



1. General information

Course: METEOROLOGY AND CLIMATOLOGY**Type:** CORE COURSE**Degree:** 340 - UNDERGRADUATE DEGREE PROGRAMME IN ENVIRONMENTAL SCIENCES**Center:** 501 - FACULTY OF ENVIRONMENTAL SCIENCES AND BIOCHEMISTRY**Year:** 3**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 37319**ECTS credits:** 6**Academic year:** 2019-20**Group(s):** 40**Duration:** First semester**Second language:****English Friendly:** Y**Bilingual:** N

Lecturer: MIGUEL ANGEL GAERTNER RUIZ VALDEPEÑAS - Group(s): 40				
Building/Office	Department	Phone number	Email	Office hours
Sabatini / 0.18	CIENCIAS AMBIENTALES	926051752	miguel.gaertner@uclm.es	Tuesday 12:00 to 13:00, Thursday 12:00 to 13:00 and 15:00 to 19:00 (appointment by email)
Lecturer: CLEMENTE GALLARDO ANDRES - Group(s): 40				
Building/Office	Department	Phone number	Email	Office hours
Sabatini 0.19	CIENCIAS AMBIENTALES	926 05 14 53	clemente.gallardo@uclm.es	L y M de 12 a 14 h y M de 15 a 17h

2. Pre-Requisites

No prerequisites

3. Justification in the curriculum, relation to other subjects and to the profession

The fundamental objectives of this subject are to study the basic elements and principles of the Physics of the Atmosphere and Climatology, with special attention to the aspects of greater environmental relevance. It is a course in which the fundamental physical concepts are displayed in a descriptive way together with practical applications of environmental interest. In fact, in the field of Anglo-Saxon universities this type of subject is usually given the name of Atmospheric Environment.

The purpose of this course is that the student acquires the basic knowledge in a gradual and orderly manner, so that the new concepts are explained with the previous ones in mind, in order to progressively perceive that the atmosphere is a system complex and interactive that is governed by physical laws.

The consequence of these objectives is the understanding of the environmental concepts in which the atmosphere is involved, both in the framework of other subjects of the curriculum and in the development of the profession of environmentalist.

4. Degree competences achieved in this course

Course competences

Code	Description
CB01	Prove that they have acquired and understood knowledge in a subject area that derives from general secondary education and is appropriate to a level based on advanced course books, and includes updated and cutting-edge aspects of their field of knowledge.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
E01	Ability to understand and apply basic knowledge.
E03	Awareness of the temporal and spatial dimensions of environmental processes
E05	Capacity for qualitative data interpretation
G03	Good oral and written communication

5. Objectives or Learning Outcomes

Course learning outcomes

Description

To know the atmospheric observation systems and the methods of meteorological analysis and prediction.

To understand the components of the climate system, the complex interactions between them and climate variability at different time scales.

Learn to relate environmental phenomena to the principles of physics that explain them. Especially those related to meteorological, climatological, air, noise and radiation pollution processes.

6. Units / Contents

Unit 1: The Earth's atmosphere.

Unit 2: The energy balance.
Unit 3: The temperature.
Unit 4: The atmospheric humidity and its condensation.
Unit 5: Atmospheric stability and cloud development.
Unit 6: Precipitation.
Unit 7: The wind.
Unit 8: The global circulation of the atmosphere.
Unit 9: Air masses, fronts and pressure systems.
Unit 10: Circulation systems at regional and local scales.
Unit 11: Weather analysis and forecasting.
Unit 12: The meteorology of atmospheric pollution.
Unit 13: Climatic factors and climate classifications.
Unit 14: Global climates.

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	R	Description
Class Attendance (theory) [ON-SITE]	Lectures	CB05 E01 E03 E05	1.4	35	N	-	-	
Progress test [ON-SITE]	Assessment tests	CB05 E01 E03 E05 G03	0.08	2	Y	N	N	
Laboratory practice or sessions [ON-SITE]	Combination of methods	CB01 CB05 E01 E03 E05 G03	0.8	20	Y	Y	N	
Study and Exam Preparation [OFF-SITE]	Self-study	CB01 CB05 E01 E03 E05 G03	3	75	N	-	-	
Final test [ON-SITE]	Assessment tests	CB01 CB05 E01 E03 E05 G03	0.12	3	Y	Y	Y	
Writing of reports or projects [OFF-SITE]	Group Work	CB05 E03 G03	0.6	15	Y	N	Y	
Total:			6	150				
Total credits of in-class work: 2.4				Total class time hours: 60				
Total credits of out of class work: 3.6				Total hours of out of class work: 90				

