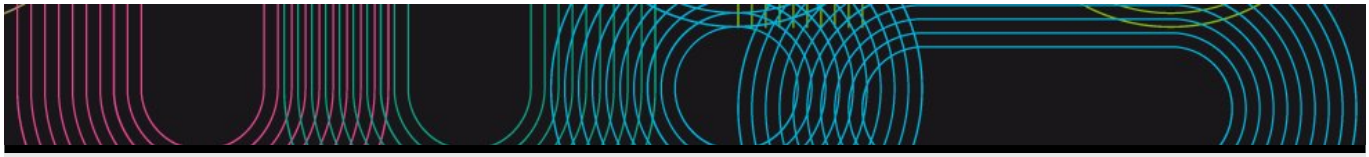

IDENTIFYING DATA				
Coastal and marine sedimentary habitats				
Subject	Coastal and marine sedimentary habitats			
Code	V10G061V01207			
Study programme	(*)Grao en Ciencias do Mar			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	2nd	2nd
Teaching language	Spanish			
Department				
Coordinator	García Gil, María Soledad			
Lecturers	Francés Pedraz, Guillermo García Gil, María Soledad Pérez Arlucea, Marta María			
E-mail	sgil@uvigo.es			
Web	http://http://webs.uvigo.es/c10/webc10/ficha.php?id=4			
General description	This subject is directed to the acquisition of knowledge and competences on the marine sedimentary environments, from the coastal to the oceanic basins. It includes morphological features and classification of sedimentary environments and processes. It also considers aspects of environmental and economic management. It has a theoretical character-practical including two field trips for the observation and analysis of sedimentary environments.			

Competencies	
Code	
A2	Students can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation, and have competences typically demonstrated through devising and sustaining arguments and solving problems within their field of study
A3	Students have the ability to gather and interpret relevant data (usually within their field of study) to inform judgments that include reflection on relevant social, scientific or ethical issues
A4	Students can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences
B1	Know and use vocabulary, concepts, principles and theories related to oceanography and apply everything learned in a professional and/or research environment.
B2	Plan and execute surveys in the field and laboratory work, applying basic tools and techniques for sampling, data acquisition and analysis in the water column, sea bottom and marine substratum.
B4	Manage, process and interpret the data and information obtained both in the field and in the laboratory.
C12	Acquire knowledge about processes and products related to internal and external geological cycles.
C13	Acquire the basic sedimentological, geochemical and geophysical techniques and methodologies used in identification, use and sustainability of the natural resources of coastal and marine environmets.
D1	Develop the search, analysis and synthesis of information skills oriented to the identification and resolution of problems.
D5	Sustainability and environmental commitment. Equitable, responsible and efficient use of resources.

Learning outcomes				
Expected results from this subject	Training and Learning Results			
Elaborate and interpret stratigraphic sections and perform correlations	A3	B2 B4	C13	D1
Distinguish the different types of deep sediments		B4	C13	D1
Relate the ressedimentation processes with the turbiditic systems	A3	B1 B4	C12 C13	D1
Understand the sedimentary effects of the deep oceanic circulation	A2 A4	B1 B4	C12 C13	D5

Understand the pelagic sediments as the result of a global biogeochemical system.	A2 A3 A4	B2 B4	C12 C13	D1 D5
Identify the different types of coastal sedimentary environments in function of their sedimentary record.	A3	B1 B4	C13	D1 D5
Understand the coastal and marine environments space-temporal evolution	A2 A3 A4	B1 B4	C13	D1 D5

Contents	
Topic	
Subject 1. Introduction to the sedimentary environments	Introduction to the Stratigraphy and the sedimentary environmnts Evolution of the sedimentary environments in the context of the sequential Stratigraphy
Subject 2. Sedimentary processes in marine environments.	Control factors in marine sedimentary environments. Classification of coasts and main processes. Coastal landforms. Coastal evolution: changes in sea level
Subject 3. Beaches and barrier island-lagoon systems	Control factors of coastal morphology Coastal zones. Erosion, transport and sedimentation processes on beaches and barrier island-lagoon systems Beaches: types, sub-environments and dynamics. Coastal barriers: types and morphology Coastal dunes.
Subject 4. Deltas	Concept of delta. Deltaic processes: constructive and destructive Delta zones. Classification of deltas and sedimentary sub-environments. Architecture of deltas. Temporal and spatial variability of deltaic systems.
Subject 5. Estuaries and rias.	Definitions and related coastal forms. Origin and evolution of today estuaries and rias. Estuary classifications: According to their morphology. According to the internal circulation regime. According to the dominant processes and the resulting sediments (facies)
Subject 6. Muddy coasts.	Tidal plains. Marshes. Mangroves. Cheniers. Sedimentary processes in tidal plains. Sedimentary sub-environments in a tidal plain and sedimentary facies.
Subject 7. Continental shelves.	Definition, characteristics and types. Parts of the platform. Hydraulic processes in the platforms. Sedimentation: Controlling factors. Types of "marine" and platform sediments. Siliciclastic platforms: Classification according to hydraulic regime. Carbonate platforms: Characteristics and types.
Subject 8. Continental margins: the slope and the continental glacis.	Main sedimentary processes. Mass transport, dense flows and turbidity currents. Types of deposits, classifications and morphologies. Deep Sea Fans: Turbidity Systems. Types and Deposits.
Subject 9. Contourites and depositional contourite systems	Nomenclature and factors that define a contourite system. Deep oceanic circulation. Erosional and depositional contouritic features. . Economic interest of the contouritic deposits.

