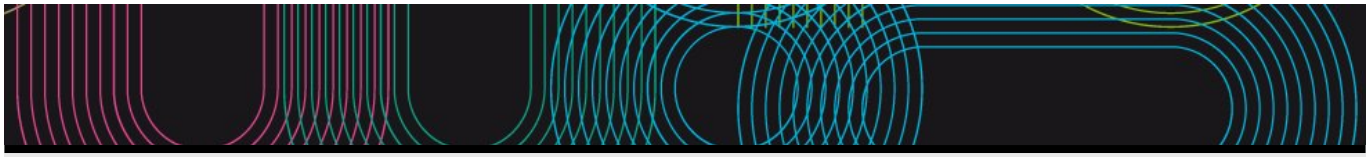

IDENTIFYING DATA				
The Marine Environment: Physical Oceanography				
Subject	The Marine Environment: Physical Oceanography			
Code	V02M098V01101			
Study programme	(*)Máster Universitario en Bioloxía Mariña			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	3	Mandatory	1st	1st
Teaching language	Spanish			
Department				
Coordinator	García Estévez, José Manuel Rubal García, Marcos			
Lecturers	García Estévez, José Manuel Rubal García, Marcos			
E-mail	jestevez@uvigo.es mrubalg@hotmail.com			
Web				
General description	Main properties of the oceanic basins and the sediments that the ocean. Physical properties of the seawater. Chemical Properties of the seawater. The movements of the sea: the marine currents and the oceanic circulation; the waves; the tides. The coast: coastal waters and sea magins.			

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
B5	Desarrollo de la habilidad de elaboración, presentación y defensa de trabajos e informes técnicos
C1	Conocimiento físico-químico del medio oceánico y costero
C13	Divulgación de conocimientos de la biología y el medio marinos: programas de formación y docencia; planificación y dirección de acuarios, museos, centros de interpretación ambiental, parques naturales y espacios naturales protegidos
C14	Elaboración, discusión, interpretación, asesoramiento y peritaje de informes científico-técnicos, éticos, legales y socioeconómicos relacionados con el ámbito marino y pesquero
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
D5	Desarrollo de las habilidades de comunicación y discusión de planteamientos y resultados

Learning outcomes

Expected results from this subject	Training and Learning Results
Comprise the meaning of Oceanography and know the main sources of his knowledge.	A1 A2 A3 A5 B1 B2 B5 C1 D1 D2
Purchase knowledges on the main strokes of the oceanic basins and his evolution to the step of the time.	A1 A3 A5 B1 B2 C1 D1 D2 D3
Understand the origin and distribution of the sediments and his relation with other oceanic processes.	A1 A2 A3 B1 B2 C1 D1 D2
Know the penetration of the solar radiation in coastal and oceanic waters.	A1 A2 A3 A4 A5 B1 B2 C1 D5
Explain the behaviour of the temperature and the salinity of the waters of the ocean.	A1 A2 A3 A4 A5 B1 B2 B5 C1 C13 D1 D2 D5
Know the applications of the diagram T-S in the analysis of the masses of water.	A1 A2 A3 A4 A5 B1 B2 C1 D1 D2 D3

Purchase knowledges of the basic strokes of the oceanic circulation, superficial and subsuperficial, waves and tides.	A1 A2 A3 A4 A5 B1 B2 C1 C13 C14 D1 D2 D5

Contents	
Topic	
The OCEANOGRAPHY.	Concept and divisions. Historical development of the Oceanography.
The OCEANIC BASINS.	Origin and evolution of the oceans. The oceanic basins. The geological regions of the ocean. Geography of the current oceanic basins.
The OCEANIC SEDIMENTS.	Origin. Classification. Mechanisms of control of the accumulation of oceanic sediments. Distribution of the oceanic sediments.
PHYSICAL PROPERTIES OF THE WATER OF THE Mar.	Temperature. Salinity. Density. Solar radiation and illumination. Transparency and penetration of the light. Viscosity and superficial tension. Pressure. Propagation of the sound.
CHEMICAL PROPERTIES OF THE WATER OF THE Mar.	Chemical properties of the pure water. Chemical composition of the water of the mar. Classification of the chemical elements. Greater and lower constituents. Micronutrients. Gases dissolved. Organic matter.
The MOVEMENTS OF THE SEA: The MARINE CURRENTS And The OCEANIC CIRCULATION.	The marine currents. Types of currents. The oceanic circulation. Superficial circulation. Deep circulation. Circulation thermohaline and the big oceanic conveyor.
The MOVEMENTS OF THE SEA: The WAVES	Definition. Characteristics. Classification and types of waves. Origin of the waves. Interaction with the coast. Measurement and forecast of the wave regime. Energy of the waves and its usages. Biological importance of the waves.
The MOVEMENTS OF THE SEA: The TIDES	Definition. Characteristics. Origin of the tides. Explanatory theories. Classification of the tides. Oceanic tides and anfidrómic systems. Measurement and forecast of the tides. Energy of the tides and its industrial use. Biological importance of the tides.
The COAST: COASTAL WATERS And SEA MARGINS.	The COAST. Coastal terminology. Classification and development of the coast. Coastal waters and sea margins. Deep seas.

