



## Information about the subject

**Degree:** Bachelor of Degree in Marine Sciences

**Faculty:** Faculty of Veterinary Medicine and Experimental Sciences

**Code:** 273009 **Name:** Fisheries

**Credits:** 6,00 **ECTS Year:** 3 **Semester:** 2

**Module:** Professional

**Subject Matter:** Marine living resources **Type:** Compulsory

**Department:** Oceanography and Environment

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

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

### Lecturer/-s:

273A	<u>Pablo Jose Sanchis Benlloch</u> <b>(Responsible Lecturer)</b>	<a href="mailto:pj.sanchis@ucv.es">pj.sanchis@ucv.es</a>
273GIQ	<u>Pablo Jose Sanchis Benlloch</u> <b>(English Responsible Lecturer)</b>	<a href="mailto:pj.sanchis@ucv.es">pj.sanchis@ucv.es</a>



## Module organization

### Professional

Subject Matter	ECTS	Subject	ECTS	Year/semester
Oceanography	36,00	Chemical Oceanography	6,00	3/1
		Geological Oceanography	6,00	3/1
		Marine Biology and Biological Oceanography	6,00	3/1
		Methods in Oceanography I: Physical and Geological	6,00	3/2
		Methods in Oceanography II: Chemical and Biological	6,00	3/2
		Physical Oceanography	6,00	3/1
Marine living resources	12,00	Aquaculture	6,00	3/2
		Fisheries	6,00	3/2
Marine and Coastal Management	18,00	Coastal Planning and Management	6,00	4/1
		Legislation and Economy	6,00	4/1
		Marine Pollution	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        The student identifies the main exploited marine resources and knows their biology.
- R2        The student locates and understands the location of the main fishing grounds.
- R3        The student knows the main techniques of search and extraction of marine living resources.
- R4        The student applies the methods of study in the evaluation of living resources.
- R5        The student knows diverse experiences of management of marine living resources.
- R6        The student recognises the environmental and socio-economic implications of the fishing activity.
- R7        The student understands conceptually and values the importance of the study of marine living resources in the context of today's science and society, and of oceanography in particular.
- R8        The student prepares reports and makes valid judgements on various aspects of the study of living marine resources.
- R9        The student relates the theoretical and practical contents through works and assigned tasks.



## 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
CB2	Students are able to apply knowledge to their work in a professional way and have the competences enabling them to state and defend views and opinions as well as perform problem-solving tasks in their field of study.				X
CB4	Command of a foreign language			X	
CB5	Students develop the necessary learning skills to undertake further studies with a high level of autonomy.				X

GENERAL		Weighting			
		1	2	3	4
CG1	Capacity to analyze and synthesize				X
CG2	Capacity to organize and plan				X
CG3	Mastering Spanish oral and written communication			X	
CG5	Knowing and applying Basic ITC skills related to marine science			X	
CG6	Capacity to manage information (capacity to look for and analyze information coming from different types of sources)				X
CG7	Decision making			X	
CG8	Capacity to work in interdisciplinary and multidisciplinary team			X	
CG9	Interpersonal skills			X	
CG10	Critical and self-critical capacity			X	



CG11	Capacity to learn				X
CG12	Capacity to adapt to new situations			X	
CG13	Capacity to produce new ideas (creativity)		X		
CG14	Leadership abilities.	X			
CG16	Capacity to apply theoretical knowledge		X		
CG17	Research skills		X		
CG18	Sensibility to environmental issues.		X		

SPECIFIC		Weighting			
		1	2	3	4
CE1	Knowing and understanding contents, principles and theories related to Oceanography	X			
CE3	Knowing basic market economy techniques related to marine resources				X
CE4	Understanding laws regulating use of marine resources and environment				X
CE5	Applying marine environment use planning techniques as well as resource sustainable management				X
CE8	Identifying and analyzing new problems and proposing solution strategies			X	
CE9	Knowing how to carry out experiments and measurements both in the laboratory and during sample collection				X
CE10	Knowing how to use planning, designing and implementing research tools while surveying and assessing results			X	
CE11	Knowing how to do fieldwork and laboratory experiments in a safe and responsible way, promoting teamwork				X
CE12	Describing, classifying and mapping sea bottoms and coastal areas	X			
CE13	Looking for and assessing different kinds of marine resources				X



CE14	Designing patterns of marine protected areas management	x		
CE17	Developing training programs for marine and coastal areas		x	
CE19	Deeply understanding operating systems of maritime orientated companies, identifying their problems and proposing solutions			x
CE20	Mastering practical use of models, including new data for validation, improvement and development of models	x		

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

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R5, R6, R7, R8	50,00%	Written test with theoretical and practical questions
R1, R2, R4, R7, R8, R9	30,00%	Delivery of guided assignments, whose objectives and contents will be proposed by the teacher
R1	10,00%	Laboratory test
R1, R2, R6, R7, R8, R9	10,00%	Oral presentation

### Observations

\* In order to pass the subject the student must pass every test and activity separately.

