COURSE DISCRIPTION

1. GENERAL

SCHOOL	ENVIRONMENT, GEOGRAPHY AND APPLIED ECONOMICS
DEPARTMENT	GEOGRAPHY
LEVEL OF COURSE	Undergraduate

COURSE CODE		**SEMESTER**	3f

COURSE TITLE	CLIMATE CHANGE

STRUCTURE OF TEACHING ACTIVITIES	TEACHING HOURS PER WEEK	NUMBER OF CREDITS ALLOCATED (ECTS)
Lectures and Laboratory Classes	3	5

TYPE OF COURSE	Optional
PREREQUISITES	-
LANGUAGE OF INSTRUCTION	GREEK
COURSE OFFERED TO ERASMUS STUDENTS	YES (in English if required)
(URL)	http://meteoclima.hua.gr

2. EXPECTED LEARNING OUTCOMES

Learning outcomes
Describe the objectives of the course as well as the expected learning outcomes

The course of Climate Change is an introductory course in the fields of climate variability, greenhouse effect and large-scale atmospheric phenomena. Students are introduced to the concepts of climate change and climate variability, with a focus on distinguishing between natural and anthropogenic drivers. The course emphasizes the quantitative analysis of the Earth's energy balance, the investigation of both the natural and enhanced greenhouse effect, and the physicochemical properties and radiative forcing of greenhouse gases within the global climate system. The practical session of the course provides fundamental knowledge on data analysis software while the laboratory work is essential for the learner in order to demonstrate its skills on climate data processing and various scenarios assessment. At the end of the course the student is expected to be able to understand the natural and anthropogenic impacts on the global climate, analyse the possible scenarios and their dynamical feedbacks. The practical session of the course provides fundamental knowledge on data analysis software while the laboratory work is essential for the learner in order to demonstrate its skills on climate data processing and various scenarios assessment.

3. COURSE CONTENTS

1. Differences on Climate change and climate variability 2. The radiation budget of the Earth

3. Natural and enhanced greenhouse effect
4. Physiochemical properties of the greenhouse gases
5. Scenarios of greenhouse gases emission
6. The land use change
7. ENSO and its impact on global climate
8. Climate projections
9. The Intergovernmental Panel on Climate Change
10. The Kyoto protocol and the contribution of Greece as an EU member

4. TEACHING AND ASSESSMENT METHODS

TYPE OF LECTURES	In class lectures Laboratory Lectures and Practice		
ICT USE	ICT use, course website, interactive experiments, climate data and e-class		
TEACHING STRUCTURE	**Activity**	**Hours per semester**	
	Lectures	33	
	Laboratory	6	
	Project	13	
	Studying	75	
	TOTAL	*127*	
ASSESSMENT METHODS	Assessment Language: Greek The basic assessment type of the course is the written examination at the end of the semester (3 hours). The final grade is estimated by the written examination and a final written paper on a case study with climate data based on the IPCC available scenarios.		

5. RECOMMENDED READING

Katsafados P. and E. Mavromatidis, (2023). Climate Change [Undergraduate textbook]. Kallipos, Open Academic Editions. https://repository.kallipos.gr/handle/11419/13221 (in greek).