

Syllabus

for course at advanced level

Bioceramics
Biokeramer

7.5 Higher Education
Credits
7.5 ECTS credits

Course code:	KZ8002
Valid from:	Spring 2010
Date of approval:	2009-12-21
Department	Department of Materials and Environmental Chemistry
Main field:	Chemistry
Specialisation:	AXX - Second cycle, in-depth level of the course cannot be classified

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University.

Prerequisites and special admittance requirements

Course structure

Examination code	Name	Higher Education Credits
MOM1	Theory	4
MOM2	Laboratory Exercises	3.5

Course content

a. Ceramics are widely and ubiquitously used today. One important application is biomaterials. Such bioceramics are used to repair, replace and reinforce damaged functional parts of the human body, e.g. teeth and hip joints. In order to meet future needs, we need an ever faster development of such materials and deeper understanding of the relationship between the physical properties and the structure of a material and its fundamental chemistry.

This course, i.e., surveys basic knowledge about processing, structure and properties of ceramics, focusing on bioceramics. The course also treats interactions between the human body and the bioceramic implant. The experimental part of the course consists of a project, to be presented both as a written report and an oral account at the end of the course.

b. The course includes the following two elements:

1. Theory 4 higher education credits.
2. Laboratory exercises 3.5 higher education credits.

Learning outcomes

It is expected that the student after taking the course will be able to:

- Demonstrate a good grasp of ceramic manufacturing basics.
- Demonstrate a good grasp of basic structure–property relationships for ceramics.
- Demonstrate theoretical and practical knowledge of basic characterization methods for bulk ceramics.
- Describe the principles for optimizing the interaction of bioceramics with the body.
- Demonstrate a grasp of the principles and applications of biomineralization.

Education

The education consists of lectures, group work, computational training and laboratory exercises.

Participation in the practical laboratory work and group education associated with this is compulsory. After consultation with the relevant teacher, an examiner may rule that a student is not obliged to participate in certain compulsory education, if there are special grounds for this.

Forms of examination

a. Measurement of knowledge takes place through:

- Written and/or oral examination

b. Grading is carried out according to a 7-point scale related to learning objectives:

A = Excellent, B = Very Good, C = Good, D = Satisfactory,

E = Sufficient Fx = Fail F = Fail.

c. Grading criteria for the course will be distributed at the start of the course.

d. A minimum grade of E is required to pass the course, together with:

- Completion of all practical laboratory work, followed by its presentation and award of a "Sufficient" grade

- Written and oral presentation of the project work

e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term "examination" here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

Interim

Students may request that the examination is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board.

Misc

The course is a component of the Master's programme in Materials Chemistry, and it can also be taken as an individual course.

Required reading

Course literature is decided by the departmental board and is described in an appendix to the syllabus.