



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 Science Module

Subject Matter: Chemistry **Type:** Basic Formation

Field of knowledge: Science

Department: Biomedical Sciences

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

Basic Science Module

Subject Matter	ECTS	Subject	ECTS	Year/semester
Biology	6,00	Biology and Genetics	6,00	1/1
Biochemistry	6,00	Biochemistry	6,00	1/2
Chemistry	12,00	Basic Fundamentals of Chemistry	6,00	1/1
		Organic Chemistry	6,00	1/2
Physiology	12,00	Physiology	6,00	1/2
		Physiology II	6,00	2/1
Statistics	6,00	Biostatistics	6,00	1/1
Human Anatomy	6,00	Human Anatomy	6,00	1/1
Psychology	6,00	Psychology	6,00	2/1
Anthropology	12,00	Anthropology	6,00	1/1
		Food and Culture	6,00	4/1



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 Understands and assimilates of the concepts included in the course content.
- R2 Shows ability to solve problems related to these contents using different resources.
- R3 Demonstrates ability to work in a laboratory performing correctly the basic operations and observing the corresponding security rules. As well as a correct understanding of the planning, development and purpose of the experience.
- R4 Understands and adequate uses language, as well as correct writing and presentation of data.
- R5 Collaborates with the teacher and colleagues throughout the learning process: Attendance to theoretical, practical or tutoring sessions; Teamwork; Respect in the treatment; Compliance with the rules of organization of the subject for the benefit of all.



Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Students demonstrate knowledge and understanding in an area of study that is at the core of general secondary education, and is often at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.				X

GENERAL		Weighting			
		1	2	3	4
CG03	Students recognise the need to maintain and update professional competence, with particular emphasis on autonomous and continuous learning of new knowledge, products and techniques in nutrition and food, as well as motivation for quality.				X

SPECIFIC		Weighting			
		1	2	3	4
CE01	Students know the chemical, biochemical and biological fundamentals of application in human nutrition and dietetics.				X



Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R5	5,00%	Evaluation of the use of the practical classes in the classroom, of problems or computers, seminars and tutorials. Through attendance, and participation in the different activities proposed.
R1, R2, R4	65,00%	Written evaluation of the knowledge and skills obtained. The 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).
R1, R3, R4	15,00%	Assessment of practical laboratory work, or laboratory culinary techniques workshop, through which the competencies acquired must be demonstrated and that they are capable of being used to solve the different situations and problems that arise in a laboratory; this assessment may be carried out by one of the following methods, or a combination of several of them: an individual written test, the individual or group performance of a laboratory experience, the submission of an individual or group report on the work carried out in the laboratory
R3, R5	15,00%	Evaluation of individual or group practices or activities, in which information related to each of the subjects must be sought and structured, and cases or problems resolved. This is done through a system of continuous evaluation throughout the course, which involves the delivery and / or exposure of work, whose objectives and content will be proposed by the teacher.

Observations

It is necessary to obtain a minimum of 4.5 out of 10 in the "Written evaluation of the knowledge and skills obtained" to be able to weigh with the rest of the evaluation instruments.



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 Exposition of contents by the teacher, analysis of competencies, explanation and demonstration of capacities, skills and knowledge in the classroom. The blackboard, the computer and the cannon will be used to display texts, graphics, etc.
- M2 Resolution of practical exercises and case studies, analysis of evaluation procedures and procedural intervention. All this with the support of the teacher. This aspect can be controlled through attendance and active participation in the practical sessions.
- M3 Resolution of practical exercises and case studies, analysis of evaluation procedures and procedural intervention. All this with the support of the teacher. This aspect can be controlled through attendance and active participation in the practical sessions.
- M5 Student study: individual preparation of readings, essays, problem solving, seminars, papers, reports, etc. for discussion or delivery in electronic format.
- M6 Application and sharing of multidisciplinary knowledge This is the resolution of a problem that in its subsequent professional practice would require the application of skills acquired through the development of the modules and that would produce synergies in the assimilation of transversal and specific skills. Group work competences will be specifically evaluated.



- M7 Personalised attention and in small groups. Period of instruction and/or orientation carried out by a tutor with the aim of reviewing and discussing the materials and topics presented in the classes, seminars, readings, completion of assignments, etc. The attendance of the student and his/her level of gradual development in the knowledge of the subjects will be evaluated.
- M8 A set of tests, written or oral, used in the evaluation of the student.
- M9 Group preparation of readings, essays, problem solving, seminars, papers, reports, etc... for discussion or delivery.

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theoretical lessons M1	R1, R2, R4	31,00	1,24
Practice lessons M2	R2, R4, R5	10,00	0,40
Laboratory M3	R1, R3, R4	15,00	0,60
Office Hours M7	R5	2,00	0,08
Evaluation M8	R1, R2, R3, R4	2,00	0,08
TOTAL		60,00	2,40

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Autonomous work M5	R1, R2, R3, R4, R5	80,00	3,20
Group work M6	R4, R5	10,00	0,40
TOTAL		90,00	3,60



Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
DIDACTIC UNIT 1: INTRODUCTION TO CHEMISTRY. STRUCTURE OF THE ATOM. CHEMICAL BOND.	Unit 1. Atomic structure. Periodic table of elements. Periodic properties. Unit 2. Chemical nomenclature. Stoichiometry. Unit 3. The chemical bond. Aggregation states of matter.
DIDACTIC UNIT 2: DISSOLUTIONS. REACTIVITY AND CHEMICAL THERMODYNAMICS.	Unit 4. Solutions. Chemical reactivity. Unit 5. Chemical thermodynamics.
DIDACTIC UNIT 3: CHEMICAL BALANCE.	Unit 6. Chemical equilibrium. Ionic equilibria in solution. Acid-base balance. Unit 7. Redox equilibrium. Equilibrium of solubility.
DIDACTIC UNIT 4: CHEMICAL KINETICS.	Unit 8. Chemical kinetics
LABORATORY	Practice 1. Introduction to the chemistry laboratory. Practice 2. The weighing operation. Practice 3. Preparation of solutions. Practice 4. Obtaining and separating precipitates. Practice 5. Acid-base equilibria. The measurement of pH. Practice 6. Acid-base volumetry



Temporary organization of learning:

Block of content	Number of sessions	Hours
DIDACTIC UNIT 1: INTRODUCTION TO CHEMISTRY. STRUCTURE OF THE ATOM. CHEMICAL BOND.	8,50	17,00
DIDACTIC UNIT 2: DISSOLUTIONS. REACTIVITY AND CHEMICAL THERMODYNAMICS.	6,00	12,00
DIDACTIC UNIT 3: CHEMICAL BALANCE.	7,00	14,00
DIDACTIC UNIT 4: CHEMICAL KINETICS.	1,00	2,00
LABORATORY	7,50	15,00

References

Atkins P.W. y Jones L. Principios de Química. Ed. Panamericana. Tercera edición, 2005

Chang R. Química. Ed. MacGraw-Hill. Décima edición, 2010

Hart, H, Craine, L.C, Hart, D. J. y Hadad, C. M. Química Orgánica. McGraw-Hill, 2007.

Colacio Rodríguez E. Fundamentos de Enlace y Estructura de la Materia. Base Universitaria, Anaya, 2004.

Vollhardt, K.P.C. Química Orgánica. Ed. Omega, 2007.