



IDENTIFYING DATA

Evaluation and Exploitation of Coastal Resources

Subject	Evaluation and Exploitation of Coastal Resources			
Code	V02M098V01208			
Study programme	(*)Máster Universitario en Biología Mariña			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	3	Optional	1st	2nd
Teaching language	Spanish			
Department				
Coordinator	Presa Martínez, Pablo			
Lecturers	Cerviño López, Santiago Pérez Rodríguez, Montserrat Presa Martínez, Pablo			
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General description	Subject oriented to the knowledge of the current systems of evaluation of the alive marine resources in the seaboard and his use in the management of the same of integrated form: conservation, exploitation and sustainability.			

Competencies

Code	
A1	(*)Posuír e comprender coñecementos que acheguen unha base ou oportunidade de ser orixinais no desenvolvemento e/ou aplicación de ideas, adoito nun contexto de investigación.
A2	(*)Que os estudantes saiban aplicar os coñecementos adquiridos e a súa capacidade de resolución de problemas en contornos novos ou pouco coñecidos dentro de contextos máis amplos (ou multidisciplinares) relacionados coa súa área de estudo.
A3	(*)Que os estudantes sexan capaces de integrar coñecementos e se enfrontar á complexidade de formular xuízos a partir dunha información que, sendo incompleta ou limitada, inclúa reflexións sobre as responsabilidades sociais e éticas vinculadas á aplicación dos seus coñecementos e xuízos.
A4	(*)Que os estudantes saiban comunicar as súas conclusións, e os coñecementos e razóns últimas que as sustentan, a públicos especializados e non especializados dun xeito claro e sen ambigüidades.
A5	(*)Que os estudantes posúan as habilidades de aprendizaxe que lles permitan continuar estudando dun xeito que terá que ser, en grande medida, autodirixido e autónomo.
B1	Utilización de criterios y métodos científicos en el planteamiento y resolución de problemas aplicando los conocimientos adquiridos
B2	Búsqueda, análisis e integración de información a partir de diferentes fuentes y capacidad para su interpretación y evaluación
B3	Aprendizaje de diversas técnicas y métodos analíticos tanto en el medio natural como en el laboratorio
B5	Desarrollo de la habilidad de elaboración, presentación y defensa de trabajos e informes técnicos
C5	Conocimiento de los principios de explotación y sostenibilidad del medio marino y planificación y supervisión de su gestión
C8	Conocimiento y manejo de la metodología de investigación, de las técnicas muestreo e instrumentales y de análisis de datos aplicados al medio marino
C10	Inspección y asesoramiento técnico en la evaluación, explotación y gestión de pesquerías, extracción de recursos e instalaciones de acuicultura
C11	Estudios de dinámica poblacional, mejora genética y selección de stocks en pesquerías, acuicultura y programas de repoblación
D1	Desarrollo de las capacidades comprensivas, de análisis y síntesis
D2	Desarrollo de la capacidad de razonamiento crítico y autocrítico
D3	Desarrollo de las capacidades de trabajo en equipo, enriquecidas por la pluridisciplinariedad
D4	Desarrollo de la capacidad para actualizar el conocimiento de forma autónoma

Learning outcomes	
Expected results from this subject	Training and Learning Results
1 That the student handle the parameters and the obtaining of data in which it bases the evaluation of the alive marine resources.	A1 B1 C5 D1
2 That the student know to identify models, processes and technologies that allow to optimise the evaluation of the alive marine resources.	A2 B2 C8 D4
3 That the student know the foundations of the management of *pesquerías and handle the criteria employed in plans of exploitation and recovery.	A3 B3 C10 D1
4 That the student comprise and handle the underlying genetic parameters in the management of alive marine resources	A2 B2 C11 D4
5 That the student know to effect a handle genetic adapted of stocks *pesqueros and of *reproducción: his foundation, maintenance and follow-up.	A4 B3 C10 D3
6 That the student know to elaborate an integral plan of management of *pesquerías by means of the suitable genetic tools for his evaluation and exploitation.	A5 B5 C11 D2 D5

Contents

Topic	
SUBJECT I. Antecedents and concepts: systems of evaluation and exploitation of the living marine resources.	Aims, concepts, techniques of identification of stocks, cycle of life, models of adjust recruitment-stock, selectivity of the arts, growth, mortality.
SUBJECT II. Tools of evaluation of the living marine resources I.	Assessment of a stock: sources of information; international organisms that take part in the regulation and management of living resources. Statistical network and programs of follow-up for the evaluation of resources.
SUBJECT III. Tools of evaluation of the living marine resources II.	Concept of overfishing and its types. Sustainability and management of fisheries: technical principles. Management based in the limits of captures and control of the fishing effort. Plans of recovery. Precautionary approach and ecosystem approach .
SUBJECT IV. Tools of evaluation of the living marine resources III.	Evaluation of fishing resources: indirect methods. Models of production. Structural models; analysis of cohorts; method of the virtual population.
SUBJECT V. Tools of management of the living marine resources IV.	System of advice of EU fisheries. Censuses and samples. Statistical data, captures, effort, CPUE. Strategies of sampling. Direct methods of evaluation of independent resources of fishery data. Types of campaigns and aims. Prospections species-specific.
SUBJECT VI. Genetic bases of the management of living marine resources.	Continuous variation of characters of interest and biometric methods for the evaluation of traits.
SUBJECT VII. Genetic management of fish stocks.	Selection of stock founders; effective genetic size; maintenance of stocks for fishery enhancement; genetic selection induced by fishing and domestication.
SUBJECT VIII. Molecular tools for the genetic evaluation of fisheries.	Types of molecular markers: evolution and properties. Application of markers to the management of fisheries.
SUBJECT IX. Genetic evaluation of demersal fisheries.	Genetic evaluation of demersal fisheries. Ratio SSB - recruitment and genetic diversity. Criteria of genetic management of fisheries oriented to various goals: exploitation, conservation and sustainability.
SUBJECT X. Genetic evaluation of coastal fisheries.	The genetic structure frame for management. Integral management of fisheries. Procedure to establish a plan of genetic management of stocks, cultivated vs. wild.

