PROGRAMME SYLLABUS

Biovetenskap - Molekylär biodesign
Bioscience - Molecular Biodesign
180 credits

Programme Code: BIMPG
Academic Level: Basic level
Version: 5

The Programme Syllabus is valid from: Autumn term 2020
Date of Approval: 28 February 2019

1 Name and Scope of the Study Programme
The programme is provided by the University of Skövde and is named Bioscience - Molecular Biodesign. It comprises 180 credits.

2 General Objectives
Courses and study programmes on the basic level shall develop:

- the ability of students to make independent and critical assessments,
- the ability of students to identify, formulate and solve problems autonomously, and
- the preparedness of students to deal with changes in working life.

In addition to knowledge and skills in their field of study, students shall develop the ability to:

- gather and interpret information at a scholarly level,
- stay abreast of the development of knowledge, and
- communicate their knowledge to others, including those who lack specialist knowledge in the field.

(Objectives for courses and study programmes on the basic level, The Higher Education Act)

3 Programme Objectives
The major field of study is Bioscience.

Objectives of the Bachelor’s degree in Higher Education are

Knowledge and understanding

For a Bachelor’s Degree, the student should be able to

- demonstrate knowledge and understanding in the major subject area including knowledge of the scientific basis, methodologies in the field, specialization within a sub-area and understanding of current research directions.

Skills and Abilities

For Bachelor’s Degree, the student should be able to

- demonstrate the ability to search, evaluate and critically interpret relevant information in a study case and to critically discuss relevant phenomena, issues and situations,
- demonstrate the ability to identify, formulate and solve problems and to perform tasks within specified time limits,
- demonstrate the ability to orally and in writing explain and discuss information, problems and solutions in dialogue with different groups, and
- demonstrate the skills required to independently work within the educational field.

Critical judgment and approach

For Bachelor’s Degree, the student should be able to

- demonstrate skills in the major field of study, make evaluations with respect to relevant scientific, social and ethical aspects,
demonstrate an understanding of the role of knowledge in society and people’s responsibility for application of knowledge, and

demonstrate the ability to identify their individual needs for further knowledge and developing their skills.

Local objectives for the program at the University of Skövde
The student should after completing the program show

• good knowledge and skills for professional activity within the public or private sector as well as continued studies on advanced level in life science or practical biotechnology,

• good knowledge and skills in how different tools and methods can be used in biotechnology such as methods for identification and validation of biomarkers, as well as methods for modification and design of molecules and organisms,

• good knowledge in and ability to discuss peoples responsibility for how biotechnology can be used for a sustainable development, and

• show an understanding of entrepreneurship and innovation, its methods, as well as practical knowledge in how a project is planned and managed.

4 Programme Content
The education program is based on the Bioscience subject area. The students will learn the basics in biology, such as cells, ecosystems, evolution, genes, chemical processes and organisms. In addition the subject is both broadened (biomimicry, entrepreneurship, sustainable development, statistics, scientific methodology) and specialized (bioinformatics, biomarkers, molecular genetics, design and diagnostics).

The program is concluded with a thesis project of 30 credits, during which the acquired knowledge though the study programme is used to independently formulate and solve a research- and/or development-related problem within Bioscience.

The studies are mainly pursued as lectures, seminars, laborations and excursions combined with project work.

The following courses are included in the programme

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Cell biology G1N</td>
<td>7.5</td>
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<tr>
<td>Entrepreneurial Start Up G1N</td>
<td>7.5</td>
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<tr>
<td>Evolution G1N</td>
<td>7.5</td>
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<tr>
<td>Genetics G1N</td>
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<tr>
<td>Basic Chemistry G1N</td>
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<tr>
<td>Sustainable development G1N</td>
<td>7.5</td>
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<tr>
<td>Bioinformatics Introduction G1N</td>
<td>7.5</td>
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<tr>
<td>Introduction to Molecular Biodesign G1N</td>
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<tr>
<td>Microbiology G1N</td>
<td>7.5</td>
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<tr>
<td>Biological Life Forms and Function G1N</td>
<td>4.5</td>
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<tr>
<td>Management - Basic Concepts and Methods G1N</td>
<td>7.5</td>
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<tr>
<td>Method and Design in Life Science G1F</td>
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<tr>
<td>Biochemistry G1F</td>
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<tr>
<td>Molecular Biodesign I G1F</td>
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<tr>
<td>Molecular Genetics G1F</td>
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<td>Literature Review in Bioscience G2F</td>
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<td>Molecular Biodesign II G2F</td>
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<tr>
<td>Molecular Diagnostics and Biomarkers G2F</td>
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<td>Thesis Project in Bioscience G2E</td>
<td>30</td>
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<tr>
<td>Ecology, Nutrient Cycling and Landscape Processes G1F</td>
<td>7.5</td>
</tr>
<tr>
<td>Project in Applied Bioinformatics G1F</td>
<td>7.5</td>
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5 Admission Requirements
The special prerequisites for this programme, besides basic eligibility for university studies, are the following upper secondary school courses Mathematics B, Sci-
ence studies B, Civics A, English B or Mathematics 2a / 2b / 2c, Science studies 2, Civics 1b /1a1 +1a2, English 6.

The corresponding English proficiency can normally be shown by an internationally recognized language tests, such as IELTS or TOEFL (or equivalent).

The above admission requirements apply for admission to the programme. For further studies within the programme, the admission requirements for each course must be complied with. These admission requirements are specified in each separate course syllabus.

6 Degree
Students who complete the program with at least a pass grade meet the general requirements for obtaining a Degree of Bachelor of Science with a major in Bioscience.

Degrees are awarded after application. Information about how to submit an application can be found on the University’s website.

7 Approval of Study Programme and Programme Syllabus
The study programme was approved by the Vice-Chancellor at the University of Skövde on 25 September 2014. This programme syllabus was approved by the Curriculum Committee for Bioscience on 28 February 2019. It is valid from the autumn semester of 2020 and replaces the programme syllabus approved on 22 February 2018.

8 Changes to the Programme Syllabus
The programme studies are carried out in accordance with the current programme syllabus in effect at the time when the studies were initiated, provided that the structure of the programme is followed and that no leave of studies has been granted.

In the event of continued studies after a period of approved leave of studies, the students is to follow the programme syllabus in effect the term that the student resumes his/her studies. If substantial changes to the programme syllabus have been made, the student may contact a student and career counsellor in order to set up an individual study plan.

Reservations are made for the fact that the programme syllabus and its courses are subject to change, within the framework of the objectives of the programme.

9 Additional Information
The teaching is conducted in English.

Further information about the study programme will be available on the University’s web pages prior to a programme start.

National and local regulations for higher education are available on the University’s website.

During the programme, as well as after its completion, there are follow-ups. The main purpose of these follow-ups is to contribute to improvements of the programme. The students’ experiences and views constitute one of the criteria for the follow-up and are gathered by means of programme evaluations. The students will be informed of the results of the follow-up and any decisions regarding actions that are to be taken.