### MENTION OF DISTINCTION:

According to Article 22 of the Regulations governing the Evaluation and Qualification of UCV Courses, the mention of "Distinction of Honor" may be awarded by the professor responsible for the course to students who have obtained, at least, the qualification of 9 over 10 ("Sobresaliente"). The number of "Distinction of Honor" mentions that may be awarded may not exceed five percent of the number of students included in the same official record, unless this number is lower than 20, in which case only one "Distinction of Honor" may be awarded.



## Learning activities

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

- M1 Teacher presentation of contents, analysis of competences, explanation and in-class display of skills, abilities and knowledge.
- M2 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 interaction and student activity.
- M3 Activities carried out in spaces with specialized equipment.
- M4 Supervised monographic sessions with shared participation.
- M5 Application of multidisciplinary knowledge.
- M6 Personalized and small group attention. Period of instruction and/or guidance carried out by a tutor to review and discuss materials and topics presented in classes, seminars, readings, papers, etc.
- M8 Set of oral and/or written tests used in initial, formative or additive assessment of the student.
- M9 Group preparation of readings, essays, problem-solving, seminars, papers, reports, etc. to be presented or submitted in theoretical , practical and/or small-group tutoring sessions. Work done on the university e-learning platform ([www.plataforma.ucv.es](http://www.plataforma.ucv.es) )
- M10 Student's study: Individual preparation of readings, essays, problem-solving, seminars, papers, reports, etc. to be presented or submitted in theoretical, practical and/or small-group tutoring sessions. Work done on the university e-learning platform ( [www.plataforma.ucv.es](http://www.plataforma.ucv.es) ).



## IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
ON-CAMPUS CLASS M1	R1, R2, R3, R4, R5, R6, R7, R8	28,00	1,12
PRACTICAL CLASSES M2	R1, R2, R3, R7, R8, R9	12,00	0,48
LABORATORY M3	R1, R4, R8, R9	10,00	0,40
SEMINAR M4	R5, R6, R7, R8	2,00	0,08
GROUP PRESENTATION OF ASSIGNMENTS M5	R1, R2, R3, R7, R8	4,00	0,16
TUTORIAL M6	R1, R2, R3, R4, R5, R6, R7	2,00	0,08
ASSESSMENT M8	R1, R2, R3, R4, R5, R6, R7	2,00	0,08
<b>TOTAL</b>		<b>60,00</b>	<b>2,40</b>

## LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
GROUP WORK M9	R1, R2, R7, R8, R9	40,00	1,60
INDEPENDENT WORK M10	R1, R2, R3, R4, R5, R6, R7	50,00	2,00
<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
DIDACTIC UNIT I.- PRINCIPLES OF FISHERY SCIENCE	Chapter 1. Living marine resources: Definition of exploitable living resource. Importance of living marine resources. Diversity of living marine resources. Characteristics of exploited marine species. Chapter 2. Fishing activity: Definition of fishing. Fishing kind classification. Exploited biological communities by fishing. Socioeconomic considerations from fishing activity.
DIDACTIC UNIT II.- FISH CATCHING METHODS. CLASSIFICATION AND DESCRIPTION. TECHNOLOGIC AIDS.	Chapter 3. Fishing hook methods; classification and description of main fishing hook gear. Chapter 4. Fishing trawl methods: classification and description of main dragging gear. Chapter 5. Seining and surrounding methods; classification and description of main seining and surrounding gears. Chapter 6. Gillnets methods; classification and description of main gillnets gear. Chapter 7. Other fishing methods.
DIDACTIC UNIT III.- MAIN LIVING MARINE RESOURCES. EXPLOITED SPECIES BIOLOGY.	Chapter 8. Ground species. Chapter 9. Pelagic species. Chapter 10. Molluscs. Chapter 11. Decapods crustaceans.
DIDACTIC UNIT IV.- MANAGEMENT OF LIVING MARINE RESOURCES EXPLOITATION.	Chapter 12. Research methods in living marine resources biology. Research on feeding, growth and reproduction. Chapter 13. Population dynamics in exploited living marine resources. Stock assessment. Chapter 14. Main patterns of management systems for exploited living marine resources. Chapter 15. Fishing ecologic effects. Ecosystem management.



