



UNIVERSITY
OF SKÖVDE

TRANSLATION FROM SWEDISH

PROGRAMME SYLLABUS

Bioinformatics - Master's Programme

60 credits

Programme code: BIIMA

Version number: 27

Valid from: Spring term 2023

Ratified by: Curriculum Committee for Bioscience

Date of ratification: 26 August 2021

1. General information about the study programme

The study programme is provided by the University of Skövde and is named Bioinformatics - Master's Programme (Bioinformatik - magisterprogram). It comprises 60 credits and is a second-cycle programme. The main field of study is Bioinformatics.

2. Entry requirements

Prerequisite is a Bachelor's degree (equivalent to a Swedish Bachelor's Degree) in molecular biology, biomedicine or computer science.

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

The entry requirements above are applicable for admission to the study programme. For further studies within the programme, the entry requirements for each course must be met. These entry requirements are specified in each separate course syllabus.

3. Study programme content

The program's first semester consists of courses at the advanced level in bioinformatics to provide the necessary knowledge for further studies on the subject. For the majority of courses during the first semester supervised exercises and assignments have a prominent role. These exercises are designed to develop skills in practical problem solving through application of relevant bioinformatics methods.

During the first semester a course on current bioinformatics research problems is given and which provides an introduction to research methodology, with a focus on methodology with relevance in bioinformatics. During the second semester students will also carry out an independent thesis work of 30 credits. During the thesis work, the student should independently apply their knowledge to solve a current and relevant research problem in bioinformatics.

The following courses are included in the programme

Bioinformatic Analysis with Python 1 G1N, 7.5 credits

Bioinformatics concepts and methods A1N, 7.5 credits

Bioinformatics - the research process A1F, 7.5 credits

Bioinformatics analysis with R A1N, 7.5 credits

4. General objectives

Objectives for education at the second-cycle level in The Higher Education Act

Second-cycle courses and study programmes shall involve the acquisition of specialist knowledge, competence and skills in relation to first-cycle courses and study programmes, and in addition to the requirements for first-cycle courses and study programmes shall:

- further develop the ability of students to integrate and make autonomous use of their knowledge,
- develop the students' ability to deal with complex phenomena, issues and situations, and
- develop the students' potential for professional activities that demand considerable autonomy, or for research and development work.

5. Study programme objectives

Main area of education is Bioinformatics.

Objectives for Master's Degree according to the Higher Education Ordinance

Knowledge and Understanding

For a Master's Degree students shall be able to

- show knowledge and understanding within the main area of the education, inclusive of wide knowledge within the area, a considerable in depth knowledge within certain parts of the area as well as deeper insight into current research and development, and
- show in depth knowledge of methodology within the main area of the education.

Proficiency and Ability

For a Master's Degree the students shall be able to

- show the ability to critically and systematically integrate knowledge and analyse, assess and manage complex phenomena, questions and situations even with limited information,
- show the ability to identify and formulate questions, independently, as well as to plan and, with adequate methods, carry out advanced assignments within specified time limits.
- show the ability to, orally and in writing, account for and discuss their conclusions and the knowledge and arguments these are based on in dialogue with different groups, and
- show the proficiency required to participate in research and development in other advanced activity.

Ability to Evaluate and Relate

For the Master's Degree students shall

- show the ability, within the main area of the education, to make assessments in accordance with relevant research, societal and ethical aspects as well as show awareness of ethical aspects in research and development,
- show insight into the possibilities and limitations of research, its role in society and human beings' responsibility for how it is used, and
- show the ability to identify the need for further knowledge and to take responsibility for the development of their knowledge.

Local Objectives for the Programme at The University of Skövde

After completing the programme a student shall:

- demonstrate good knowledge and understanding of how digitalization can be used to improve health and well-being,
- demonstrate knowledge and understanding of how digitalization can contribute to sustainable development through efficient use of data from molecular biological and biomedical experiments.

6. Language of instruction

(ENGL) [Translation missing]

7. Degree qualification

A student who passes the courses in the programme fulfills the requirements for a Master of Science (60 credits) with a major in Bioinformatics.

Degree certificates are issued after application. Information about how to submit an application can be found on the website of the University of Skövde.

8. Changes to the programme syllabus

The programme syllabus and its courses may be changed, within the framework of the objectives for the study programme.

9. Student influence

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

10. Additional information

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