Department of Biology Education

Stockholm University

Syllabus

for course at advanced level

DNA Damage: Signalling and Repair
DNA-skador: signalering och reparation

15.0 Higher Education Credits
15.0 ECTS credits

Course code:	BL8041
Valid from:	Autumn 2010
Date of approval:	2010-03-15
Department	Department of Biology Education
Main field:	Biology
Specialisation:	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 Cellular toxicology 15 credits. (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
8041	DNA Damage: Signalling and Repair	15

Course content

The course addresses the origin and repair of DNA damage from a biological viewpoint and describes effects and mechanisms of action of genotoxic compounds and the consequences of these effects on higher organisms, including humans.
The following areas will be addressed:
Basic concepts and history, different types of DNA damage, cell signalling and mechanisms of DNA repair, mutagenesis and cancer, and cellular models for evaluation of genotoxicity. Occurrence of genotoxic and carcinogenic agents, together with factors with a potential to modulate the effects of these agents in our ambient environment. Concepts and theories concerning risk factors and risk evaluation in the context of cancer incidence in human populations.

Learning outcomes

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

• describe the impact and effects of genotoxic compounds on different levels in an organism; the individual as a whole, different organs, cells of various types, organelles, and molecules.
• explain the effects on DNA to disease, mainly cancer.
• use methods based on analysis of mechanisms of DNA damage and repair to resolve questions connected to research in genetic toxicology.
• search, find and critically evaluate scientific literature on the topic.

Education

The education consists of lectures, laboratory exercises and seminars.
Participation in the laboratory exercises, 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 Genetic Toxicology 5 p (BI3930),Cellular and Genetic Toxicology 10 p (BI3900), Cellular and Genetic Toxicology 15 hp (BL7005) and Toxicology 20 p (BI3960) or the equivalents.

Misc

The course is a component of the Master's Programme in Toxicology 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.