

- Faculté des sciences
- www.unine.ch/sciences

Methods in biodiversity and conservation (3BL2270)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en biologie	Cours: 28 pg	Voir ci-dessous	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Automne

Equipe enseignante

Christophe Praz

Objectifs

Numerous methodological tools are used in the rapidly growing field of conservation biology. For example, species detection is more and more often guided by molecular techniques using DNA markers; animal diets are examined using metabarcoding techniques to understand how resources are used; and species matrices are examined to highlight the effect of environmental factors or management practices on communities.

This course offers the methodological background required by all biologists active in biodiversity conservation to understand and apply these techniques. It will be particularly useful to those interested in investigating the interactions between organisms and their resources and habitats. The strong focus on DNA barcoding will also provide a valuable tool for those conducting research in organismal biology, including agricultural research and parasitology.

Contenu

The topics covered are the following:

- Faunistic databases, both at the Swiss and international level: How should biologists record faunistic data in the field? How are these observations validated? How do biologists access and use faunistic data?
- IUCN red lists: What are the IUCN criteria and how are red lists compiled?
- DNA barcoding, environmental barcoding and metabarcoding: What are these methods and what are the assets and limitations of each of them?
- Other genetic tools used in conservation biology: Which types of genetic markers are used? What is genetic fingerprinting and how can it be used to survey populations and answer pertinent questions related to gene flow and species conservation?
- Species-environmental matrices: How are they assembled and how may they be analyzed in a multivariate framework to examine questions in conservation biology, restoration ecology and habitat management?

Forme de l'évaluation

Continuous assessment, graded

The evaluation (Continuous assessment, graded) will take the form of a written exam on the last day of the class (20.12.2018, 8h15-10h00). No documentation is allowed (no computer/smartphone); a calculator is required. The questions will be in English, answers may be given in English, French or German. An English/French (or English/German) dictionary is allowed. Questions will include short questions as well as essay-type questions. Each question will be assigned a certain number of points, indicated in parenthesis. The number of points obtained by the candidate will be divided by the total number of points; this number will be multiplied by five and one unit will be added; the final grade will be rounded up to the nearest half point. A candidate obtaining 18 points out of a maximum of 24 will have a final grade of 5.0 (rounded up from 4.75).

Second trial: Students who do not obtain the minimum grade (4.0) will have the possibility to pass a second exam, which will take place on the second week of the spring semester 2019 (25-28 February 2019). Exact dates will be communicated in early February.

Documentation

The PDFs of the lectures will be made available each week. Further documentation will be provided by email or through Moodle.

Pré-requis

None

Forme de l'enseignement

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The course will be given in lecture format, illustrated by real case studies in biodiversity conservation. Practical exercises will be conducted by the students and discussed together. Several external experts, mostly from Info Fauna in Neuchatel, will present applied projects illustrating the use of particular techniques.