



**Karolinska  
Institutet**

Course syllabus for

# **Molecular genetics, 10 credits**

Molekylär genetik, 10 hp

This course syllabus is valid from spring 2010.

Course code	1BI014
Course name	Molecular genetics
Credits	10 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Biomedicine
Level	G2 - First cycle 2
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Biosciences and Nutrition
Decided by	Programnämnden för biomedicinprogrammen
Decision date	2009-10-13
Revised by	Programme committee for study programmes in biomedicine
Last revision	2024-06-05
Course syllabus valid from	Spring 2010

## **Specific entry requirements**

At least grade E at all courses on terms 1-3 and at least grade E on courses in Tissue Biology and Biostatistics, parts 1-3 on the course Pharmacology with Toxicology, part 1 on the course in Neuroscience, parts 1 and 2 on the course Molecular Oncology and parts 1 to 3 on the course Molecular Medicine.

## **Objectives**

After the course the student should:

- \* show a thorough knowledge of the human genome and its structure and expression
- \* be able to explain methods used in molecular genetic research
- \* be able to integrate acquired knowledge from this course and courses earlier in the program, to specify appropriate methods and develop a project plan to answer basic genetic issues

## **Content**

The course presents methods and experimental tools used in modern molecular genetics with emphasis on man. The theoretical grounds of methods and their applications in research will be discussed. The course also deals with the genome structure, stability, organization, and its expression. Concepts in the

course include among others model systems, genetics behind complex diseases, identification of disease genes and different types of mutations.

The course is divided into three parts that run parallel during the course, presented and tied together by means of lectures and examined individually. One part involves a minor task that students solve individually and present in groups. A second part includes research articles that are presented and discussed in seminar environment at different occasions during the course. The third part includes a major individual project in terms of writing and orally presenting a research plan related to one of the subjects of the course. The student will also oppose to the research plan of a fellow student.

## Teaching methods

Teaching consists of lectures, seminars, group-based teaching and project work. Project works are in-depth studies with an emphasis on individual work and literature studies. This is a course where the learning process is encouraged through information gathering by the student through active work. Computers are used for writing reports and for presentations.

## Examination

The first part is a minor project that is examined through active participation in group presentation and graded with Fail or Pass. Article seminars in the second part are examined through active participation and graded with Fail or Pass. The third part, the research plan, which represents the major individual project work, is examined based on the oral project presentation, the written research plan and active opposition on a fellow student's project plan. The third part is graded with Fail / Pass / Pass with distinction.

The grade for the entire course is based on the result from the major individual project work.

### Compulsory attendance:

Attendance is compulsory at presentations of project works and seminars with discussion of research articles. The course leader decides if and how absence from compulsory components can be compensated. The component is not registered in LADOK unless the student has passed the compulsory component or compensated according to the course leaders directions.

### Limitation of number of test opportunities:

A student who does not pass the examination on the first occasion is offered a maximum of five additional opportunities to sit the examination. If a student has not passed the examination after a total of four attempts then it is recommended that the student retake the whole course at the next opportunity. Following this the student is permitted to sit the examination on another two occasions. A student who fails the examination on six occasions is not permitted to sit the examination again or to retake the course.

Participation in an examination is defined as an occasion on which a student attends an examination, even if the student submits a blank examination paper. If a student has registered to sit an examination, but does not attend the examination, this is not defined as participation in the examination.

## Transitional provisions

The course is cancelled.

## Other directives

The course language is Swedish and/or English.

Course evaluation will be conducted in accordance with the guidelines established by the Board of Education.

## Literature and other teaching aids

*Strachan, Tom; Read, Andrew P.*

### **Human molecular genetics 3**

3. ed. : London : Garland Science, cop. 2004 - xxv, 674 s.

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