UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Agrarie, Alimentari e Forestali		
ACADEMIC YEAR	2019/2020		
BACHELOR'S DEGREE (BSC)	AGRIFOOD SCIENCES AND TECHNOLOGIES		
INTEGRATED COURSE	PRODUCTION AND BIODIVERSITY OF HERBACEOUS CROPS - INTEGRATED COURSE		
CODE	18526		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	AGR/02, AGR/04		
HEAD PROFESSOR(S)	FRENDA ALFONSO SALVATORE	Professore Associato	Univ. di PALERMO
OTHER PROFESSOR(S)	FRENDA ALFONSO SALVATORE	Professore Associato	Univ. di PALERMO
	SABATINO LEO	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

FRENDA ALFONSO SALVATORE

Monday	09:30	12:00	Stanza del docente. Edificio 4 - Ingresso L, 2° piano
Tuesday	09:30	12:00	Stanza del docente. Edificio 4 - Ingresso L, 2° piano
Wednesday	09:00	12:00	Negli altri giorni, gli studenti possono prenotare un appuntamento inviando una email al docente.

SABATINO LEO

Monday	9:00	11:00	Studio del docente sito presso il Dipartimento SAAF, Ed. 5.
Wednesday	9:00	11:00	Studio del docente sito presso il Dipartimento SAAF, Ed. 5.

DOCENTE: Prof. ALFONSO SALVATORE FRENDA

PREREQUISITES	Basics of: general and systematic botany; organic chemistry; biochemistry
LEARNING OUTCOMES	Knowledge and understanding: at the end of the course, students will have basic knowledge about systems and processes of production of the main field crops and vegetables with particular reference to the impact that the different productive contexts (agricultural systems, environment, genotype used) determine on the qualitative and technological characteristics of the food crop products. Applying knowledge and understanding: the knowledge and skills acquired will allow to recognize the variability of the products achieved in different production contexts can be applied in the valorization of the specific qualitative characteristics of raw materials coming from the "field phase". Making judgments: students will be able to evaluate specific quality parameters of raw materials from field crops and vegetables in relation to the agricultural system, the production environment and the genotype used. Communication skills: the student will be able to demonstrate to technicians and entrepreneurs, but also to a non-expert audience through a simple but proper language, differences and peculiarities of raw materials to be used in agro-food processing both artisanal and industrial. Learning skills: setting the course towards a vision as wider as possible of the problems related to the characterization and valorization of the main raw materials produced from field and vegetable crops will be a necessary tool to interact with specialists and entrepreneurs in the agro-food sector and to use profitably the future upgrades by technical and scientific sources of the sector.
ASSESSMENT METHODS	The oral test consists of an interview; the final evaluation is expressed in thirtieths and is derived from the weighted average of the votes by the number of credits of the two modules. The questions, open or semi-structured and specifically designed to test the learning achievements, tend to verify: a) the acquired knowledge and the ability to establish connections between the contents (general sections, special sections, models, etc.) of both modules ; b) the ability to provide independent judgments about the contents of the course and to place the contents of the course within the professional and technological context. The maximum score is achieved if the test ensures the full possession of the following: ability to represent emerging and/or minor issues of the discipline; strong ability to represent the impact of the course content within the sector where content enroll; ability to represent ideas and/or innovative solutions within the professional and technological context; c) adequate exhibition capacity: the maximum scoring can be achieved by persons who demonstrate complete fluency of the scientific and tecnological language, while the minimum scoring will be achieved if the examinee demonstrates a proper use of the language but not sufficiently articulated in relation to the professional context.
TEACHING METHODS	Lectures; classroom trainings; visits to farms and agri-food companies

MODULE
PRODUCTION AND BIODIVERSITY OF OPEN FIELD HERBACEOUS CROPS

Prof. ALFONSO SALVATORE FRENDA

SUGGESTED BIBLIOGRAPHY

La materia e' dispersa in diversi testi tradizionali, quali:
Ceccon P., Fagnano M., Grignani C., Monti M., Orlandini S. - Agronomia. EdiSES, Napoli
Baldoni R., Giardini L. - Coltivazioni erbacee. Volumi I, II. Patron Editore, Bologna
Ranalli P. - Leguminose e agricoltura sostenibile. Calderini Edagricole, Bologna
AA. VV. Il grano. Collana Coltura & Cultura. Ed. Script, Bologna
AA. VV. Il riso. Collana Coltura & Cultura. Ed. Script, Bologna
AA. VV. Il mais. Collana Coltura & Cultura. Ed. Script, Bologna
Materiale fornito dal docente.

