Tumour Biology

Programme course

7.5 credits

Tumörbiologi

8MEA12

Valid from: 2016 Autumn semester

Determined by
The Board for First and Second Cycle Programmes at the Faculty of Health Sciences

Date determined
2012-12-07

Revision date
2014-10-06

Main field of study
Medical Biology

Course level
Second cycle

Advancement level
A1X

Course offered for
- Master's Programme in Experimental and Medical Biosciences

Entry requirements
The special eligibility requirement is the possession of the Degree of Bachelor of Sciences in a major subject area with relevance for biomedical sciences. This could include previous studies at faculties of medicine, technology/natural sciences, odontology or veterinary medicine. A major part of courses included in the Bachelor degree should be in subjects such as biochemistry, cell biology, molecular biology, genetics, gene technology, microbiology, physiology, immunology, histology, anatomy, and pathology.
Applicants must also have documented skills in English corresponding to the level of English in Swedish upper secondary education (English B). For applicants who have not studied in Swedish upper secondary education, skills in English are normally attested to by means of an international language test.

Intended learning outcomes

The purpose of the course is for the students to obtain advanced knowledge about tumour development in general including the genetic basis of human cancer. Furthermore, the course will give an overview of cancer by site taking into account different clinical and biological aspects as well as the occurrence of specific gene alterations. The course is elective semester one or three in the Master's Programme in Experimental and Medical Biosciences.

By the end of the course the students will be able to:
Knowledge and understanding

- Analyze and discuss specific capabilities of cancer cells and how the biological/genetic alterations occur for normal cell to tumor cell
- Integrate knowledge in tumour biology in different types of malignancies in relation to environmental factors, gender, age, hormonal influence, and molecular alterations

Competence and skills

- Design an experiment in order to analyse how the alterations in cell signalling may interfere with the cellular response to damage

Judgement and approach

- Analyze and assess experimental results in tumour biology
- Evaluate and discuss new hypotheses in the field of cancer research

Course content

- Organ specific cancer: different spectra of malignancies in relation to race, gender, age, and molecular biology
- Mechanisms of tumour development, invasion and metastasis
- Concepts in cancer genetics including oncogene, tumour suppressor gene, mismatched repaired genes, and apoptosis related genes
- Control of the cell cycle and cancer
- Angiogenesis and cancer
- Hormones and cancer
- Stem cells and cancer
- Tumour immunology
- The principle of tumour diagnosis and treatment

Teaching and working methods

General: Linköping University Master's Programme in Experimental and Medical Biosciences applies student-centered learning among which Problem Based Learning (PBL) is one pedagogical philosophy and method. To prepare the students for future employment, practical and experimental work in laboratory settings are important parts of the programme in courses as well as in individual projects.
Specific: In this course lectures, tutorial groups, seminars, and laboratory work are used.

Examination

Compulsory items
Active participation in the compulsory parts is necessary to pass the course, and assessment of them is carried out continuously. Compulsory parts in this course are: tutorial groups, laboratory work, and seminars.

Examination
Individual written examination.
Individual written report of laboratory work.
Scope of re-examination
The extent of a re–examination shall be similar to the regular examination.

Change of examiners
Students who have failed the course or part of the course twice are entitled to request another examiner for the following examination occasion, unless specific reasons are present.

Registration for examination
The procedure for registration should be stated prior to the commencement of each course. In other respects, regulations concerning examination and examiners are applied in accordance with Linköping University policy.

Grades

Three-grade scale, U, G, VG

Other information

The planning and implementation of a course must take its starting point in the wording of the course plan. The course evaluation included in each course must therefore take up the question how well the course agrees will the course plan.
The course is carried out in such a way that both men's and women's experience and knowledge is made visible and developed.
If the course is withdrawn, or is subject to major changes, examinations according to this course plan are normally offered on a total of three occasions within one year, one of them in close connection to the first examination.

Department

Institutionen för klinisk och experimentell medicin