Planning

	Class hours	Hours outside the classroom	Total hours
Problem solving	9	20.07	29.07
Seminars	2	0	2
Case studies	2	0	2
Lecturing	9	30.9996	39.9996
Problem and/or exercise solving	1	0	1

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

Methodologies	Description
Problem solving	The credits devoted to the resolution of problems will be held in real time-face-to-face, in parallel with the conceptual class. It will follow for this the model: concept-example-application.
Seminars	Group tutorship will be face-to-face or virtual upon the location and needs of the students and the thematic tackled. They are allocated to coordinate interactive works, and will effect under specific programming. Individual tutorships are devoted to guide the student in the learning process and will be discretionary.
Case studies	It will be planned with sufficient time: a situation of exploitation of a fishery in which the student will have to assess its situation and propose measures of management for its sustainability.
Lecturing	The face-to-face credits that correspond to the conceptual classes, will take place by means of videoconference. Along them, the contents and concepts it will be exposed through telematic means.

Personalized assistance

Methodologies	Description
Lecturing	Attention in real time to the doubts of understanding
Problem solving	Face-to-face orientation on the approach to solutions
Case studies	Group tutorship by means of debates on weak points and strategies of analysis

Assessment

Description	Qualification	Training and Learning Results				
		A1	B1	C5	D1	D3
Problem solving	30	A1	B1	C5	D1	D3
Case studies	20	A2	B2	C8	D5	C11
Problem and/or exercise solving	50	A3	B3	C10	D1	

Other comments on the Evaluation

In the second annual written evaluation of 2021, it will be conserved the grades of the rest of evaluated items along the course. Discretionary tutorships will be set in the virtual classroom in order to reinforce learning processes and student guide.

Sources of information

Basic Bibliography

Complementary Bibliography

AR Beaumont, K Hoare, (Eds.), **Biotechnology and Genetics in Fisheries and Aquaculture (2nd ed)**, 2010,

TJ Pandian, CA Strussmann, MP Marian, **Fish Genetics And Aquaculture Biotechnology**, 2004,

JD Ferraris & S Palumbi, **Molecular Zoology: Advances, Strategies and Protocols**, 1996,

J Avise, **Molecular Markers: Natural History and Evolution**, 2004,

S Jennings, MJ Kaiser & JD Reynolds, **Marine Fisheries Ecology**, 2001,

TJ Pitcher, PJB Hart & D Pauly, **Reinventing Fisheries Management**, 1998,

P Sparre & SC Venema, **Introducción a la evaluación de recursos pesqueros tropicales**, 1995,

Recommendations

Other comments

Orientations for the study and the curricular optimisation:

1. To check the bibliography recommended by the professor for the distinct thematic units.
 2. Assist to discretionary tutorships either face-to-face or virtual, open (answer differed) or enclosed (agreement of schedules for the on-line tutorship).
 3. Participate actively in face-to face and virtual classes.
 4. Study of as regular basis during the development of the classes.
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Contingency plan

Description

=== EXCEPTIONAL MEASURES SCHEDULED ===

Given due the uncertain and unpredictable evolution of the sanitary alert caused by the COVID-19, the University of Vigo establishes an extraordinary planning that will activate in the moment in that the administrations and the own institution determine it attending to criteria of security, health and responsibility, and guaranteeing the teaching in a no face-to-face stage or partially face-to-face. These already scheduled measures guarantee, in the moment that was prescriptive, the development of the teaching of a more agile and effective way when being known in advance (or with a wide anticipation) by the students and the professorship through the tool normalised and institutionalised of the educational guides.

=== ADAPTATION OF THE METHODOLOGIES ===

* Educational Methodologies to be kept :

All kept, although in modality of virtual teaching

* Educational Methodologies to be modified:

The masterclass will be substituted by didactic videos in educational platforms

* Non face-to-face mechanism of attention to the students (tutorship)

As for Uvigo teachers, the virtual classrooms will be employed, as for the external lecturers, the platforms of chat Skype or Team will be enforced.

* Modifications (if they proceed) of the contents to give:

No modifications, but will be elaborated digitally foreseen the necessity of an entirely virtual course.

* Additional bibliography to facilitate:

Will be provided as tutorials downloadable from the educational web of the matter.

* Other modifications

The coordinator has begun to elaborate the virtual course of this subject, by means of an exclusive web page. It will be available in the coming course 2020-2021.

=== ADAPTATION OF THE EVALUATION ===

* Test already made:

Tests Resolution of Problems: [previous Weight 30%] [Weight Proposed 30%]

Provided it consists on a daily activity, it belongs to the continuous evaluation system, in all cases, e.g. face-to-face teaching-physical, face-to-face-virtual, no face-to-face-virtual.

* Pending proofs to be kept

Proof Study of cases: [previous Weight 20%] [Weight Proposed 20%]

kept as it is totally viable on-line in any scenario, provided the group have access to the network and a personal computer.

* Proofs to be modified

[face-to-face final Test] =50% [face-to-face final Test virtual]=50%

If the physical face-to-face option were not available, we will develop the final test through specific platforms for evaluation, e. g. Moodle.

* New test

On-line Test of advance of the learning achievement.

* Additional Information

Incorporation of the digital video to replace the face-to-face masterclass, by means of shorter contents in pills of 5 minutes and diversification of the virtual activities.
