Faculty of Science

BIOR37, Biology: Conservation Biology, 15 credits

Biologi: Bevarandebiologi, 15 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2007-03-01 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 elective course for advanced studies for a Bachelor of Science or Master's degree (120 credits) in biology and environmental sciences.

Language of instruction: Swedish and English
When necessary, the course is given in English.

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

Learning outcomes

Knowledge and understanding

The student should be able to on completion of the course:

- account for how modern ecological and genetic research can be used in both practical work for preserving threatened species as well as in basic and applied research in conservation biology
- describe population ecology models, particularly those concerning heterogeneous landscapes

- account for basic conservation genetics, for example effects on small and isolated populations

Competence and skills
The student should be able to on completion of the course:

- carry out and critically evaluate analyses on the vulnerability of populations
- critically analyse studies on conservation ecology
- describe the extent of and the causes behind essential threats to global biodiversity, and methods to restore lost biodiversity
- describe the problems associated with introduced species and genetically modified organisms
- communicate models in conservation biology, in writing and orally

Judgement and approach
The student should be able to on completion of the course:

- account for how and why scientific methodology i.e. hypothesis testing and statistical analysis, should be applied also in conservation biology
- account for how basic assumptions in conservation biology have their basis in ethical values

Course content

Population dynamics: specialisation in population ecology theories, population ecology for small and fragmented populations (metapopulation ecology), population ecology and population distribution 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 strict 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.

Computer exercises with applications of these models, e g extinction risks in small populations, models in harvest theory, PVA, effects of habitat destruction, or genetic

drift models. Analysis of geographic data.

Project work, e.g. in the form of literature studies. Development of proposals for diagnosis of threats against a species, or own modelling with training in written and oral communication, and in searching and evaluating scientific information.

Course design

The teaching consists of lectures, laboratory sessions, field trips, seminars, group work, and projects. Participation in laboratory sessions, field trips, seminars, group work and projects, and thereby other integrated teaching, is compulsory.

Assessment

Examination takes place through participation in compulsory parts and projects, and a written examination at the end of the course.

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 and passed project report and participation in all compulsory parts are required.

The final grade is decided through a joining of the results of the examination and the project.

Entry requirements

For admission to the course, 105 credits in studies of natural sciences are required including knowledge equivalent to BIOC02 Ecology 15 credits, and BIOR23 Nature Conservation 15 credits, or BIOR69 Population- and Community Ecology 15 credits. English 6/English B.

Further information

The course may not be included in a higher degree together with BIOR70 Conservation Biology (theory, placement, evaluating methods) 15 credits, BIO790 Conservation Biology 15 credits, or BIO649 Conservation Biology for Professionals 15 credits.

Subcourses in BIOR37, Biology: Conservation Biology

Applies from V14

0711 Theory, 12,0 hp
Grading scale: Fail, Pass, Pass with distinction
0712 Project, 3,0 hp
Grading scale: Fail, Pass, Pass with distinction

Applies from V08

0701 Conservation Biology, 15,0 hp
Grading scale: Fail, Pass, Pass with distinction