Faculty of Medicine

BIMB21, Biomedicine: Genetics and Genomics, 7.5 credits

Biomedicin: Genetik och genomik, 7,5 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by The Master's Programmes Board on 2020-05-26 to be valid from 2020-06-02, spring semester 2021.

General Information

Language of instruction: English

Main field of studies	*Depth of study relative to the degree requirements*
Biomedicine	G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Learning outcomes

Knowledge and understanding

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

- give an account of different types of genetic variation in man and explain how these relate to phenotype and risk of disease,
- explain basic hereditary patterns and population genetic concepts,
- give an account of how constitutional and somatic gene variants can contribute to cancer development,
- give an account of molecular genetic methods and models for studying the presence and effect of different genetic variants.

Competence and skills

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

- analyse genetic data, apply basic linkage analysis and carry out population genetic calculations,

- interpret pedigrees and information about risk alleles in relation to multifactorial diseases,
- search and compile information about genes and genetic diseases from databases,
- suggest and apply methods for molecular analysis of genetic variants.

Judgement and approach

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

- reflect on ethical issues related to genetic/genomic data and analysis of genetic/genomic data.

Course content

The course covers basics of genetics and genomics with a focus on man. It includes meiosis, Mendelian inheritance, linkage analysis and population genetics. Furthermore, different types of genetic variation, pedigrees and associated diseases, and risk assessment based on gene variants are discussed. Also somatic genetic changes in cancer cells are included. The most common molecular genetic methods with an emphasis on large-scale sequencing and functional analyses of genetic variants are also included. The course also includes ethical aspects of genetic/genomic knowledge and consequences of the increased use of genetic tests in medicine.

Course design

The working methods in the course are mostly student active, requiring that the students prepare before each lesson. All group tuition is compulsory. Genetic calculations will be done in exercises. A laboratory session will be carried out, where the student gets the opportunity to train molecular genetic technologies practically and the results are reported in a written report. An individual written assignment runs in parallel with the other course components.

Assessment

The intended learning outcomes are assessed through:

1. Course portfolio: scientific report, individual written assignment, 5 credits (Fail/Pass/Pass with distinction)
2. test with multiple-choice questions, 2.5 credits (Fail/Pass)

If there are special reasons, other forms of examination may apply.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.
To achieve the grade Pass in final grade, all components should be approved. To achieve the grade Pass with distinction in final grade, the grade on course portfolio should furthermore be approved with distinction.

Entry requirements

Completed course in the biology of the cell and chemistry (BIMB10) with passed scientific portfolio or the equivalent.

Subcourses in BIMB21, Biomedicine: Genetics and Genomics

Applies from V21

2101 Course portfolio: scientific report, ind. written assignment, 5,0 hp
Grading scale: Fail, Pass, Pass with distinction
2102 Multiple-choice questions, 2,5 hp
Grading scale: Fail, Pass