As: Assessable training activity

Com: Training activity of compulsory overcoming

R: Rescheduling training activity

8. Evaluation criteria and Grading System

Evaluation System	Grading System		Description
	Face-to-Face	Self-Study Student	
Final test	30.00%	0.00%	Eminently theoretical final exam. To pass this exam, students must obtain a minimum score of 4.5 out of 10. Students who pass the progress test have to do only the test of the second part of the subject. The note of the first part will be the one obtained in the progress test. Students who have not passed the progress test should be examined in this final test of the two parts of the subject. For them the weight of this test will be 60%.
Practicum and practical activities reports assessment	25.00%	0.00%	The reports of the laboratory work will be evaluated for accuracy, clarity, ability to connect content, management of basic concepts, scientific reasoning ability, and ability to solve a problem correctly and completely. The reports will be elaborated in the laboratory sessions. Although the sessions can not be repeated, the reports can be rewritten in the extraordinary call.
Theoretical papers assessment	15.00%	0.00%	A work will be proposed to be carried out in group on complementary matters to those dealt with in the agenda.
Progress Tests	30.00%	0.00%	Around the middle of the semester there will be a progress test to evaluate and encourage the continuous study. The test will cover, approximately, half of the agenda and will be liberatory with respect to the final test. To pass this test the student must obtain a minimum score of 4.5 out of 10.
Total:	100.00%	0.00%	

Evaluation criteria for the final exam:

It will be valued that the student demonstrates that he/she has assimilated the basic knowledge of the subject and that can relate them to each other by evaluating the evaluable activities of the subject. Students of exchange programs will be evaluated by an alternative procedure determined by the teacher according to the circumstances of each case.

Specifications for the resit/retake exam:

The evaluation of the works and the progress tests will be that obtained in the ordinary call. The evaluation of the laboratory reports will also be that obtained in the ordinary call, unless this activity has been failed. In that case, the practice reports would be rewritten. Students of exchange programs will be evaluated by an alternative procedure determined by the teacher according to the circumstances of each case.

Specifications for the second resit / retake exam:

The mark of this call will coincide with the one obtained in the corresponding final test.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Progress test [PRESENCIAL][Assessment tests]	2
Laboratory practice or sessions [PRESENCIAL][Combination of methods]	20
Final test [PRESENCIAL][Assessment tests]	3
Writing of reports or projects [AUTÓNOMA][Group Work]	15
Unit 1 (de 14): The Earth's atmosphere.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	6.1
Unit 2 (de 14): The energy balance.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 3 (de 14): The temperature.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.8
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 4 (de 14): The atmospheric humidity and its condensation.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.8
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 5 (de 14): Atmospheric stability and cloud development.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.65
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 6 (de 14): Precipitation.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 7 (de 14): The wind.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 8 (de 14): The global circulation of the atmosphere.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 9 (de 14): Air masses, fronts and pressure systems.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 10 (de 14): Circulation systems at regional and local scales.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 11 (de 14): Weather analysis and forecasting.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 12 (de 14): The meteorology of atmospheric pollution.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 13 (de 14): Climatic factors and climate classifications.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Unit 14 (de 14): Global climates.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	5.3
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	35
Progress test [PRESENCIAL][Assessment tests]	2
Laboratory practice or sessions [PRESENCIAL][Combination of methods]	20

Study and Exam Preparation [AUTÓNOMA][Self-study]	75
Final test [PRESENCIAL][Assessment tests]	3
Writing of reports or projects [AUTÓNOMA][Group Work]	15
Total horas:	150

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Aguado, Edward	Understanding weather and climate	Pearson/Prentice Hall		0-13-154787-9 (CD)	2007	
Ahrens, C. Donald	Meteorology Today: An Introduction to Weather, Climate, and the Environment	Thomson Brooks/Cole		0-534-37198-1 (CD-RO	2003	
Font Tullot, Inocencio	Climatología de España y Portugal	Ediciones Universidad de Salamanca		84-7800-944-2	2000	
Moran, Joseph M.	Meteorology : the atmosphere and the science of weather	Prentice Hall		0-13-266701-0	1997	