



UNIVERSITÀ DEGLI STUDI DI TORINO

ID

VP45_DIP_DBIOS

Visiting Professor Program Academic year 2020/2021

DEPARTMENT OF LIFE SCIENCES AND SYSTEMS BIOLOGY

TEACHING COMMITMENT: 52 hours

COURSE TITLE

Modelling Animal Movement and Habitat Selection for Sustainability Analysis of Conservation Programs

TEACHING PERIOD

2nd term

SCIENTIFIC AREA

Applied Zoology and Ecology

LANGUAGE USED TO TEACH

English

COURSE SUMMARY

The course aims to provide an up-to-date understanding of the core principles, topics, and practical skills about the Geographical Information Systems (GIS), the utilization of the “R” statistical software, and the development of species distribution models (SDM) in relation to sustainability evaluation of conservation project. Basic info about geographic species distribution and ecological niche – Use of models to predict species distribution – Distribution modelling using Maxent an R – Models validation - MaxEnt illustrative examples – R modelling examples – Conservation project from a modelling point of view: 1) high compatibility area selection for rare and / or cryptic species; 2) area selection for species reintroduction.

LEARNING OBJECTIVES

The main aim is to familiarise students with the different methodologies applied to the study of the spatial and temporal distribution of natural resources when carrying out research in the sustainability development. At the end of the course, the student will have to prove to have developed the competences about:

- how to develop a geographical information system using the species presence information and the environmental variables that explain the presence of the species in the studied area;
- how to develop statistical analysis using species presence information;
- how to develop potential species distribution models;
- how set up a simple conservation project from a modelling point of view;
- how to evaluate the sustainability of the project.

TUTORSHIP ACTIVITIES (IF APPLICABLE)

The Visiting Professor will be available for co-tutoring student dissertations focused on cooperation projects in developing countries.

LAB ACTIVITIES (IF APPLICABLE)

The students will use the information gathered during the course, including some practical experience in data preparation and analysis, and put together a simple research project proposal, which could form the basis for e.g. a funding proposal. This will allow them to acquire key skills in project planning, which will be useful for their future careers within and beyond academia.

OTHER ACTIVITIES BESIDES THE COURSE

Seminars for PhD students and involvement in experiential learning activities.

ADDITIONAL COURSE

COURSE TITLE

Geographical information Systems (GIS) and Species Distribution Models

TEACHING PERIOD

2nd term

SCIENTIFIC AREA

Spatial data analysis

LANGUAGE USED TO TEACH

English

COURSE SUMMARY

R Descriptive data analysis – The main function of data analysis – Frequency distribution – Graphics with R – Hypothesis testing – One and two-sample t-test – Univariate Anova – Chi-square test.

LEARNING OBJECTIVES

Students should learn:

R installation – Main commands - R data types – Importing external data – Introduction to data analysis.

TUTORSHIP ACTIVITIES (IF APPLICABLE)

The Visiting Professor will be available for co-tutoring student dissertations focused on cooperation projects in developing countries.

LAB ACTIVITIES (IF APPLICABLE)

OTHER ACTIVITIES BESIDES THE COURSE

VISITING PROFESSOR PROFILE

A conservation biologist expert in modelling biological data of natural population in relation to environmental factors, with several years' experience of teaching at University level (undergraduate and postgraduate), high-profile publications in the field of ecological modelling of wildlife.

CONTACT PERSON AT THE DEPARTMENT

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