



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Agrarie, Alimentari e Forestali		
ACADEMIC YEAR	2022/2023		
MASTER'S DEGREE (MSC)	AGROENGINEERING AND FORESTRY SCIENCES AND TECHNOLOGIES		
INTEGRATED COURSE	SPECIALIST SILVICULTURE AND FOREST NURSERY		
CODE	21603		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	AGR/05		
HEAD PROFESSOR(S)	SALA GIOVANNA	Ricercatore a tempo determinato	Univ. di PALERMO
OTHER PROFESSOR(S)	SALA GIOVANNA	Ricercatore a tempo determinato	Univ. di PALERMO
	LA MELA VECA DONATO SALVATORE	Professore Associato	Univ. di PALERMO
CREDITS	9		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	2		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<p>LA MELA VECA DONATO SALVATORE</p> <p>Tuesday 11:00 13:00 Studio del docente, Edificio, 4, Ingresso H, stanza 23 - viale delle Scienze - Palermo</p> <p>Thursday 11:00 13:00 Studio del docente, Edificio, 4, Ingresso H, stanza 23 - viale delle Scienze - Palermo</p> <p>SALA GIOVANNA</p> <p>Tuesday 09:00 11:00 Dipartimento Saaf, Edificio 4, Ingresso H, Stanza stanza 24</p> <p>Friday 09:00 11:00 Dipartimento Saaf, Edificio 4, Ingresso H, Stanza stanza 24</p>		

DOCENTE: Prof.ssa GIOVANNA SALA

PREREQUISITES	To have basic knowledge in plant biology, forest ecology and general silviculture
LEARNING OUTCOMES	<p>KNOWLEDGE AND COMPREHENSION SKILLS: In-depth and applied knowledge of the autoecology of the species that characterize the forest systems present on the national territory and of plant propagation techniques in the nursery. Ability to use the specific language of applied forestry and the management of forest systems. Acquisition of the essential knowledge to know forest species and their use also through correct nursery techniques. Ability to understand the contents of advanced textbooks and international literature and to transfer this knowledge to the working and professional activity.</p> <p>CAPACITY TO APPLY KNOWLEDGE AND UNDERSTANDING: Ability to autonomously plan the necessary forest interventions according to the autoecology of forest species and the socio-economic context, as well as the ability to autonomously conduct nursery activities for the propagation of the most suitable forest species to be used in afforestation and reforestation projects, as well as in plantations for productive purposes.</p> <p>JUDGMENT SKILLS: The student must acquire the ability to find suitable data and information to identify the most appropriate management methods of forest systems and the most appropriate methodologies to find solutions to the technical problems of forest nursery and the propagation of the most important woody species.</p> <p>COMMUNICATION SKILLS: Ability to communicate with technicians of equal and different backgrounds. Effectively communicate their theses, their choices and the results of technical studies even to a non-specialist public, conveying the importance of their choices in the management of forest systems and in the nursery sector. Being able to support the importance of sustainable forest management and forest nursery and highlight the environmental effects, especially in the public administration, of the sustainable forest management and the propagation activity of woody plants.</p> <p>LEARNING SKILLS: Ability to constantly update by consulting the scientific publications of the sector. Ability to follow, using the knowledge acquired in the course, both second level masters, advanced courses, and specialized seminars in the field of plant propagation and forest nursery.</p>
ASSESSMENT METHODS	<p>A final oral exam consists of a minimum of two/three questions aimed at assessing the student's level of preparation on all the topics of the program. The final assessment aims to assess whether the student has knowledge and understanding of the topics, and has acquired interpretative competence and autonomy of judgment of real cases.</p> <p>The evaluation is expressed out of thirty, with a minimum score of 18 for sufficiency and according to the following scheme:</p> <ul style="list-style-type: none">- basic knowledge of the topics and sufficient ability to connect, apply and analyze (grade 18-21)- discreet/intermediate knowledge of the topics and ability to connect, apply and analyze (grade 22-25)- good/high knowledge of the topics and ability to connect, apply and analyze (grade 26-28)- excellent/advanced knowledge of the topics and ability to connect, apply and analyze (grade 29-30L).
TEACHING METHODS	Lectures, laboratory activities and technical visits to forest nurseries and areas of interest for the management of forest systems.

MODULE SPECIAL SILVICULTURE

Prof. DONATO SALVATORE LA MELA VECA

SUGGESTED BIBLIOGRAPHY

Bernetti G. (1995). *Silvicoltura speciale*. UTET, Torino, 415 pp. ISBN 88-02-04867-3
 Camerano P., Cullotta S., Varese P. (a cura di) (2011). *Strumenti conoscitivi per la gestione delle risorse forestali della Sicilia. Tipi Forestali*. Regione Siciliana. (disponibile on-line).
 Hofmann A. et al. (a cura di), *Strumenti conoscitivi per la gestione delle risorse forestali della Sicilia. Sistema informativo forestale*. Regione Siciliana. (disponibile on-line).
 Materiale didattico e articoli scientifici forniti a lezione.

