

COURSE OUTLINE

(1) General

School:	Social Sciences		
Academic Unit:	Geography		
Level of studies	Undergraduate		
Course Code:	GEO 317	Semester:	F
Course Title:	Enviromental Geography		
Independent Teaching Activities	Weekly Teaching Hours	Credits	
Lecture		3	
Course total			5
Course Type:	Required Elective		
Prerequisite Courses:	None		
Language of Instruction and Examinations	Greek		
Is the course offered to Erasmus students:	No		
Course Website (Url):	https://geography.aegean.gr/pps/index_en.php?content=0&lesson=317		

(2) Learning Outcomes

Learning Outcomes

Upon completion of the course, the student is expected to:

- be able to apply basic knowledge learned in the compulsory courses of Physical Geography
- be able to apply the basic modern methodology in Environmental Geography in the academic and business fields
- use the Global Positioning System (GPS) with modern devices and positioning software (eg ArcPad, TurboGPS)
- map sampling positions using GPS
- collect and manage botanical and zoological material, and record important information recorded along with the collected material (eg coordinates, date, weather, etc.)
- recognize botanical and zoological material at taxonomic level using taxonomic keys
- identify an environmental problem and study its impacts through sampling in degraded and non-degraded areas by comparing samples of biological material, with particular emphasis on the correct mapping of the spatial scale of environmental pressure

General Competences

1. Search for, analysis and synthesis of data and information, with the use of the necessary technology
2. Decision-making
3. Team work
4. Project planning and management
5. Respect for the natural environment
6. Criticism and self-criticism

7. Production of free, creative and inductive thinking

(3) Syllabus

The learning objective of the course is a) the complementation of knowledge on the natural environment by applying the basic knowledge (Physical Geography I, II, Environment & Ecology) acquired in previous semesters and b) the understanding of contemporary methodology in Environmental Geography and preparing students for knowledge application in both the academic and the private sector. In other words, the course aim is to achieve a faceted understanding of modern Environmental Science and research methodology. Specifically, the student learns to use the Global Positioning System (GPS) with modern appliances and positioning softwares (e.g. ArcPad, TurboGPS) including the acquisition of geographical information of sampling points using GPS. Through the botanical and zoological research, the student learns the appropriate sampling and management of botanical and zoological material and the acquisition of important information which is recorded along with the collected material (e.g. coordinates, date, weather, etc.). In addition, the student learns methods in the preservation of the material and the identification of samples. After the successful completion of the course the student has the ability to recognize an environmental problem and to study its effects by sampling in degraded and non-degraded areas, and comparing samples of biological material. Particular emphasis is placed on teaching proper techniques of capturing the spatial dimension of environmental pressure.

Theory

Introduction to applied Environmental Studies and Geography with emphasis on the contemporary environmental research methodology.

Environmental Studies as study field within Physical Geography. Symptoms, causes and geographic dimensions (ecological, socio-economic, political and cultural) and effects of the Environmental - ecological crisis (pollution, climate - global change, ecosystem degradation, depletion of natural resources, biological invasions, anthropogenic effects on the environment). Tackling environmental problems - Modern mitigation measures and technology - Sustainability.

Functioning of Global Navigation Satellite System (GNSS). Phytogeographical research with an introduction to plant systematics. Zoogeographical research (with particular emphasis on arthropods) with an introduction to animal systematics.

Practical Exercises Field

1. Acquisition of the geographical position using the Global Positioning System (GPS): theory and operation of GPS devices. Contemporary positioning receivers and software: ArcPad, TurboGPS. Surveying: From field research to mapping. Visualisation of sampling points on the map. Measurement of surface and linear elements. Identification and mapping of natural elements.

2. Phytogeographical research and vegetation sampling: Introduction to plant systematics, field exercise with sampling, identification of plants and generation of a herbarium.

3. Zoogeographical research and sampling (with a special emphasis on arthropods): Introduction to animal systematics, introduction to sampling methods, field exercise with sampling, identification of samples and generating a collection.

(4) Teaching and Learning Methods - Evaluation

Delivery:

The course consists of lectures, lab exercises, field exercises, and an educational field excursion.

Use of Information and Communication Technology:	Use of modern teaching methods (e.g. powerpoint, small films and other supporting educational material). For the lab and field exercises the following technologies and softwares are used: GPS positioning with dedicated handheld receivers, ArcPad, TurboGPS, generation and use of electronic identification keys.	
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Teaching Methods:	Activity	Semester workload
Lecture	26	
Laboratory practice	4	
Fieldwork	9	
Educational visit	9	
Non-supervised study	57	
Project	30	
Performance evaluation/Exams	3	
Course total<		138

Student Performance Evaluation

The oral exam accounts for 50% and the written exam for 50% of the final grade.

(5) Attached Bibliography

1. Richard T Wright, Dorothy F Boorse (2012). Περιβαλλοντική Επιστήμη – Προς ένα βιώσιμο μέλλον. Πετανίδου Θ, Ριζοπούλου Σ, επιστημονική και μεταφραστική επιμέλεια. Επιστημονικές Εκδόσεις Παρισιάνου, Αθήνα, σελ. 723 + xxii.
2. Φωτίου Α, Πικριδάς Χ (2006). GPS και Γεωδαιτικές Εφαρμογές. Εκδόσεις ΖΗΤΗ, Θεσσαλονίκη, σελ. 319.
3. Theis T, Tomkin J (Eds) (2013). Sustainability: A Comprehensive Foundation. Rice University, Houston, Texas. Available online: <http://cnx.org/content/col11325/1.40/>.
4. Jackson ARW, Jackson JM (2000). Environmental Science – The natural environmental and human impact – 2nd edition. Addison Wesley Longman, Harlow, Essex.
5. Johnston CA (1998). Geographic information systems in ecology. Blackwell Science, London.
6. Στεφανάκη-Νικηφοράκη Μ (1999). Συστηματική Βοτανική – Κλείδες, Τόμος Β'. Εκδόσεις Αθ. Σταμούλης, Αθήνα.
7. Mayr E, Ashlock PD (1991). Principles of Systematic Zoology. McGraw Hill International Edition, Singapore.
8. Roberts N (1998). The Holocene –An environmental History. Blackwell, Oxford (UK), Malden (Mass., USA).