

399672 Biology for Methodological Scientists: Module III: Medical Genetics (15.1.-26.2.2008)

Course description

The aim of this module is to learn basic aspects of molecular medicine, gene mapping and functional study methods applied on the study of human diseases. Practical exercise on genetic analysis programs and databases for medical genetics are included, as well as workshops with student presentations on selected human diseases and related genetic research publications.

The course is restricted to 30 students. The selection of the students, if needed, is performed based on a) their enrollment in MBI programme b) the stage of their studies. For further information, please contact the coordinators.

Course registration deadline 7.1.

Student workshop

Each student is expected to give a 20-30 min PowerPoint presentation on a human genetic disease of their choice and introduce a genetic publication on the disease which will be discussed in the group. Topics and publications will be selected in the beginning of the module together with coordinators.

Suggested further reading (not required to pass the course)

Griffiths, Gelbart, Lewontin, Miller: Modern Genetic Analysis
Mueller R, Young I: Emery's Elements of Medical Genetics
Strachan T, Read A: Human Molecular Genetics
Haines J, Pericak-Vance M: Genetic Analysis of Complex Disease

Credits

2 credits (opintopistettä). Successful passing of the course requires participation to at least 6 lectures, passing the course examination and giving a student presentation in the workshop.

Pre-requisites for the course

Griffiths, Gelbart, Lewontin, Miller: Modern Genetic Analysis, Chapters 1-4, 9, 14-16, 2nd edition, 2002 (Module I book exam) or equivalent basic level of knowledge.

Further information

For further information, please contact course coordinators Päivi Saavalainen, Elisabet Einarsdottir or Lotta Koskinen (firstname.lastname@helsinki.fi)

Schedule

Lectures will be held in Biomedicum Meeting room 8-9, P-floor at 9:15-11:00 unless otherwise noted.

Tue 15.1. 9-11 meeting room 8-9, P-level

Basics of genes, genetics and molecular biology (Elisabet Einarsdottir)

Wed 16.1. 9-11 meeting room 1, P-level (**note the changed place**)

Genes in populations and pedigrees (Elisabet Einarsdottir)

Tue 22.1. 9-11 meeting room 8-9, P-level

DNA variation and genotyping methods (Päivi Saavalainen)

Wed 23.1. 9-11 meeting room 8-9, P-level

Linkage disequilibrium, haplotypes and genetic mapping of Mendelian disorders (Päivi Saavalainen)

Tue 29.1. 9-11 meeting room 8-9, P-level

Genetic mapping of complex diseases (Elisabet Einarsdottir)

Mon 4.2. 9-12 meeting room 8-9, P-level (**note the changed time**)

Complex disease examples:

Asthma and dyslexia (Juha Kere)

Celiac disease (Päivi Saavalainen)

Cellular and molecular methods for functional studies of genes (Aija Kyttälä)

Tue 5.2. 10-12 Seminar room 3, P-level (**note the changed time and place**)

Ethics in research (Pekka Louhiala)

Wed 6.2. 9-11 meeting room 8-9, P-level

Animal models in genetic studies (Iiris Hovatta)

Tutorials for the student workshop

Tue 12.2. 9-11 computer class, P-level

Genetic databases (Päivi Saavalainen, Elisabet Einarsdottir, Lotta Koskinen)

Wed 13.2. 9-11 computer class, P-level

Genetic linkage and association analysis (Päivi Saavalainen, Elisabet Einarsdottir, Lotta Koskinen)

Tue 19.2. 9-11 meeting room 8-9, P-level

Student workshop

Wed 20.2. 9-11 meeting room 8-9, P-level

Student workshop

Tue 26.2. 9-11 meeting room 8-9, P-level

Examination