



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze della Terra e del Mare
ACADEMIC YEAR	2022/2023
MASTER'S DEGREE (MSC)	MARINE BIOLOGY
SUBJECT	BIOLOGY AND TAXONOMY OF MARINE ALGAE
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50506-Discipline del settore biodiversità e ambiente
CODE	20505
SCIENTIFIC SECTOR(S)	BIO/02
HEAD PROFESSOR(S)	MANNINO ANNA MARIA Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	98
COURSE ACTIVITY (Hrs)	52
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	MANNINO ANNA MARIA Tuesday 9:00 11:00 Dipartimento STEBICEF - Via Archirafi n. 28, primo piano. Nota: Contattare preliminarmente il docente. Tel: 091-23891218; mail: annamaria.mannino@unipa.it

DOCENTE: Prof.ssa ANNA MARIA MANNINO

PREREQUISITES	Basic knowledge on General Biology, Botany and Ecology.
LEARNING OUTCOMES	<p>Knowledge and understanding Students will acquire knowledge on biology, taxonomy and ecology of marine algae. Students will acquire skills related to the identification of the main macroalgal taxa of Mediterranean environments. Students will acquire the techniques of sampling, identification and analysis of macroalgal communities of Mediterranean environments. Students will acquire the technical scientific language.</p> <p>Applying knowledge and understanding Students will acquire the capability to apply the acquired knowledge and understanding in environmental monitoring studies, in marine resource management, in the assessment of the marine environmental state and in the conservation of marine coastal environments.</p> <p>Making judgements Students will acquire the ability to evaluate and process the information from scientific literature and to interpret and critically evaluate experimental data acquired in the field and in the laboratory.</p> <p>Communication Students will gain the ability to explain the acquired knowledge to both specialist and non-specialist audiences with clearness and a technical scientific language. Students will acquire the ability to present experimental data.</p> <p>Lifelong learning skills Students will gain the learning skills necessary to continuously update and deepen knowledge with a high degree of autonomy, through consultation of scientific articles and online data bank. Students will acquire the capability to undertake further studies (master, deepening courses, specialized seminars).</p>
ASSESSMENT METHODS	<p>A beginning test is given to the students to assess their beginning preparation. The learning evaluation is based on one optional ongoing exam (power point presentation) and a final exam (oral or power point presentation). The positive evaluation of the ongoing exam allows the student to take the final exam (during the first useful session) exclusively on topics which were not object of the ongoing exam. If the student decides to refuse the result of the ongoing exam, he/she will take the final exam on all the program topics. The final mark is given considering the average of the marks (as a fraction of 30) of the ongoing and final exams. The mark of the ongoing exam contributes 35% to the final exam. For each exam the mark is assigned according to the level of knowledge and understanding of the program topics, the ability to analyze and combine information obtained from the course and the use of an appropriate scientific terminology. The threshold to pass each exam is 18/30. Excellent (30-30 cum laude). Excellent knowledge of the topics, excellent property of language, good analytical ability. The student is also able to apply his/her knowledge to solve all proposed problems. Very good (26-29). Good mastery of the topics, full property of language. The student is able to apply his/ her knowledge to solve proposed problems. Good (24-25). The student reached a basic knowledge of the main topics, discrete property of language, with limited ability to independently apply his/her knowledge to the solution of the proposed problems. Satisfactory (21-23). The student does not have full mastery of the main topics, but he/she possesses the knowledge, satisfactory property of language, poor ability to independently apply the acquired knowledge. Sufficient (18-20). The student has a minimum basic knowledge of the main topics and technical language issues, very little or no ability to independently apply the acquired knowledge. Insufficient. The student does not have an acceptable knowledge of the contents of the topics covered in the course.</p>
EDUCATIONAL OBJECTIVES	<p>Students will look into the knowledge on biology, taxonomy and ecology of marine algae. Students will acquire skills related to the identification of the main macroalgal taxa of marine environments, with special attention to the macroalgae of Mediterranean environments. Students will acquire the techniques of sampling, identification and analysis of macroalgal communities of Mediterranean environments. Students will acquire the knowledge to evaluate the effects of human pressures and climate change on macroalgal communities of Mediterranean environments.</p>
TEACHING METHODS	Lectures, laboratory (identification of marine macroalgae) and field activities (sampling and analysis of marine macroalgal communities).
SUGGESTED BIBLIOGRAPHY	<p>TESTI DI RIFERIMENTO (REFERENCE TEXT) Mauseth J. (2020). Botanica. Fondamenti di Biologia delle piante. 4a Ed., Idelson-Gnocchi. ISBN 978-88-79476980 Conxi Rodríguez-Prieto, Enric Ballesteros, Fernando Boisset, Julio Afonso-Carrillo (2015). Alghe e Fanerogame del Mediterraneo. Edizioni Il Castello. Edizione italiana a cura di Egidio Trainito. ISBN 978-88-6520-649-2 Gianfranco Sartoni (2022). Le macroalghe delle coste italiane. Monografie Naturalistiche 6. Edizioni Danaus. ISBN 978-88-97603-30-6 Appunti forniti dal docente (PDF)</p>

	<p>TESTI PER APPROFONDIMENTI (TEXT FOR DEEPENING)</p> <p>Cormaci M., Furnari G., Giaccone G. (2003). Macrofitobenthos. In: Manuale di metodologie di campionamento e studio del benthos mediterraneo (M.C. Gambi e M. Dappiano Ed.). Biologia Marina Mediterranea. Vol. 10 (suppl.): 233-262. ISSN 1123-4245</p> <p>Graham L.E., Wilcox L.W. (2000). Algae. Prentice Hall. Upper Saddle River, NJ. ISBN 0-13-660333-5</p> <p>Lee R.E. (2018). Phycology. 5th Edition. Cambridge. ISBN 978-1-107-55565-5</p> <p>Chiavi di identificazione (Identification keys)</p> <p>Articoli scientifici selezionati dal docente che consentiranno agli studenti di approfondire i temi trattati durante il corso (Scientific articles given out by the lecturer will allow the students to deepen the topics of the course)</p>
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SYLLABUS

Hrs	Frontal teaching
3	Topics and objectives of the course. Algae of marine environments: role and importance.
6	Systems of Classification. Prokaryotic algae: Cyanobacteria. Endosymbiosis.
8	Eukaryotic algae. Rhodophyta.
7	Chlorophyta. Brief notes on Cryptophyta, Prymnesiophyta, Dinophyta.
9	Heterokontophyta: Phaeophyceae and Bacillariophyceae.
7	Biodiversity of Mediterranean environments. Techniques of analysis of macroalgal communities of marine environments.
Hrs	Practice
12	Laboratory and field activities: sampling, identification and analysis of macroalgal communities of Mediterranean environments.