



DEPARTMENT OF ENVIRONMENTAL MEDICINE

C6F3132 Cardiovascular Epidemiology, 1.5 credits (hec)

Kardiovaskulär epidemiologi, 1,5 högskolepoäng

Third-cycle level / Forskarnivå

Approval

This syllabus is approved by the The Committee for Doctoral Education on 2023-11-27, and is valid from Spring semester 2024.

Responsible department

Department of Environmental Medicine, Faculty of Medicine

Prerequisite courses, or equivalent

No prerequisite courses, or equivalent, demanded for this course.

Purpose & Intended learning outcomes

Purpose

This course focuses on the application of epidemiological study designs to understand and evaluate risk factors for common cardiovascular diseases.

Intended learning outcomes

Students having successfully completed this course should be able to:

- Explain the theoretical difference between risk factors and risk indicators for cardiovascular diseases;
- Explain potential mechanisms underlying the effect of risk factors in the atherosclerotic process;
- Discuss the differences among the different common epidemiological study designs used within the cardiovascular epidemiology research area;
- Interpret study results critically by considering the different sources of bias.

Course content

The course introduces basic epidemiological concepts and common epidemiological study

designs such as cohort studies, case-control studies, clinical trials and genetic association studies. During the course choice of epidemiological study design as well as potential sources of bias will be discussed using practical examples.

During the course special attention will be given to discuss:

- established and emerging cardiovascular risk factors;
- potential mechanisms underlying atherosclerosis and its main clinical outcomes of interest in the field of cardiovascular epidemiology;
- theories and concepts related to common epidemiological study designs: case control, cohort and clinical trials;
- the emerging role of biomarkers in cardiovascular research;
- the role of genetic- and environmental interactions.

No specific background knowledge is formally required to be eligible for the course.

However, before the course begins students are recommended to do a self-assessment regarding some important basic concepts (within epidemiology and cardiology). This test will be distributed to course participants about two weeks before the beginning of the course. The students may use some of the literature indicated in the course literature to fill in gaps of knowledge if needed. On the first day of the course we will go through the test and briefly discuss together the questions and the answers.

Forms of teaching and learning

Apart from lectures, the course will include group work and seminars in order to facilitate learning. Group tasks will include critical discussions of research articles in order for students to practice their skills in the evaluation of study designs and results. Individually, but also in pairs, students will work on exercise questions.

Language of instruction

The course is given in English.

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

Individual written examination, group work on day 2 and on day 4 of the course.

Forms of assessment

Learning outcomes will be assessed using 1) a short individual written examination, and 2) oral presentations of group work.

Course literature

Suggested course literature

Rothman K J: Epidemiology: An introduction. Oxford University Press 2002.

Chapter 2: What is causation? Page 8

Chapter 3: Measuring Disease Occurrence and Causal Effects. Page 24

Chapter 4: Types of Epidemiological Studies. Page 57

Chapter 5: Biases in Study Design. Page 94

Libby P, Bonow R, Mann D, Zipes D. Braunwald's Heart Disease. 8th Edition 2010.

Chapter 1: Global Burden of Cardiovascular Disease. Page 1

Chapter 38: The Vascular Biology of Atherosclerosis. Page 985

Compendium on Basic principles in Epidemiology

Compendium on Basic principles of Cardiovascular Biology