DEPARTMENT OF MEDICINE, SOLNA

K2F5310, Diabetes and Cardiovascular Disease, 1.5 credits (hec)

Diabetes och hjärtkärlsjukdom, 1,5 högskolepoäng

Third-cycle level / Forskarnivå

Approval

This syllabus was approved by the The Committee for Doctoral Education on 2023-12-07, and was last revised on 2025-04-03. The revised course syllabus is valid from autumn semester 2025.

Responsible department

Department of Medicine, Solna, Faculty of Medicine

Prerequisite courses, or equivalent

Undergraduate study in medicine or biomedicine

Purpose & Intended learning outcomes

Purpose

The course has a clinical orientation and aims to provide an overview of diabetes epidemiology, pathophysiology and treatment options in a cardiovascular perspective in a clinical framework. This includes the management of diabetes in the broad spectrum of cardiovascular disease as well as understanding and interpretation of large cardiovascular outcome trials on glucose-lowering agents.

Intended learning outcomes

The participants should, after the course, be able to:
1. show a good insight on disease epidemiology and the pathophysiological mechanisms linking diabetes to cardiovascular disease
2. describe how to appropriately screen for and diagnose diabetes and pre-diabetes
3. evaluate cardiovascular risk stratification of patients with diabetes
4. explain mechanisms behind complications related to both cardiac and extra-cardiac manifestations of diabetes

5. describe preventive lifestyle measures for diabetes and cardiovascular disease
6. explain and interpret results of recent, large cardiovascular outcome trials on glucose-lowering drugs
7. describe some of the gaps in knowledge in the relation between diabetes and cardiovascular disease
8. describe the fundamental steps in order to design different types of clinical trials in cardiovascular disease and diabetes

Course content

Lectures/Seminars on the following topics:
- Epidemiological aspects of the combination of diabetes and cardiovascular disease
- Screening of diabetes and pre-diabetes in different populations
- Cardiovascular risk assessment in people with glucose perturbations
- Mechanisms of cardiovascular disease in diabetes: biomarkers, epigenetics, insulin resistance, inflammation and microvascular disease
- Multifactorial management of people with diabetes and cardiovascular disease through lifestyle interventions and pharmacological treatment
- Cardiovascular outcome trials on glucose-lowering agents and their effects on atherosclerotic cardiovascular disease, heart failure and kidney disease
- Proposed mechanisms of cardioprotection by means of cardioprotective glucose-lowering agents
- Patient-centered care and management of complications
- How to design clinical trials in cardiovascular disease and diabetes

Forms of teaching and learning

Lectures/Seminars with international lecturers and guideline experts
Debates about clinical issues
Clinical case presentations and discussion with interactive polls
Group work
Presentation and discussion of assigned group work

Language of instruction

The course is given in English

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

The course participants should attend no less than 75% of the scheduled contents of the course. The participants must actively involve in the preparation of group work and attend the sections of their respective group work and presentation/discussion.
Absence from these sections cannot be compensated for.

Forms of assessment

In collaboration with other course participants, to prepare and present a written synopsis of a study protocol on topics given by the faculty members.
Multiple choice questions and quizzes will be integrated in the different sessions of the course.
To pass the course the course participant must be able to show that all intended learning outcomes of the course are achieved.

Course literature

Recommended reading: 2019 ESC Guidelines on diabetes, pre-diabetes, and cardiovascular diseases developed in collaboration with the EASD.
Cosentino F et al.; ESC Scientific Document Group. Eur Heart J. 2020 Jan 7;41(2):255-323. doi: 10.1093/eurheartj/ehz486.

Mandatory reading: Marx et al. 2023 ESC Guidelines for the management of cardiovascular disease in patients with diabetes: Developed by the task force on the management of cardiovascular disease in patients with diabetes of the European Society of Cardiology (ESC), European Heart Journal, Volume 44, Issue 39, 14 October 2023, Pages 4043–4140, https://doi.org/10.1093/eurheartj/ehad192

The organizers will provide course participants with electronic handouts/teaching materials from all lectures.