



COURSE GUIDE
Master of Secondary Education Training,
Professional Training and Teaching of
Languages

Universidad Católica de Valencia

Natural Sciences Curriculum for Secondary
Education and High School

Year 2023-24



COURSE GUIDE TO: Natural Sciences Curriculum for Secondary Education and High School

		ECTS
SUBJECT: Natural Sciences Curriculum for Secondary Education and High School		6
FIELD: Complements for the formation to discipline		6
MODULE: Biology and Geology		24
TYPE OF LEARNING: Compulsory	YEAR: Master's degree Semester: 1º	
TEACHER: Dr. D. Alfredo Molins Palanca	Department:	
	E-mail: alfredo.molins@ucv.es	

SUBJECT ORGANIZATION

The Curriculum of Nature Science in Secondary Education and Baccalaureate				Nº ECTS: 24
Duration and temporal location within the curriculum: 1 st semester				
Subjects and Courses				
Courses	ECTS	Subject	ECTS	Course/ semester
Complements for the formation to discipline	6	Natural Sciences Curriculum for Secondary Education and High School	6	1/1
		Didactics of the Science	6	1/1
		Didactic resources for the education of the Science	6	1/2



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		Innovation and investigation in Didactics of the Science	6	1/1
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COURSE GUIDE TO THE SUBJECT: Natural Sciences Curriculum for Secondary Education and High School

Prerequisites: those of access to the Master.

GENERAL GOALS

- To know deeply the curricular contents of the subjects related to the belonging teaching specialization, as well as the corps of didactic knowledge concerning the respective teaching and learning processes, and redo them in profitable and teachable knowledge for the practice in the regulated professions of Secondary Education and High School, Technical College, Language Teaching, Arts and Sports Teacher.
- To plan, develop and assess the teaching and learning process improving educational processes that favour the achievement of the key competences from the respective teaching, taking into account both the level and the previous skills of students as well as the direction of these, individually and also in collaboration with other teachers and professionals from the school.
- To look for, obtain process and communicate information (oral, printed, audio-visual, digital or multimedia), convert it into knowledge and use it in the teaching and learning processes regarding the subjects of the taken specialization.
- To settle on the curriculum to be introduced in a school participating in its collective planning, develop and put into practice educational methodologies in groups and individually, adapting them to the diversity of students.
- To know the interaction and communication processes in the classroom, have a good command of the social skills and abilities which are needed to promote learning and coexistence in the classroom and deal with discipline problems and conflict resolution.

CROSS-SECTIONAL COMPETENCES	Competence measuring scale			
Instrumental	1	2	3	4
CT 1 To qualify students for the knowledge of the curricular contents regarding the subjects that belong to the Biology and Geology teaching specialization, as well as the corps of				X



educational knowledge concerning the respective teaching and learning processes, and redo them in profitable and teachable knowledge for the practice in the regulated professions of Secondary Education, High School, and Technical College Teacher.				
CT 2 To qualify students for the planning, development and assessment of the teaching and learning process, promoting educational processes that will help the acquisition of the competences connected to the respective teachings.			X	
CT 3 To qualify students for the searching, obtaining and processing of the scientific information in order to use it in the teaching and learning processes related to the subjects of the Biology and Geology specialization.	X			
Interpersonal	1	2	3	4
CT 4 To appreciate the contribution of the specialization subjects to the acquisition of basic skills in the regulated framework: language communication, mathematics, knowledge and interaction with the physical world, information and digital competence, social and civic, cultural and artistic, competence to learn to learn, autonomy and personal initiative, emotional competence			X	
Systemic	1	2	3	4
CT 5 To qualify students for the curriculum choice which could be introduced in a school, participating in its collective planning, developing and putting into practice educational methodologies both in groups and individually, adapting them to the diversity of students..				X

SPECIFIC COMPETENCES

Disciplinary	1	2	3	4
CE 1 To know contexts and situations in which the different curricular contents related to the Biology and Geology specialization are used.			X	
CE 2 To know the curricula related to the Biology and Geology specialization that are studied in the different educational contexts.				X
Attitudinal	1	2	3	4
CE 3 To achieve criteria in order to select and prepare educational materials			X	



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Professional	1	2	3	4
CE 4 To integrate the social and technological dimension of the Biology and Geology specialization, understanding the advantages and disadvantages that its development brings to nature, human beings and society, in order to help the preservation and protection of the natural heritage.				

