



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze della Terra e del Mare
ACADEMIC YEAR	2017/2018
MASTER'S DEGREE (MSC)	MARINE BIOLOGY
SUBJECT	ECOLOGY AND TECHNOLOGY OF FISHING AND AQUACULTURE
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50506-Discipline del settore biodiversità e ambiente
CODE	13918
SCIENTIFIC SECTOR(S)	BIO/07
HEAD PROFESSOR(S)	MAZZOLA ANTONIO Professore a contratto in Univ. di PALERMO quiescenza
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	MAZZOLA ANTONIO Monday 12:00 13:00 DiSTeM, via Archirafi 18, Il piano, aula docente

DOCENTE: Prof. ANTONIO MAZZOLA

PREREQUISITES	The student is expected to have knowledge of basic ecology.
LEARNING OUTCOMES	<p>Knowledge and comprehension</p> <p>Acquisition of theoretical, experimental and management skills related to the biology and ecology of marine species of fishery and aquaculture interest.</p> <p>Acquisition of a specialised scientific language.</p> <p>Applying knowledge and comprehension</p> <p>Acquisition of application skills for the analysis of marine biological resources, the management and restocking of fishing areas and the management of aquaculture farms.</p> <p>Autonomous thinking</p> <p>Acquisition of evaluation skills and competences for interpretation of experimental data, environmental state assessment and the effects of anthropogenic activities.</p> <p>Communication ability</p> <p>Acquisition of adequate skills and tools for communication, with regard to the presentation of the results of ecological studies, communication and dissemination of information on issues concerning the topics of the lessons.</p> <p>Learning ability</p> <p>Acquisition of appropriate skills for the independent achievement of additional competences, with reference to: literature consultation, access to database and other information on the internet, basic cognitive tools for the continuous updating of knowledge.</p>
ASSESSMENT METHODS	<p>The evaluation is based on the results of an optional ongoing written test (mid-term test with semistructured and open-ended questions) and a final oral exam. An entry test is also carried out to assess the initial preparation of students. The final mark is given by the average of the mid-term test and final exam (both as a fraction of 30). A positive evaluation of the ongoing test gives the student the opportunity to be evaluated, during the final exam, on only the contents of the second part of the course. The student has the option to refuse the result of the ongoing test before the final exam, which in this case deals with all the contents of the course.</p> <p>The student is evaluated based on the level of knowledge of the subjects and the ability to link between them, the clarity and the use of a specialised scientific language.</p> <p>Assessment criteria</p> <ul style="list-style-type: none">- assessment: excellent, grade: 30 - 30 cum laude, excellent knowledge of the topics of the course, excellent use of language, excellent analytical capacity, ability to apply knowledge to problem solving;- assessment: very good, grade: 26-29, good knowledge of the topics of the course, correct use of language, good analytical capacity, ability to apply knowledge to problem solving;- assessment: good, grade: 24-25, good knowledge of the main topics of the course, correct use of language, limited ability to autonomously apply knowledge to problem solving;- assessment: satisfactory, grade: 21-23, partial knowledge of the topics of the course, satisfactory use of language, limited ability to autonomously apply knowledge to problem solving;- assessment: sufficient, grade: 18-20, minimal knowledge of the main topics of the course and of technical language, scarce ability or inability to autonomously apply knowledge to problem solving;- assessment: fail, insufficient knowledge of the topics of the course.
EDUCATIONAL OBJECTIVES	The aim of the course is to provide the students with the knowledge and experimental and analytical tools to face management issues and to assess fishery and aquaculture resources in a sustainability context.
TEACHING METHODS	Lectures and exercises
SUGGESTED BIBLIOGRAPHY	<p>Jennings, Kaiser & Reynolds (2001). Marine Fisheries Ecology. Blackwell Science.</p> <p>Cataudella & Carrada (2000). Un mare di risorse. Consorzio Uniprom, Roma. http://www.fishbase.org/search.cfm</p> <p>AA.VV. (2001). Acquacoltura responsabile. Eds. Cataudella & Bronzi. Uniprom Roma.</p> <p>Testi di approfondimento:</p> <p>Ravagnan (1992). Vallicoltura integrata. Edagricole, Bologna.</p> <p>Stickney & McVey (2002). Responsible Marine Aquaculture. CABI Publishing, NY USA.</p>

SYLLABUS

Hrs	Frontal teaching
4	Definition of fishery; fishing gears and methods; artisanal, industrial, recreational fishing; demersal and pelagic fishery; peculiar fishing activities.

SYLLABUS

Hrs	Frontal teaching
5	Fishing gears; gear selectivity; impact of fishing gears on populations; bycatch and discards; impact of fishing gears on habitats; destroying fishing methods; fishery and ecological engineering; artificial reefs; FAD, restocking activities.
4	Production and exploitation of fishery resources; fishery diversity; demersal and pelagic fishery resources; estimate of fishery resource production; populations, metapopulations, communities, fish assemblages and stocks; spawning, nursery and feeding areas.
5	Spatio-temporal distribution of fishery resources; larval transport and dispersal; factors influencing fish movements; habitat selection and use; home range; methods to study fish movements; stock demography; age, growth and mortality; recruitment, predictive and analytical models.
4	Methods for the assessment of fishery resources; fishing effort; catch per unit effort (CPUE); biomass assessment of demersal stocks; fishery management; restocking activities; fishing bans; sustainable fishery.
4	Historical development of aquaculture worldwide and in Italy; aquaculture production; the FAO code of conduct for a responsible and sustainable aquaculture; reproduction and rearing biology of fish, molluscs and crustaceans; artificial reproduction; reared species.
5	Extensive aquaculture and the management of coastal areas of environmental value; intensive aquaculture; hatchery technologies; land-based aquaculture and mariculture; inshore and offshore technologies.
4	Energy fluxes in mariculture; environmental sustainability; aquaculture and the management of the coastal zone; aquaculture planning; aquaculture and restocking activities; aquaculture and the environment; environmental impacts of aquaculture activities; organic aquaculture.
5	Case studies: shrimp aquaculture; greater amberjack aquaculture; aquaculture in saltworks; guidelines for mitigation of aquaculture impacts.
Hrs	Practice
6	Visit of a Sicilian aquaculture farm
6	Visit of a Sicilian fishing fleet