## Organization of the practical activities:

	Content	Place	Hours
PR1.	Technical visit to a fishing port: study of different types of boats according to the fishing gear used; socio-economic organization of fishing activity.	Technical visit	2,00
PR2.	Identification of marine living resources	Laboratory	20,00

## Temporary organization of learning:

Block of content	Number of sessions	Hours
DIDACTIC UNIT I.- PRINCIPLES OF FISHERY SCIENCE	2,00	4,00
DIDACTIC UNIT II.- FISH CATCHING METHODS. CLASSIFICATION AND DESCRIPTION. TECHNOLOGIC AIDS.	6,00	12,00
DIDACTIC UNIT III.- MAIN LIVING MARINE RESOURCES. EXPLOITED SPECIES BIOLOGY.	12,00	24,00
DIDACTIC UNIT IV.- MANAGEMENT OF LIVING MARINE RESOURCES EXPLOITATION.	10,00	20,00



## References

- Bas Peired, C.. El mar Mediterráneo: recursos vivos y explotación. Ariel (2002).
- Bell, J.. Restocking and stock enhancement of marine invertebrates fisheries. Elsevier (2005).
- Boyle, P., Rodhoude, P.. Cephalopods: ecology and fisheries. Blackwell (2006).
- CETMAR. OPTI. Tecnología del mar. El futuro de la tecnología de la pesca. Tendencias tecnológicas a corto, medio y largo plazo. Xunta de Galicia (2005).
- CETMAR. OPTI. Tecnología del mar. Industria transformadora de productos del mar.. Tendencias tecnológicas a corto, medio y largo plazo. Xunta de Galicia (2005).
- Cuevas Sanz, M.. Artes y aparejos: tecnología pesquera. MAPA.
- Demestre, M.. L'ocenanografia: II. Recursos pesquers de la mar catala. Diputación de Barcelona (1986).
- Ewell, C., Hocevar, J., Mitchell, E., Snowden, S., & Jacquet, J. (2020). An evaluation of Regional Fisheries Management Organization at-sea compliance monitoring and observer programs. *Marine Policy*, 115, 103842.
- Faldai, L., Minervini, R., Fortes, M.J.. Guía de pescados y mariscos de consumo usual en España. Omega (1995).
- Fisher, W. L., and F. I. Rahel. "Geographic Information Systems in Fisheries, American Fisheries Society, Bethesda, Maryland. (2004).
- Fuiman, L., Werner, R.. Fishery science: the unique contributions of early life stages. Blackwell Sciences (2002).
- Gabriel, O.. Fish catching methods of the World. Blackwell (2005).
- Gulland, J.. Fish stock assessment: a manual of basic methods. John Wiley & sons (1983).
- Hart, P., Reynolds, J.. Handbook of fish biology and fisheries (Vol. I-II). Blackwell (2005).
- Holsman, K. K., Haynie, A. C., Hollowed, A. B., Reum, J. C. P., Aydin, K., Hermann, A. J., ... & Punt, A. E. (2020). Ecosystem-based fisheries management forestalls climate-driven collapse. *Nature communications*, 11(1), 1-10.
- Iversen, E.. Living marine resources: their utilization and management. Chapman & Hull (1996).
- Jennings, S.K., Michel, J., Reynolds, J.D.. Marine fisheries ecology. Blackwell (2005).
- Kar, D. Community-Based Fisheries Management: A Global Perspective. Academic Press (2020)
- Madrid Vicente, A., Vicente, J.M., Madrid Vicente, R.. El pescado y sus productos derivados. A. Madrid Vicente (1999).
- MAPA. Hacia una pesca sostenible: cómo prevenir la captura de aves marinas en la pesca de palangre de fondo. MAPA.
- Muus, B.J., Nielsen, J.G., Aahlstöm, P., Nyström, B.O.. Peces de mar del Atlántico y del Mediterráneo: Biología, pesca e importancia económica. Omega (2007).
- Phillips, B.. Lobsters: biology, management, aquaculture and fisheries. Blackwell (2006).
- Salvá, P.. La pesca. Sínteis (1990).
- Sanchez Lamelas, A., Martín-Retortillo, S.. La ordenación jurídica de la pesca marítima. Aranzadi (2000).



Universidad  
**Católica de  
Valencia**  
San Vicente Mártir

## Course guide

Year 2023/2024  
273009 - Fisheries

Walters, C.J., Martell, J.. Fisheries ecology and management. Princeton (2004).



## Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

**Situation 1: Teaching without limited capacity** (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

**Situation 2: Teaching with limited capacity** (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

### 1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

☒ Microsoft Teams

☐ Kaltura



## **Situation 3: Confinement due to a new State of Alarm.**

In this case, the following changes are made:

### **1. Educational Activities of Onsite Work:**

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

☒ Microsoft Teams

☐ Kaltura

Explanation about the practical sessions:

In the case of confinement due to a new alarm state, the practical laboratory sessions will be moved to a new date as soon as the health situation allows. As a non-face-to-face alternative, they will be replaced by video-tutorials of the techniques to be used, and the analysis and guided discussion of the results based on data provided by the teacher.



## 2. System for Assessing the Acquisition of the competences and Assessment System

### ONSITE WORK

#### Regarding the Assessment Tools:

☒ The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

☐ The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

#### Comments to the Assessment System: