



## Information about the subject

**Degree:** Bachelor of Science Degree in Human Nutrition and Dietetics

**Faculty:** Faculty of Medicine and Health Sciences

**Code:** 1311107 **Name:** Basic Fundamentals of Chemistry

**Credits:** 6,00 **ECTS Year:** 1 **Semester:** 1

**Module:** Basic Sciences Module

**Subject Matter:** Química **Type:** Basic Formation

**Department:** Biomedical Sciences

**Type of learning:** Classroom-based learning

**Languages in which it is taught:** Spanish

### Lecturer/-s:

131A Angela Moreno Galvez (**Responsible Lecturer**) [angela.moreno@ucv.es](mailto:angela.moreno@ucv.es)

281ND Angela Moreno Galvez (**Responsible Lecturer**) [angela.moreno@ucv.es](mailto:angela.moreno@ucv.es)



## Module organization

### Basic Sciences Module

Subject Matter	ECTS	Subject	ECTS	Year/semester
Biología	6,00	Biology and Genetics	6,00	1/1
Bioquímica	6,00	Biochemistry	6,00	1/2
Química	12,00	Basic Fundamentals of Chemistry	6,00	1/1
		Organic Chemistry	6,00	1/2
Fisiología	12,00	Physiology	6,00	1/2
Estadística	6,00	Biostatistics	6,00	1/1
Anatomía Humana	6,00	Human Anatomy	6,00	1/1
Antropología	12,00	Anthropology	6,00	1/1
Microbiología	6,00	Microbiology and Parasitology	6,00	1/2
Inglés	6,00	English	6,00	1/2

## Recommended knowledge

General Chemistry



## Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 Hab1 - - Have the ability to collect and interpret data and information on which to base their conclusions, including, when necessary and relevant, reflection on social, scientific or ethical issues within their field of study.
- R2 Compt1 - - To be able, through arguments or procedures developed and supported by themselves, to apply their knowledge, understanding of these and their problem-solving abilities in complex or professional and specialized work environments that require the use of creative and innovative ideas.
- R3 Con1 - - To have acquired advanced knowledge and demonstrated an understanding of the theoretical and practical aspects and the working methodology in their field of study with a depth that reaches the forefront of knowledge.



## Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R2	15,00%	Assessment of individual or group activities or practical exercises, which require students to research and organize information related to each subject, and solve cases or problems. This is done through a continuous assessment system throughout the course, which involves the submission and/or presentation of assignments, the objectives and content of which will be set by the instructor.
R1	15,00%	Evaluation of practical work in the laboratory, or culinary techniques workshop laboratory, through which the acquired skills must be demonstrated and that one is able to use them to solve the different situations and problems that arise in a laboratory; this evaluation may be carried out through one of the following methods, or a combination of several of them: an individual written test, the individual or group performance of a laboratory experiment, the submission of an individual or group report on the work carried out in the laboratory.
R3	65,00%	Written assessment of the knowledge and skills acquired. This test may consist of a series of open-ended or multiple-choice questions on the theoretical content of the subject and/or practical exercises (problem-solving).
R2	5,00%	Evaluation of the effectiveness of practical classroom classes, problem-solving or computer science sessions, seminars and tutorials. Through attendance and participation in the various activities planned.

### Observations

A minimum score of 4.5 out of 10 must be obtained in the "Written assessment of knowledge and skills acquired" in order to be weighted with the rest of the assessment instruments. In this subject,



a single assessment is not possible, as practical activities requiring the active participation of students are compulsory.

Use of AI:

Students may use AI for personal study of the subject. Students may not use AI to complete assessable tasks, unless required for a specific activity and indicated by the professor. If AI is used in any of the activities, students must cite where in the activity it was used, which AI tool was used, and for what purpose.

**CRITERIA FOR AWARDING HONORS:** In accordance with the regulations governing the assessment and grading of the subject in force at the UCV, the distinction of "Honors" may be awarded to students who have obtained a grade of 9.0 or higher. The number of "Honors" may not exceed five percent of the students enrolled in the group in the corresponding academic year, unless the number of students enrolled is less than 20, in which case a single "Honors" may be awarded.

