INTERNATIONAL STUDY PROGRAM
UNIVERSITY OF TORINO

UNIVERSITÀ DEGLI STUDI DI TORINO

ID
TM32_DIP_BIOS

Teach Mob – Visiting Professors
Academic year 2015/2016

2nd term
COURSE TITLE **Evolutionary Zoology and Laboratory**
Scientific area **Zoology**
Department of Life Sciences and Systems Biology
Language used to teach **ENGLISH**
Course summary Molecular evolution Molecular evolution as the study of the evolution of genes, genomes and species. Evolution of biological diversity: diversity and divergence in the field of micro-and macroevolution. Molecular mechanisms responsible for the genetic diversity and divergence. Deterministic and stochastic dynamics. Methods for detecting the intervention of natural selection or genetic drift on genes and genomic variability. Evidences of natural selection at the molecular level. Examples of genes subjected to natural or sexual selection. Evolution by transposition. The role of mobile genetic elements in shaping genomes and altering gene expression. Outline of EvoDevo. Organismal evolution Evolution of animal taxa. Biodiversity: origin and divergence among groups. Natural selection and adaptation. The role of environmental changes in divergence. Natural selection: mechanisms and levels of selection. Organismal evolution: phenotypic traits and evolution. Directional selection, stabilizing, disrupting, frequency-dependent selection. Fitness. Conflict and cooperation. Coevolution: interactions among species.
Learning objectives Students will be able to understand the basic theoretical and practical methodologies of evolutionary biology. They also will be able to critically discuss the various methods of investigation; to apply them correctly to questions at the genetic, biomolecular, population, taxonomic and evolutionary levels; to work under a stereomicroscope; to autonomously collect and organize data related to morphological characters and summarize and represent graphically the data obtained. The students will have acquired basic knowledge of data processing with statistical software and also be able to understand the basic theoretical and practical methodologies of evolutionary biology.
Tutorship activities Forms of tutoring will via amoodle will be activated
Lab activities The students will be involved in practical and in methodological applications
Other activities beside the course: i.e. seminars and conferences addressed to PhD students and research fellows, dissemination conferences Seminars within the “Biology and applied biotechnologies” program Conferences to researchers of Dip. of Life Sciences and Systems Biology

Visiting Professor Profile
The candidate should have a wide experience in Evolutionary Zoology and in behaviour applied to

conservation biology and management. The candidate should master the research methods utilised to study animal behavior, including field methods, comparative and phylogenetic analysis.

Contact person at the Department
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