

811. Forest Ecosystem Management

Instructor: Kaloudis Spyridon

1. GENERAL

FACULTY	PLANT SCIENCES		
DEPARTMENT	FORESTRY AND NATURAL ENVIRONMENT MANAGEMENT		
LEVEL OF STUDY	Undergraduate		
COURSE CODE	811	SEMESTER OF STUDY	8th
COURSE TITLE	FOREST ECOSYSTEM MANAGEMENT		
INDEPENDENT TEACHING ACTIVITIES		TEACHING WEEKS	CREDITS
Lectures		3	6
Laboratory exercises		2	
Total Course		5	
COURSE TYPE	Special Background or Core Course		
PREREQUISITE COURSES:	No		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	Relevant online location of the course in e-class		

2. LEARNING OUTCOMES

Learning Outcomes
<p>The subject of the course is: Design of natural terrestrial ecosystems. Management of wood-producing forests: seedling, coppice forests, binative forests. Spatial organization of woody capital. Temporal organization of woody capital. Management methods for calculating wood stock and lemma. Management of multipurpose natural terrestrial ecosystems. Organization of multiple use. Organization of production with methods of landscape ecology, operational research, remote sensing and Geographic Information Systems. Management of recreational forests, management of forests for resin production, protected forests, and woodlands. Management plan (forest maps, forest division, site qualities, calculation of wood yield, production tables, selection of management purpose, application of management methods).</p> <p>Course objective:</p> <p>Theoretical part</p> <p>To provide the student with the theoretical background required to understand the multidimensional functional nature of natural terrestrial ecosystems and the ability to apply complex methods of forest ecosystem management. In this context, the course analyzes the application of decision-making methodologies regarding the Management of Forest Ecosystems taught in the course of Natural Ecosystem Management with emphasis on Operational Research and the synthesis of knowledge from the individual fields of Forest Science, such as Ecology, Biometrics, Economics, Forestry. The utilization of modern</p>

technologies of Geographic Information Systems, Remote Sensing and Computers for the collection and analysis of data is developed.

Laboratory part

To develop applied knowledge related to the subjects of the theoretical part by applying individual knowledge in cartography exercises and applying methods of Forest Ecosystem Management. Part of these exercises are solved on PCs.

Upon completion of the course, the trainee can study/analyze problems of Forest Ecosystem Management and Natural Terrestrial Ecosystems in general, combine data from multiple sources, decide on the most appropriate method of Forest Ecosystem Management and draw up its management plan.

General Competencies

- Search, analyze and synthesize data and information, using the necessary technologies
- Making complex decisions
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Respect for the natural environment
- Promoting free, creative and inductive thinking
- Utilization of new technologies in data gathering and analysis and decision making.

3. COURSE CONTENT

The material per week of the course - in theory and corresponding laboratory exercises - reads as follows:

Theory

- | | | |
|----|------|--|
| 1 | WP1 | Design in Forestry |
| 2 | WP2 | Site qualities and forest separation |
| 2 | WP3 | Classic management methods |
| 3 | WP4 | Traditional management methods (continuation) |
| 4 | WP5 | Multiple Forest use |
| 5 | WP6 | Multiple use of forests (continuation) |
| 6 | WP7 | Modern methods of forest and forest management |
| 7 | WP8 | Modern methods of forest and woodland management (continuation) |
| 8 | WP9 | Modern methods of forest and woodland management (continuation) |
| 9 | WP10 | Modern methods of forest and woodland management (continuation) |
| 10 | WP11 | Modern technology in forest management, data collection and analysis |
| 11 | WP12 | Management decision-making |
| 13 | WP13 | Management plan specifications, the new management plan |

Workshop:

- | | | |
|---|-----|--|
| 1 | WP1 | Cartography elements |
| 2 | WP2 | Measurements on maps |
| 3 | WP3 | Management maps |
| 4 | WP4 | Forest zoning. |
| 5 | WP5 | Forest separation – Completion of a cluster description sheet (execution in the forest). |
| 6 | WP6 | Site qualities |
| 7 | WP7 | Exercises in methods of determining the woody lemma. |

8	WP8	Exercises in methods of determining the woody lemma.
9	WP9	Exercises for the application of management methods.
10	WP10	Exercises for the application of management methods.
11	WP11	Sampling planning exercises
12	WP12	Management plan
13	WP13	Preparation of forest management plan - Specialized management plans.

4. TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY METHOD	In the hall, in the Laboratory and adjacent to the facilities of the Department forests and woodlands.													
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use PowerPoint slides, use physical maps, communicate with students via video conferences, Open eClass, email, and telephone. Meetings with students per person to answer questions and prepare laboratory exercises.													
TEACHING ORGANIZATION	<table><tr><th><i>Activity</i></th><th><i>Semester Workload</i></th></tr><tr><td>Lectures</td><td>39</td></tr><tr><td>Laboratory Exercises</td><td>26</td></tr><tr><td>Work</td><td>15</td></tr><tr><td>Personal study</td><td>70</td></tr><tr><td>Total course</td><td>150</td></tr></table>		<i>Activity</i>	<i>Semester Workload</i>	Lectures	39	Laboratory Exercises	26	Work	15	Personal study	70	Total course	150
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STUDENT EVALUATION	I. Written final exam in the theory of the course. II. Answering multiple-choice questions. II. Written examination in the laboratory part of the course. III. The exam includes the development of equally graded development questions, or the resolution of exercises announced to students at the beginning of the course.													

5. RECOMMENDED-BIBLIOGRAPHY

- Suggested Bibliography:

- Buongiorno, J. and Gilles, J.K. (1987). Forest Management and Economics. MacMillan Publishing Company, N. York, p. 285.
- Chadwick D. Oliver (Author), Bruce C. Larson, (1996). Forest Stand Dynamics, John Wiley & Sons p. 500
- David D. Reed and Glenn D. Mroz (1997). Resource Assessment in Forested Landscapes. John Wiley & Sons, p. 386
- Davis, L.S. and Johnson, K.N. (1987). Forest Management. McGraw- Hill, Inc., N. York, p. 790.
- Malcolm L. Hunter (1989). Wildlife, Forests, and Forestry: Principles of Managing Forests for Biological Diversity, Prentice Hall College Div p. 400.
- Georgopoulos, A.D. (1979). Forest Management Manual. University Forest Fund, Thessaloniki, p. 303.
- Eleftheriadis, N. (2003). Management of Natural Terrestrial Ecosystems. Art of Text Publications, Thessaloniki, p. 435.
- Kazana, B. (1996). Lecture notes on Forest Management I, Drama, p. 119.
- Kaloudis, S., 2020. Forest Management II (Laboratory part). Agricultural University of Athens, Karpenisi, pages 124.

Related scientific journals:

- Canadian Journal of Forest Research (CAN J FOREST RES)
<https://www.researchgate.net/journal/Canadian-Journal-of-Forest-Research-1208-6037>
- Computers and Electronics in Agriculture <https://www.journals.elsevier.com/computers-and-electronics-in-agriculture>
- Ecological Informatics <https://www.sciencedirect.com>
- Ecological Modelling <https://www.journals.elsevier.com/ecological-modelling>
- European Journal of Forest Research <https://www.springer.com/journal/10342>
- Forest Ecology and Management <https://www.journals.elsevier.com/forest-ecology-and-management>
- Forest Policy and Economics <https://www.sciencedirect.com/journal/forest-policy-and-economics>
- International Journal of Forestry, Ecology and Environment
<https://www.journalbinet.com/ijfee-journal.html>
- Journal of Forest Economics <https://www.nowpublishers.com/JFE>
- Journal of forestry <https://academic.oup.com/jof>
- Open Journal of Forestry
https://www.scirp.org/Journal/ojf/?utm_campaign=1416495552_77394438136&utm_source=liuyj&utm_medium=adwords&utm_term=forestry%20journal&utm_content=kwd-312635262420_c____9067719_b&gclid=CjwKCAiAlrSPBhBaEiwAuLSDUE5p2gBjIvmGz9iY9SLK_YW9UdV8486W3S-n4mfmxmCuvclt6637ARoCDh8QAvD_BwE

Related Web Addresses:

- <https://www.iufro.org/>
- <https://www.fs.usda.gov/managing-land/forest-management>
- <https://www.eo4sd-forest.info/>
- https://single-market-economy.ec.europa.eu/sectors/raw-materials/related-industries/forest-based-industries/sustainable-forest-management_en
- https://earsc.org/sebs/wp-content/uploads/2019/08/SeBS_sweden_flyer_190725.pdf
- <https://www.sgs.com/en/service-groups/forestry-and-crop>
- <https://eustafor.eu/welcome-to-the-forest-service-of-catalonia/>
- https://www.maine.gov/dacf/mfs/policy_management/water_resources/index.html