UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

DIPARTIMENTO DI FARMACIA-SCIENZE DEL FARMACO

General Information	
Academic subject	**PLANT BIOLOGY (IC Pharmacognosy)**
Degree course	**Pharmaceutical chemistry and technology**
ECTS credits	5
Compulsory attendance	YES
Language	Italian
Academic year	2020/2021

Subject teacher	Name Surname	Role
	Maria Letizia Gargano	Researcher academic discipline BIO/03
	Mail address	Telephone number
	marialetizia.gargano@uniba.it	+39 349 0906252

ECTS credits details	Area	SSD	CFU/ETCS
Basic teaching activities	05-Biological Science	BIO/13	5

Class schedule	
Period	I semester
Year	Second year
Type of class	Lectures, 5 ECTS (50 hours)

Time management	
Hours	125
In-class study hours	50
Out-of-class study hours	75

Academic calendar	
Class begins	October 5, 2020
Class ends	January 22, 21

Syllabus	
Prerequisites/requirements	no
Expected learning outcomes	*Knowledge and understanding on:* o Knowledge of basic information on biodiversity and the morphological, functional and physiological organization of plants of pharmacological and/or toxicological interest. o Knowledge of the main taxonomic categories and their phylogenetic relations; knowledge of the mechanisms through which plant organisms reproduce and interact during development. *Applying knowledge and understanding* on: o Ability to apply the knowledge acquired from the study of plant biology in relation to morpho-functional organization, recognition under the optical microscope, reproductive mechanisms, botanical characteristics and the importance of species of pharmacological and/or toxicological interest.

	Making informed judgments and choices: o Ability to understand and process the information acquired from the study of plant biology, evaluating pharmacological and/or toxicological implications. *Communicating knowledge and understanding* o Ability to communicate effectively, orally and differently from one's own, usually English *Capacities to continue learning* o Ability to use the methodological tools and biological knowledge acquired in the pharmaceutical, cosmetic and dietary supplement industries
Contents	Elements of General Botany. The plant cell and microscopic characters. Functions; growth and differentiation of plant cells; meristems and tissues. Stem, root and leaves: morphology, anatomy and functions in monocotyledons and dicotyledons. Flower, fruit, seed (germination and dissemination). Water absorption and transport. Mycorrhizae. Biochemistry and metabolism. Transpiration. Photosynthesis: light reactions and the carbon reactions . Adaptations of photosynthesis: the C4 Carbon Cycle and Crassulacean Acid Metabolism (CAM). The C2 Oxidative photosynthetic carbon cycle Nitrogen Cycle. Plant hormones: regulatory role and general properties of plant hormones. Plant tropisms. Elements of Systematic Botany. The great divisions of the vegetable kingdom. Mushrooms, Algae and Lichens. Bryophytes and Pteridophytes: general characteristics, evolutionary importance, life cycle, ecology, distribution and applied importance. Spermatophytes: Gymnosperms and Angiosperms, their evolutionary importance and ontogenetic cycle, systematic of the most representative families.
Course program	
Bibliography	MAUGINI E., MALECI BINI L., MARIOTTI LIPPI M., 2014 – Botanica Farmaceutica. Piccin. PASQUA G., ABBATE G., FORNI C., 2008 – Botanica generale e diversità vegetale. Piccin. ARRIGONI O., 1973 – Elementi di Biologia Vegetale. COLOMBO P., 2003 – Preparati microscopici di Botanica. EdiSES
Notes	None
Teaching methods	The topics of the course will be treated with the help of Power Point presentations
Assessment methods	For students enrolled in the year in which the course is taught, an exemption test is provided. The consists of a written test on the subjects developed up to the date of the exemption. The result of this test contributes to the evaluation of the profit examination. The exemption test shall be passed with a mark of at least 18/30. For students who have passed the exemption test, the evaluation of the profit exam is expressed as an average between the grade reported on the exemption and the profit exam. The profit exam for foreign students can be taken in English. For students enrolled in the course year in which the course is taught, there is a non-compulsory exemption test. The exemption consists in a written test on the topics developed until the date of the exoneration.

	The result of this test is included in the evaluation of the final exam. The exoneration test is passed with a grade of at least 18/30. For those students who have passed the exemption test, the oral test will focus only on the topics of the lessons held in the period following the test itself. In this case, the evaluation of the exam is expressed as the average of the marks obtained in the exoneration and in the oral exam. Since the module of "Plant Biology" is integrated with the module of Pharmacognosy, the final oral exam is passed only if the student has correctly answered also the questions of the module Pharmacognosy. Students not interested in taking the exemption test will take the final oral exam as provided by the Study Manifesto. The final exam for foreign students can be taken in English.
Evaluation criteria	• *Knowledge and understanding* o Knowledge of basic information on plant biodiversity in general and on the morphological and functional organization of plant organisms and in particular of Gymnosperms and Angiosperms. o Knowledge of the main taxonomic categories of main species of pharmacological and/or toxicological interest. • *Applying knowledge and understanding* o Ability to apply the knowledge acquired from the study of plant biology with regard to morpho-functional organization, reproductive mechanisms, botanical characteristics of main species of pharmacological and/or toxicological interest. • *Autonomy of judgment* o Ability to understand and process the information acquired from the study of plant biology, evaluating pharmacological and/or toxicological implications. • *Communicating knowledge and understanding* o Ability to communicate the knowledge and skills acquired with a formal and appropriate language. • *Communication skills* o Ability to communicate effectively, orally and in writing, the knowledge acquired from the study of plant biology, also with the help of modern communication systems, Italian and a language of the European Union other than their own, usually English. • *Capacities to continue learning* o Ability to use the methodological tools and knowledge necessary to successfully tackle the studies foreseen in the Master's Degrees of reference
Visiting hours	By appointment to be agreed by e-mail