LEARNING OUTCOMES	COMPETENCES
RA 1 To know the curricula related to Biology and Geology specialization and also, the remaining legal regulation.	CT 1, CT 5, CE 1, CE 2, CE 4
RA 2 To identify the subject's educational value and the contexts and situations in which the curricular contents connected with the Biology and Geology specializations are used and applied.	CT 2, CT 3, CT 4, CE 3
RA 3 To specify the curriculum which might be introduced in a school.	CT 1, CT 5, CE 1, CE 2, CE 3, CE 4

ON-CAMPUS EDUCATIONAL ACTIVITIES			
ACTIVITY	Teaching-Learning Methodology	Relationship With Learning Outcomes for the subject	ECTS
ON-CAMPUS CLASS	Teacher's contents presentation, analysis of competences, explanation and in-class display of skills, abilities and knowledge.	RA 1, RA 2, RA 3	0,6
PRACTICAL CLASSES	Group work sessions supervised by the professor. Case studies, diagnostic tests, problems, field work, computer room, visits, data search, libraries, on-line, Internet, etc. Meaningful construction of knowledge through	RA 3	0,1



	interaction and student activity.		
LABORATORY	Activities carried out in spaces with specialized equipment.	RA 3	0,1
SEMINAR	Supervised monographic sessions with shared participation	RA 1, RA 2, RA 3	0,1
GROUP PRESENTATION OF PAPERS	Application of interdisciplinary knowledge	RA 1, RA 2, RA 3	0,1
OFFICE ASSISTANCE	Personalized and small group attention. Period of instruction and/or orientation carried out by a tutor to review and discuss materials and topics presented in classes, seminars, readings, papers, etc.	RA 1, RA 2, RA 3	0,1
ASSESSMENT	Set of oral and/or written tests used in initial, formative or additive assessment of the student	RA 1, RA 2, RA 3	0,1
Total			1,2

INDEPENDENT WORK ACTIVITIES			
ACTIVITY	Teaching-Learning Methodology	Relationship of Course with Learning Outcomes	ECTS
GROUP WORK	Group preparation of readings, essays, problem solving, seminars, papers, reports, etc. to be presented or submitted in theoretical lectures, practical and/or small-group tutoring sessions.	RA 1, RA 2, RA 3	0,8



	Work done on the university e-learning platform.		
INDEPENDENT WORK	<p>Student study: Group Individual preparation of readings, essays, problem solving, seminars, papers, reports, etc. to be presented or submitted in theoretical lectures, practical and/or small-group tutoring sessions.</p> <p>Work done on the university e-learning platform</p>	RA 1, RA 2, RA 3	4
Total			4,8

SYSTEM FOR ASSESSING THE ACQUISITION OF THE COMPETENCES AND ASSESSMENT SYSTEM

Assessment Tool ¹	LEARNING OUTCOMES ASSESSED	Allocated Percentage
Marks given to individual and/or group tasks related to the contents of the subject.	RA 1, RA 2, RA 3	80%
Attitude, attendance and participation in both classroom and virtual activities will be assessed.	RA 1, RA 2, RA 3	20%

MENTION OF DISTINCTION.

The mention of Distinction will be awarded to students who have achieved a score equal to or greater than 9.0. The number of Distinctions granted will not exceed 5% of students enrolled in a subject in the corresponding academic year

¹ Note: In order to pass the subject the student must pass both the theoretical and the practical content separately.



unless enrolment is under 20, in which case only one Distinction may be granted. (Royal Decree 1125/2003).

DESCRIPTION OF CONTENTS	COMPETENCES
Organization in content blocks or thematic groupings. Development of content in didactic guides.	
The teaching of Natural Sciences in Secondary Education. Presentation of the training offers that they will be able to teach with their specialty in a public, private or subsidized center.	CT1, CT2, CT3, CT4, CT5, CE1, CE2, CE3, CE4
Levels of curricular concretion.	CT1, CT2, CT3, CT4, CT5, CE1, CE2, CE3, CE4
Didactic and classroom programming.	CT1, CT2, CT3, CT4, CT5, CE1, CE2, CE3, CE4
The didactic unit, introduction, contextualization, general objectives, methodology, didactic objectives, contents, evaluation criteria and timing.	CT1, CT2, CT3, CT4, CT5, CE1, CE2, CE3, CE4
The evaluation.	CT1, CT2, CT3, CT4, CT5, CE1, CE2, CE3, CE4
The attention to diversity.	CT1, CT2, CT3, CT4, CT5, CE1, CE2, CE3, CE4

TEMPORARY ORGANIZATION OF LEARNING (First enrollment students):	
	CONTENT BLOCK / DIDACTIC UNIT
1	Fundamentals of curricular design, levels of detail, curriculum sources.
2	First level of detail: Curriculum analysis of Secondary subjects attached to Biology and Geology specialized Secondary teachers.
3	First level of detail: Curriculum analysis of High School subjects attached to Biology and Geology specialized Secondary teachers
4	Basic competences
5	Secondary assessment
6	High School assessment



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7	The attention to diversity.
8	Schedule (program).
9	Entrance exams to College
10	Assessment of teaching practice
11	Objectivity in the evaluation.

