UNIVERSITY OF SKÖVDE

TRANSLATION FROM SWEDISH

COURSE SYLLABUS

Master Project in Bioinformatics A1E

30 credits

Course code: BI758A
Version number: 14
Valid from: 1 January 2025
Ratified by: Curriculum Committee for Bioscience
Date of ratification: 14 August 2024

1. General information about the course

The course is provided by the University of Skövde and is named Master Project in Bioinformatics A1E (Examensarbete i bioinformatik A1E). It comprises 30 credits and is a second-cycle course. The level of progression is A1E.

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

2. Entry requirements

A Bachelor's degree equivalent to a Swedish kandidatexamen of 180 credits, within Bioinformatics, Molecular Biology, Biomedicine, or Computer Science, and passed courses BI121G Bioinformatic Analysis with Python 1 G1N and BI760A Bioinformatics Concepts and Methods A1N and BI730A Bioinformatics - Research Process A1F (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. This is normally demonstrated by means of an internationally recognized test, e.g. IELTS or TOEFL or the equivalent.

3. Course content

The course focuses on scientific methods as general tools for problem solving and development of knowledge, in particular as used in bioinformatics. During the course, the student should write a research report of sufficiently high scientific standard to potentially serve as a basis for a scientific publication in the area.

Problem formulation and project plan, 3 credits
This part of the dissertation contains a discussion of the research problem and explains why it is an important problem to address. Earlier research regarding the problem, as well as methods of relevance, should be mentioned and discussed. During this phase of the project, a problem specification should be formulated and a project time plan developed. The requirement for a pass grade in this part of the course is that the submitted report is approved by the examiner.

Method description, 4 credits
This part of the dissertation contains a description of the chosen method and how it will be applied in the project. The requirement for starting this part of the course is a pass grade in the previous part, i.e. Problem formulation and project plan. The requirement for a pass grade in this part of the course is that the submitted report is approved by the examiner.

Implementation and results, 20 credits
This part of the dissertation contains a description and analysis of the results and a discussion of the conclusions that can be drawn from these results. Requirement for starting this part of the course is pass grade in previous parts Problem formulation and project plan and Method description. The requirement for a pass grade in this part of the course is that the submitted report is approved by the examiner.

Presentation, defence and acting as opponent, 3 credits
In this part of the course all parts of the dissertation should be completed and an oral presentation should be held. Criticism and suggestions that arise in connection with the presentation should be taken into consideration in the final editing of the dissertation. The student should also act as opponent at at least one other student's presentation. The requirement for starting this part of the course is pass grade in Implementation and results. The requirement for a pass grade in this part of the course is that the submitted complete thesis is approved by the examiner and that the student has presented and defended the thesis, as well as acted as opponent.

4. Objectives

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

- identify and formulate a relevant research problem in bioinformatics,
- identify and discuss research ethical questions, gender equality aspects and societal impact related to a specific research problem,
- in an insightful way independently apply a scientific approach and scientific methodology in a research-oriented bioinformatics project, as well as when presenting and analysing the results,
- given a problem description, specify alternative research methods that can be applied, and in an insightful way argue for why the chosen method is suitable for the specific research problem,
- write a research report that conforms to the standards of scientific soundness and clarity (as specified in the evaluation criteria), and orally present and defend a research project with clarity,
- critically evaluate and appraise bioinformatic research reports and scientific articles.

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 and is determined by an average of the grades for Implementation and results and Presentation, defense and serving as student reviewer. The average value is rounded to the nearest integer (half rounded up) and translated into a final grade of the course. The average value is calculated without weighting, i.e. the examination parts Implementation and results and Presentation, defense and serving as student reviewer are assigned the same weight.

Once the course is finished, access to additional supervision is limited, and determined by the school on a case-by-case basis. Access to such additional supervision cannot be granted more than one year after the course has finished.

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

- **Problem formulation and project plan**
  3 credits, grades: A/B/C/D/E/F
- **Method description**
  4 credits, grades: A/B/C/D/E/F
- **Implementation and results**
  20 credits, grades: A/B/C/D/E/F
- **Presentation, defense and serving as student reviewer**
  3 credits, grades: A/B/C/D/E/F

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 supervision and seminars/group discussions.

The teaching is conducted in English.

7. Course literature and other educational materials

Scientific articles related to the chosen research problem.

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.