



# KF2440 Biomedical Materials, Project Course 7.5 credits

Projekt, Biomedicinska material

This is a translation of the Swedish, legally binding, course syllabus.

## Establishment

Course syllabus for KF2440 valid from Autumn 2008

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

Biotechnology, Materials Science, Materials Science and Engineering

## Specific prerequisites

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

After the course the student should be able to

- Develop a new biomedical materials project based on the gathered knowledge.
- Identify appropriate polymers that can be refined to potential implants
- Use scientific search engines to identify robust strategies.
- Apply chemical reactions if necessary to achieve desired biomedical material.
- Choose appropriate characterization techniques to analyze important parameters for the biomaterial.
- Write a professional report that deals with the fabrication of an implant and its commercialization a well written business plan.
- Present the results orally with both scientific and commercial aspects.

## Course contents

The purpose of this course is for the student to use her/his collected knowledge in a project based course to simulate company research projects. The course covers the interfaces between Materials Science, Biomedicine, and Business Development.

Students will be divided into groups of two or three people and thereafter be given the option of choosing a specific biomedical material to fabricate and assemble into an implant, for instance artificial cornea or biopolymers for tissue engineering. The students will learn to do appropriate literature search, identify the most promising strategy and write a small initial report that comprise important variables within the project ahead. The main part of the course will be dedicated to the construction and analysis of the biomaterial. All students will thoroughly take notes on their advancements in the laboratory. Finally, the material will be assembled into potential implants e.g. hydrogel etc.. The students will parallel to the practical work analyze the commercial aspects of the implant and compare it to already commercial alternatives. A final scientific report of minimum 10 pages will be submitted by the students and an oral presentation of the results will be a requirement. Assessment on practical work, writing competence and oral presentation will give students the motivation and feedback required for future research project.

## Course literature

Scientific and business search engines, relevant books.

## Examination

- SEM1 - Presentation, Orally, 1.0 credits, grading scale: P, F
- PRO1 - Project, Research Report, 1.5 credits, grading scale: P, F
- LIT1 - Literature Study, 1.0 credits, grading scale: P, F
- LAB1 - Laboratory work, 4.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Literature study, LIT1 1.0 c - Grading scale: PFLaboratory work, LAB1 4.0 c - Grading scale: PFProject, research report, PRO1 1.5 c - Grading scale: PFPresentation, orally, SEM11 1.0 c - Grading scale: PF

## **Ethical approach**

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.