Molecular Diagnostics and Biomarkers G2F
7.5 credits

1 Name, Scope and Level of the Course
The course is provided by the University of Skövde and is named Molecular Diagnostics and Biomarkers G2F. It comprises 7.5 credits and is on basic level. The level of progression of the course is G2F.

2 Objectives
After completed course the student should be able to:

- analyze multivariate data in order to detect and validate different types of biomarkers,
- use and apply different multivariate statistical methods in order to combine biomarkers,
- describe applications for different biomarkers, and the different techniques used in molecular biology to detect biomarkers,
- in an individual project, describe the use of biomarkers within different applications, and also present the project orally, and
- plan, report and carry out an experiment, which aims at detecting a disease with the use of biomarkers.

3 Course Content
The course provides the student with knowledge in how different biomarkers can be used as diagnostic and prognostic markers, how biomarkers can be used in the development of new pharmaceutical drugs, and how biomarkers can be used to monitor drug therapies. During the course, different multivariate statistical and experimental methods are used to identify and validate putative biomarkers. The course also includes an individual project which gives the student an opportunity to study in detail how biomarkers are used in different applications.

4 Forms of Teaching
The teaching comprises computer exercises, lectures and laboratory sessions.

The teaching is conducted in English.

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

Registration of examination results:

<table>
<thead>
<tr>
<th>Name of examination</th>
<th>Credits</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written examination in computer lab¹</td>
<td>4 credits</td>
<td>A/B/C/D/E/F</td>
</tr>
<tr>
<td>Oral presentation</td>
<td>2 credits</td>
<td>G/U</td>
</tr>
<tr>
<td>Written assignment</td>
<td>1.5 credits</td>
<td>G/U</td>
</tr>
</tbody>
</table>

¹ Determines the final grade of the course.

Students with a permanent disability who have been approved for special educational support may be offered adapted or alternative examinations.

6 Admission Requirements
The prerequisites for this course are passed courses: BV108G Cell Biology G1N 7.5 credits and BM136G Genetics G1N 7.5 credits, BV311G Method and Design in Life Science G1F 7.5 credits and BV113G
Microbiology G1N 7.5 credits. A further requirement is 60 credits in natural science (or the equivalent).

7 Subject, Main Field of Study and Disciplinary Domain

The course forms a part of the academic subject area of Bioscience. The course is a part of the main field of study in Bioscience at the University of Skövde. The disciplinary domain of the course is Natural Sciences.

Every course at the University of Skövde belongs to a subject. The division of subjects is used for follow-up and quality assurance. A main field of study is an area in which a degree can be awarded. Disciplinary domain is a division which is used by the government for the allocation of resources for studies at basic level and advanced level.

8 Approval of Course and Course Syllabus

The course was approved by the Curriculum Committee for Bioscience on 27 February 2020. This course syllabus was approved by the Curriculum Committee for Bioscience on 26 March 2020. It is valid from 1 January 2021 and replaces the course syllabus approved 26 March 2020.

9 Overlapping with Another Course

This course cannot constitute a part of a degree also containing a course the content of which is totally or partly equivalent to the content of this course.

10 Additional Information

Further information will be available on the university’s website before a course is given.

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

Upon completion of the course there will be a follow-up. The main purpose of this follow-up is to contribute to improvements of the course. The students’ experiences and views constitute one of the criteria for the follow-up and are gathered by means of course evaluations. The students will be informed of the results of the follow-up and any decisions regarding actions that are to be taken.

11 Course Literature and Other Educational Materials

Distributed material

Scientific articles