



DEPARTMENT OF CHEMISTRY AND MOLECULAR BIOLOGY

BIO510 Molecular Prokaryotic Microbiology, 15 credits

Prokaryot 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 2022-05-05 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 second-cycle course in Molecular Prokaryotic Microbiology and is designed to provide an advanced knowledge in the Molecular Biology, Cell Biology, Genetics and Functional Genomics of Prokaryotic Microorganisms. The course can be included as a part of a Bachelor's degree in Molecular Biology and Biology, or as a 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

Molecular Biology

Biology

Molecular Biology with Specialization in Genomics and Systems Biology

Specialization

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

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

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 credits 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 internationally recognized test, for example TOEFL, IELTS. In addition a completed depth course of 15 credits in Microbiology, Molecular Biology, Genetics or equivalent is required.

Learning outcomes

After completing the course the students will be able to:

Knowledge and understanding

- Read and understand an original scientific article.

Competence and skills

- Discuss topics in current molecular microbiology research in a meaningful way.
- Critically analyze published results.
- Present scientific literature to others.
- Analyse results of experiments.
- Write in the format of a scientific paper.
- Apply their background knowledge to new topics.
- Perform a number of standard lab techniques, such as growth curves, genetic analysis and molecular biological techniques and design experiments.

Judgement and approach

- Critically analyze original research articles and experiments.
- Make hypotheses based on available data.

Course content

This course gives a deeper knowledge of microbial genetics and physiology. Central to the course is a laboratory project studying prokaryotic molecular biology.

Included topics are:

- Analysis of genome structure,
- Gene expression,
- Protein expression,
- Cellular physiology

The theoretical part of the course includes lectures, literature studies, seminars and group discussions.

Form of teaching

see above

Laboratories, seminars and group discussions are compulsory.

Language of instruction: English

Assessment

The examination of the course objectives is done both in writing and orally

60% of the final grade is based on presentations and in-class discussions; 20% is based on laboratory reports and 20% on a written exam.

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.

Grades

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

Course evaluation

A written evaluation will be 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.