Faculty of Science

BIOR70, Biology: Conservation Biology - Theory, Applications and Evidence Based Methods, 15 credits

Biologi: Bevarandebiologi - teori, praktik och utvärderande metoder, 15 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2012-08-08 and was last revised on 2015-01-19. The revised syllabus applies from 2015-01-19, spring semester 2015.

General Information

The course is an optional second-cycle course for a degree of Bachelor or Master of Science in Biology. The language of instruction is English.

Language of instruction: Swedish

Main field of studies	*Depth of study relative to the degree requirements*
Biology	A1F, Second cycle, has second-cycle course/s as entry requirements

Learning outcomes

Knowledge and understanding

On completion of the course the student shall be able to:

- account for how modern ecological and genetic research can be used in practical work for preserving threatened species, and in basic and applied research in conservation biology
- account for the basics in conservation genetics e.g. effects on small and isolated populations
- account for how and why scientific methodology i.e. hypothesis testing and statistical analysis, should be applied in conservation biology

- describe the extent of and causes behind essential threats to global biodiversity, and methods to restore biodiversity
- describe the problems associated with introduced species and genetically modified organisms

Competence and skills
On completion of the course the student shall be able to:

- carry out and evaluate analyses of the vulnerability of populations
- apply population ecological models, particularly those concerning heterogeneous landscapes

Judgement and approach
On completion of the course the student shall be able to:

- discuss how basic assumptions in conservation biology have their basis in ethical values
- critically analyse studies in conservation ecology

Course content

Population dynamics: specialisation in population ecology theory, population ecology of small and fragmented populations (metapopulation ecology), population ecology in heterogeneous landscapes, the distribution of populations in heterogeneous landscapes, and "source-sink"-models.

Conservation genetics: loss of genetic variation, and genetic variation and local adaptations.

Biodiversity: global and regional changes in biodiversity, reasons for global patterns of biodiversity, different concepts of biodiversity, the value of biodiversity, biodiversity strategies (preserves with unique habitats with maximum number of threatened species, so-called hotspots, versus preserving an acceptable diversity in the cultural landscape), consequences of introduction of new species, genetically modified organisms, and restoration ecology. In addition to strictly scientific aspects of conservation biology, ethical perspectives will also be discussed and highlighted: what should be preserved, why and for whom?

Scientific analytical methods: vulnerability analysis (basic analytical methods on the viability of populations, "Population Viability Analyses"), models in harvest theory, the scientific basis for creation of wildlife preserves, behavioural indicators in conservation biology, statistical analysis of population trends, and evaluation of conservation ecology studies.

Course design

The teaching is web-based, which means that the students follow the course via a course web page including a number of modules. The modules contain a presentation of the subject, assigned questions, literature references, and links to relevant web pages. Teachers and students interact via e-mail and via a discussion forum on the course web page. A smaller literature project is included. A field exercise (about four days) takes place at the end of the course.

The field exercise is compulsory.

Assessment

Examination takes place continuously during the course in the form of computer-based examinations on each module.

For students who have not passed the regular examination, an additional examination in close connection to this is offered.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.
To pass the entire course, approved examination for each module, approved literature project, and active participation in the field exercise, are required.

The final grade is decided through a weighing of the results of all examinations.

Entry requirements

For admission to the course, Swedish B and 105 credits of scientific studies including knowledge corresponding to BIOC02 Ecology 15 credits, and BIOR23 Nature Conservation 15 credits, or BIOR69 Population and Community Ecology 15 credits, are required.

Further information

The course may not be included in a degree together with BIOR38 Conservation Biology for Professionals 15 credits, or BIOR37 Conservation Biology 15 credits.

Subcourses in BIOR70, Biology: Conservation Biology - Theory, Applications and Evidence Based Methods

Applies from V12

1201 Conservation Biology - Theory, Appl., Evid. Based Methods, 15,0 hp
Grading scale: Fail, Pass, Pass with distinction