



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Agrarie, Alimentari e Forestali		
ACADEMIC YEAR	2021/2022		
BACHELOR'S DEGREE (BSC)	AGRI-FOOD SCIENCES AND TECHNOLOGIES		
INTEGRATED COURSE	APPLIED BOTANY AND MYCOLOGY		
CODE	18508		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	BIO/03, BIO/02		
HEAD PROFESSOR(S)	SCHICCHI ROSARIO	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)	VENTURELLA GIUSEPPE	Professore Ordinario	Univ. di PALERMO
	SCHICCHI ROSARIO	Professore Ordinario	Univ. di PALERMO
CREDITS	9		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<p>SCHICCHI ROSARIO Monday 15:00 18:00 Orto Botanico dell'Università di Palermo, Via Lincoln 2, Ufficio del Prof. Schicchi (Calidarium) Wednesday 16:00 18:00 Orto Botanico dell'Università di Palermo, Via Lincoln 2, Ufficio del Prof. Schicchi (Calidarium)</p> <p>VENTURELLA GIUSEPPE Tuesday 09:30 13:30 Dipartimento Scienze Agrarie, Alimentari e Forestali, Viale delle Scienze Ed. 5, ex Istituto di Patologia Vegetale, 1 Piano, Palermo</p>		

DOCENTE: Prof. ROSARIO SCHICCHI

PREREQUISITES	For the understanding of some fundamental topics of the course of Botany applied to the food chain are essential some basic notions of biology (structure and functions of the cell, cell cycle and cell division mode; metabolism and energy transformation, evolution). To help the student overcome any difficulties, some introductory lectures will address the fundamental concepts that students should have already learned in secondary school.
LEARNING OUTCOMES	<p>Knowledge and understanding Acquisition of basic knowledge of the morpho-physiological characters of the plant species and essential diagnostic characters to identify the most important families and plant and fungal species of interest to the regional and national food chain.</p> <p>Applying knowledge and understanding virtually recognize the essential morphological characters of different groups of plants of agricultural interest and fungal species; knowing how will recognize, through the use of analytical keys, exhibits relating to the species of interest to the food chain.</p> <p>Making judgments Being able to evaluate the implications and results of botanical studies in Business support on the food chain and to choose the most suitable fungal species to the development of mushroom cultivation.</p> <p>Communication skills Ability to present the results of studies of botany applied to the food chain, even to a non-specialists or practical experience but with limited scientific basis.</p> <p>Learning ability Ability to refresh, by consulting scientific publications relevant to the field of botany. Capacity to understand the disciplines of the curriculum that will take botany as knowledge base. Ability to follow first-level master, in-depth courses, specialized seminars in the field of Botany applied to the food chain.</p>
ASSESSMENT METHODS	<p>In itinere written test at mid course (multiple choice and open-ended questions) and final oral exam. Will be valued the organic contents, the ability to make connections between topics and clarity in presentation. For the written test the score assigned to each question is determined by the teacher a priori. During the final oral exam students can present an educational herbarium. Positive valuation ranges from 18 to 30 and praise. The final valuation, properly graduated, will be formulated on the basis of the following conditions:</p> <p>a) Basic knowledge of plant biology applied to food chain and limited capacity to apply the gained knowledge in new situations, sufficient capacity of analysis of the studied phenomena and exposure of the procedures followed (rating 18-21);</p> <p>b) Good good knowledge of plant biology applied to food chain and ability to implement its content in similar situations to those studied, discrete capacity of analysis of the presented phenomena and exposure of the procedures followed (rating 22-25);</p> <p>c) In-depth knowledge of the plant biology applied to food chain studied and ability to apply it to the proposed biological phenomena, but not always promptly and following a linear approach, ability of identification of a higher plant of the main families studied by the use of dichotomous keys, good capacity of analysis of presented phenomena and exposition of the followe procedures (rating 26-28);</p> <p>d) deep and widespread knowledge of plant biology applied to food chain and ability to apply its concepts promptly and correctly, ability of identification of a higher plant with the use of dichotomous keys, excellent capacity in plant biological phenomena analysis and excellent capacity of communication (rating 29-30 and praise).</p>
TEACHING METHODS	Lectures, Trining in the classroom, in the Botanical garden and in the field.

**MODULE
APPLIED AND GASTRONOMIC MYCOLOGY**

Prof. GIUSEPPE VENTURELLA

SUGGESTED BIBLIOGRAPHY

Funghi. Alimentazione e nutraceutica di Giuseppe Venturella e Maria Letizia Gargano. Editore: libreriauniversitaria.it settembre 2020, ISBN: 8833592901, Pagine: 146. <https://www.libreriauniversitaria.it/funghi-alimentazione-nutraceutica-venturella-giuseppe/libro/9788833592909>

AMBIT	10691-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30

EDUCATIONAL OBJECTIVES OF THE MODULE

Knowledge and understanding of issues concerning national and regional territorial reality relative to the mushrooms and their applications. Applying knowledge and understanding of the territory with regard to the enhancement of the fungal biodiversity. Making judgments about the choice of fungal species suitable for the development of mushroom cultivation. Communication skills for the transfer of know-how to local entrepreneurs. learning ability of the problems concerning the preservation of the fungal biodiversity. The main aim of the course is to provide students with the tools for the identification of mushrooms and truffles, making the student aware of the nutritional value of food and nutraceutical species of interest and possibilities for new production sectors in the field of mushroom cultivation.

