

Syllabus

for course at advanced level

Molecular Plant-Microbe Interactions
Molekylära växt-mikrobinteraktioner

**15.0 Higher Education
Credits**
15.0 ECTS credits

Course code:	BL8020
Valid from:	Autumn 2021
Date of approval:	2006-09-27
Changed:	2021-04-29
Department	Department of Biology Education
Main field:	Biology
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements

Decision

This course syllabus was approved by the Board of Science at Stockholm University on 2006/09/27 and revised on 07/04/2008 and 29/04/2021.

Prerequisites and special admittance requirements

For admission to the course, knowledge is required equivalent to a minimum of 30 credits in Chemistry and a minimum of 90 credits in Biology or Molecular Biology. Additionally, it requires a minimum of 15 credits on advanced level in the area of Molecular Life Sciences. English B or equivalent.

Course structure

Examination code	Name	Higher Education Credits
8A20	Theory	6
8B20	Literature review	1.5
8D20	Project	7.5

Course content

a) The course addresses the molecular mechanisms that are the basis for both symbiotic and pathogenic interaction between plants and microbes, including recognition processes and signal exchange (bacteria, cyanobacteria, fungi and viruses). The balance between symbiosis and parasitism, as well as applied and ecological aspects of pathogen defense and resistance responses are discussed. The use of organismal databases in the internet to identify genes involved in interactions is taught. The course integrates lectures, student seminars, group discussions, method presentations, laboratory work and data analysis.

b) The course consists of the following modules:

- 1) Theory 6 hp
- 2) Literature Review 1,5 hp
- 3) Research Project 7,5 hp

Learning outcomes

After completing the course, the student is expected to be able to:

- show knowledge about the different forms of interactions that exist between plants and microbes and about the signaling systems behind these different interactions (module 1-3)
- explain the importance of symbiosis from a nutritional perspective and how the nutritional exchange between organisms works and describe the balance between symbiosis and parasitism (module 1-2)
- describe the different molecular processes that underlie pathogenicity and how plants defend themselves

against infection by a number of different organisms (module 1-3)

- practically use the information stored in different organism databases in aim to elucidate protein interactions and identify genes that are involved in different processes (module 1 & 3)
- understand the importance of interactions between different organisms in the ecological context (module 1 & 3)

Education

The teaching consists of lectures, literature reviews, group discussions and laboratory project work.

Forms of examination

a. The course is examined in the following manner:

Assessment of module 1 takes place through written tests.

Assessment of module 2 takes place through oral presentation.

Assessment of module 3 takes place through the work plan, oral presentation, project report and active participation during labs.

The examiner can decide on adapted or alternative examination formats for students with disabilities.

The examination will be conducted in English.

b. A passing final grade requires participation in literature seminars, group work and labs. If special reasons exist, following consultation with the teacher involved, the examiner may grant the student exemption from the obligation to participate in certain compulsory instruction.

To be allowed to start laboratory work, a passing grade on the work plan is required.

c. Grading: The course's final grade is set according to a seven-point criterion-referenced scale:

A = Excellent

B = Very good

C = Good

D = Satisfactory

E = Adequate

Fx = Failed, some additional work is required

F = Failed, much additional work is required

Grades of module 1, 2 & 3 will be set according to a seven-point criterion-referenced scale.

A passing final grade requires passing grades on all included parts. The final grade of the course is determined by weighing the grades from all course modules, where module 1 makes up 4/9, module 2 makes up 2/9 and module 3 makes up 3/9 of the final grade.

d. The course's grading criteria are handed out at the start of the course.

e. Students who receive a failing grade on a regular examination are allowed to retake the examination as long as the course is still provided. The number of examination opportunities is not limited. Other mandatory course elements are equated with examinations. A student who has received a passing grade on an examination may not retake the examination to attain a higher grade. A student who has failed the same examination twice is entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the department board. The course includes at least three examination opportunities for each course module per academic year the course is offered. For the academic years that the course is not offered, at least one examination opportunity is offered.

f. Students awarded the grade Fx are given the opportunity to improve their grade to E. The examiner decides on the supplementary assignments to be performed and the pass mark criteria. The supplementary assignments will take place before the next examination opportunity.

Interim

Students may request that the examination be conducted in accordance with this course plan even after it has ceased to be valid. However, this may not take place more than three times over a two-year period after the course was discontinued. Requests must be made to the departmental board. The provision also applies in the case of revisions of the course syllabus and revisions of the required reading.

Misc

This course is part of the Master's programme in Genetic and molecular plant science, but may also be taken as a separate course.

Required reading

The required reading is decided by the department board and published on the course page in the online

course catalogue at least 2 months before the start of the course.