



DEPARTMENT OF CHEMISTRY AND MOLECULAR BIOLOGY

BIO545 Molecular Biology, 15 credits

Molekylärbiologi, 15 högskolepoäng

Second Cycle

Confirmation

This course syllabus was confirmed by Department of Chemistry and Molecular Biology on 2014-06-11 and was last revised on 2022-05-05 to be valid from 2022-05-12, autumn semester of 2022.

Field of education: Science 100%

Department: Department of Chemistry and Molecular Biology

Position in the educational system

This is a course in Molecular Biology at advanced level. The course can be included as a part of a Bachelor degree in Molecular Biology and Biology, or as part of a Master's degree in Molecular Biology, Biology or Genomics and Systems Biology. The course is also offered as a separate course.

Main field of studies

Biology

Molecular Biology with Specialization in
Genomics and Systems Biology

Molecular Biology

Specialization

A1N, Second cycle, has only first-cycle
course/s as entry requirements

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Entry requirements

Students must have successfully completed basic courses in biology comprising 60 credits in the subject areas of cell biology, molecular genetics, evolution, botanical and zoological physiology, ecology and biodiversity and systematics, or equivalent.

English proficiency is required to the level of English 6/English Course B from Swedish Upper Secondary School, or be certified by an internationally recognized test, for example TOEFL, IELTS. In addition a completed depth course of 15 credits in a relevant area is also required.

Learning outcomes

At the end of the course the students shall be able to:

Knowledge and understanding

- Read and understand scientific literature
- Apply the scientific knowledge to new topics

Competence and skills

- Present scientific literature to others
- Report and summarize scientific data
- Analyse experimental results

Judgement and approach

- Discuss current molecular biology research
- Critically analyse published results

Course content

The course shall focus on a detailed understanding of gene regulation and protein dynamics with particular emphasis on human diseases. Specific topics are:

- Eukaryotic cell cycle
- Intracellular regulation
- Cytoskeleton
- Molecular chaperones
- Cancer cell biology
- Signal transduction and female germ cell development

Examples will be used from mouse, yeast and mammalian cell models.

Form of teaching

The course includes lecture and laboratory classes. Each student will also choose a molecular biology topic for individual project work in the form of writing a scientific review article and giving a presentation at a mini symposium at the end of the course.

All items except lectures are compulsory.

Language of instruction: English

Assessment

The 50% of the final grade is based on a written examination and 50% is based on an individual literature project (a written presentation and an oral discussion at a mini symposium).

Missed compulsory sessions can be made up during the course if possible but otherwise the next time the course runs.

A student who has failed a test twice has the right to change examiner, if it is possible. A written application should be sent to the Department.

Grades

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

Course evaluation

A written evaluation is done at the end of the course. The results of the evaluation will be communicated to the students and will function as a guide for the development of the course.