Faculty of Science

BIOS14, Biology: Processing and Analysis of Biological Data, 7.5 credits

Biologi: Bearbetning och analys av biologiska data, 7,5 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2016-02-24 to be valid from 2016-07-01, autumn semester 2016.

General Information

The course is an optional course for a degree of Master of Science in Biology and Molecular Biology and a compulsory course for a degree of Master in Bioinformatics.

Language of instruction: English

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

Learning outcomes

The aim of the course is that the student will train and get experience in handling and analysis of biological data.

Knowledge and understanding
On completion of the course the students shall be able to:

- account for basic probability theory
- explain advantages and disadvantages with different analyses
- describe basic assumptions for different analyses

Competence and skills
On completion of the course the students shall be able to:

- handle and structure biological data
- suggest appropriate analytical method for different biological data
- master the most common statistical analytical methods and be able to carry out these in an analysis program

Judgement and approach
On completion of the course the students shall be able to:

- evaluate the relevance and reliability of a biological dataset
- work judiciously with biological datasets and evaluate your analytical skills

Course content

Principles of processing and handling of biological data. Introduction to programs for processing and analyses. Analytical methods for biological systems e.g. t-test, ANOVA, correlation, regression, chi2, log-linear modelling, logistic regression, survival and multivariate methods.

Course design

The course consists of lectures and computer exercises and is completed with a written examination. Participation in computer exercises is compulsory.

Assessment

The examination consists of a written examination and compulsory parts. 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.
The grades in the course are Passed with distinction, Passed and Failed. To pass the entire course, approved computer exercises and approved examination are required. The final grade is based on the examination.

Entry requirements

For admission to the course, a degree including at least 180 credits, and 15 additional credits at second-cycle level in Biology, Molecular Biology or Bioinformatics, including 7.5 credits statistics or programming, are required. English 6/B.

Further information

The course may not be included in a degree together with BIOS12 Processing and Analysis of Biological Data 7.5 credits, or BINP15 Bioinformatics: Data Processing and Analysis 15 credits.

Subcourses in BIOS14, Biology: Processing and Analysis of Biological Data

Applies from H16

1601   Processing and Analysis of Biological Data, 7,5 hp
       Grading scale: Fail, Pass, Pass with distinction