

BI1103 Genetic diversity and plant breeding, 15 HEC. Grading criteria.

Grade	Course objective 1: <i>The student is expected to be able to explain the concept of genetic diversity and how evolutionary processes and domestication affect genetic diversity.</i>	Course objective 2: <i>The student is expected to be able to explain concepts of quantitative genetics, breeding methods and regulations for the development of plant varieties.</i>	Course objective 3: <i>The student is expected to understand principles of mapping quantitative traits in plant genomes and how to use this as a first step towards the identification of genes controlling phenotypic traits.</i>	Course objective 4: <i>The student is expected to be able to broadly explain next generation sequencing technologies and perform basic sequence analyses.</i>	Course objective 5: <i>The student is expected to be able to describe different biotechnological applications within plant breeding.</i>	Course objective 6: <i>The student is expected to be able to search literature information within genetic diversity and plant breeding and present this information in writing and orally.</i>	Course objective 7: <i>The student is expected to be able to conduct laboratory work (i.e. wet lab, greenhouse or climate chamber work), and computer lab work, compile the results and write a lab report.</i>
5	<u>The student is expected to:</u> - be able to estimate and discuss population genetic parameters - understand and evaluate the consequences of the different processes that influence them	<u>The student is expected to:</u> - be able to estimate and discuss quantitative genetic parameters and how different processes influence them - be able to suggest different breeding methods for plants with different reproduction systems and discuss and analyse the genetic basis for them	<u>The student is expected to:</u> - conduct a QTL analysis with a computer program, show a thorough understanding of the concept of QTL analysis in the lab report	<u>The student is expected to:</u> - conduct, be able to discuss and show a thorough understanding of sequence analyses	<u>The student is expected to:</u> - understand and evaluate different biotechnological applications within plant breeding; how they are used and how they are regulated both internationally and within the EU	<u>The student is expected to:</u> - to write a report, prepare and do an oral presentation according to the instructions, also show a thorough understanding and discuss different aspects of the subject	<u>The student is expected to:</u> - hand in an ambitious written lab report showing a thorough understanding of the methodology
4	<u>The student is expected to:</u> - be able to estimate and discuss population genetic parameters - describe how different processes influence them	<u>The student is expected to:</u> - be able to estimate and discuss quantitative genetic parameters and describe how different processes influence them - describe and compare different breeding methods for plants with different reproduction systems and discuss the genetic basis for them	<u>The student is expected to:</u> - conduct a QTL analysis with a computer program, write a summary and describe the concept of QTL analysis in the lab report	<u>The student is expected to:</u> - conduct and show an understanding of sequence analyses	<u>The student is expected to:</u> - describe different biotechnological applications within plant breeding; how they are used and how they are regulated within the EU	<u>The student is expected to:</u> - to write a report, prepare and do an oral presentation according to the instructions, also show an understanding and discuss different aspects of the subject	<u>The student is expected to:</u> - hand in a well written lab report showing an understanding of the methodology
3	<u>The student is expected to:</u> - be able to estimate population genetic parameters - be aware of the different processes that influence them	<u>The student is expected to:</u> - be able to estimate quantitative genetic parameters and be aware of the different processes that influence them - describe different breeding methods for plants with different reproduction systems and describe the genetic basis for them - describe regulations for development of plant varieties	<u>The student is expected to:</u> - conduct a QTL analysis with a computer program and write a summary in the lab report	<u>The student is expected to:</u> - actively participate in a bioinformatics computer lab	<u>The student is expected to:</u> - be aware of different biotechnological applications within plant breeding; how they are used and how they are regulated within the EU	<u>The student is expected to:</u> - to write a report, prepare and do an oral presentation according to the instructions	<u>The student is expected to:</u> - hand in a written lab report

Exercises required to pass the course:

Attendance on compulsory parts (see schedule)

Exam I & II (graded 3, 4 or 5)

Written lab report (graded 3, 4 or 5)

Literature study including a written and oral presentation (written report graded 3, 4 or 5)

Final grade:

A combination of grades on examinations, the written lab report and the written literature work