Project course: Drug Development

Programme course

6.0 credits

Projektkurs: Läkemedelsutveckling

8BKG47

Valid from: 2020 Spring semester

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

Date determined
2018-09-04

Main field of study
Medical Biology

Course level
First cycle

Advancement level
G2X

Course offered for
- Bachelor´s Programme in Experimental and Industrial Biomedicine
- Experimental and Industrial Biomedicine

Entry requirements
General entry requirements for undergraduate studies
and
Chemistry, Mathematics and Biology corresponding to the level in Swedish upper secondary education (Chemistry 2, Mathematic 4 and Biology 2)
and
English corresponding to the level of English in Swedish upper secondary education (English 6)
Exemption from Swedish 3

Intended learning outcomes

Knowledge and understanding

Having completed the course, the student is expected to be able to:

- Describe the principles of how low molecular weight substances that increase or decrease the activity of target molecules (agonists/antagonists) can be identified through screening
- Describe the principles of *in vitro* high-throughput screening and cell-based screening
- Demonstrate a basic understanding of desirable properties in small molecules for further development
- Describe the principles of protein production in prokaryote and eukaryote systems for further therapeutic use

Skills and abilities

On completion of the course, the student shall be able to:

- Apply laboratory methods of drug screening
- Critically appraise the principles of assay development (sensitivity and specificity)
- Compile, analyse and present results orally and in writing

Judgement ability and approach

On completion of the course, the student shall be able to:

- Critically appraise and evaluate knowledge within the field of drug development from an academic, ethical and social perspective.

Course content

The course is a basic course in drug development. It includes practical elements in which collections of small molecules are screened to determine pharmacological properties on cell activity. Manufacturing of recombinant proteins is used to illustrate the principles of the production of protein drugs. The course also aims to create an understanding of the principles of lead optimisation within drug development.

Teaching and working methods

At the Faculty of Medicine and Health Sciences student centred and problem based learning make up the foundation of the teaching. The student takes responsibility for, studies and researches current content of the courses and study programme. The methods of the course work challenge the students to independently formulate questions for learning, to seek knowledge and in dialogue with others judge and evaluate achieved knowledge. Students in the Bachelor's programme in Experimental and Industrial Biomedicine work together in groups based on reality based and course related biomedical issues to apply their knowledges, develop their own learning, contribute to the fellow students' learning and to practice cooperation. Throughout the study programme theory is integrated with practical modules. The course methods and integration modules stimulates and support the student's ability to apply their knowledge and professional competence.

Working methods used in this course are lectures, seminars, laboratory sessions and work in project groups.

Examination

The form of examination is an written project report and an oral presentation carried out in groups but assessed individually. In addition, active and approved participation in compulsory course elements is required in order to pass the course. Compulsory course elements include project work, seminars, reports and written assignments.

The written project report and the oral presentation are resource-demanding forms of examination and are limited to five attempts.

Point of time for retake examination must normally be announced no later than the time of the regular examination. The extent of the retake examination must be the same as the regular examination.

CHANGE OF EXAMINER

A student who has obtained a failing grade twice for a course or a part of a course is, after request, entitled to be appointed another examiner, unless there are special reasons to the contrary.

APPLICATION FOR EXAMINATION / WRITTEN EXAM

Instructions on how to apply for examinations are given prior to the beginning of each course.

Grades

Two-grade scale, U, G

Course literature

A literature reference list must be set no later than two months before the course begins by the programme committee for the Bachelor's Programme in Experimental and Industrial Biomedicine. There is no compulsory course literature.

Other information

Planning and implementation of the course is to be based on the wordings in the course syllabus. A course evaluation is compulsory for each course and should include how the course is in agreement with the course syllabus. The course coordinator will analyse the course evaluation and propose appropriate development of the course. The analysis and proposal will be returned to the students, the Director of Studies, and as needed to the Education Board, if related to general development and improvement.

The course is carried out in such a way that knowledge of gender, gender identity/expression, ethnicity, religion or other belief system, disability, sexual orientation and age is addressed, highlighted and communicated as part of the programme.

If the course is cancelled or undergoes major changes, examination is normally offered under this course syllabus, at a total of three occasions, within/in connection to the two following semesters, of which one in close proximity to the first examination.

Department

Medicinska fakulteten