Subject 10. Deep sea sediments.	Deep and mid-oceanic ridge basins Pelagic sediments: Biogenic calcareous and siliceous muds (oozes). Abyssal clays. Autigenic sediments: phosphates (upper slope), manganese. Terrigenous and hemipelagic sediments: Turbidites in the abyssal plains and volcanogenic sediments. Lithothermal: deep sea reefs.
Subject 11. Deep and mid-oceanic ridge basins.	Deep-sea geomorphology: canyons, seamounts and oceanic plateaus. Distribution of pelagic and hemipelagic sediments on the ocean floor. Hydrothermal processes: fumaroles. Deep mineral deposits. Gas hydrates.

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	25	62.5	87.5
Case studies	4	3.5	7.5
Studies excursion	16	16	32
Seminars	7	14	21
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	Theoretical 50 minutes lessons
Case studies	It comprises the cartography and evolution of sedimentary environments explored from the Google Earth
Studies excursion	It comprises two field-trips: 1. Arousa Island 2. Corrubedo
Seminars	Seminar 1. Sedimentary structures. Seminar 2. Representation of sedimentary logs Seminar 3. Video of marine sedimentary environments.

Personalized assistance

Methodologies	Description
Lecturing	Individual or in group titorial according to the teacher schedule: Monday, Wednesday and Friday: 12:00-14:00h , that will be able to be modified in function of the educational needs.
Studies excursion	Students that wish it will be able to attend to personalized tutorials to resolve doubts, mainly in the indicated schedules. To optimize time, it is necessary that the student to contact with the lecturer previously. The tutorials will be able to be individual or in group in accordance with the schedules of the lecturer: Prof. Soledad García Gil (Tuesday, Wednesday and Thursday: 12:00-14:00 h) that would be modified according to educational needs.
Case studies	Students that wish it will be able to attend to personalized tutorials to resolve doubts, mainly in the indicated schedules. To optimize time, it is necessary that the student to contact with the lecturer previously. The tutorials will be able to be individual or in group in accordance with the schedules of the lecturer: Prof. Soledad García Gil (Tuesday, Wednesday and Thursday: 12:00-14:00 h) that would be modified according to educational needs.
Seminars	Students that wish it will be able to attend to personalized tutorials to resolve doubts, mainly in the indicated schedules. To optimize time, it is necessary that the student to contact with the lecturer previously. The tutorials will be able to be individual or in group in accordance with the schedules of the lecturer: Prof. Soledad García Gil (Tuesday, Wednesday and Thursday: 12:00-14:00 h) that would be modified according to educational needs.

Assessment

	Description	Qualification	Training and Learning Results

Case studies	Report (memory) of the results obtained in the classroom of computing.	5	A2	B4	C12 C13	D1 D5
Studies excursion	Reports of the exits of field. It will evaluate the assistance to the field.	10	A3 A4	B2 B4	C12 C13	D1 D5
Seminars	Preparation of a work of synthesis and results for each one of the seminars	15	A4	B4	C12 C13	D1 D5
Objective questions exam	Exam with a short answer on the subject matter developed during master classes, practical, fiel-trips and seminars.	70	A3 A4	B1	C12	D1 D5

