UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Agrarie, Alimentari e Forestali
ACADEMIC YEAR	2020/2021
MASTER'S DEGREE (MSC)	LANDSCAPE ARCHITECTURE
INTEGRATED COURSE	AGRONOMIC PRINCIPLES AND BOTANY ELEMENTS - INTEGRATED COURSE
CODE	20981
MODULES	Yes
NUMBER OF MODULES	2
SCIENTIFIC SECTOR(S)	AGR/02, BIO/02
HEAD PROFESSOR(S)	GRISTINA LUCIANO Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	FICI SILVIO Professore Associato Univ. di PALERMO GRISTINA LUCIANO Professore Ordinario Univ. di PALERMO
CREDITS	8
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**FICI SILVIO** Tuesday 10:00 14:00 Via Archirafi 38, 1°piano Wednesday 10:00 14:00 Via Archirafi 38, 1°piano **GRISTINA LUCIANO** Monday 8:00 10:00 palermo Thursday 8:00 10:00 PRESSO SEDE CORSO DI LAUREA DI VITICOLTURA ED ENOLOGIA

PREREQUISITES	There are no prerequisites
LEARNING OUTCOMES	Provide students with an appropriate and updated vocabulary and technical language relating to agronomic problems. Present students with environmental factors and the basic concepts of agronomy with reference to the complex climate-soil-plant system, enabling them to explain its meaning and importance. Train students to analyze the relationships between environmental factors and fundamental concepts of agronomy, to interpret the causes of the technical choices made in agriculture in order to implement the cultivation process. Identify strategies for maximizing the efficiency of agricultural technology. Train students to solve simple calculation problems to develop their ability to find numerical solutions in the analysis of the cited relationships. Stimulate the agro-systemic approach for the study of the complex multifunctional relationships that determine the choices of agrotechnics. Provide a sufficient range of examples in which the improvement of the agronomic technique has allowed to solve cultivation and environmental problems. Knowledge and understanding Acquisition of basic knowledge about Plant Taxonomy, with special reference to the main groups of woody plants of naturalistic and ornamental interest. Ability to use the specific language of the basic subject. Applying knowledge and understanding. Ability to identify the different plant species, with special reference to the ones widespread in the mediterranean gardens and parks. Ability of selection of species for gardens and parks. Making judgments. Being able to judge the applicability of the results of studies and publications on the different species. Communication skills. Ability to present the results of this subject, the principles of Plant Taxonomy, also to an audience of non-experts or experts. Learning ability. Ability to understand related disciplines, as well as in-depth courses and specialized seminars. Ability to approach and understand the disciplines of the course that will take Plant Taxonomy as a cognitive base.
ASSESSMENT METHODS	The student will have to answer at least two / three questions asked orally, on all the parts covered by the program, with reference to the recommended texts. The final test aims to assess whether the student has knowledge and understanding of the topics he has acquired interpretative competence and independent judgment of concrete cases. Time is spent each day to stimulate questions from students. Solved exercises are provided, also published on the web page. About 10 hours are devoted to exercises in the classroom. The final exam is an oral interview. Oral exam consisting of an interview, aimed at ascertaining the possession of the disciplinary skills and knowledge required by the program; the evaluation is expressed in thirtieths. The questions, in a minimum number of three, aim to verify the acquired knowledge, the processing skills, as well as the possession of an adequate exhibition capacity. The sufficiency threshold will be reached when the student shows knowledge and understanding of the topics at least in general lines and has minimal application skills in order to solve application cases; he must equally possess exhibition skills and language properties appropriate to the type of teaching. Below this threshold, the exam will be insufficient. The more, however, the examination demonstrates argumentative, expository and knowledge skills that go into the details of the discipline being tested, the more positive the assessment will be up to the degree of excellence.
TEACHING METHODS	The course consists of around 22 hours of classroom lessons and around 10 hours dedicated to classroom exercises (calculations and problems) and field visits.

MODULE
PRINCIPLES OF AGROECOLOGY

Prof. LUCIANO GRISTINA

SUGGESTED BIBLIOGRAPHY

Viste le specifiche finalità e caratteristiche del corso, gli argomenti del testo consigliato "Agronomia" (a cura di: P. Ceccon, M. Fagnano, C. Grignani, M. Monti, S. Orlandini ed Edises), saranno accuratamente selezionati durante lo svolgimento del corso in modo da consentire agli studenti di concentrarsi esclusivamente sulle problematiche agronomiche utili al proficuo proseguimento del corso di studi.

