



DEPARTMENT OF MOLECULAR MEDICINE AND SURGERY

K1F3121, Experimental Techniques in Study of Metabolic and Endocrine Disorders, 1.5 credits (hec)

Experimentella tekniker vid studie av metabola och endokrina tillstånd, 1,5 högskolepoäng

Third-cycle level / Forskarnivå

Approval

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

Responsible department

Department of Molecular Medicine and Surgery, Faculty of Medicine

Prerequisite courses, or equivalent

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

Purpose & Intended learning outcomes

Purpose

This course will enable the doctoral student to acquire the necessary knowledge to address experimentally key points of metabolic characterization of experimental models in diabetes research.

Intended learning outcomes

After the course the students will be able i) to measure glucose transport in isolated rodent skeletal muscle; ii) to measure lipolysis in isolated adipocytes; iii) to dissect out mouse pancreatic islets and measure the insulin release; iv) to judge and analyze obtained data.

The students will also be able to describe the possibilities and limitations of the above techniques.

Course content

The course is laboratory based, aiming to give all participants hands on experience with isolation of pancreatic islets, skeletal muscle and adipose tissue. Techniques for measurement of glucose transport in isolated rodent skeletal muscle, of lipolysis in isolated adipocytes, and for studying insulin release from pancreatic islets will be covered. Theoretical and practical considerations will be presented and discussed.

Forms of teaching and learning

The course meets for five days full time, including three full day laboratory practical sessions. The first day will consist of several lectures to give a background to the metabolic questions which will be addressed in the practical part of the course. Our aim is to provide the student with a hands on experience of each technique covered. In order to achieve this, for the laboratory work the course participants will be subdivided into smaller groups.

Language of instruction

The course is given in English

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

All three laboratory tasks are compulsory; as an exception, a written task could be given to a participant to compensate absence.

Forms of assessment

Summative assessment of the laboratory notebook notes from each student, of a short oral presentation of the project work, of the discussions with the course leader and the other students, and of a short summary of the project work by each group.

Course literature

Scientific publications covering the techniques covered will be distributed at the start of the course.