

MODULE DESCRIPTION

General

School	Geotechnical Sciences
Department	Forest and Natural Environment Sciences

Module Information

Title	Evolutionary biology
Course Code	OPT.21
Level of Studies	Bachelor
Teaching Period	Winter semester
Attendance Type	Optional
Prerequisites	No

Orientation	Weekly Hours		Year	Semester	ECTS
	Lectures	Laboratory work			
Ecosystem Ecology & Landscape Rehabilitation Section	2	1	4 th	7 th	

Faculty Instructor

Type of Module

- General Foundation
- Specific Foundation / Core
- Knowledge Deepening / Consolidation

Mode of Delivery

- Face to face
- Distance learning

Digital Module availability

- E-Study Guide
- Departments Website
- E-Learning

Language

	Teaching	Examination
Greek	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
English	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Erasmus

- The course is offered to exchange programme students

Learning Outcomes

Students will get knowledge into the basic concepts of the evolution of ecosystem organisms in depth Geological Time Periods.

List of General Competences

- Apply knowledge in practice
- Work autonomously
- Work in teams
- Work in an international context
- Work in an interdisciplinary team
- Respect natural environment
- Advance free, creative and causative thinking

Module Content (Syllabus)

The aim of the course is to get acquainted the students with the stages of life organization and species evolution procedures in the various geological time frames. Teaching procedure covers the following subjects:

- Basic aspects of evolutionary biology (life appearance on earth, abiogenesis, chemical evolution, Darwin's theory of evolution)
- Darwinism and neo Darwinism
- Evolutionary mechanisms
- Geological time scale concept
- Phylogenetic classification of plant species populations (populations evolutionary motifs, populations evolutionary geography, biodiversity evolution)
- Origin of genetic diversity in ecosystems, populations' genetic divergence (current theory of genetic divergence, genetic divergence as evolutionary factor, gene flow and genetic divergence, theory of neutrality in molecular evolution)
- Natural selection and adaptation-evolution of phenotypic traits in forest species (sources of phenotypic diversity, quantitative trait loci, epigenetic regulation, evolutionary models of phenotypic diversity)
- Speciation as source of species evolution

Educational Material Types

- Book
- Notes
- Slide presentations
- Video lectures
- Multimedia

- Interactive exercises
- Other:

Use of Information and Communication Technologies

- Use of ICT in Course Teaching
- Use of ICT in Laboratory Teaching
- Use of ICT in Communication with Students
- Use of ICT in Student Assessment

Module Organization

Please fill in the workload of each course activity

Course Activity	Workload (hours)
Lectures	50
Laboratory work	5
Field Trip/Short Individual Assignments	10
Independent Study	10
Total	75

* 1 ECTS unit corresponds to 25 hours of workload

Student Assessment Methods

- Written Exam with Multiple Choice Questions
- Written Exam with Short Answer Questions
- Written Exam with Extended Answer Questions
- Written Assignment
- Report
- Oral Exams
- Laboratory Assignment

Suggested Bibliography (Eudoxus and additional bibliography)

1. Futuyama, D. (2015). Evolutionary biology. Publisher: Sinauer Associates.
2. Georgatsos, I.G. (2008). Genesis and premature biochemical life evolution. Publisher: University of Crete.
3. Pianca, E.R. (2015). Evolutionary Ecology. Publisher: Harpercollins College Div