AMBIT	50128-Discipline della tecnologia alimentare
INDIVIDUAL STUDY (Hrs)	90
COURSE ACTIVITY (Hrs)	60

EDUCATIONAL OBJECTIVES OF THE MODULE

The aim of the module is to provide basic knowledge on the main crops for food and feed, and on the variability of their products in relation to the environmental context, to the production systems (conventional, integrated, organic, biodynamic, etc.) and the varietal framework (including both the modern varieties and the local populations). In particular the module will highlight the effects of technical management on the qualitative, commodity-related and technological characteristics of the main agro-food products derived from field crops. Such information provides the tool for the characterization and exploitation of the raw materials to be used in their respective agro-food chains.

SYLLABUS

Hrs	Frontal teaching
2	Description of the main field crop cultivation systems in relation to the environment, to the available resources and the use of auxiliary inputs.
6	Conventional, organic, integrated, biodynamic agricultural systems: technical and regulatory aspects.
4	Preservation and valorization of the field crop biodiversity: landraces; conservation varieties, traditional and typical products. Quality brands (PGI, PDO, Slow food presidia, etc.): control and certification.
34	Diffusion and geographical distribution, ecological, agronomic and varietal factors associated with quantitative and qualitative characteristics of the main field crops. The following crops will be treated (with different detail): winter cereals (wheat and hulled wheat, barley, oats, minor species); summer cereals (maize, rice, sorghum); pseudo-cereali (buckwheat, quinoa, amaranth grain); grain legumes (bean, pea, broad bean, chickpea, lentil, grass pea); oil crops (soybean, sunflower, rapeseed); main aromatic species and herbs; species cultivated for particular biochemical compounds for the food industry.

Hrs	Workshops
10	Analytical determination of the main quality parameters on cereal grains and grain flours. Milling and extraction of semolina. Rheological parameters of semolina dough of durum wheat.

Hrs	Others
4	Guided visits to agri-food companies specialized in the production, storage and processing of raw materials (cereals and pulses crops).

MODULE
PRODUCTION AND BIODIVERSITY OF VEGETABLE CROPS

Prof. LEO SABATINO

SUGGESTED BIBLIOGRAPHY

Tesi R. Orticoltura mediterranea sostenibile. Patron Editor, Bologna. 2010
Bianco V.C., Pimpini F. Orticoltura. Patron Editor, Bologna. 1999
Angelini R. La fragola. Coltura e Cultura, Bayer CropScience. 2010
Angelini R. Il pomodoro. Coltura e Cultura, Bayer CropScience. 2010

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

EDUCATIONAL OBJECTIVES OF THE MODULE

The aim of the course is to provide students with the knowledge of the main vegetable production systems, both in open field and in greenhouse with particular emphasis on specific crop potentiality according to determinate environmental conditions. The course will be divided into two major themes: a) enhancement of biodiversity, b) quality of vegetable production.

SYLLABUS

Hrs	Frontal teaching
3	Open field and protected cultivation systems for high quality vegetable crop productions
3	Greenhouse and open field vegetable production cycles
16	Case studies concerning the production of the following species : Liliaceae (garlic) Cucurbitaceae (melon e watermelon) Fabaceae (bean and broad bean) Rosaceae (strawberry) Solanaceae (tomato, bell pepper, eggplant)

Hrs	Practice
8	Field exercises at the experimental farms of the Department and technical visits to various Sicilian vegetable crop farms