UNIVERSITY OF SKÖVDE

TRANSLATION FROM SWEDISH

COURSE SYLLABUS

Systems Biology A1F

7.5 credits

Course code: SY765A
Version number: 11
Valid from: 1 January 2026
Ratified by: Curriculum Committee for Bioscience
Date of ratification: 22 May 2025

1. General information about the course

The course is provided by the University of Skövde and is named Systems Biology A1F (Systembiologi A1F). It comprises 7.5 credits and is a second-cycle course. The level of progression is A1F.

The course is a part of the main field of study in Systems Biology. The disciplinary domain of the course is Natural Sciences.

2. Entry requirements

The course has the following entry requirements: passed SY768A Data Analysis for Life Science A1N (or the equivalent).

A further requirement is proof of skills in English equivalent of studies at upper secondary level in Sweden, known as the Swedish course English 6 or English level 2. This is normally demonstrated by means of an internationally recognized test, e.g. IELTS or TOEFL or the equivalent.

3. Course content

The course includes various approaches in systems biology and how they can be applied on experimental data to understand complex biological systems. During the course, different types of network analyses, mathematical models and non-linear regression will be applied on biological data.

4. Objectives

After completed course the student should be able to:

- in depth describe the paradigm in systems biology and defined central concepts in systems biology,
- describe and use different methods and tools to analyze different types of networks in systems biology,
- develop, program and simulate mathematical models that are commonly used in pharmacokinetics, infection biology and ecology,
- apply non-linear regression to estimate the parameters of a biological model,
- in depth describe the importance of integrating biological data at different levels and
- critically review scientific papers in systems biology.

5. Examination

The course is graded A (Excellent), B (Very good), C (Good), D (Satisfactory), E (Sufficient) or F (Fail).

A final grade of the course is only issued when all the examination parts have been passed.

The examinations of the course consist of the following modes of assessment:

- **Written examination in computer lab 1**
  3 credits, grades: G/U
- **Written assignment**
  1 credit, grades: G/U
- **Written examination in computer lab 2**
  3.5 credits, grades: A/B/C/D/E/F (determines the final grade)

Students with a permanent disability who have been approved for directed educational support may be offered adapted modes of assessment.

6. Types of instruction and language of instruction

The teaching is comprised of exercises, laboratory sessions and lectures.

The teaching is conducted in English.

7. Course literature and other educational materials

Motulsky, H.J. & Christopoulos, A. (2003). *Fitting Models to Biological Data Using Linear and Nonlinear Regression: A Practical Guide to Curve Fitting*. New York: Oxford University Press USA. ISBN 0195171802.

Additional material and scientific articles.

8. Student influence

Student influence in the course is ensured by means of course evaluation. The students are informed about the results of the evaluation and potential measures that have been taken or are planned, based on the course evaluation.

9. Additional information

Further information about the course, as well as national and local governing documents for higher education, is available on the website of the University of Skövde.