

<b>Title:</b>	<b>:Quantitative Analysis of Ecological Data</b>		
<b>Code number:</b>	121E	<b>Type:</b>	Optional Compulsory
<b>Level:</b>	Undergraduate		
<b>Year:</b>	3	<b>Semester:</b>	E
<b>ECTS Units:</b>	5	<b>Teaching Units:</b>	4
<b>Lecturer(s):</b>	Panayiotis G. Dimitrakopoulos		
<b>Content outline and weekly schedule:</b>	<ol style="list-style-type: none"> <li>1. Experimental design</li> <li>2. Spatial pattern of plant and animals (distribution methods, quadrat-variance methods, distance methods)</li> <li>3. Community structure (distribution models, alpha diversity indices)</li> <li>4. Measuring diversity in different spatial scales (beta and gamma diversity)</li> <li>5. Biological and environmental indices</li> <li>6. Niche overlap indices</li> <li>7. Resemblance functions</li> <li>8. Association analysis</li> <li>9. Cluster analysis</li> <li>10. Principal component analysis</li> <li>11. One-way Analysis of variance</li> <li>12. Two – and three-way Analysis of variance</li> <li>13. Correlation and Regression</li> </ol> <p><b>Laboratory exercises:</b></p> <ol style="list-style-type: none"> <li>1. Community structure</li> <li>2. Beta diversity</li> <li>3. Resemblance functions</li> <li>4. Cluster analysis</li> <li>5. Regression</li> <li>6. Anova</li> <li>7. Niche breadth and overlap indices</li> </ol>		
<b>Learning Outcomes:</b>	<p>(a) To understand the basic principles of experimental design and methods of analysis and interpretation of ecological data.</p> <p>(b) To select the appropriate method of ecological data analysis</p>		
<b>Prerequisites:</b>	-		
<b>Recommended Reading:</b>	<b>Lecture notes:</b>	P. Dimitrakopoulos. Quantitative analysis of ecological data. 80 pages (in Greek).	
	<b>Basic</b>	ΣΤΑΜΟΥ Γ.Π., (2009), <i>ΟΙΚΟΛΟΓΙΑ: ΜΕΘΟΔΟΙ ΑΝΑΛΥΣΗΣ ΚΑΙ ΣΥΝΘΕΣΗΣ ΔΕΔΟΜΕΝΩΝ</i> , ΕΚΔΟΣΕΙΣ	

	<b>textbooks:</b>	ZHTH, ΘΕΣΣΑΛΟΝΙΚΗ
	<b>Additional References:</b>	<ul style="list-style-type: none"> <li>• Quinn GP, Keough MJ. 2002. Experimental design and data analysis for biologists. Cambridge.</li> <li>• Waite, S. 2000. Statistical Ecology in practice: a guide to analysing environmental and ecological field data. PrenticeHall.</li> <li>• Dytham C. 2006. Choosing and using statistics. A Biologist's guide. Blackwell Publishing.</li> <li>• Krebs, C.J. 1999. Ecological Methodology (2nd edition), Addison Wesley Longman, Menlo Park CA.</li> <li>• Barbour, M.G., Burk, J.H. and Pitts, W.D. 1987. Terrestrial Plant Ecology (2nd edition). Benjamin / Cummings, Menlo Park, CA.</li> <li>• Καρανδεινός Μ. 2007. Ποσοτικές οικολογικές μέθοδοι. Πανεπιστημιακές Εκδόσεις Κρήτης.</li> </ul>
	<b>Internet links:</b>	
<b>Learning Activities and Teaching Methods:</b>	<b>Lectures (hours/week):</b>	2-3
	<b>Practicals-Tutorials (hours/week):</b>	1-2
	<b>Other learning activities:</b>	-
<b>Assessment/Grading:</b>	Laboratorial exercises (30%), written examination at the end of the semester (70%)	
<b>Instruction Language:</b>	Greek	
<b>Mode of delivery:</b>	Face-to-face	