COASTAL AND MARINE BIOLOGY AND ECOLOGY (LM51)

(Lecce - Università degli Studi)

Teaching COMMUNITY ECOLOGY

GenCod A002217

Owner professor GIORGIO MANCINELLI

Teaching in italian COMMUNITY ECOLOGY

Teaching COMMUNITY ECOLOGY

SSD code BIO/07

Reference course COASTAL AND MARINE BIOLOGY AND ECOLOGY

Course type Laurea Magistrale

Credits 6.0

Teaching hours Front activity hours: 60.0

For enrolled in 2018/2019

Taught in 2018/2019

Course year 1

Language ENGLISH

Curriculum PERCORSO COMUNE

Location Lecce

Semester Second Semester

Exam type Oral

Assessment Final grade

Course timetable https://easyroom.unisalento.it/Orario

BRIEF COURSE DESCRIPTION

The course moves from a preliminary yet detailed presention of fundamental theories in community ecology casted within the general historical evolution of the ecological discipline, from Charles Elton to the present day. Subsequently, specific conceptual and methodological topics are addressed, specifically: i) macroecology and community organization: emphasis is placed on island biogeographic theory by Wilson and MacArthur, used to introduce statistical approaches based on null models for the verification of the role of competitive interactions in community assembly; ii) relations between biodiversity and ecosystem functioning: the classical rivets, redundancy, and idiosyncratic models are examined in detail and compared with published results relating to experiments conducted both in the field and in the laboratory; reference is made to the theories of MacArthur and May on the relationship between the complexity of natural communities and their stability; iii) top-down and bottom-up controls: after a summary of the Eltonian pyramids concept, the Hairston, Smith and Slobodkin theory of trophic cascades is addressed in detail, discussing aquatic as well terrestrial examples; iv) food webs: the most recent developments related to the topic are presented, such as augmented networks, high complexity networks, and bipartite networks; the use of carbon and nitrogen stable isotopes for the analysis of marine food webs is presented. The laboratory activities focus on formalization and data analysis exercises using specific statistical methods and the free software package R.
The objectives of the course are to highlight and propose to students in a clear and contextualized way the most updated and debated conceptual aspects of community ecology, and at the same time provide the methodological and statistical tools necessary to analyze the structure and dynamics of natural communities.

REQUIREMENTS

Knowledge of basic ecological concepts provided in undergraduate ecology courses

COURSE AIMS

To highlight and bring to students in a clear and contextualized way the most updated and discussed conceptual issues in community ecology, and at the same time provide the necessary statistical and methodological tools to analyze the structure and dynamics of natural communities

TEACHING METHODOLOGY	Lectures – Slides available online in pdf format - Reading of seminal papers in community ecology followed by discussion (student talks) - Group activities (working groups) analyzing specific topics related with the course - Supervised practical activities conducted in the computer lab using previously prepared material made available on-line
ASSESSMENT TYPE	Final exam consisting in i) a written review focusing on the publications read during the course and ii) written test with multiple choice questions.
REFERENCE TEXT BOOKS	Morin - Community Ecology Gotelli - Null Models in Ecology Polis & Winemiller - Food Webs Bolker - Ecological Models and Data in R