



## DEPARTMENT OF CHEMISTRY AND MOLECULAR BIOLOGY

### **BIO905 Molecular Genetics, 15 credits**

Molekylär genetik, 15 högskolepoäng

*First Cycle*

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#### **Confirmation**

This course syllabus was confirmed by Faculty of Science on 2011-11-04 and was last revised on 2018-11-27 by Department of Chemistry and Molecular Biology to be valid from 2018-11-29, autumn semester of 2018.

*Field of education:* Science 100%

*Department:* Department of Chemistry and Molecular Biology

#### **Position in the educational system**

This is a basic course that can be part of the Bachelor's programme in Molecular Biology or Biology. The course is also offered as a single subject course.

#### *Main field of studies*

Biology

Molecular Biology

#### *Specialization*

G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

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#### **Entry requirements**

For admission to the course, completed course BIO900, 15 credits is required, or equivalent

#### **Learning outcomes**

Upon successful completion of the course, the student will be able to:

*Knowledge and understanding*

- have general knowledge of how our genome is organised and the molecular basis for transfer of genetic information
- be able to decide the genetic position of loci based on their segregation among offsprings
- understand relative complex mechanisms for gene regulation
- describe basic principles in developmental biology

#### *Competence and skills*

- have some knowledge and skills in molecular biological methods
- be able to with own words explain genetic concepts
- be able to use their new knowledge to solve basic genetic problems
- be able to define and use developmental biology terms
- read course books at high level and start to be able to read scientific publications

#### *Judgement and approach*

- be able to identify and discuss ethical issues on the basis of a genetic perspective
- have increased ability to evaluate the importance of the biological knowledge for the community development
- have increased ability to reflect on and separate between biological science and pseudoscience in the subject matter

### **Course content**

The course constitutes the second course in a basic block in Biology/Molecular Biology of 75 credits. The course treats genes and their role in heredity. We describe the molecular mechanisms for how the genetic information is stored and decoded as well as goes from one generation to the next. The structure and regulation of genes and genomes as well as how genetic changes can influence developmental biology, evolution and disease development will be discussed.

### **Form of teaching**

The course is based on lectures, laboratory sessions as well as group assignments. In the course is also generic skills in communication training, literature search and ethics included.

*Language of instruction:* Swedish and English

### **Assessment**

Examination consist of two written examinations. Compulsory components in the course are generic skills (communication training, literature search and ethics) as well as

laboratory sessions and other exercises in groups as shown in the course schedule. To pass the course, approved laboratory reports are required. Number occasions for compulsory components is limited. For students who have not passed at regular examination, an additional examination sessions are offered. Possibility to supplement failed compulsory parts can be given, at the earliest, at the next course date and only in case of a vacancy.

A student has the right to change examiner, if it is possible in practice, after having failed the same examination twice. The application shall be sent to the board of the department and has to be in writing.

### **Grades**

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

For Pass (G) on a course module requires at least 60% of the total score on the exam and Pass with distinction (VG) requires 85%. For Pass the whole course also required approved result on all other examination parts. Final grade Pass with distinction on the whole course is given when at least 80 % of the total score on one exam and Pass with distinction on the other.

### **Course evaluation**

A written course evaluation is made at the end of the course that is used as a guidance to course development.

### **Additional information**

This course replaces Molecular Biology/Genetics/Evolution, 15 credits, in BIO150 and the first part, 7.5 credits in BIO105. BIO905 and Molecular Biology/Genetics/Evolution, 15 credits, in BIO150 as well as the first part, 7.5 credits in BIO105 can not at the same time be included in a degree there one is based on the other.