SYLLABUS

Hrs	Frontal teaching
1	Introduction: Mushrooms and Truffles in the agri-food sector
2	Food value of wild edible mushrooms
2	Edible mushrooms as nutraceutical
2	Cultivated mushrooms
2	Food value of truffles
2	Truffle cultivation
Hrs	Workshops
3	Seminars on "Mushrooms, Gastronomy and Nutraceutics"
Hrs	Others
8	Field excursion: collection and identification of wild edible mushrooms. In the case of new ministerial provisions on restrictions on frontal education, excursions will be replaced by seminars by experts in the field of fungiculture and mushrooms of medicinal interest.
8	Field excursion: collection and identification of truffles with trained dog, In the case of new ministerial provisions on restrictions on frontal teaching, the excursions will be replaced by seminars by experts in the field of truffles and truffle-growing.

MODULE
BOTANY APPLIED TO AGRI-FOOD CHAIN

Prof. ROSARIO SCHICCHI

SUGGESTED BIBLIOGRAPHY

Appunti delle lezioni del corso. I power point mostrati a lezione saranno messi a disposizione sul portale della didattica. Non e' disponibile sul mercato un testo unitario calibrato sul corso. Per questo motivo gli studenti sono caldamente invitati a seguire le lezioni, integrando eventualmente gli appunti e il materiale didattico reso disponibile con i seguenti testi:
 –Venturelli F. e Virli L. - Invito alla botanica. Zanichelli, Bologna.
 –Rinallo C. - Botanica delle piante alimentari. Piccin.
 – Schicchi R., Geraci A., 2021 – Verdure spontanee per l'alimentazione e la salute - Guida alla raccolta, al riconoscimento e alla preparazione. Palermo University Press.

AMBIT	50131-Discipline biologiche
INDIVIDUAL STUDY (Hrs)	90
COURSE ACTIVITY (Hrs)	60

EDUCATIONAL OBJECTIVES OF THE MODULE

The aim of the module is of providing students with the basic knowledge useful to recognize the morphological, physiological and systematic characteristics of plant species used in the food chain, with a view to assessing the quality also in the technological perspective. For this purpose, topics that will be developed are: the internal and external morphological organization of plant organs, especially of plants of food chain; the diversity of plant organisms and the causes that produced it; Systematic concepts needed to identify the most important families and species of agricultural interest.

SYLLABUS

Hrs	Frontal teaching
1	Objectives of the module. The plant systematics. Nomenclature. Taxonomy.
1	Cytology elements. The cellular organization. Differences between animal and plant cells. Origin of the cell theory.
4	The plant cell. Plastids. Vacuoles. Cell wall.
3	Morphological organization of the plants. Organization of the corm. External structure. Internal organization. The tissues.
4	Root: functions and external structure; morphology and root anatomy; specialized roots for the reserve function. Roots of food interest.
4	Stem: basic functions; structure and anatomy of the stem; Gems. Modifications of the corm (rhizome, tuber, bulb, bulb-tuber). Stems of food interest.
3	Leaf: Formation; Leaf morphology; phyllotaxis; Anatomy of the leaf; Duration and fall of the leaves. Interest of leaf of food plants.
2	The transport of water and other substances in the plant.
2	The Photosynthesis.
1	Notes on the Bryophytes and Pteridophytes. Gymnosperms: generalities and ecology.
14	Character and interest agrifood of the main families (Alliaceae, Apiaceae, Asparagaceae, Asteraceae, Brassicaceae, Boraginaceae, Chenopodiaceae, Corylaceae, Cucurbitaceae, Fabaceae, Iridaceae, Lamiaceae, Liliaceae, Juglandaceae, Moraceae, Oleaceae, Poaceae, Rosaceae, Rutaceae, Solanaceae, Vitaceae) and main species of interest agrifood.
4	Angiosperms: flowers, inflorescences, fruits, infructescences, seeds. Development of seed and fruit. Fruits and seeds of major food interest.

Hrs	Practice
5	Practical training on the use of analytical keys for determination of herbaceous species of agricultural interest (Native vegetable of Sicily).
5	Practical recognition in the classroom and in the field of root systems, types of leaves, seeds, tubers, rhizomes, bulbs, flowers, fruits.
4	Recognition of species of agricultural interest (aromatic plants, fruit plants, seed plants, leafy plants).
3	Techniques of harvesting, cleaning and preparation for consumption of wild species of interest Food.