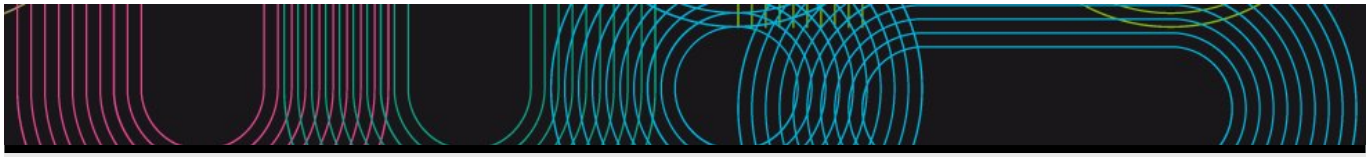

IDENTIFYING DATA				
Atmosphere-Ocean Interaction				
Subject	Atmosphere-Ocean Interaction			
Code	V10M153V01207			
Study programme	Máster Universitario en Oceanografía			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	5	Optional	1st	2nd
Teaching language	Spanish			
Department				
Coordinator	Castro Rodríguez, María Teresa de			
Lecturers	Castro Rodríguez, María Teresa de Des Villanueva, Marisela Gimeno Presa, Luís Nieto Muñiz, Raquel Olalla Sorí Gómez, Rogert			
E-mail	mdecastro@uvigo.es			
Web	http://masteroceanografia.com/			
General description	The atmosphere and the ocean are two physical systems interacting. In this subject we will study all those processes which deal about the interaction between the ocean and the atmosphere as well as their exchanges.			

Training and Learning Results	
Code	
A2	Students who can apply their knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study
A5	Students who have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.
B3	The students will be able to deepen in the main oceanographic processes and their spatiotemporal scales
B4	The students will be able to analyse oceanographic databases and obtain skills for their treatment.
C2	The students will be able to schedule, design and execute original applied investigations from the stage of recognition until the evaluation of results and discoveries.
C5	The students will be able to draft scientific articles and present their results with clarity, using solid arguments in the development of their conclusions
C7	The students will obtain knowledge that will allow them reinforce and deepen in the physical mechanisms that control the atmosphere-ocean interactions, the climatic variability, as well as the validity and contrast of climatic models.
D3	The students will be able to communicate the obtained information and their conclusions in a effective way to the general public, to other scientists and to the competent authorities, listening and answering of effective form and, using an appropriate language to the audience and to the context
D4	The students will be able to understand the need and obligation to perform a continuous training, to a large extent autonomous, for the scientific development, updating the knowledges, skills and attitudes of the professional competences along the life.

Expected results from this subject	Training and Learning Results
AIR1. Knowledge of processes related to the processes of interaction between the atmosphere and the ocean	A2 A5 B3 C7 D4
RA2. Develop skills to apply the concepts purchased to real problems. Develop the capacity to handle databases and resolve practical cases.	A2 B4 C2

RA3. Develop the capacity to expose the results obtained or the knowledge purchased to a skilled public.	C5 D3

Contents	
Topic	
Introduction	Atmosphere influence on ocean Ocean influence on atmosphere Atmosphere and ocean as an integrated system
Previous concepts	Equation of movement of a geophysical fluid Latent Heat Specific Heat Transfer of Heat Density Comparison between atmospheric and oceanic properties
Hurricanes	Definition Physical structure Mechanics Process of training Places and main regions of training Movement and route
Oceanic evaporation and precipitation	Oceanic evaporation Global Distribution of water steam. Flow of water steam and his divergence Changes in sea water salinity. Transport of water steam to big distance, sources and sinks. Global of humidity Extreme Events: the oceans role on the jet modulation at low levels Atmospheric rivers, implications of climate change
El Niño	Introduction Effects of the warm phase (La Niña) Indexes Mechanism
Monsoons	Different warming in earth and ocean Geographic Distribution Diets of winds Extreme rains

Planning	Class hours	Hours outside the classroom	Total hours
Lecturing	28	25	53
Problem solving	14	28	42
Presentation	4	12	16
Seminars	1	0	1
Essay	1	7	8
Problem and/or exercise solving	2	0	2
Report of practices, practicum and external practices	0	3	3
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies	Description
Lecturing	The teacher explains the main theoretical aspects of the subject in class by means of Powerpoint or similar.
Problem solving	Seminars during which students solve practical activities supervised by the teacher. They are activities developed to improve the significant construction of the knowledge through the interaction between students. The function of the teacher is to present the aims, supervise and to realize the follow-up of the same.
Presentation	Individual or group oral session of a subject from the course.
Seminars	Significant construction of the knowledge through the interaction between the teacher and the student by means of tutorials to orient and solve doubts.

Personalized assistance	
Methodologies	**Description**

Problem solving	During the resolution of practical cases and in the tutorial classes, the attention to the student will be customized with the aim to resolve any type of doubt so much theoretical like practice. Tutorial classes will be virtual through the Campus Remoto by appointment
Seminars	During the resolution of practical cases and tutorials the attention to the student will be able to be customized with the aim to resolve any type of doubt so much theoretical like practice. Tutorials: Monday from16:00 to 18:00 and Wednesday from 9:00 to 11:00

Assessment

	Description	Qualification	Training and Learning Results			
Essay	Individual or group oral sesion of a subject from the course. The AR3 learning outcome will be assessed.	40	A2		C2 C5	D3
Problem and/or exercise solving	Questions on the subject topics, practical reports, practical exercises. AR2, and AR3 learning outcomes will be assessed.	40	A2	B3 B4		
Report of practices, practicum and external practices	(*)Informe de prácticas	20	A2	B4	C2	

Other comments on the Evaluation

"The preferred assessment method is Continuous Evaluation. Students who wish to opt for Global Evaluation (100% of the grade based on the official exam) must inform the course instructor, via email or through the Moovi platform, within a period not exceeding one month from the start of the course.

Attendance to lectures, especially problem-solving seminars, is mandatory.

Students who are unable to attend the sessions due to justified reasons must provide appropriate justification. Evaluation will be conducted through other alternative tests chosen by the professor(s).

All tests can be evaluated on the secondchance. Nonattendance to compulsory activities precludes the possibility to beevaluated in the second chance.

Exam Dates:

December 3, 2024, from 10-12 am.

July 4, 2024, from 12-2 pm.

The exam dates can be viewed at: http://masteroceanografia.com/horarios/

Any changes to the officially approved exam dates will be posted on the notice board and the Center's website."

Sources of information

Basic Bibliography

Pedlosky, J., **Geophysical Fluid Dynamics**, 1, Springer- Verlag, 1979

Gill, A.E., **Atmosphere- Ocean Dynamics**, 1, Academic Press, 1982

Complementary Bibliography

Recommendations

Subjects that are recommended to be taken simultaneously

Global Change and Marine Ecosystems/V10M153V01208
Climate Models/V10M153V01205
Physical Processes in the Ocean/V10M153V01101

Subjects that it is recommended to have taken before

Physical Oceanography/V10M153V01CF101

Other comments

Students willing so could attend personal tutorials to solve doubts and/or uncertainties. To better optimise the procedure, the student is requested to previously contact his/her teacher with reasonable anticipation. Students are strongly requested

to fulfil honest and responsible behaviour. It is considered completely unacceptable any alteration or fraud (i.e., copy or plagiarism) contributing to modify the level of knowledge and abilities acquired in exams, evaluations, reports or any kind of teacher□s proposed work. Fraudulent behaviour may cause failing the course for a whole academic year. An internal dossier of these activities will be built and, when reoffending, the university rectorate will be asked to open a disciplinary record