



LUND
UNIVERSITY

Faculty of Science

BIOB11, Biology: Experimental Design and Analysis for Biologists, 7.5 credits

Biologi: Försöksdesign och analys för biologer, 7,5 högskolepoäng
First Cycle / Grundnivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2018-08-17 to be valid from 2018-08-17, spring semester 2019.

General Information

The course is compulsory first-cycle course for a Degree of Bachelor of Science in Biology and elective for a Degree of Bachelor of Science in Molecular Biology.

Language of instruction: Swedish

Main field of studies

Biology

Depth of study relative to the degree requirements

G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Learning outcomes

The overall aim of the course is that student should understand and be able to apply investigating research and methods in Biology, including experimental design, hypothesis testing and analytical methods.

Knowledge and understanding

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

- explain how hypotheses are set up and processed, and how they are analysed and used in science research
- explain the relationship between experimental design and data analysis
- account for a number of basic statistical methods

Competence and skills

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

- apply basic concepts such as accuracy, precision, probability and distribution
- plan biological experiments based on a scientific question
- manage and sort biological data
- statistically analyse and interpret biological data
- present statistical results graphically and in writing

Judgement and approach

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

- critically review and evaluate experimental design
- evaluate and justify choice of statistical analytical methods for different types of biological data
- discuss and relate to objectivity and scientific honesty

Course content

The course starts with a survey of the connection between modern biological investigating research, methods, hypothesis testing and ethics in science. Thereafter statistics and probability theory, data management, statistical analytical methods for biological experiments, experimental design, as well as evaluation of experiments, is treated.

Course design

The teaching consists of lectures, as well as exercises individually and in groups. Participation in exercises, as well as associated parts, are compulsory.

Assessment

Examination takes place in the form of a written exam at the end of the course, as well as through compulsory parts during the course. For students who have not passed the regular examination, an additional examination in close connection to the end of the course is offered.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

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.

For a grade of Pass on the course as a whole, students must have passed the exam and the compulsory parts. The final grade is decided by the grade on the written exam.

Entry requirements

For admission to course is required 30 credits scientific studies.

Further information

The course may not be included in a degree together with BIOC03 Experimental design and analysis for biologists 7.5 credits, BIOC04 Experimental design and analysis for biologists, 7.5 credits, or MASB11 Biostatistics, 7.5 credits.

Subcourses in BIOB11, Biology: Experimental Design and Analysis for Biologists

Applies from V19

1901 Experimental Design and Analysis for Biologists, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction