27206 - Analytical Chemistry I

Información del Plan Docente

Academic Year	2017/18
Faculty / School	100 - Facultad de Ciencias
Degree	452 - Degree in Chemistry
ECTS	9.0
Year	2
Semester	Annual
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

The methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as theory sessions, problem-based learning sessions and tutorials.

Students are expected to participate actively in the class throughout the semester.

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

5.2.Learning tasks

The course includes 9 ECTS organized according to:

Theory sessions (6 ECTS): 60 hours of Lectures.

Problem sessions and seminars (3 ECTS): 30 hours of Problem-based learning (the group is divided into two subgroups) and 20 hours of mentoring work (in small groups).

5.3.Syllabus

The course will address the following topics:

Part I: Aim, methodology and purpose of Analytical Chemistry.

Chapter 1: Introduction to Analytical Chemistry.

Chapter 2- The analytical process.

Chapter 3- Quality assurance in the analytical process.

Chapter 4- Equilibrium chemistry in Analytical Chemistry.

Part II: General operations in the analytical process.

Chapter 5- Sampling.

Chapter 6- Sample preparation.

Chapter 7- Sample dissolution.

Chapter 8- Calibration.

Chapter 9- Evaluation of analytical data.

Part III. Chemical methods of analysis.

Chapter 10- Gravimetric methods.

Chapter 11- Overview of titrimetric methods.

Chapter 12- Acid-base titrations.

Chapter 13- Precipitation titrations.

Chapter 14- Redox titrations.

Chapter 15- Complexation titrations.

Part IV- Electroanalytical methods.

Chapter 16- Overview of electroanalysis.

Chapter 17- Potentiometric methods.

Chapter 18- Voltammetric methods.

Chapter 19- Other electroanalytical methods

5.4.Course planning and calendar

For further details concerning the timetable, classroom and further information regarding this course please refer to the Science Faculty website (https://ciencias.unizar.es/calendario-y-horarios) and in the learning platform Moodle within the Química Analítica I course.

5.5.Bibliography and recommended resources

BB	Consultar información/recursos incorporados en el ADD de la asignatura.
BB	Harris, Daniel C.. Análisis químico cuantitativo / Daniel C. Harris . - 3ª ed. Barcelona [etc.] : Reverté, cop. 2007
BC	Belarra Piedrafita, Miguel Ángel. Cálculos rápidos para los equilibrios químicos en disolución / Miguel Angel Belarra Piedrafita Zaragoza : Prensas Universitarias de Zaragoza, 2002
BC	Skoog, Douglas A.. Principios de análisis

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instrumental / Douglas A. Skoog, F. James Holler, Stanley R. Crouch ; traductor, María Bruna Josefina Anzures ; revisión técnica Francisco Rojo Callejas, Juan Alejo Pérez Legorreta . - 6ª ed. México, D. F. : Cengage Learning, cop. 2008

BC

Valcárcel Cases, Miguel. Principios de química analítica / Miguel Valcárcel Barcelona : Springer-Verlag Ibérica, D.L. 1999

Online rsources:

Analytical Chemistry 2.0 [Bibliografía Básica de la asignatura] - [http://www.asdlib.org/onlineArticles/ecourseware/Analytical%20Chemistry%202.0