



LUND
UNIVERSITY

Faculty of Science

BIOR56, Biology: Antibiotics - Biology and Chemistry, 7.5 credits

Biologi: Antibiotika - biologi och kemi, 7,5 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2007-12-12 to be valid from 2008-01-19, spring semester 2008.

General Information

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

Language of instruction: Swedish and English

Main field of studies

Molecular Biology

Biology

Depth of study relative to the degree requirements

A1F, Second cycle, has second-cycle course/s as entry requirements

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Learning outcomes

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

- account for the origin and general chemical structure for the most common classes of antibiotics
- account for the cellular target and mode of action for commonly used antibiotics
- account for resistance to antibiotics; i.e. mechanisms at the molecular level and origin, dispersal and limitation of resistance to antibiotics
- understand how antibiotics are developed and produced industrially
- recognise applications for antibiotics
- understand clinical problems concerning antibiotics
- understand how resistance to antibiotics can be tested in bacteria.

Course content

Known and potential cellular targets sensitive to antibiotics. The chemistry of the most common classes of antibiotics. The biosynthesis and regulation of the production of antibiotics in microorganisms. The production of synthetic and semi-synthetic antibiotics. The modes of action of different classes of antibiotics at the molecular level. The molecular mechanisms of resistance to antibiotics, and the origin, occurrence, and spread of resistance. The importance of antibiotics in nature. Possibilities to discover and utilise new antibiotics. Industrial and clinical aspects regarding antibiotics.

Course design

The teaching consists of lectures and discussion seminars. The course includes an individual project about a certain class of antibiotics or a certain applied aspect of antibiotics. Each course participant presents the results of the project both orally and as a written report. Participation in the discussion seminars and presentation of the project are compulsory.

Assessment

Examination takes place through presentation of the project and 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.

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.

To pass the entire course, approved examination and approved project report, and participation in all compulsory parts, are required.

The final grade is decided through a weighing of the results of the parts that are included in the examination. The examination and the project report are weighed equally when assessing the final grade.

Entry requirements

For admission to the course, English B/English 6 and 120 credits of scientific studies including Chemistry 30 credits and Microbiology 7.5 credits, or Biochemistry 15 credits and knowledge corresponding to BIOR18 Microbiology 15 credits, or 15 credits of another relevant second-cycle course in molecular biology, are required.

Subcourses in BIOR56, Biology: Antibiotics - Biology and Chemistry

Applies from V08

0701 Antibiotics - Biology and Chemistry, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction