Department of Biology Education

Stockholm University

Syllabus

for course at advanced level

Theoretical Population Biology
Teoretisk populationsbiologi

15.0 Higher Education Credits
15.0 ECTS credits

Course code:	BL7017
Valid from:	Autumn 2007
Date of approval:	2006-09-27
Department	Department of Biology Education
Subject	Biology

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University.

Prerequisites and special admittance requirements

Admittance to the course requires knowledge equivalent to Cell and Molecular Biology 15 credits, Diversity and Phylogeny of Organisms 15 credits, Physiology 15 credits and Ecology, Floristics and Faunistics 15 credits. (Three credits corresponds to approximately two weeks full-time studies). Swedish upper secondary school course English B or equivalent or one of the following tests. Cambridge CPE och CAE: Pass. IELTS : 6.0 (with no part of the test below 5.0). TOEFL (paper based): 550 (with minimum grade 4 on the written test part). TOEFL (computer based): 213. TOEFL (internet based): 79.

Course structure

Examination code	Name	Higher Education Credits
7017	Theoretical Population Biology	15

Course content

The course covers: Stochastic processes in population biology, Genetic models for population differentiation in time and space, inbreeding and its fitness consequences, effective population sizes in discrete and overlapping population, the importance of spatial and age structure for population dynamics and abundance, the interaction between ecological and evolutionary processes in the development of species traits (such as life history and specialisation), population modelling as a tool in population studies, applications of models in conservation problems (population viability analyses and population harvesting).

Learning outcomes

It is expected that the student after taking the course will be able to:
* show basic theoretical knowledge about the ecological, demographic, and evolutionary processes acting on the population level
* formulate and analyse problems in theoretical population ecology
* explain how stochastic and deterministic processes affect population development and their demographic and genetic characteristics
* explain how population and evolutionary processes interact
* show theoretical and practical experiences in a model-based analysis of population processes

Education

The education consists of lectures, group work, laboratory exercises including computer and calculation

exercises, seminars and case studies.
Participation in group work, laboratory exercises including computer and calculation exercises, seminars, case studies and group education associated with this is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher.

Forms of examination

a. Examination for the course is in the following manner: measurement of knowledge takes place through: Written and/or oral examination as well as written and/or oral presentations.

b. Grading is carried out according to a 7-point scale related to learning objectives:
A = Excellent
B = Very Good
C = Good
D = Satisfactory
E = Sufficient
Fx = Fail
F = Fail

c. Grading criteria for the course will be distributed at the start of the course.

d. A minimum grade of E is required to pass the course, together with:
•participation in all compulsory education

e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term “examination” here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

Interim

Students may request that the examination is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board.

Limitations

The course can not be included in a degree together with the course Theoretical Population Biology, 10 p (BI3400).

Misc

The course is a component of the Master's Programme in Biology, and it can also be taken as an individual course.

Required reading

Course literature is decided by the departmental board and is described in an appendix to the syllabus.