

BIOR47, Biology: Methods in Molecular Biology, 15 credits

Biologi: Molekylärbiologisk metodik, 15 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2007-03-01 to be valid from 2007-07-01, autumn semester 2007.

General Information

The course is an optional second-cycle course for a degree of Bachelor or Master of Science in Biology and Molecular Biology.

Language of instruction: English and Swedish

If needed, the course is taught in English.

Main field of studies

Biology

Molecular Biology

Depth of study relative to the degree requirements

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

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Learning outcomes

On completion of the course the student shall be able to:

- demonstrate extensive theoretical knowledge and understanding of the most important molecular biological methods and their applications
- work partly independently with these methods and be able to evaluate, assess, and compare the results from these demonstrate an ability to plan and evaluate experimental setups for molecular biological issues
- demonstrate an ability to orally and in writing account for and discuss achieved results
- create search profiles for information retrieval in literature databases
- acquire knowledge and laboratory experience for further studies and work within molecular biological subject areas.

- The theoretical parts of the course will discuss the theory behind molecular biological methods.

Course content

In the laboratory part, a selection of these methods will be applied. The laboratory sessions will also be evaluated by means of the methodology theory that has been discussed. The students will partly be trained in independent planning and design of experiments. During the course, a literature study is conducted, where the student is trained to create search profiles for information retrieval in literature databases, and to analyse and evaluate scientific information.

Examples of methods that will be applied are:

DNA-based methods, such as cloning, ligation, transformation, PCR.

- Sequence analysis. Directed and random mutagenesis. Expression analysis, e.g. by means of micromatrices
- Protein production and isolation.
- Biochemical characterisation of recombinant-produced proteins. Detection and quantification of proteins.
- Proteomics.
- The teaching consists of lectures, laboratory sessions, discussions, and group assignments.
- Furthermore, a series of lectures, which sometimes are combined with demonstrations, will give a guidance in specific molecular biological methods.
- Participation in all parts except the lectures is compulsory.

Course design

Examination takes place in the form of a written examination at the end of the course. For students who have not passed the regular examination, an additional examination in close connection to this is offered. To pass the entire course, approved examination, approved written assignments, approved project report, and participation in all compulsory parts, are required.

Assessment

The final grade is decided through a weighing of the results of the parts that are included in the examination. For admission to the course, English 6 and 90 credits of scientific studies including knowledge corresponding to MOB101 Cell Biology 15 credits, BIO006 Genetics and Microbiology 15 credits, MOB102 The Chemistry of the Cell 15 credits, MOB103 Molecular Biology 15 credits, and Chemistry 30 credits, are required.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.

The course may not be included in a degree together with BIO701 Biology: Methods in Molecular Biology 10 p.

Slutbetyget avgörs genom en sammanvägning av resultaten på de moment som ingår i examinationen.

Entry requirements

För tillträde till kursen krävs Engelska B samt 60 p (90 hp) naturvetenskapliga studier inkluderande kunskaper motsvarande MOB101 Cellbiologi 10 p, BIO006 Genetik och mikrobiologi 10 p, MOB102 Cellens kemi 10 p, MOB103 Molekylärbiologi 10 p och kemi 20 p.

Further information

Kursen kan inte tillgodoräknas i examen tillsammans med BIO701 Molekylärbiologisk metodik 10 p.

Subcourses in BIOR47, Biology: Methods in Molecular Biology

Applies from V15

0702 Theory, 7,5 hp

Grading scale: Fail, Pass, Pass with distinction

0703 Laboratory Work, Project and Tutorials, 7,5 hp

Grading scale: Fail, Pass

Applies from V08

0701 Methods in Molecular Biology, 15,0 hp

Grading scale: Fail, Pass, Pass with distinction