AMBIT	20873-Attivit Formative Affini o Integrative
INDIVIDUAL STUDY (Hrs)	68
COURSE ACTIVITY (Hrs)	32

EDUCATIONAL OBJECTIVES OF THE MODULE

The fundamental knowledge is provided to have a high understanding of the multifunctional relationships between crop production in agriculture and the anthropic and non-anthropic factors that influence it. In particular, the main mechanisms that determine the influence of soil and climate on crops are presented. The actions implemented in agriculture to promote cultivation are described and studied: soil tillage, irrigation and drainage, fertilization, composting and control of the weed flora. The course also introduces the study of the relationship between agriculture and the environment, the management of the agricultural territory. The course lays the preparatory foundations for all subsequent courses concerning the various fields of crop science (herbaceous, arboreal, horticultural).

SYLLABUS

Hrs	Frontal teaching
3	The climate: temperature - temperature and plants - temperature and agronomic technique - hydrometeor - probability of rain - wind - wind erosion - composition of the atmosphere - classification of climates. - evaporation
3	soil organic matter: origin and transformation- humus and humic balance
3	Water in the soil: water potential - matrix potential - changes in the water content in the soil - humidity measurement - determination of some hydrological constants - dynamics of the water in the soil.
3	Soil tillage - classification - purpose and execution technique
3	Regulation of excess water - waterlogging - defense from waterlogging - arrangement of flat land - drainage - regulation of surface runoff - water erosion - arrangement of land on slopes.
3	Irrigation principles and techniques - land suitability - water suitability - water consumption - irrigation variables - watering volume - moment of irrigation - irrigation methods
3	Mineral fertilization - chemical fertilizers - the response to fertilization absorption rate - availability in the soil - the optimal dose of fertilizer - losses and residual effect - distribution mechanics - fertilization programs - qualitative response to fertilization

Hrs	Practice
6	Practical applications

Hrs	Workshops
5	Lab practices

MODULE
PLANT TAXONOMY

Prof. SILVIO FICI

SUGGESTED BIBLIOGRAPHY	
FERRARI M., MEDICI D. (1996) - Alberi e arbusti in Italia. Edagricole, Bologna.	
AMBIT	20873-Attivit Formative Affini o Integrative
INDIVIDUAL STUDY (Hrs)	68
COURSE ACTIVITY (Hrs)	32
EDUCATIONAL OBJECTIVES OF THE MODULE	

The course is aimed at providing basic knowledge on Plant Taxonomy, with special reference to the main groups of gymnosperms and angiosperms. Will be provided basic knowledge about the aspects of plant systematics concerning the botanical nomenclature, the taxonomic units, and the classification systems.
The morphological characters for identification of the species , coupled with the use of analytical keys, will be examined. The main families and genera of woody plants will be studied , and the more widespread species of our gardens will be examined and observed during the practical classes.

SYLLABUS

Hrs	Frontal teaching
2	The plant systematics and relative history. Taxonomic units. Main systems of classification. Botanical nomenclature. Species concept, infraspecific taxa. The stages of phylogeny of plants.
1	Main morphological characters for identification of species. Use of analytical keys.
1	Cormophytes: Generalities and Systematics. Spermatophytes: Generalities. The ovule. The seed. Systematics.
4	Gymnosperms: Vegetative and reproductive characters. Systematics. Main genera and species of naturalistic and ornamental interest belonging to the following families: Cycadaceae, Araucariaceae, Cupressaceae, Pinaceae, Taxaceae
10	Angiosperms: Vegetative and reproductive characters. Systematics. Main genera and species of naturalistic and ornamental interest belonging to the following families: Fagaceae, Salicaceae, Ulmaceae, Moraceae, Buxaceae, Platanaceae, Lauraceae, Magnoliaceae, Tamaricaceae, Caesalpiniaceae, Mimosaceae, Fabaceae, Pittosporaceae, Rosaceae, Myrtaceae, Punicaceae, Malvaceae, Tiliaceae, Bombacaceae, Sterculiaceae, Aceraceae, Anacardiaceae, Meliaceae, Rutaceae, Simarubaceae, Sapindaceae, Aquifoliaceae, Araliaceae, Bignoniaceae, Apocynaceae, Oleaceae, Caprifoliaceae, Arecaceae, Liliaceae, Agavaceae

Hrs	Practice
14	Practical classes in the Botanical Garden and in the main gardens of Palermo: Identification of the most widespread species of gymnosperms and angiosperms