



Faculty of Medicine

VMFN25, Cancer and Stem Cell Biology, Stem Cell Track, 30 credits

Cancer- och stamcellsbiologi, inriktning Stamcellsbiologi, 30 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Committee for Biomedical, Medical and Public Health Education on 2015-05-27 to be valid from 2015-06-27, spring semester 2016.

General Information

Freestanding course. The course is intended as a preparation for third cycle studies in relevant fields at faculties of medicine, science or engineering and for students with a first or second cycle degree in science, biomedicine or medicine.

The course is delivered full-time.

Language of instruction: English

Main field of studies

Biomedicine

Depth of study relative to the degree requirements

A1N, Second cycle, has only first-cycle course/s as entry requirements

Learning outcomes

The aim of the course is to enable students to acquire specialised theoretical and practical knowledge of stem cell biology, from basic stem cell research to treatment involving stem cells. A further aim of the course is to provide students with practical laboratory experience through a project on stem cells.

Knowledge and understanding

On completion of the course, the students shall be able to

- describe different types of stem cells and their specific properties

- compare biological properties of normal and neoplastic stem cells and, on this basis, discuss the concepts scientifically from clinical and biological perspectives
- account for the most common experimental and bio-informatic methods of present-day stem cell research, including animal models, and explain the theories behind the methods in sufficient detail to allow the strengths, weaknesses and appropriate applications to emerge
- provide examples of current issues within stem cell research, explain the implications of these issues from clinical and ethical perspectives, and describe the general scientific history of the issues

Competence and skills

On completion of the course, the students shall be able to

- independently formulate a current issue in the area of stem cell biology, select relevant methods to address the issue and, based on this, write a project plan including relevant background information, an appropriate aim, and a realistic work plan,
- employ laboratory methods of relevance to the execution of a project related to stem cells
- independently document research results from a project related to stem cells
- compile, critically analyse and assess research results
- write a report about their own project in accordance with the instructions of a scientific journal, at least including relevant background information, research issue, description of the material and methods, result, and a discussion of their findings in relation to previous research
- identify and analyse the ethical issues of a research project related to stem cells and determine if it requires ethical vetting

Judgement and approach

On completion of the course, the students shall be able to

- argue for the need of documentation of experimental activities
- assess scientific information within the stem cell field
- assess ethical aspects of a research project within the stem cell field

Course content

The course starts with 2 weeks of preparation of the project work and lectures and seminars led by experienced researchers and physicians. The students select a project from a set of available projects and write a project plan that is to be approved by the planning group. This is followed by the laboratory component of the course which is combined with seminars and group work. The aim of the group work is to continually follow up the project work with regard to supervision, data collection and practical research methodology. The students are required to actively prepare the seminars/group work through reading and review of hand-outs and/or texts produced by the students for submission and assessment, followed by individual oral and written feedback.

Course design

The teaching consists of lectures, seminars, group work, reading assignments, presentations related to current research fields and project work that includes laboratory components.

All timetabled activities except lectures are compulsory.

Assessment

The assessment is based on four components: two written exams, a course portfolio and a project that is to be presented in speech and writing.

The written exams are used to assess the learning outcomes of knowledge and understanding.

The course portfolio is used to assess the learning outcomes of competence and skills and judgement and approach through active participation in group work, oral presentations and written assignments on ethical aspects related to the project.

Examinations:

- Written exam (4.5 credits)
- Project plan (2 credits)
- Course portfolio (7.5 credits)
- Written and oral presentation of project work (16 credits)

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass.

Entry requirements

To be admitted to the course, students must have a Bachelor's degree (180 credits) in a field of science, biomedicine, medicine or the equivalent. International students are exempted from the general entry requirement of proficiency in Swedish but all students are required to have proficiency in English corresponding to English 6 from Swedish upper secondary school.

Further information

Required reading: Journal articles presenting original research or surveys. Required reading is presented prior to the start of the course and throughout the course.

Subcourses in VMFN25, Cancer and Stem Cell Biology, Stem Cell Track

Applies from V16

- 1501 Written examination, 4,5 hp
Grading scale: Fail, Pass
- 1502 Project plan, 2,0 hp
Grading scale: Fail, Pass
- 1503 Course Portfolio, 7,5 hp
Grading scale: Fail, Pass
- 1504 Written and oral report on project, 16,0 hp
Grading scale: Fail, Pass