

## COURSE MODULE OUTLINE

### (1) General information

<b>SCHOOL</b>	School of Applied Arts and Sustainable Design		
<b>PROGRAM COURSE</b>	Protection of Cultural Heritage and Monuments of Nature from the Effects of Climate Change (CCC)		
<b>LEVEL OF STUDY</b>	Master's degree		
<b>COURSE UNIT CODE</b>	CCC51	<b>YEAR OF STUDY</b>	1st
<b>COURSE TITLE</b>	Introduction to climate change		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits</i>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
Weekly teaching hours 18-19* 30 weeks		560	20 ECTS
<i>Add rows if necessary. The organization of teaching and the teaching methods used are described in detail under section 4</i>			
<b>COURSE TYPE</b> Compulsory, Optional, Optional mandatory	Compulsory		
<b>PREREQUISITE COURSES:</b>	NONE		
<b>LANGUAGE OF INSTRUCTION AND EXAMS:</b>	English		
<b>THE COURSE IS OFFERED TO ERASMUS STUDENTS</b>	No (due to annual duration of the module)		
<b>COURSE WEBSITE (URL)</b>	<a href="https://www.eap.gr/en/protection-of-cultural-heritage-and-monuments-of-nature-from-the-effects-of-climate-change/topics/#ccc51">https://www.eap.gr/en/protection-of-cultural-heritage-and-monuments-of-nature-from-the-effects-of-climate-change/topics/#ccc51</a>  Each module has its own space in the Learning Management System of EAP ( <a href="https://study.eap.gr/login/index.php">https://study.eap.gr/login/index.php</a> ), with controlled access (use of code) for students and teaching staff.		

## (2) LEARNING OUTCOMES

### **Learning Outcomes**

- *The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:*

After the successful completion of the Course Module students shall be able to:

Understand the complex structure of the climate system and its changes throughout the Earth's history.

List the most important processes that determine the main climate indicators.

Know the basic climate parameters.

Understand the anthropogenic and natural sources of atmospheric emissions that affect the climate.

Define the main effects of climate change on Earth.

Become familiar with the identification of extreme weather events as a consequence of climate change.

Know the effects of climate change on different human activities.

Recognize the technological aspects of climate change and the need for adaptation and mitigation actions.

### **General Competences**

*Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?*

<i>Search for, analysis and synthesis of data and information by the use of appropriate technologies,</i>	<i>Project planning and management</i>
<i>Adapting to new situations</i>	<i>Respect for diversity and multiculturalism</i>
<i>Decision-making</i>	<i>Environmental awareness</i>
<i>Individual/Independent work</i>	<i>Social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Group/Team work</i>	<i>Critical thinking</i>
<i>Working in an international environment</i>	<i>Development of free, creative and inductive thinking</i>
<i>Working in an interdisciplinary environment (Other.....citizenship, spiritual freedom, social Introduction of innovative research awareness, altruism etc.) .....</i>	<i>.....</i>

Search for, analysis and synthesis of data and information by the use of appropriate technologies,

Adapting to new situations

Decision-making

Individual/Independent work

Group/Team work

Working in an international environment

Working in an interdisciplinary environment

Respect for diversity and multiculturalism

Environmental awareness

Social, professional and ethical responsibility and sensitivity to gender issues

Project planning and management

Critical thinking

Development of free, creative and inductive thinking

### (3) COURSE CONTENT

Acquisition of specialized knowledge by students in matters concerning: a) the earth's climatology, b) the basic climatic parameters and quantities associated with air pollution and their interconnection with climate change, c) extreme climates as a consequence of climate change, d) on the effects of climate change on the various parts of the planetary system (atmosphere, cryosphere, geosphere) and e) on the connection of climate change with sectors of the economy and society. The TU contributes to the understanding of the complex structure and operation of the climate system and its changes throughout the history of the planet as well as to the acquisition of knowledge of the most important processes (e.g. atmospheric and ocean currents) in different parts of the world that determine key climate indicators (e.g. atmosphere temperature, sea level, etc.). The TU provides knowledge of anthropogenic and natural sources of emissions into the atmosphere resulting in increased concentrations of pollutants that affect the climate. The TU allows students to become familiar with the definition of extreme weather phenomena with adverse effects on materials and structures. Finally, the TU allows students to recognize the technological aspects of climate change and to understand the need for climate change adaptation and mitigation actions.

Subjects covered:

Introduction to climatology

Major climate and pollution parameter changes

Extreme events linked to climatic change

Geological impacts of climate change

Synergistic phenomena

#### (4) TEACHING METHODS--ASSESSMENT

<p><b>MODES OF DELIVERY</b> <i>Face-to-face, in-class lecturing, distance teaching and distance learning etc.</i></p>	<p>Distance learning by conducting five (5) Group Counseling Meetings during the academic year on weekends</p>	
<p><b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGY</b> <i>Use of ICT in teaching, Laboratory Education, Communication with students</i></p>	<p><b>In the GCM and/or in the work:</b> - remote meeting tools (cisco webex), - presentation software (powerpoint type), In addition, office automation assistants, web browsers and e-readers for digital books.</p>	
<p><b>COURSE DESIGN</b> <i>Description of teaching techniques, practices and methods: Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc.</i></p> <p><i>The study hours for each learning activity as well as the hours of selfdirected study are given following the principles of the ECTS.</i></p>	<p><b>Activity/Method</b></p>	<p><b>Annual workload</b></p>
	<p>5 Group tutorial meetings x 4 hours</p>	<p>20 hours</p>
	<p>5 Horizontal tutorial OSS (* 2 hours)</p>	<p>10</p>
	<p>Activities and Multiple Choice Exercises (32 x0.5 hours)</p>	<p>16 hours</p>
	<p>Preparation of 4 assignments (4 x 20 hours)</p>	<p>60 hours</p>
	<p>Exams</p>	<p>3 hours</p>
	<p>Individual study</p>	<p>451 hours</p>
	<p><b>Total</b></p>	<p>560</p>

<p style="text-align: center;"><b>STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS</b></p> <p><i>Detailed description of the evaluation procedures:</i></p> <p><i>Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work, other.....etc.</i></p> <p><i>Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students.</i></p>	<p>Four (4) written assignments during the academic year, the average of the grades of which participates in the formation of the final grade by 30%. Students need to have successfully completed the written assignment obtaining an average grade of at least 50%, in order to be eligible to the final exams. Final written examinations, that participate in the formation of the final degree by 70%.</p> <p>All the criteria are posted, both in each written assignment (in the: <a href="https://study.eap.gr/login/index.php">https://study.eap.gr/login/index.php</a>), as well as in the general regulation of HOU at: <a href="https://www.eap.gr/wp-content/uploads/2022/03/kanonismos-spoudwn-isxys- apo-to-didaktiko-etos-2022-2023.pdf">https://www.eap.gr/wp-content/uploads/2022/03/kanonismos-spoudwn-isxys- apo-to-didaktiko-etos-2022-2023.pdf</a></p>
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### **(5) SUGGESTED BIBLIOGRAPHY:**

<p>- <i>Suggested bibliography</i></p> <p>-Προτεινόμενη Βιβλιογραφία : 1. <i>Climate Change: Observed Impacts on Planet Earth, Book, 2nd Edition, 2015, Editor: Trevor Letcher, Elsevier, ISBN 978-0-444-63524-2.</i></p> <p>2. <i>The Evolution of Meteorology: A Look into the Past, Present, and Future of Weather Forecasting, Authors: Kevin Anthony Teague, Nicole Gallicchio, 2017, Wiley Online Library, ISBN:9781119136149.</i></p> <p>3. <i>Fundamentals of air pollution, Fifth Edition, Author: Daniel Vallero, 2014, Elsevier, ISBN: 9780124017337.</i></p> <p>4. <i>Making sense of weather and climate: The science behind the forecasts, Author Mark Denny, 2017, Columbia University Press, ISBN: 9780231174923.</i></p>
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