

# Syllabus

for course at advanced level

**Radiation Biology  
Strålningsbiologi**

**15.0 Higher Education  
Credits  
15.0 ECTS credits**

<b>Course code:</b>	BL7016
<b>Valid from:</b>	Autumn 2007
<b>Date of approval:</b>	2006-09-27
<b>Department</b>	Department of Biology Education
<b>Subject</b>	Biology
<b>Specialisation:</b>	A1N - Second cycle, has only first-cycle course/s as entry requirements

## Decision

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

## Prerequisites and special admittance requirements

Admittance to the course requires knowledge equivalent to 120 credits in Science. (Three credits corresponds to approximately two weeks full-time studies). Swedish upper secondary school course English B or equivalent or one of the following tests. Cambridge CPE och CAE: Pass. IELTS : 6.0 (with no part of the test below 5.0). TOEFL (paper based): 550 (with minimum grade 4 on the written test part). TOEFL (computer based): 213. TOEFL (internet based): 79.

## Course structure

Examination code	Name	Higher Education Credits
7016	Radiation Biology	15

## Course content

The course includes the following elements: Radiation physics and chemistry. The dose concept and the use of radiation in medicine and technology. The organisation and function of the genome. DNA damage repair and response pathways. The effects of different radiation qualities for biological responses. Mechanisms behind radiation induced cell death, genetic effects and cancer. Principles of radiation protection for human beings and the environment. Risk analysis and perception. Mechanisms for exogenously and endogenously produced reactive oxygen species.

## Learning outcomes

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

- describe explain the effects of ionizing radiation on cells and the consequences both at the cell and organism level
- describe the different levels of protection against the harmful effects of ionizing radiation.
- describe the different forms of application in medicine and biology.
- explain the principles of risk evaluation and protection for human and environment.

## Education

The education consists of lectures, laboratory exercises, group discussions, study visits, project work and seminars

Participation in laboratory exercises, group discussions, project work, seminars and group education

associated with this is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher.

### **Forms of examination**

a. Examination for the course is in the following manner: 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:

- approved laboratory exercises
- approved written and oral presentations
- participation in all compulsory education

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.

### **Limitations**

The course can not be included in a degree together with the courses Experimental Radiation Biology 5 p (BI3920), Genomic Instability 5 p (BI3950), Genomic Instability and Experimental Radiation Biology 10 p (BI3940), Radiation Biology 10 p (BI3350), Toxicology 20 p (BI3960). or the equivalents.

### **Misc**

The course is a component of the Master's Programme in Biology and Molecular Life Sciences, 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.