

Applied Ecology

Coordinator: Panayiotis G. Dimitrakopoulos

Email: pdimi@aegean.gr

Lecturers/Instructors: P.G. Dimitrakopoulos, Alexandros Galanidis, Christodoulos Sazeidis

GENERAL

SCHOOL	School of Environment		
ACADEMIC UNIT	Department of Environment		
LEVEL OF STUDIES	Postgraduate		
COURSE CODE	ENV541	SEMESTER	Spring
COURSE TITLE	Applied Ecology		
INDEPENDENT TEACHING ACTIVITIES		TEACHING HOURS	CREDITS
Lectures			0,5
Exams			1,5
Course Total			2
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE	skills development		
PREREQUISITE COURSES:	----		
COURSE WEBSITE (URL)			

LEARNING OUTCOMES

Learning outcomes
<p>Students will be able to</p> <ul style="list-style-type: none"> • Choose the appropriate sampling or experiment design to address an ecological topic. • Understand different measures of species richness and functional diversity • Familiarize with basic ecological fieldwork methods including: measurement protocols, functional traits measurements, vegetation description etc • Apply statistical analyses to ecological data • Draw up key findings and assess their implementation on ecological issues or problems.
General Competences
<p><i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i></p> <p><i>Decision-making</i></p> <p><i>Team work</i></p> <p><i>Working in an international environment</i></p> <p><i>Working in an interdisciplinary environment</i></p> <p><i>Project planning and management</i></p>

SYLLABUS

Lectures:

- Patterns of species richness
- Functional diversity & Ecosystem Function
- Project presentation

The following topics will be covered during field and laboratory practice:

- Principles of experimental design – Sampling procedure and methods
- Record site characteristics
- Measure community structure parameters (richness, diversity)
- Measure vegetation architecture parameters (e.g., plant height, plant cover, LAI)
- Measure species functional traits
- Measure ecosystem processes (community biomass production)
- Analyze and interpret data – Report writing

TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	<i>Face-to Face</i>	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY		
TEACHING METHODS	Activity	Semester workload
	Lectures	6
	Fieldwork and Laboratory practice	20
	Statistical analysis of ecological data	6
	Essay writing	28
	Course total	60
STUDENT PERFORMANCE EVALUATION	<p>Students will be graded based on their individual project report (100%):</p> <p>Marking criteria:</p> <p>(a) Literature review (15%), (b) Methods (20%) (c) Data analysis (20%) (d) Presentation of the study results (20%) (e) Discussion and conclusions (15%) (f) Referencing and Information gathering (10%)</p>	

ATTACHED BIBLIOGRAPHY

- Eddy van der Maarel, Janet Franklin (Eds). 2013. Vegetation Ecology. Wiley
- Begon M., Howarth RW, Townsend CR. 2014. Essential of Ecology. 4th edition. Wiley
- Garnier E., Navas M-L, Grigulis K. 2013. Plant Function Diversity. Wiley
- Pérez-Harguindeguy N. 2013. New handbook for standardised measurement of plant functional traits worldwide. *Australian Journal of Botany*.
<http://dx.doi.org/10.1071/BT12225>

- Hevia, V., Carmona, C.P., Azcárate, F.M. et al. 2016. Effects of land use on taxonomic and functional diversity: a cross-taxon analysis in a Mediterranean landscape. *Oecologia* 181: 959.
- Cohen, M., Bilodeau, C., Alexandre, F., Godron, M., Andrieu, J., Grésillon, E., Garlatti, F., Morganti, A. What is the plant biodiversity in a cultural landscape? A comparative, multi-scale and interdisciplinary study in olive groves and vineyards (Mediterranean France). 2015. *Agriculture, Ecosystems and Environment* 212: 175-186.
- Allen HD et al. 2006. The impact of changing olive cultivation practices on the ground flora of olive groves in the Messara and Psiloritis regions, Crete, Greece. *Land Degradation and Development* 17(3), 249-273
- Henderson PA. 2003. Practical methods in Ecology. Blackwell