



DEPARTMENT OF BIOLOGICAL AND ENVIRONMENTAL SCIENCES

BIO173 Biostatistics and experimental design, multifactorial analyses, 7.5 credits

Biostatistik och experimentdesign, flerfaktorsanalyser, 7,5 högskolepoäng

First Cycle

Confirmation

This course syllabus was confirmed by Department of Biological and Environmental Sciences on 2013-01-29 and was last revised on 2022-03-08 to be valid from 2022-03-08, spring semester of 2022.

Field of education: Science 100%

Department: Department of Biological and Environmental Sciences

Position in the educational system

The course is an elective course in the Bachelor's programme in biology, but is given also as a freestanding course.

The course can be part of the following programmes: 1) Bachelor's Programme in Biology (N1BIO) and 2) Bachelor's Programme in Molecular Biology (N1MB1)

Main field of studies

Marine Sciences

Molecular Biology

Biology

Specialization

G2F, First cycle, has at least 60 credits in first-cycle course/s as entry requirements

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Entry requirements

Admission to the course requires completed course BIO172, Biostatistics and experimental design, single-factor analyses, 7.5 credits, or an equivalent.

Learning outcomes

Knowledge and understanding

On successful completion of the course students will be able:

- Carry out variance analyses including single-factor, two-factor and nested ANOVA.
- Carry out correlation and regression analyses
- Plan and optimise simple experimental set-ups and samplings
- Choose appropriate statistical tests to analyse a given material

Competence and skills

On successful completion of the course students will be able:

- Identify scientific questions and formulate them in the form of hypotheses,
- Plan samplings and experiments and analyse them with relevant methods
- Carry out and interpret statistical tests as variance analysis and regression analysis
- Understand the principles of an analysis of covariance and multiple regression.

Course content

The course constitutes a continuation of the course BIO172, Biostatistics and experimental design, single-factor analyses, and specialises on multi factor analyses. The emphasis of the course lies on variance analyses and it treats single-factor, two-factor and nested ANOVA. Correlation, simple and multiple linear regression are presented. Major emphasis is placed on design and planning of experiments.

Form of teaching

The teaching is conducted through lectures, computer exercises, literature assignments and seminars. Computer exercises are examined, and literature assignments are discussed during seminars with compulsory attendance.

Language of instruction: Swedish

Assessment

The examination takes place in two stages. For the grade of G (Pass) correct submitted reports and participation in seminars and group discussions is required. For the grade VG (Pass with distinction) it is in addition to above requirements required that the student carries out in a final written examination and there achieve 85% correct answers.

Occasion to supplement compulsory components can be given in the frame of the course or at the next course instance.

A student who has failed a test twice has the right to change examiner, unless weighty

argument can be adduced. The application shall be sent to the board of the department and has to be in writing.

Grades

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U). For the grade of G (Pass) correct submitted reports and participation in seminars and group discussions is required. For the grade VG (Pass with distinction) it is in addition to above requirements it is required that the student carries out in a final written examination and there achieve 85% correct replies.

According to decision in the Board of the Faculty the Faculty of natural sciences (26/02/2015, diary number: 2017/177) should all programmes and courses at the Faculty of natural sciences use either the three-graded scale: U, G or VG, or the two-graded grading scale: U or G.

Course evaluation

On completion of the course, a written and/or oral course evaluation is carried out. A compilation of the course evaluation is sent to the "Biology student office" where it is available as a public document. The course evaluation is also distributed to all teachers that have participated in the course and should be taken into consideration when planning the next course. A summary of the course evaluation as well as highlighting of potential changes that have been done should be presented at the introduction next time the course is given.