DEPARTMENT OF MEDICINE, HUDDINGE

H7F5633, Bioinformatics Analysis and Visualisation of Medical Genomics Data, 3 credits (hec)

Bioinformatisk analys och visualisering av medicinska genomikdata, 3 högskolepoäng

Third-cycle level / Forskarnivå

Approval

This syllabus was approved by the The Committee for Doctoral Education on 2024-02-14, and is valid from autumn semester 2024.

Responsible department

Department of Medicine, Huddinge, Faculty of Medicine

Prerequisite courses, or equivalent

Intermediate R skills corresponding to course H7F6003 or equivalent.

Purpose & Intended learning outcomes

Purpose

To increase the understanding of the basic principles of bioinformatics and to gain practical skills in bioinformatics analysis of genomic sequencing data.

Intended learning outcomes

After the completed course, the participants will be able to understand the principles and perform basic bioinformatics analysis of genomics sequencing data. The participants will be able to plan experimental designs and to critically evaluate the appropriateness of the different sequencing based omics methods and technologies for genome-wide gene regulation studies.

Course content

Principles of gene regulation in non-disease cases and dysregulation in diseases at individual locus level as well as on genome-wide level. Principles of sequencing based genomics

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technologies and corresponding bioinformatics data analysis. Concrete bioinformatics data analysis by the students of selected published projects.

Forms of teaching and learning

The course consists of preparatory work, lectures, discussion, seminars and hands-on bioinformatics analysis.

Language of instruction

The course is given in English

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

The preparation is done in the first course week without the need to be present on-site. Week 2 consists of tasks, lectures, discussions, seminars and hands-on practicals. Both parts are compulsory. Absence has to be compensated for according to the instructions from the course leader.

Forms of assessment

The students will be examined for all learning outcomes by their performance in (a) submitted replies to tasks given for course week 1, (b) discussions and quizzes during the course week 2, and (c) individual presentations at the last course day of their bioinformatics analysis results conducted during course week 2.

Course literature

Recent articles and websites.

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