Planning			
	Class hours	Hours outside the classroom	Total hours
Lecturing	15	35	50
Mentored work	5	10	15
Seminars	1	0	1
Presentation	1.4	5.6	7
Objective questions exam	2	0	2
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies	
	Description
Lecturing	Exposition of the main concepts of the course and approach of interactive activities, where the students will be able to formulate questions and comments
Mentored work	Destined interactive sessions to integrate and apply the knowledges purchased in the masterclasses
Seminars	Effective transmission of the experience of the professor to the student
Presentation	Development of the competitions that allow the put in practice of the oceanographic knowledges purchased

Personalized assistance	
Methodologies	**Description**
Lecturing	It attended the *todalas questions risen pole students in real time

Mentored work	It follows the *desenvolvemente of the work in the classroom of personal and interactive way
Presentation	It helps *à presentation of the contained that owes to have a correct exhibition.

Assessment

	Description	Qualification	Training and Learning Results
Lecturing	Continuous evaluacion; Follow-up of the work of the student: Attendance and active participation in the classes and in the debates generated	10	A1 B1 C1 D1 A2 B2 C14 D2 A3 B5 D3 A4 D5 A5
Mentored work	Continuous evaluation: Assessment of the interest and competence in the resolution of practical cases	5	
Presentation	Continuous Evaluation: Assessment work carried out during the course	5	
Objective questions exam	Evaluation by written test	80	

Other comments on the Evaluation

In the second announcement to evaluation will realise by means of a proof written final, keeping the qualifications obtained in the activities evaluated positively along the course.

Sources of information

Basic Bibliography

Complementary Bibliography

Recommendations

Other comments

It is recommended to work actively the subject in a continuous way during the course.

Contingency plan

Description

=== EXCEPTIONAL MEASURES SCHEDULED ===
In front of 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 *antelación) by the students and the *profesorado through the tool normalised and institutionalised of the educational guides.

=== ADAPTATION OF THE METHODOLOGIES ===
* educational Methodologies that keep
All

* educational Methodologies that modify
Stage no face-to-face:
The methodologies (lesson *magistral, presentation, seminar and work *tutelado) will make of telematic form by means of *Moodle or similar platforms.
Stage partially face-to-face:
The methodologies (lesson *magistral, presentation, seminar and work *tutelado) will make of face-to-face mixed way and telematic using the platform mentioned in the previous point.

* Mechanism no face-to-face of attention to the students (*tutorías)
personalised Attention and *grupal (video, audio) when the students pose questions by means of *Moodle or similar platforms. It will use also the email for the personalised attention and in group.

* Modifications (if they proceed) of the contents to give
do not proceed

* additional Bibliography to facilitate the car-learning
does not proceed

* Other modifications

=== ADAPTATION OF THE EVALUATION ===
* Test already made
keep the *pocentages

Lesson *magistral *Evaluacion continuous: Follow-up of the work of the student: Assistance and active participation in the classes *expositivas and debates generated in these : [previous Weight 10%] [Weight Proposed10%]

Work *tutelado *Evaluacion continuous: Assessment of the interest and competition in the resolution of practical cases : [previous Weight 5%] [Weight Proposed5%]

Presentation *Evaluacion continuous: Assessment work made : [previous Weight 5%] [Weight Proposed 5%]

Examination of objective questions Evaluation students : [previous Weight 80%] [Weight Proposed 80%]

* pending Proofs that keep
keep the *porcentages

keep the *pocentages

Lesson *magistral *Evaluacion continuous: Follow-up of the work of the student: Assistance and active participation in the classes *expositivas and debates generated in these : [previous Weight 10%] [Weight Proposed10%]

Work *tutelado *Evaluacion continuous: Assessment of the interest and competition in the resolution of practical cases : [previous Weight 5%] [Weight Proposed5%]

Presentation *Evaluacion continuous: Assessment work made : [previous Weight 5%] [Weight Proposed 5%]

Examination of objective questions Evaluation students : [previous Weight 80%] [Weight Proposed 80%]
* Proofs that modify
Any
* New proofs
Any
* additional Information
The presentations will make using *Moodle or analogous platform and the examination of questions of development in a no face-to-face stage will make by means of a questionnaire *Moodle or similar.