UNIVERSITY OF GOTHENBURG

DEPARTMENT OF CHEMISTRY AND MOLECULAR BIOLOGY

BIO440 Eukaryotic Molecular Microbiology, 15 credits

Eukaryot molekylär mikrobiologi, 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 2022-05-06 to be valid from 2022-05-13, autumn semester of 2022.

Field of education: Science 100%
Department: Department of Chemistry and Molecular Biology

Position in the educational system

This is an advanced course that can be included as part of a Bachelor's degree in Biology or Molecular Biology, or as part of a Master's degree in Biology, Molecular Biology or Genomics and Systems Biology. The course can also be taken as a freestanding course.

Main field of studies	*Specialization*
Molecular Biology with Specialization in Genomics and Systems Biology	A1N, Second cycle, has only first-cycle course/s as entry requirements
Biology	A1N, Second cycle, has only first-cycle course/s as entry requirements
Molecular Biology	A1N, Second cycle, has only first-cycle course/s as entry requirements

Entry requirements

Passed 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, and completion of Chemistry, 30 hec or equivalent courses.

English proficiency is required to the level of English 6/English Course B from Swedish Upper Secondary School, or be certified by an international recognized test, for example

TOEFL, IELTS. In addition, completion of any of the advanced courses Microbiology, 15 hec, Molecular Biology, 15 hec, Biochemistry, 15 hec, or other equivalent courses.

Learning outcomes

After completing the course the students will be able to:

Knowledge and understanding

- Demonstrate advanced knowledge of experimental strategies, of applications and tools of genetics, cell biology, functional genomics, and systems biology and of the role of yeast as a model system for higher eukaryotes.
- Ability to perform a number of standard lab techniques and to analyze, report and discuss the results of the experiments.

Competence and skills

- Demonstrate ability to independently search, read, understand and critically analyze scientific literature and information.
- Demonstrate ability to present, explain and discuss scientific topics and research issues in eukaryotic molecular microbiology.
- Demonstrate advanced knowledge of and ability to explain complex molecular, genetic and genomic processes in eukaryotic microorganisms.

Judgement and approach

- Critically evaluate and judge the quality of data and conclusions presented in primary research articles and scientific reports.

Course content

The course aims at detailed understanding of molecular and cell biology, genetics, functional genomics, and systems biology of eukaryotic microorganisms focusing on yeast and other fungi as model systems.

The topics covered include cellular regulatory systems such as signal transduction processes, control of gene expression, stress responses, cell cycle control as well as subcellular organization and structures, and organelles.

An important aspect of the course is to present experimental strategies and applications including genetic analyses, tools for molecular and cell biology analyses, functional genomics and systems biology, as well as to illuminate the importance of yeast as a model system for higher eukaryotes.

Form of teaching

The course is composed of lectures, exercise sessions, group discussions, seminars, individual projects and laboratory work. The students will be trained in searching, reading, understanding, evaluating and presenting scientific information to others. All items except lectures are compulsory.

Language of instruction: English

Assessment

All the separate items of the course (e.g. exercise sessions, group discussions, individual projects and laboratory work) will be assessed during the course.

Missed compulsory sessions may be made up during the course when that is possible, or the next time the course runs.

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

In cases where a course has been discontinued or major changes have been made a student should be guaranteed at least three examination occasions (including the ordinary examination occasion) during a time of at least one year from the last time the course was given.

Grades

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

Course evaluation

The results of the evaluation will be communicated to the students and will function as a guide for the development of the course.