AMBIT	50564-Discipline forestali ed ambientali
INDIVIDUAL STUDY (Hrs)	88
COURSE ACTIVITY (Hrs)	62

EDUCATIONAL OBJECTIVES OF THE MODULE

The main objectives of the course are the study of the ecological and typological-structural characteristics of the main forest systems and forest species at the national level, as necessary knowledge for the application of sustainable forestry to both natural and artificial forests, with particular reference to woods of southern Italy. In addition, the most important elements to assess the influence of silvicultural interventions on the evolution of forest ecosystems and on the renaturalization of artificial populations and degraded and artificial forest communities will be provided. Other important objectives will be to deepen the knowledge of the autoecology of the main forest species and the silvicultural techniques adopted for pure and mixed forest stands, and to formulate complex solutions for technical- management in relation to the attitudes of forest systems and the expectations addressed to them, ensuring their multi-functionality and stability over time, including the provision of ecosystem services.

SYLLABUS

Hrs	Frontal teaching
2	Course presentation, objectives of the discipline, recommended books and literature sources
2	Elements of general silviculture: high forest, coppice, and silvicultural treatments
2	Main characteristics of the Italian forest flora. The phytoclimatic belts and the forest vegetation belts in Italy
2	The Mediterranean belt: silviculture and characteristics of forest vegetation
4	Holm oak forests: autoecology, distribution and silviculture. Use of the wood and traditional uses
2	The secondary tree and shrub species of Mediterranean maquis
4	Cork oak forests: autoecology, distribution and silviculture. Extraction and utilization of cork. Use of the wood and traditional uses
2	Maritime pine Mediterranean forests: autoecology, distribution and silviculture
2	Mediterranean forests with Aleppo pine and Calabrian pine: autoecology, distribution and silviculture
2	Stone pine Mediterranean forests: autoecology, distribution and silviculture. The stone pine forests for pine nuts production
2	The basal belt: silviculture and characteristics of forest vegetation
4	Deciduous oak forests: autoecology, distribution and silviculture. High forests for high-value timber, coppices and coppices with standards
4	Chestnut forests: autoecology, distribution, silviculture, wood production and cultivation issues. Chestnut plantings for chestnut and for wood production
2	The mountain belt: silviculture and characteristics of forest vegetation
4	Beech forests: autoecology, distribution, silviculture, wood production and cultivation issues. The conversion of beech coppices into high forests. Evolutionary dynamics and main future risks for the beech woods of Sicily
2	Silver fir forests: autoecology, distribution, silviculture, wood production and cultivation issues
2	Corsican pine forests: autoecology, distribution, silviculture, wood production and cultivation issues. The traditional silviculture of Corsican pine forests on the Etna Mount
2	The Alpine belt: silviculture and characteristics of forest vegetation
4	Norway spruce forests: autoecology, distribution, silviculture, wood production and cultivation issues
Hrs	Practice
12	Field exercises in forest areas particularly significant for the composition, ecological value and management of forest ecosystems

**MODULE
FOREST NURSERY**

Prof.ssa GIOVANNA SALA

SUGGESTED BIBLIOGRAPHY

Gradi A., 1980. Vivaistica forestale, Edagricole, Bologna. ISBN-108820619024;
Piotto B., Di Noi A. (eds.), 2001. Propagazione per seme di alberi e arbusti della flora mediterranea. ANPA, Roma, 212 pp. ISBN 88-448-0271-6 (disponibile online)
Bonalberti E., Calvo E., Ciccarese L., Ducci F., Falleri E., Mezzalana G., Piotto B. 2003. Biodiversità e vivaistica forestale. Aspetti normativi scientifici e tecnici, APAT, Roma, 122 pp. ISBN 88-448-0085-3 (disponibile online)

AMBIT	50564-Discipline forestali ed ambientali
INDIVIDUAL STUDY (Hrs)	43
COURSE ACTIVITY (Hrs)	32

EDUCATIONAL OBJECTIVES OF THE MODULE

The module aims to provide students with basic knowledge on forest nurseries and in particular on propagation techniques of forest species, nursery legislation, the relationships between nursery activities and reforestation and the relationships between nursery activities and biodiversity protection.

SYLLABUS

Hrs	Frontal teaching
2	Forest nursery: aims and importance. Organization and structure of the forest nursery company
2	Methods of propagation of the main tree and shrub species
2	The collection of plant propagation materials and related issues
2	Main seed conservation techniques
2	Seed dormancy of forest species and techniques to overcome it
2	Legislation of the nursery sector in particular in the Sicilian Region
2	Main nursery cultivation operations (sowing, transplanting) and techniques for processing forest propagation material
Hrs	Practice
12	Field exercises for the collection of forest propagation materials in forest areas
Hrs	Others
6	Visit to forest nurseries