

SYLLABUS

1. Course description

Degree:	Biotechnology
Course:	Bioanalytical Chemistry
Module:	Optional Training
Department:	Physical, Chemical and Natural Systems
Academic Year:	2017-18
Term:	Second
ECTS credits:	6
Year:	2nd year
Type:	Optional
Language:	Spanish

Course Model:	B1	
a. Basic learning (EB):		60 %
b. Practical learning (EPD):		40 %

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2. Lecturers

Coordinator	
Name:	José María Pedrosa Poyato
School:	School of Experimental Sciences
Department:	Physical, Chemical and Natural Systems
Area:	Physical Chemistry
Office Hours:	Tuesdays, Wednesdays and Thursdays: 12.00-14.00 (please contact through e-mail)
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3. Topics

Topic 1: Methodology of Bioanalytical Chemistry

Fundamentals of Chemical Analysis. General methods of analysis for the main families of biomolecules. Solvents, Buffers and Detergents in Bioanalytical Chemistry.

Topic 2: Metals in Biochemistry and its detection

Complexometry. Atomic Absorption Voltammetry.

Topic 3: Fundamentals of Spectroscopy in Bioanalytical Chemistry

Nature of electromagnetic radiation. Light-matter interaction. Molecular spectroscopy. Application to (bio) chemical analysis.

Topic 4: Protein Quantification Methods

Chemical methods of total nitrogen. Spectroscopic methods. Methods based on union of chromophores. Methods based on amino acid analysis.

Topic 5: Protein Extraction and Purification Methods

Extraction of proteins from cellular media. Classic methods of separation: precipitation, centrifugation, dialysis.

Topic 6: Column Chromatography and Affinity Techniques

Chromatography Exclusion by size; of Ionic Exchange; of hydrophobic interaction; of Affinity. Immunological Methods: ELISA.

Topic 7: Analysis of Sugars and Lipids

Separation and quantification techniques for sugars and lipids.