### **MENTION OF DISTINCTION:**

In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

## Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

- M1 Group preparation of readings, essays, problem-solving, seminars, papers, reports, etc... for discussion or submission
- M2 Group preparation of readings, essays, problem-solving, seminars, papers, reports, etc... for discussion or submission



- M3 Personalized attention in small groups. A period of instruction and/or guidance provided by a tutor to review and discuss the materials and topics presented in classes, seminars, readings, assignments, etc. Student attendance and their gradual progress in understanding the subjects will be evaluated.
- M4 Application and sharing of multidisciplinary knowledge. This involves solving a problem that, in subsequent professional practice, would require the application of skills acquired through the modules and that will generate synergies in the assimilation of transversal and specific competencies. Group work skills will be specifically assessed.
- M5 Student study: individual preparation of readings, essays, problem solving, seminars, papers, memoirs, etc. for discussion or submission in electronic format.
- M7 Individual or group work sessions in groups supervised by the teacher, which take place in spaces with specialized equipment.
- M8 Practical exercises and case studies, analysis of evaluation procedures and procedural intervention. All of this with the support of the professor. This aspect can be monitored through attendance and active participation in the practical sessions.
- M9 The teacher will present the content, analyze competencies, and explain and demonstrate skills, abilities, and knowledge in the classroom. The whiteboard, computer, and projector will be used to display texts, graphics, etc.



## IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
ASSESSMENT M8	R1, R2, R3	2,00	0,08
TUTORING M7	R2	2,00	0,08
LABORATORY M3	R1, R2	10,00	0,40
PRACTICAL CLASSES M2	R2	15,00	0,60
THEORETICAL CLASSES M9	R3	31,00	1,24
<b>TOTAL</b>		<b>60,00</b>	<b>2,40</b>

## LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
INDEPENDENT GROUP WORK M7	R1, R3	10,00	0,40
INDIVIDUAL SELF-EMPLOYMENT M5	R3	80,00	3,20
<b>TOTAL</b>		<b>90,00</b>	<b>3,60</b>



## Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
UNIDAD DIDÁCTICA 1: INTRODUCCIÓN A LA QUÍMICA. ESTRUCTURA DEL ÁTOMO. ENLACE QUÍMICO.	Tema 1. Estructura atómica. Tabla periódica de los elementos. Propiedades periódicas. Tema 2. Nomenclatura química. Estequiometría. Tema 3. El enlace químico. Estados de agregación de la materia.
UNIDAD DIDÁCTICA 2: DISOLUCIONES. REACTIVIDAD Y TERMODINÁMICA QUÍMICA.	Tema 4. Disoluciones. Reactividad química. Tema 5. Termodinámica química.
UNIDAD DIDÁCTICA 3: EQUILIBRIO QUÍMICO.	Tema 6. Equilibrio químico. Equilibrios iónicos en disolución. Equilibrio ácido-base. Tema 7. Equilibrio redox. Equilibrio de solubilidad.
UNIDAD DIDÁCTICA 4: LABORATORIO	Práctica 1. Introducción al laboratorio de química. Práctica 2. La operación de pesar. Práctica 3. Preparación de disoluciones. Práctica 4. Obtención y separación de precipitados. Práctica 5. Equilibrios ácido-base. La medida del pH. Práctica 6. Volumetrías ácido-base



## Temporary organization of learning:

Block of content	Number of sessions	Hours
UNIDAD DIDÁCTICA 1: INTRODUCCIÓN A LA QUÍMICA. ESTRUCTURA DEL ÁTOMO. ENLACE QUÍMICO.	8,00	16,00
UNIDAD DIDÁCTICA 2: DISOLUCIONES. REACTIVIDAD Y TERMODINÁMICA QUÍMICA.	8,00	16,00
UNIDAD DIDÁCTICA 3: EQUILIBRIO QUÍMICO.	9,00	18,00
UNIDAD DIDÁCTICA 4: LABORATORIO	5,00	10,00

## References

**Atkins, P. W., and Jones, L.** *Principles of Chemistry*. Panamericana Publishing, Third Edition, 2005

**Chang, R.** *Chemistry*. McGraw-Hill, Tenth Edition, 2010.

**Hart, H., Craine, L. C., Hart, D. J., and Hadad, C. M.** *Organic Chemistry*. McGraw-Hill, 2007

**Colacio Rodríguez, E.** *Fundamentals of Bonding and Structure of Matter*. Base Universitaria, Anaya, 2004.

**Vollhardt, K. P. C.** *Organic Chemistry*. Omega Publishing, 2007.