



GÖTEBORG UNIVERSITY

Faculty Board of Science

MSA855 Introduction to bioinformatics, systems biology and biocomputing

7.5 higher education credits

Second Cycle

This syllabus is the binding document.

1. Confirmation

The syllabus was confirmed by the Department of Mathematical Sciences on June 1, 2009 to be valid from July 1, 2009.

Field of education: Science. Responsible department: Mathematical Sciences.

2. Position in the educational system

The course MSA855, 7.5 higher education credits, is one of several single subject courses included in the two-year Masters Program in System Biology. The course is also open for eligible students outside the program.

3. Entrance qualifications

A basic course either in biochemistry or in cell biology.

4. Course content

The course consists of two parts:

- Introduction to Bioinformatics and systems biology (5 credits).
- Biocomputation practical (2.5 credits)

The Bioinformatics and systems biology part considers the following topics:

- Sequence bioinformatics
- Phylogeny reconstruction
- Structural bioinformatics

- Bioinformatical data bases
- Modeling, simulation and analysis of cellular systems
- Quantitative measurement techniques of cellular system components and reactions.

The Biocomputation practical part consist of programming classes devoted to different issues in bioinformatics. The purpose of this part is to increase the student's knowledge and skills in both elementary programming and the bioinformatics application areas.

5. Learning outcomes

After completing the course, the student will be able

- to demonstrate understanding of fundamentals in bioinformatics and system biology
- to apply basic programming tools in addressing standard bioinformatical questions.

6. Required reading

List of required reading enclosed.

7. Assessment

The Biocomputation practical part is assessed by student's performance during the classes.

On the Bioinformatics and systems biology part the student is examined by exercises, project work and a written exam.

An examination will be given at the end of the course. A student who has failed a test twice has the right to change examiner, unless weighty arguments can be invoked. For this, the student must send a written request to the board of the department.

8. Grading scale

The grades are Fail (U), Pass (G), and Pass with Distinction (VG).

Students who are contractually entitled to ECTS grades should inform the examiner about this no later than one week after the start of the course.

Students without such entitlement will not be awarded ECTS grades. Grades will be converted into ECTS terminology according to a standard model approved by the University President.

9. Course evaluation

Oral and/or written course evaluation will be performed. The results of the evaluation will be communicated to the students and will serve as a guide for the development of the course.

10. Additional information

The language of instruction is English unless all involved are Swedish speakers.