MSC IN BIOINFORMATICS*
COMPUTATIONAL SOLUTIONS FOR BIOLOGICAL AND BIOMEDICAL PROBLEMS

A fusion of biology, statistics, and computer science, the MSc in Bioinformatics programme explores the development and application of computational solutions for analysing and handling biological and biomedical data. A successful bioinformatics solution combines theoretical and practical knowledge from several areas of science, including biology, statistics, and computer science – a network of competencies that students will acquire through this programme.

FINDING SOLUTIONS
The field of bioinformatics plays a key role in modern biology and biomedicine. Fields in which collecting and analysing large data sets is essential. To address the challenges of big data in modern biology and biomedicine, a bioinformatician must combine practical and theoretical skills in statistical modelling and computer programming with a deep knowledge of biology and biomedicine. This programme gives students these skill-sets.

Teaching is greatly influenced by the innovative bioinformatics research taking place at Aarhus University, where all lecturers are also active researchers. AU has strong research groups within many areas of bioinformatics, including evolutionary bioinformatics (the study of how and in what way genomes or hereditary material in organisms develop over the course of time) and medical bioinformatics (the study of the correlations between diseases and genetic factors).

The bioinformatics programme at AU is based at the Bioinformatics Research Centre (BiRC), which focuses on the challenges involved in large-scale genomics and population genetics, including statistical modelling, algorithmic development, machine learning, and high-performance computing.

STUDENT LIFE
Bioinformatics students are affiliated with the Bioinformatics Research Centre, a vibrant community with lots of regular academic and social activities for both students and staff. Students meet their peers from the other AU science programmes through joint lectures, and participate in activities with students from programmes such as biology or computer science. A number of student organisations also arrange academic activities, as well as excursions, celebrations and social get-togethers.

CAREERS
Graduates with a Master’s in Bioinformatics are equipped not only to work as bioinformatics specialists in the biotechnology industry, but also in additional areas in which computational skills in analysing large amounts of data are essential. They are also in demand among employers in the IT industry as potential software developers.

Our student backgrounds are very diverse, ranging from computer science to biology and molecular biology, for instance. So our interests and projects cover different fields of bioinformatics. This is a great strength because it means we are able to discuss questions and work together across our different academic competences. My main interest is in how new, faster and cheaper ways of examining biological data can be combined with effective data processing to lay the foundation for future medical treatment and diagnostics. I would like to use my experience in bioinformatics to contribute to making these new possibilities available to the health care sector as fast as possible.

SIMON GRUND SØRENSEN
BSc Molecular Medicine
Student, MSc Bioinformatics

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AARHUS UNIVERSITY

PLACE OF STUDY
Aarhus

WWW
masters.au.dk/bioinformatics

ANNUAL TUITION FEE
EU/EEA/Swiss citizens: FREE
Others: EUR 13,500

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Fees are subject to change. See studyguide.au.dk
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ADMISSION REQUIREMENTS
Students are qualified to apply if their bachelor’s degree contains 20 ECTS within the fields of mathematics, probability theory, and statistics, 20 ECTS within either programming and algorithmics or molecular biology and genetics, and an additional 60 ECTS within one of the above topics.

SELECTION CRITERIA
As the Master’s programme admits only a limited number of students each year, meeting the admission requirements does not in itself guarantee admission to the programme. Student places are allocated on the basis of an overall assessment. In evaluating qualified applicants, the admissions committee assesses applicants according to the following criteria: academic background; overall grade level of bachelor’s degree; grades achieved on relevant courses; and relevant courses (measured in credit units) included in the bachelor’s degree.

Relevant courses include core courses within the subject areas of mathematics, probability theory and statistics, programming and algorithmics, and molecular biology and genetics.

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