

**Climate and Water****2015/2016**Code: 101616  
ECTS Credits: 6

Degree	Type	Year	Semester
2501002 Geography and Spatial Planning	OB	2	1

**Contact**Name: Peter Graham Mortyn  
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Principal working language: english (eng)

**Prerequisites****Successful completion of the Physical Geography course.****Objectives and Contextualisation**

To describe the functioning and operation of the climatic system from the knowledge and the understanding of the fundamental concepts of climatology. This subject considers atmospheric general circulation, introduced in the first course of Physical Geography. It includes the analysis of the terrestrial climatic system and the study of the factors and the elements of the climates of the Earth, and of the mechanisms that describe its climatic diversity. As detailed more during the first days of class, the subject also includes an obligatory field trip to a weather observatory.

**Skills**

- Acting and intervening in the territory and its management, displaying the practical and experimental nature of geographical formations.
- Analysing and explaining today's world events from a geographical point of view.
- Analysing and interpreting landscapes.
- Applying fieldwork methods and techniques in order to acquire a direct knowledge of the territory.
- Developing critical thinking and reasoning and communicating them effectively both in your own and other languages.
- Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
- Students must be capable of communicating information, ideas, problems and solutions to both specialised and non-specialised audiences.
- Students must develop the necessary learning skills in order to undertake further training with a high degree of autonomy.

**Learning outcomes**

1. Analysing the main dynamics of today's world from a geographical point of view.
2. Applying the knowledge of geology, topography and climate in order to plan a territory.
3. Carrying out oral presentations using an appropriate academic vocabulary and style.
4. Combining fieldwork methods and techniques in order to acquire a direct knowledge of the physical and human interrelationships taking place in the territory.
5. Defining the landscapes in relation to climate, waters, biogeography and geomorphology.
6. Describing today's world events in relation to the climate, water, biogeography and geomorphology.

7. Effectively communicating and applying the argumentative and textual processes to formal and scientific texts.
8. Identifying the ideas and expressing them in various languages with linguistic correctness.
9. Producing an individual work that specifies the work plan and timing of activities.
10. Solving problems autonomously.
11. Summarising acquired knowledge about the origin and transformations experienced in its several fields of study.

## Content

Bloc 1. Introduction. The Atmosphere.

Bloc 2. Components of the climatic system.

Bloc 3. Solar radiation and temperature.

Bloc 4. Humidity, clouds, and precipitation.

Bloc 5. Atmospheric pressure and winds. General atmospheric circulation.

Bloc 6. Regional study of climate. Climatic classifications.

Bloc 7. Climatic changes.

### **Bloc 8. The role of the global ocean.**

Bloc 9. Past climatic changes from geologic archives.

Bloc 10. Field trip.

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## Methodology

1. Lecture and discussion
2. Individual student activity
3. Small group activities and exercises
4. Discussion and analysis
5. Practical exercises
6. Problem solving

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## Activities

Title	Hours	ECTS	Learning outcomes
<b>Type: Directed</b>			
Directed activity (class)	46	1.84	1, 2, 4, 5, 6, 9, 7, 3, 8, 10, 11
<b>Type: Supervised</b>			
In-class quizzes	5	0.2	1, 2, 4, 5, 6, 9, 7, 3, 8, 10, 11
<b>Type: Autonomous</b>			
Independent work from the classes and finalization of the practical.	35	1.4	1, 2, 4, 5, 6, 9, 7, 3, 8, 10, 11

## Evaluation

There is a written quiz at the conclusion of each block, whereby students have a range of questions (short essay answer) and a certain amount of flexibility and choice. There is also a practical exercise connected to each block topic. The overall course grade is determined by performance in both theoretical and practical portions (50% each). A minimum satisfactory performance is required from each portion of the course, in order to successfully complete the class. 70% of the course material is required to be completed in order to be evaluated.

### Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Practicals	75	60	2.4	1, 2, 4, 5, 6, 9, 7, 3, 8, 10, 11
Theoretical quizzes	25	4	0.16	1, 2, 4, 5, 6, 9, 7, 3, 8, 10, 11

## Bibliography

### Bibliografía recomendada

El llibres en què es basa majoritàriament l'assignatura (i que es recomanen si se'n vol adquirir algun, donada la seva qualitat i el seu preu raonable) és:

**CUADRAT, J.M. & PITA, M.F. (2000), Climatología. Madrid, Cátedra**

**MARTIN VIDE, J. (2005). Los Mapas del Tiempo. Mataró, Davinci**

### Bibliografía complementària

BARRY, R. G. I PERRY, A. H. (1973), Synoptic Climatology. Methods and Applications, London and New York, Methuen.

BATTAN, L. (1976), El tiempo atmosférico, Barcelona, Omega.

CATALA DE ALEMANY, J. (1986), Diccionario de Meteorología. Madrid, Alhambra.

CLAUSSE, R. Y FACY, L. (1968), Las nubes, Barcelona, Martínez-Roca.

DURAND-DASTES, F. (1972), Climatología, Barcelona, Ariel.

DURAND-DASTES, F. (1982), Geografía de los aires, Barcelona, Ariel.

ELSOM, P. (1990), La contaminación atmosférica., Madrid, Cátedra Geo menor.

FLOHN, H. (1968), Clima y tiempo, Madrid, Guadarrama.

GRIMALT, M. et al (1995). Els núvols. Guia de camp de l'atmosfera i previsió del temps. Ed. El Mèdol. Tarragona.

HARDY, R., et al (1985), El libro del clima, Madrid, Blume.

HIDY, G. M. (1972), Los vientos. Los orígenes y el comportamiento del movimiento atmosférico, México, Reverté Mexicana.

- HUFTY, A. (1984), *Introducción a la Climatología*, Barcelona, Ariel.
- JORGE, J, Y RIVERA , J. (1992), *Diccionari de Meteorologia*. Barcelona , Universitat Politècnica de Catalunya.
- LONGLEY, R. W. (1973), *Tratado ilustrado de Meteorología*, Buenos Aires, Ed. Bell.
- MARTIN VIDE, J. (1984), *Interpretación de los mapas del tiempo*, Barcelona, Ketres.
- MARTIN VIDE, J. (1991), *Fundamentos de Climatología analítica*, Madrid, Ed. Síntesis.
- MARTIN VIDE, J. i OLCINA CANTOS, J. (1996), *Tiempos y climas mundiales*. Oikos-Tau, Vilassar de Mar.
- MEDINA, M. (1973), *Introducción a la Meteorología*, Madrid, Paraninfo.
- MEDINA, M. (1976), *Meteorología básica sinóptica*, Madrid, Paraninfo.
- MILLER, A.A. (1951), *Climatología*, Omega, Barcelona.
- PAGNEY, P. (1982), *Introducción a la Climatología*, Barcelona, Oikos-Tau.
- PAPADAKIS, J. (1980), *El clima*, Buenos Aires, Albatros.
- PEDELABORDE, P. (1970), *Introduction a l'étude scientifique du climat*, Paris, SEDES.
- PETTERSEN, P. (1976), *Introducción a la Meteorología*, Madrid, Espasa-Calpe.
- SUREDA, V. (1986), *La Climatología* . Col. Coneguem Catalunya 10. La Llar del Llibre, Sant Cugat del Vallès.
- TANK, H. J. (1971), *Meteorología*, Madrid, Alianza.
- TOHARIA, M. (1983), *Tiempo y clima*, Barcelona, Salvat.
- VIAUT, A. (1975), *La meteorología*, Vilassar de Mar, Oikos-Tau.
- VIERS, G. (1975), *Climatología*, Vilassar de Mar, Oikos-Tau.
- There will also be selected readings that come from journal articles during the course.