Other comments on the Evaluation

To surpass the matter, will be necessary to surpass 40% of all the proofs and have an average of approved (50%). The assistance to the theoretical, practical and seminars, as well as the exits to the field are compulsory and they will consider in the percentage of qualification. It will be allowed 20% of absence, but justified. The final examination in any one of the announcements will include any theoretical or practical appearance that have exposed during the course, including the field-trips. The students that do not assist to the seminars or to the practices will not be able to present the corresponding reports, what supposes a fail in the first announcement. To surpass the matter in the second announcement the students will have to do an examination of each one of the parts of the matter that had not surpassed. Date, time and place of exams will be published in the official web of Marine Sciences Faculty:
http://mar.uvigo.es/index.php/en/alumnado-actual-2/examenes-3 It is required a responsible and honest behavior from students. It is inadmissible any form of fraud (copy and/or plagiarism) directed to adulterate the level of knowledge or skill reached by the student in any type of proof, report or work designed with this purpose. The fraudulent behaviors will suppose to fail the matter during a complete course. An internal register of this behavior will be carried, in case of repetition, a request to the rector to open a disciplinary record will be submitted.

Sources of information

Basic Bibliography

Arche, A. (Ed), **Sedimentología. Del proceso físico a la cuenca sedimentaria**, 3rd, CSIC, Madrid, 2010

Davidson-Arnott, R., **Introduction to coastal processes and geomorphology**, 2nd, Cambridge, 2010

Davis, R.A. Jr. y Fitzgerald, D.M., **Beaches and Coasts**, 1st, Blackwell Publishing, 2004

Hüneke, H., Mulder, T. (Eds)., **Deep-Sea sediments. Developments in Sedimentology, 63**, 1st, Elsevier, 2011

Nichols, G., **Sedimentology and Stratigraphy**, 2nd, Wiley-Blackwell, 2009

Pickering, K.T.; Hiscott, R.N. y Hein, F.J., **Deep Marine Systems: Processes, Deposits, Environments, Tectonics and Sedimentation**, 1st, Unwin Hyman Ltd, 2016

Reading, H. G., **Sedimentary Environments**, 3rd, Blackwell Science, 1996

Stow, D.A.V., Pudsey, C.J., Howe, J.A., Faugères, J.C., Viana, A.R, **Deep-Water Contourite Systems: Modern Drifts and Ancient Series, Seismic and Sedimentary Characteristics**, 1st, Geological Society of London, Memoirs, 2002

Complementary Bibliography

Bird, E., **Coastal Geomorphology: An Introduction**, 2nd, Wiley, 2008

Scholle, P.A. y Ulmer-Scholle, D.S., **A color Guide to the Petrography of Carbonate Rocks: Grains, textures, porosity, diagenesis**, 1st, AAPG Memoir 77; AAPG, 2003

Recommendations

Subjects that continue the syllabus

Basin Analysis/V10G060V01901
Geological oceanography I/V10G060V01504
Geological oceanography II/V10G060V01603
Applied marine geology/V10G060V01909

Subjects that it is recommended to have taken before

(*)/

Contingency plan

Description

=== EXCEPTIONAL PLANNED MEASURES ===
Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University has established an extraordinary planning that will be activated when the administrations and the institution itself determine it in accordance with the criteria of safety, health and responsibility, and guaranteeing teaching in a non-face-to-face or totally non-face-to-face scenario. These already planned measures guarantee, when required, the development of teaching in a more agile and effective way so that students and teachers know them in advance (or well in advance) through the standardized and

institutionalized tool of the DOCNET teaching guides.
=== ADAPTATION OF METHODOLOGIES ===
* Teaching methodologies that are maintained
1.- Mixed education: maintained
2.- Non-attendance teaching: they will be adapted to the available resources.
* Teaching methodologies that change
1.- Mixed education: do not change
2.- Non-attendance teaching: they will be adapted to the available resources.
* Non-attendance mechanism for the attention of students (* tutorials)
1.- Mixed teaching: prior agreement by email, face-to-face and/or virtual through Remote Campus.
2.- Non-attendance teaching: previous agreement by e-mail, virtual through Remote Campus
* Modifications (if applicable) of the contents to be taught
1.- Mixed education: no intention to change the contents
2.- Non-attendance teaching: no intention of changing the content
* Additional bibliography to facilitate self-learning
It's not necessary.
* Other modifications
=== ADAPTATION OF THE EVALUATION ===
* Tests already carried out
1.- Mixed education: the weights of the face-to-face situation are kept.
2.- Non-contact teaching: the weights of the face-to-face situation are preserved.

During non-contact teaching, students, in these exceptional circumstances, should address this issue with responsible and honest behavior. Any form of copying intended to falsify the level of knowledge and skills attained in the preparation of the deliverables, as well as during the virtual examination, will be considered inadmissible. If there is any suspicion of fraudulent conduct, students may be subject to additional verification to verify its accuracy.