

## Syllabus

### **BI0961.1 Bioinformatics, 10.0 credits**

#### **Bioinformatik**

The course is given Agricultural Science Programme - Animal Science (270 hec), Agriculture Programme (admission before 1 July 2007), Biotechnology - Master's Programme, Biotechnology Programme, Animal Breeding and Genetics - Erasmus Mundus Master's Programme, Animal Science - Master's Programme (Husdjursvetenskap), Master of Science Programme in Animal Science and Animal Science - Master's Programme and as course independent of study programme

Syllabus discontinued 8 June 2016

Version 1 in Slukurs. Corresponds to version 1, 2, 3, 4, 5, 6, 7 and 8 in Ladok

#### **Syllabus approved**

2 June 2008

The version applies to students admitted from autumn 2008

The version is not a module version

#### **Subjects**

Biology/Animal science

#### **Education cycle**

Second cycle

#### **Modules**

<b>Title</b>	<b>Code</b>	<b>Credits</b>
Single module	0101	10.0

#### **Advanced study in the main field**

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

## Grading scale

5:Pass with Distinction, 4:Pass with Credit, 3:Pass, U:Fail

The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

## Language

English

## Prior knowledge

Knowledge equivalent to English B from upper secondary school. Knowledge corresponding to 120 credits including 60 credits Biology or Animal Science. 20 credits Cell Biology, Molecular Genetics, Genetics/Breeding is a requirement.

## Objectives

After completion of the course, the student should be able to:

- understand and describe the basic principles of bioinformatics
- independently carry out comparisons of protein and DNA sequences, and to interpret the results
- work within Unix/Linux operating systems
- build a bioinformatics "workbench" with publicly-available programs that are suited to his/her own needs
- use biological databases
- know the statistical methods on which bioinformatics is based

## Content

The course aims to give the student a solid foundation in the basic methods of bioinformatics. It will cover the theories, algorithms and practical applications of computer-based methods for analysis of DNA sequences and protein structures.

The topics to be covered include:

- biological databases
- homology analysis
- gene analysis (with emphasis on the package EMBOSS and Staden)
- web-based tools for analysis
- the Unix operating system

- phylogeny
- comparative genomics
- functional genomics

## **Implementation**

The course is mainly based on interactive computer exercises and web-based tutorials.

Lectures and seminars about 60 hours

Computer based exercises about 150 hours (compulsory)

Project work and /seminars about 20 hours (compulsory)

Exam and course evaluation about 5 hours

Work on assignments about 35 hours

## **Examination**

### **Requirements for examination**

Written exam and web-based tasks.

Passed examination and approval of compulsory components of the course.

- If the student fails a test, the examiner may give the student a supplementary assignment, provided this is possible and there is reason to do so.
- If the student has been granted special educational support because of a disability, the examiner has the right to offer the student an adapted test, or provide an alternative assessment.
- If changes are made to this course syllabus, or if the course is closed, SLU shall decide on transitional rules for examination of students admitted under this syllabus but who have not yet passed the course.
- For the examination of a degree project (independent project), the examiner may also allow the student to add supplemental information after the deadline. For more information on this, please refer to the regulations for education at Bachelor's and Master's level.

### **Transitional regulations**

- Exams: At least three retake sessions (renewed exams) must be offered within two years of the last course iteration.
- Compulsory elements: At least one opportunity for a retake session must be offered within two years of the last course iteration.

**Additional information**

- The right to take part in teaching and/or supervision only applies to the course date to which the student has been admitted and registered on.
- If there are special reasons, the student may take part in course components that require compulsory attendance at a later date. For more information on this, please refer to the regulations for education at Bachelor's and Master's level.

**Responsible department**

Department of Animal Breeding and Genetics

**Supplementary Information**

*Finalized by:* Grundutbildningsnämnden, Fakulteten för veterinärmedicin och husdjursvetenskap

*Biology Area:* Genetics

*Replacement course:* BI0578 och BI0657