COURSE OUTLINE

1. GENERAL

SCHOOL	School of Technology		
DEPARTMENT	Department of Forestry, Wood Sciences and Design (Karditsa)		
LEVEL	*Undergraduate*		
CODE	**KM661**	**STUDENT SEMESTER**	
COURSE TITLE	Forest genetics		

ACTIVITIES	**WEEKLY HRS**	**ECTS**
Lectures	2	5
Exercises	1	
Total		5

TYPE OF COURSE	Generic knowledge and Skills Development
PREREQUISITES:	none
LANGUAGE TEACHING AND EXAMINATION:	Greek
THE COURSE OFFERED TO STUDENTS ERASMUS	No
WEBPAGES COURSE (URL)	https://eclass.uth.gr/courses/FWSD_U_142/

2. LEARNING OUTCOMES

Learning Outcomes

After successful completion of the course, students will have the necessary knowledge regarding the genetics of organisms, with an emphasis on forest species. After graduation will be able to apply the principles of genetics and the appropriate techniques to achieve the desired result in management and conservation of species (plant and animal).

General Skills

- Search, analysis and synthesis of data and information, using the necessary technologies.
- Adaptation to new situations.
- Teamwork.
- Decision making.
- Demonstration of social, professional and ethical responsibility.
- Work in an interdisciplinary environment.
- Respect for the natural environment.
- Promotion of free, creative and inductive thinking.
- Generation of new research ideas.

3. COURSE CONTENT

Lectures:

Introduction. Problems of Forest Genetics. Sexual reproduction. Mendel's experiments. Gene dominance relationships. Paternity relationship testing. Epistasis. Chromosome and cell division (mitosis, meiosis). The structure of DNA. The genetic code and its translation. Gene linkage and construction of chromosome maps. Population genetics. Mutations, natural selection and evolution of species. The inheritance of quantitative traits. Application of methods of genetic improvement of forestry species in forestry practice.

Exercises:

Solving Forest Genetics and Human Genetics exercises for a better understanding of the basic principles of heredity that govern all living organisms. Laboratory genetic analysis using the isozyme method. An educational excursion to the Pertouli University Forest (selection of excellent phenotypes for collection of genetically improved seed and visit to an exotic species common garden experiment).

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Combined application of educational methods and techniques with the aim of strengthening the active participation of students in the course and aiming for the greatest possible efficiency in teaching: Lectures enriched with real examples.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	• Use of a course website on the e-class platform for posting (a) notes, (b) internet links, (c) announcements, search tools and social networks
MANAGEMENT OF TEACHING	
STUDENT EVALUATION	The evaluation of the **theoretical** part of the course takes place in two phases: a) in the middle of the semester (6th-7th week) a written midterm exam is held (student participation is optional), b) at the end of the semester (after the completion of 13 courses) a final exam is held, according to the Department's exam schedule. The evaluation of the laboratory part of the course is done through: a) the written assignments prepared in groups, after the implementation of each exercise, and delivered on a weekly basis.

Activity	***Semester Workload***
Lectures	26
Exercises	13
Short individual works	25
Individual study	61
Course Total	***125***

5. RECOMMENDED-BIBLIOGRAPHY

Books offered to students through the Eudoxus platform:

- Σκαλτσογιάννης Α., και Ζαραγκότας Δ.(μετάφραση). 2010. Δασική Γενετική. Εκδόσεις Εμβρυο. Σελίδες 800. ISBN2: 9789608002524 (Eudoxus code: 86200433)

Books offered besides the Eudoxus platform:

- Wright J. 2012. Introduction to Forest Genetics. Publisher: Academic Press. 479 pages. ISBN-13: 978-0127652504
- Aravanopoulos. F. 2018. Genetics and Genomics of Forest Trees. 332 pages. ISBN 978-3-03897-298-3