTURER

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**Coordinating lecturer:** JOSE SABATE REBOLL

**Others:**

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**Specific:**

1. Biochemistry: bio-molecules, enzymology and metabolism.

**Transversal:**

2. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.

#### TEACHING METHODOLOGY

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#### LEARNING OBJECTIVES OF THE SUBJECT

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At the end of Biochemistry course, students should be able to solve exercises about:

- the relationship between the structure and function of biomolecules
- enzyme kinetics
- the main metabolic pathways

#### STUDY LOAD

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Type	Hours	Percentage
Hours small group	20,0	13.33
Hours large group	40,0	26.67
Self study	90,0	60.00

**Total learning time:** 150 h



## CONTENTS

### BIOMOLECULES

**Description:**

- Chemical Principles of Biochemistry
- Proteins
- Carbohydrates
- Lipids and membranes
- Nucleic acids

**Full-or-part-time:** 55h

Theory classes: 12h

Laboratory classes: 10h

Self study : 33h

### ENZYMES

**Description:**

- Enzymatic Kinetics
- Catalytic Strategies

**Full-or-part-time:** 35h

Theory classes: 8h

Laboratory classes: 6h

Self study : 21h

### METABOLISM

**Description:**

- Metabolism Energy
- Catabolic pathway
- Anabolic pathway
- Regulation of Metabolism

**Full-or-part-time:** 60h

Theory classes: 20h

Laboratory classes: 4h

Self study : 36h

## ACTIVITIES

### ACTIVITY 1: CLASSROOM LESSONS

**Full-or-part-time:** 98h

Theory classes: 38h

Self study: 60h

### ACTIVITY 2: INDIVIDUAL ASSESSMENT TESTS

**Full-or-part-time:** 2h

Theory classes: 2h



### ACTIVITY 3: LABORATORY EXPERIMENTS

**Full-or-part-time:** 35h  
Laboratory classes: 14h  
Self study: 21h

### ACTIVITY 4: EXERCICES WITH COMPUTER

**Full-or-part-time:** 15h  
Laboratory classes: 6h  
Self study: 9h

## GRADING SYSTEM

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## BIBLIOGRAPHY

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### Basic:

- Voet, Donald; Voet, Judith G. Bioquímica. 3a ed. Buenos Aires: Médica Panamericana, 2006. ISBN 9500623013.
- Mathews, Christopher K.; Ahern, Kevin G.; Van Holde, K.E. Bioquímica. 3a ed. Madrid: Pearson Educación, 2002. ISBN 8478290532.
- Berg, J.M. Bioquímica [on line]. 6a ed. Barcelona: Reverté, 2008 [Consultation: 26/07/2022]. Available on: [https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB\\_BooksVis?cod\\_primaria=1000187&codigo\\_libro=6547](https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=6547). ISBN 9788429176001.
- Feduchi Canosa, Elena. Bioquímica: conceptos esenciales. 2nd ed. Madrid: Médica Panamericana, 2015. ISBN 9788498358759.

## RESOURCES

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### Computer material:

- BioRom
- ChemSktech
- Raswin. Biomolecules visualization software

### Hyperlink:

- Protein Data Bank. A protein data base [www.pdb.org](http://www.pdb.org)