



LUNDS UNIVERSITET

Medicinska fakulteten

Biomedical, Medical and Public Health Training
Board (NBMFU)

BIMM16 Human Genetics

7.5 higher education credits Second cycle
Level 1N

General Information

Main field

Biomedicine

Subject

Human genetics

Type of course and its location in the educational system

The course is an elective course within the Master of Medical Science programme in Biomedicine.

Language of instruction

English

Learning Outcomes

Knowledge and understanding

On completion of the course the student shall be able to

- account for different types of human genetic variation and explain how current scientific theories relate them to phenotype and disease risk
- compare and explain the common genetic mechanisms of disease in humans, using appropriate terminology.

Skills and abilities

On completion of the course students shall be able to

- compare and explain concepts in population genetics and execute simple calculations in population genetics, using appropriate terminology
- utilise different inheritance patterns and pedigree information to chart genes with a suitable method of statistical calculation
- independently search for and compile information on genes and genetic diseases in specialist literature and public databases and propose appropriate methods of analysis for a hypothetical clinical situation.

Judgement and approach

On completion of the course students shall be able to

- problematise the ethical issues associated with knowledge of the genetic make-up of individuals.

Adopted by the NBMFU 25 May 2011

Valid from spring semester 2011

Course Content

The course is based on the scientific progress within the field of human genetics during the past decade. Key issues of how genetic factors lead to individual traits and development of diseases are dealt with in the context of genetic variation. Different types of genetic variation are analysed in relation to medical risk assessment, common genetic diseases in humans, issues in population genetics and to gene charting and link analysis. Furthermore, the ethical issues raised by the development of knowledge and the approach to these in present-day healthcare are discussed. The aim of the course is to provide students with tools to understand and assess the reliability of studies that link genetic factors to different traits and diseases. It is therefore suited to students who intend to work in the fields of biomedicine and laboratory medicine.

Subjects examined

Written exam, 4.5 credits

Group work, 3 credits

Instruction and Examination

Instruction includes lectures, group exercises, group discussions, seminars and calculation exercises. Attendance is compulsory for group exercises, group discussions and seminars. The lectures highlight fundamental aspects of population genetics, link analysis, human genome variation and genetic mechanisms behind diseases. The group discussions deal with the ethical issues associated with genetic information. Furthermore, diseases will be studied from the perspective of population, family, individual and molecular genetics in a series of seminars during the course. Genetic databases will be consulted for a major group project, which is to be presented to the whole group of students.

For a pass on the course, students must have actively attended the group exercises, group discussions and seminars, presented a group project and achieved a pass on the written exam. Active participation and a passed group project correspond to 3 credits. The course is concluded with a written exam corresponding to 4 credits and consisting of questions requiring long, essay-like answers and calculation tasks.

Grades

One of the grades Pass or Fail is awarded.

Admission Requirements

To be admitted to the course students must have passed at least 120 credits in science subjects, of which at least 5 credits must be in biostatistics and 15 credits in one of the fields of pathobiology, molecular medicine or toxicology, or, alternatively, at least 15 credits in physiology and 3 credits in basic genetics.

Literature

Recommended literature is Human Molecular Genetics 4, Strachan and Read.

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Further Information

The course partly replaces the module on clinical genetics in the previous course BIMM14 Laboratory medicine, clinical chemistry and clinical genetics.