REFERENCES

- Ley orgánica 2/2006, de 3 de mayo, de educación
- Ley Orgánica 3/2020, de 29 de diciembre, por la que se modifica la Ley Orgánica 2/2006, de 3 de mayo, de Educación.
- El Real Decreto 562/2017, de 2 de junio, por el que se regulan las condiciones para la obtención de los títulos de graduado en Educación Secundaria Obligatoria y de Bachiller.
- La Ley 4/2018, de 21 de febrero, de la Generalitat, por la que se regula y promueve el plurilingüismo en el sistema educativo valenciano.
- El Decreto 104/2018, de 27 de julio, del Consell, por el que se desarrollan los principios de equidad y de inclusión en el sistema educativo valenciano.
- Decreto 51/2018, de 27 de abril, del Consell, por el cual se modifica el Decreto 87/2015, por el cual se establece el currículum y despliega la ordenación general de la Educación Secundaria Obligatoria y el Bachillerato en la Comunitat Valenciana.
- DECRET 107/2022, de 5 d'agost, del Consell, pel qual s'estableix l'ordenació i el currículum de l'Educació Secundària Obligatoria.
- DECRET 108/2022, de 5 d'agost, del Consell, pel qual s'estableix l'ordenació i el currículum de Batxillerat.
- Real Decreto 243/2022, de 5 de abril, por el que se establecen la ordenación y las enseñanzas mínimas del Bachillerato.
- Real Decreto 217/2022, de 29 de marzo, por el que se establece la ordenación y las enseñanzas mínimas de la Educación Secundaria Obligatoria
- RESOLUCIÓN de 27 de junio de 2023, del secretario autonómico de Educación y Formación Profesional, por la que se aprueban las instrucciones para la organización y el funcionamiento de los centros que imparten Educación Secundaria Obligatoria y Bachillerato durante el curso 2023-2024
- R.D. 860/2010, de 2 de julio, por el que se regulan las condiciones de formación inicial del profesorado de los centros privados para ejercer la docencia en las enseñanzas de educación secundaria obligatoria o de bachillerato.
- ESCAMILLA, A. (1993) "Unidades didácticas: una propuesta de trabajo en el aula". Zaragoza: Edelvives.
- FERNÁNDEZ, J. Y OTROS (1999) ¿Cómo hacer unidades didácticas innovadoras? Sevilla: Díada.



- GONZALEZ RAMOS, J., GUTIERREZ SOTO, F. Y RUEDA PRIETO, J. (1998). Programación curricular y Unidades didácticas. Recetas y ejemplos. Madrid: Escuela Española.

DEVELOPMENT OF THE SUBJECT IN SECOND AND SUBSEQUENT ENROLMENTS:

There will be a special group for students who are not enrolling for the first time if they exceed the occupancy limit of the classroom and a teacher is assigned to that group.

The professor in charge of this group will conduct 4 follow-up sessions and tutoring for 2 hours each. Assessment of skills and abilities will be done through the scheduled practice sessions. In each session the subject will be developed so as to reinforce the work on the skills that each student needs to pass the course.

Assessment of content and skills will be made during the examination set in the official calendar for this course.



TEMPORAL ORGANIZATION OF LEARNING:	
1	DIDACTIC UNIT I: Fundamentals of curricular design, levels of detail, curriculum sources.
2	DIDACTIC UNIT II: First level of detail: Curriculum analysis of Secondary subjects attached to Biology and Geology specialized Secondary teachers.
3	DIDACTIC UNIT III: First level of detail: Curriculum analysis of High School subjects attached to Biology and Geology specialized Secondary teachers.
4	DIDACTIC UNIT IV: Basic competences.
5	DIDACTIC UNIT V: Secondary assessment.
6	DIDACTIC UNIT VI: High School assessment
7	DIDACTIC UNIT VII: . Attention to diversity
8	DIDACTIC UNIT VIII: Schedule (program).
9	DIDACTIC UNIT IX: Entrance exams to College
10	DIDACTIC UNIT X: Assessment of teaching practice
11	DIDACTIC UNIT XI: Objectivity in the assessment.

In the event that face-to-face classes were not possible due to the pandemic caused by COVID-19, they would be taught online, all the criteria applied to face-to-face classes being valid.