



DEPARTMENT OF MARINE SCIENCES

BIO451 Experimental marine ecology, 15 credits

Experimentell marin ekologi, 15 högskolepoäng

Second Cycle

Confirmation

This course syllabus was confirmed by Department of Biological and Environmental Sciences on 2014-08-22 and was last revised on 2017-11-09 by Department of Marine Sciences to be valid from 2018-01-15, spring semester of 2018.

Field of education: Science 100%

Department: Department of Marine Sciences

Other participating department

Department of Marine Sciences

Position in the educational system

The course can be applied as a freestanding course.

The course can be part of the following programmes: 1) Atmosphere, Climate and Ecosystems, Master's Programme (N2ACE), 2) Marine Science, Master's Programme (N2MAV), 3) Environmental Sciences (N2MVN) and 4) Biology, Master's Programme (N2BIO)

Main field of studies

Marine Sciences

Biology

Environmental Science

Specialization

A1N, Second cycle, has only first-cycle course/s as entry requirements

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Entry requirements

To enter the course one the following entry requirements must be met:

Alternative 1: Approved Bachelor exam (180 credits) within marine sciences, biology or environmental sciences or equivalent knowledge.

Alternative 2: Approved courses of at least 90 credits within the first two years of the Bachelor program in Marine Sciences, University of Gothenburg.

Alternative 3: Approved courses BIO900 Cell Biology (15 credits), BIO905 Molecular Genetics (15 credits), BIO910 Biological form and function (15 credits), BIO915 Ecology and evolution (15 credits) and BIO920 Biodiversity and systematics (15 credits)

Alternative 4 Approved courses of at least 90 credits within the first two years of the Bachelor program in Environmental sciences, at the faculty of Science, at the University of Gothenburg, including BIO915 Ecology and evolution (15 credits).

Alternatives 2-4 demands approved course Theoretical and historical perspectives on science (NTH001) (7,5 credits) and for alternatives 3 and 4: approved course in Statistical Analysis (MSG830) (7,5 credits).

In addition to each alternative, at least one approved, relevant advanced course (at least 15 credits) in biology is required, as well as English 6/English B or equivalent knowledge.

BIO266 Marine Biodiversity (15 credits) is a recommendation but not a requirement.

Learning outcomes

The course is intended to complement and deepen knowledge in marine experimental ecology, as well as scientific methodology and experimental design. After completion of the course the student is expected to be able to:

Knowledge and understanding

- Describe the prevailing theory and/or experimental approaches used in different marine ecology research areas
- Show deepened knowledge within scientific methods and experimental design
- Explain basic concepts of meta-analysis

Competence and skills

- Formulate hypotheses to test explanatory models within different marine ecology research areas
- Extract and analyse data from primary studies using meta-analysis
- Plan, design, execute, analyse, and summarise a project work around a scientific question in marine population- or community ecology

Judgement and approach

- Summarize and evaluate scientific results orally and in writing
- Assess and critically review scientific work

Course content

The course integrates zoology and botany and deals with ecological and evolutionary theory and experimental design and statistics, with special emphasis on marine organisms. The course aims to use ecological and evolutionary theories as models and predictive tools to formulate hypotheses that are tested in supervised group projects. The course provides a useful preparation for independent graduation projects and it covers all parts of the research process (critically evaluating existing literature, formulating testable hypotheses, designing and conducting experiments, statistical analysis, and written and oral presentation of results, as well as assessment and critical evaluation of other students' results). The course comprises two integrated parts. A theoretical part with lectures, group seminars, and literature assignments deepens the knowledge about, and understanding of, ecological and evolutionary theories, and experimental design and statistics. An experimental part aims to practically apply the acquired knowledge through exercises, and individual- and group assignments.

Sub-courses

- 1. Exam (*Tentamen*)**, 6 higher education credits
Grading scale: Pass with Distinction (VG), Pass (G) and Fail (U)
- 2. Individual Writing Assignment (*Individuell skriftlig uppgift*)**, 5 higher education credits
Grading scale: Pass with Distinction (VG), Pass (G) and Fail (U)
- 3. Group Project (*Grupparbete*)**, 4 higher education credits
Grading scale: Pass with Distinction (VG), Pass (G) and Fail (U)

Form of teaching

The course consist of lectures, written assignments, group projects and oral presentations. Written assignments, group projects and presentations are compulsory.

Language of instruction: Swedish and English

The course is given in English in the presence of non-Swedish speaking students.

Assessment

Sub-course 1, Exam: Written individual examination in an examination hall takes place after the theoretical part of the course.

Sub-course 2, Individual Writing Assignment: Will be assessed and graded by supervisors using specific assessment criteria.

Sub-course 3, Group Project: Will be assessed and graded by supervisors using specific assessment criteria.

Students who do not pass the regular examinations are offered additional re-examinations. Opportunity to complete unapproved compulsory assignments is given at the earliest at next course date.

If a student, who has failed the same examined component twice, wishes to change examiner before the next examination, a written application shall be sent to the department responsible for the course and shall be granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

In cases where a course has been discontinued or has undergone major changes, the student shall normally be guaranteed at least three examination occasions (including the ordinary examination) during a period of at least one year from the last time the course was given.

Grades

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

The grade Pass (G) for the whole course requires the grade G on all three sub-courses.

The grade Pass with Distinction (VG) for the whole course will be given according to a weighted average mark on all the sub-courses, on condition that none of the sub-courses has been graded Fail (U). Detailed grading criteria will be presented on the on the course GUL page.

Concerning application of the ECTS scale for grade please see Vice-Chancellor's decision 28/05/2007, No. G 8 197/07 as well as 28/02/2011, No. O 2009/05545.

Course evaluation

A written evaluation is provided via GUL. The evaluation must be filed no later than one week after the end of the course. A compilation of course evaluations is presented on the course GUL page.

An oral course evaluation is also done in conjunction with the final presentations of the group assignments. The oral evaluation is documented and the notes are presented on the course GUL page.

A summary of the course evaluations and details of any changes made are presented to the next course.

Additional information

Part of the course is offered at the Sven Lovén Center for Marine Sciences -Tjärnö (SLCT). Payment for travel and food represent a cost to the student.

Identification has to be verified at examination.