DEPARTMENT OF CHEMISTRY AND MOLECULAR BIOLOGY

BIO277 Molecular Microbiology, 15 credits

Molekylär mikrobiologi, 15 högskolepoäng

First Cycle

Confirmation

This course syllabus was confirmed by Department of Chemistry and Molecular Biology on 2013-10-01 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 a course in biology at ground level. The course can be part of the Bachelor's programme in Molecular Biology and Biology, or as a part of the Master's programme in Molecular Biology, Biology or Genomics and Systems Biology. The course is also offered as a separate course.

Main field of studies	*Specialization*
Biology	G2F, First cycle, has at least 60 credits in first-cycle course/s as entry requirements
Molecular Biology	G2F, First cycle, has at least 60 credits in first-cycle course/s as entry requirements

Entry requirements

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, of which at least 45 credits must be approved

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.

Learning outcomes

After completing the course the students will be able to:

Knowledge and understanding

- Read and understand a scientific review article

Competence and skills

- Discuss topics in current microbiology research in a meaningful way,
- Present scientific literature to others,
- Apply their background knowledge to new topics,
- Plan an experiment and analyse results of experiments,
- Write in the format of a scientific paper,
- Perform a number of standard lab techniques, such as growth curves and genetic analysis

Judgement and approach

- Critically analyze published results
- Evaluate and propose alternative approaches to the problem of antibiotic resistance in light of its impact on society

The course is sustainability-related, which means that at least one of the learning outcomes clearly shows that the course content meets at least one of the University of Gothenburg's confirmed sustainability criteria.

Course content

This course focuses on understanding the evolution, Cell Biology, Genetics and Molecular Biology of microorganisms. Specific topics that are included are:

- Microbial cell organization, metabolism and growth,
- DNA replication, variation, evolution and gene expression,
- Regulation of gene expression; cellular differentiation in prokaryotes,
- Molecular mechanisms of antibiotic resistance,
- Molecular biology of the yeast *Saccharomyces cerevisiae*

Form of teaching

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

Language of instruction: English

Assessment

The final grade is based on presentations and discussion, on laboratory reports and on a written exam.

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.

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

A written course 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.