M74 - BIOLOGIA ED ECOLOGIA DELL'AMBIENTE MARINO ED USO SOSTENIBILE DELLE SUE RISORSE - 2016/2017

Prof.ssa Anna Di Cosmo
Biodiversità animale e biomonitoraggio dell'ambiente marino
Marine animal biodiversity and environmental biomonitoring

Survey of the invertebrates, with emphasis on systematics, morphology, physiology and ecology.
Structure and function of chordates, especially fishes.
Study of behavioral, ecological, physiological and structural. adaptations to various modes of living, stressing local marine forms
Over 90% of the macroscopic species in the marine biosphere are “invertebrates”. The central theme in this course is a practical approach to managing this sometimes-overwhelming diversity, and to provide students with a toolkit of techniques and knowledge that will enable them to approach further independent study of biodiversity with confidence. Course material will focus on how animals interact with their environments (including body plans, life history, and physiology) and in understanding apomorphies of key invertebrate groups. The course will reveal abundant and recurrent correlations between various aspects of biology and morphology in multicellular animals, and demonstrates how this inter-connectedness affects evolutionary possibilities. We combine the “classical” study of functional morphology with the latest insights from phylogenetics, and genomics.
As the course focuses on managing the vast diversity of invertebrate life, we will study living exemplars of most major groups of marine animals, through field collection, observation of living animals in the field and in the lab. Students will also learn to produce publication-quality scientific drawings, representing their understanding of the specimens, and investigate specific problems through independent research projects.
Detailed program
Introduction to Marine Biodiversity
Marine biodiversity, An introduction to European Marine Biodiversity, The biosphere and animal distribution.
Marine Zoology
Protozoan groups, Invertebrates Classification and Relationships,
Sponges, Radiates, Lophotrocozoa, Ecdisozoa, Acoelomates Bilateral Animals, Pseudo-coelomates, Segmented worms, Mollusks, Trilobites, Chelicerates, Crustaceans, Echinoderms, Hemichordates, Fishes.
Senses in Aquatic Organisms

Lab: Practical Activities
Labs include study of types and exposure to diversity, using live and preserved specimens, and exposure to techniques used in zoological research

- DNA Barcoding tecnique ppt
- Meiobenthos: techniques of Meiofauna extraction ppt

Supplementary materials and Books:
The role of marine protected areas for Biodiversity conservation and for Science
www.ukmpas.org/presentations.html

Biodiversity and Corals ppt
Review of Jellyfish blooms in the Mediterranean and Black Sea
General fisheries Commission for the Mediterranean
Studies and Reviews No.92
Boero F. 2010
Evolution and challenge in creating OBIS Costello et al.
m.costello@auckland.ac.nz
DNA barcode for marine Biodiversity:Moving Fast Forward?
Radulovici et.al Diversity, 2010, 2, 450-472.
Underwater video for observing coastal marine biodiversity:
a review of sisxty years of publictions (1952-2012)
Mallet,D. and Pelletier, D.
Fisheries research.2014, Vol.154, page 44-62

Book
Neuroecology and Neuroethology in Molluscs
The interface between Behaviour and Environment
Anna Di Cosmo and William Winlow Eds