

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF PHYSICS		
LEVEL OF STUDIES	POSTGRADUATE		
COURSE CODE	M211	SEMESTER	1/3
COURSE TITLE	METEOROLOGY		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
	4	7	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Special background / specialised general knowledge		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	http://ecourse.uoi.gr/course/view.php?id=1699		

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course provides the postgraduate students with detailed knowledge about the meteorological parameters and the associated phenomena. Specifically, after the successful completion of the course, the students will be able to:

- Explain the definitions, the quantitative and qualitative characteristics and the physical meaning of the various meteorological parameters.
- Describe the various meteorological phenomena and explain them using the laws of mechanics and thermodynamics.
- Describe the large, medium and local scale meteorological processes and justify the prevailing meteorological conditions and the weather changes over a specific region.
- Explain the spatial and temporal variations of the meteorological parameters, taking into account the roles of the radiation budget, the geographical position, the relief, the physical characteristics of the earth's surface, etc..
- Describe and interpret the results of their MSc dissertation, in case that its subject refers to the research area of Meteorology.

- Use the various academic search engines for finding and accessing articles in the Academic Journals of Meteorology.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

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Others...

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Search for, analysis and synthesis of data and information, with the use of the necessary technology

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Respect for the natural environment

Production of free, creative and inductive thinking

(3) SYLLABUS

Weather and climate. Branches of Meteorology, Origin, composition, evolution, height and vertical structure of the atmosphere. Solar and terrestrial radiation and mechanisms of heat transfer in the atmosphere. Air, soil and sea surface temperature. Temperature inversions. The greenhouse effect. Atmospheric pressure and sea-level pressure maps. Wind, general circulation and local circulations in the atmosphere. Evaporation and atmospheric humidity. Atmospheric stability. Clouds. Fog and other forms of local-scale condensation. Precipitation. Air masses and fronts. Depressions, anticyclones, tropical cyclones, thunderstorms and tornadoes.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face to face teaching	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Asynchronous online learning via Moodle is used for uploading files related to the course and the communication with the students.	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	Activity	Semester workload
	Lectures	39
	Tutorials	13
	Preparation and writing of projects	30
	Study and analysis of bibliography	55
	Non-directed study	35
	Examinations	3
	Course total	175

<p style="text-align: center;">STUDENT PERFORMANCE EVALUATION</p> <p><i>Description of the evaluation procedure</i></p> <p><i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>Written examinations at the end of semester, comprising questions of knowledge and understanding of the course content.</p> <p>Additionally, two or three projects requiring bibliographic study and analysis are assigned to the students, contributing to the final grade under the condition that the final examination grade is promotable.</p>
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(5) ATTACHED BIBLIOGRAPHY

<ul style="list-style-type: none"> • Ahrens CD (2013) Meteorology Today. 10th Edition, Brooks/Cole. • Flocas A (1997) Meteorology and Climatology courses, Ziti Editions (in Greek). • Sahsamanoğlu Ch, Makrogiannis T (1998) General Meteorology, Ziti Editions (in Greek). • Stull R (2011) Meteorology for Scientists & Engineers, 3rd Edition, University of British Columbia. • Wallace JM, Hobbs PV (2006) Atmospheric Science: An Introductory Survey, 2nd Edition, Academic Press.
