



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche
ACADEMIC YEAR	2021/2022
MASTER'S DEGREE (MSC)	BIODIVERSITY AND ENVIRONMENTAL BIOLOGY
SUBJECT	REPRODUCTION BIOLOGY OF PLANTS
TYPE OF EDUCATIONAL ACTIVITY	D
AMBIT	20490-A scelta dello studente
CODE	21941
SCIENTIFIC SECTOR(S)	BIO/02
HEAD PROFESSOR(S)	SALMERI CRISTINA Professore Associato Univ. di PALERMO MARIA BERNARDINA
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	102
COURSE ACTIVITY (Hrs)	48
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	SALMERI CRISTINA MARIA BERNARDINA Tuesday 11:00 13:00 Via Archirafi 38 1° piano, previa prenotazione tramite portale o email docente Wednesday 9:00 10:30 Via Archirafi 38 1° piano, previa prenotazione tramite portale o email docente Thursday 11:00 12:30 Via Archirafi 38 1° piano, previa prenotazione tramite portale o email docente

DOCENTE: Prof.ssa CRISTINA MARIA BERNARDINA SALMERI

PREREQUISITES	Basic knowledge of plant Biology, Plant Physiology, and Plant Systematics
LEARNING OUTCOMES	<p>KNOWLEDGE AND LEARNING OUTCOMES Students will acquire specific knowledge about the biological processes influencing plant reproduction with particular reference to the biological cycles and reproductive strategies, the sexuality in plants, the flowering control and fertilization processes, the seed development and germination.</p> <p>ABILITY TO APPLY KNOWLEDGE AND COMPREHENSION SKILLS Student will acquire the ability to correlate the acquired knowledge with the eco-physiological, adaptive, and evolutionary aspects and apply this information to plant biodiversity conservation and valorisation. Students will also acquire the ability to interpret reproductive strategies and structures as indicators of environmental quality (of biotic and abiotic systems).</p> <p>INDEPENDENT JUDGMENT Students will be able to evaluate under different disciplinary aspects the plant reproductive capability and to understand the related morpho-anatomical and behavioural changes in response to specific environmental factors.</p> <p>COMMUNICATION SKILLS Student will acquire the ability to speak, with appropriate language, even to a common audience, the knowledge gained with particular reference to the impressive complexity of plant reproductive biology and its importance also in the environmental and biotechnological fields.</p> <p>LEARNING ABILITY The course aims to develop students' ability to correlate and integrate the learned topics with those of other courses in the field of biology and biodiversity studies. The course will promote the inclination to thematic deepening and updating through the consultation of web portals and specific databases.</p>
ASSESSMENT METHODS	<p>TYPE OF ASSESSMENT - Intermediate essay: descriptive/argumentative oral essay on selected topics. - Final exam: oral examination; for each module, student must answer at least 4 questions about the main program topics.</p> <p>ASSESSMENT CRITERIA - Intermediate essay: results scored out qualitative evaluation, from unsatisfactory to excellent, considering the logical-analytical skills and the ability to synthesize information, as well as the acquired proper language. Results are satisfactory if basic knowledge and essential technical language are demonstrated. Results are considered excellent if detailed knowledge and mastery skills on the course topics are fully managed. - Final oral exam: students are evaluated for their acquired knowledge on plant reproductive methods and strategies, levels of learning of the course contents, logical-deductive ability, and the proper use of suitable scientific vocabulary. Results scored out of 30. The final exam is considered sufficient, with minimum score 18/30, if students show at least an overall knowledge on the main issues, being aware of basic paths of plant evolution, functional diversity, and plant conservation strategies. Results are evaluated as excellent, with a score of 30/30, if students show detailed knowledge of the whole program, logical and analytical skills allowing them to apply possible cross-links and deductive personal interpretations, using an appropriate scientific vocabulary.</p>
EDUCATIONAL OBJECTIVES	The aim of the course is to provide in-depth knowledge regarding the reproductive methods and strategies of plants, with particular reference to flowering plants; the various factors and mechanisms, of an abiotic and biotic nature, which regulate and / or influence reproductive processes; the adaptive and evolutionary significance of reproductive mechanisms in plants.
TEACHING METHODS	Lectures
SUGGESTED BIBLIOGRAPHY	<p>FUSCO G & MINNELLI A. (2018). <i>Biologia della riproduzione</i>. Ediz. MyLab. ISBN: 9788891904515</p> <p>GEROLA F. (2006). <i>Biologia e diversità dei vegetali</i> Ed. 2006 (o precedenti). UTET, Torino ISBN: 8802048770</p> <p>EVERT R.F. & EICHORN S.E. (2013). <i>La Biologia delle Piante di Raven</i>. 7a Ed. Zanichelli, Bologna. ISBN: 9788808175045</p> <p>Evert R.F. & Eichorn S.E. (2013). <i>Raven Biology of Plants</i>. 8th Edition. W.H. Freeman and Company, NY. ISBN:9781429219617</p> <p>Dispensa e articoli scientifici saranno forniti dal docente / Texts and scientific papers provided by the teacher during the course</p>

SYLLABUS

Hrs	Frontal teaching
6	Different types of reproduction in plants: generalities, meaning and methods of implementation. Biological cycles
6	Sexuality in plants: sexual expression and sex determination
4	Transition to flowering and flower development
6	Morphology and structure of reproductive systems in aquatic and terrestrial plants in relation to reproductive processes. Environment and reproductive processes: influence of environmental conditions
6	Importance of chemical signals in reproductive processes
4	Pollination, pollen germination, pollen-pistil interactions
6	Crossbreeding, reproductive barriers and self-incompatibility. Apomixis plants and its adaptive significance
6	Seed dispersal and seed germination
4	Seed germination behaviour, micropropagation techniques