COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Environment		
ACADEMIC UNIT	Department of Environment		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	**126KEY**	**SEMESTER**	**6**
COURSE TITLE	Acoustic ecology		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	
Field trips & laboratory	3	
Total credits		**5**

COURSE TYPE	Skills development
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek/English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBSITE (URL)	http://www.env.aegean.gr/spoudes/proptychiakes-spoudes/programma-spoudon/

(2) LEARNING OUTCOMES

Learning outcomes
With the successful completion of the course students will be able to: • Understand the basic principles and concepts of acoustic ecology, soundscape ecology and ecoacoustics • Use acoustic ecology tools similar to the sound level meter • Understand specific applications of software that amongst other reasons are used for acoustic ecology (audacity, R Statistics) • Understand the concept of Rapid Biodiversity Assessment • Understand the purpose of the acoustic biodiversity indicators and of the available noise indicators
General Competences
The course offers an introduction regarding the discipline of acoustic ecology. Acoustic ecology is described as: “the relationship, mediated through sound, between living beings and their environment. The main goals of the course are: Understanding and using the basic concepts of acoustic ecology, soundscape ecology and ecoacoustics

Familiarization with the basic methods of soundscape analysis and classification

Understanding the overall process through the presentation of completed examples

Creating instructions for field recordings with educational purposes

For the perfect understanding of the theoretical tools provided, examples will be given using the Audacity software and the CadnaA noise mapping software.

At the same time, using R Statistics software packages, students will become familiar with the process of producing and understanding spectrograms, as well as with the process of extracting the acoustic biodiversity indicators. Finally, using the Soundcloud social networking tool, an audio database will be created by the students, which will also be available for future studies in the acoustic ecology course.

(3) SYLLABUS

Topics

- Introduction to acoustic ecology and soundscape ecology
- Ecoacoustics and applications
- Introduction to the bioacoustics theories
- The use of acoustic ecology tools (sound level meter, digital recorder)
- The use of acoustic ecology software: Audacity, R Statistics, SPSS, CadnaA
- A theoretical approach regarding protocol creation on field sampling methods using examples
- Data analysis procedure (SPSS, R Stats, Audacity, CadnaA)

Labs and field trips

- Soundwalks
- Noise sampling and sound recordings using the created protocols
- Soundscape analysis and noise/soundscape mapping
- Analysis of important ecoacoustic events similar to dawn chorus+Socioeconomic applications in spatial planning

+Applications to environmental planning

+Global change and landscapes; tools for prediction

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face to face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	**Yes.** **The use of the Soundcloud social network tool will be useful**
TEACHING METHODS	

Activity	***Semester workload***
Lectures	39
Field exercise	16
Educational visits	10
Project	10
Essay writing	10
Study and analysis of bibliography	45

	Course total	***125***
STUDENT PERFORMANCE EVALUATION	Greek/English Evaluation methods: Multiple choice test 15% Oral presentation 15% Field trip (soundscape analysis) 50% Project noise/soundscape mapping 20%	

(4) ATTACHED BIBLIOGRAPHY

- *Suggested bibliography:*

- *Soundscape Ecology, Principles, Patterns, Methods and Applications, Almo Farina, 2014, Springer*
- *Acoustic Communication, Barry Truax, 2001, Greenwood Publishing Group*
- *Animal Communication and Noise, Henrik Brumm, 2013, Springer*
- *Avian Urban Ecology Behavioural and Physiological Adaptations, Diego Gil and Henrik Brumm, 2014, Oxford University Press*
- *Pijanowski, B. C., Villanueva-Rivera, L. J., Dumyahn, S. L., Farina, A., Krause, B. L., Napoletano, B. M., Pieretti, N. (2011a), Soundscape Ecology: The Science of Sound in the Landscape. BioScience,61(3):203–216*
- *Seuer J., Farina A. (2015), Ecoacoustics: the Ecological Investigation and Interpretation of Environmental Sound, Biosemiotics (8): 493–502*
- *Truax, B. (1978). Handbook for Acoustic Ecology. Retrieved 20 September 2016, from http://www.sfu.ca/sonic-studio/handbook/*

- *Related academic journals:*

- *Applied Acoustics*
- *Bioacoustics*
- *Landscape and Urban Planning*
- *Ecoacoustics*
- *Landscape Ecology*
- *Journal of Sound and Vibration*
- *Biosemiotics*