emPLANT
master to sucseed

COURSE CATALOGUE

UH SEMESTER 4

emPLANT COURSE CATALOGUE

ERASMUS MUNDUS MASTER PROGRAMME IN PLANT BREEDING

Contents

Semester 4 UH

SEMESTER 4 UH	Learning outcomes	Contents	Prerequisites	ECTS
Master Thesis	The students know and are able to apply ways of working within the process of scientific research, is familiar with the process of writing, are able to set research questions, find and compose more research, analyze and interpret research data and report the results.	The students orient themselves to the research question, draw up a research plan, determine the appropriate methods to solve questions, interpret the results using the scientific literature in the field, and learn presenting the results in a linguistically acceptable form, orally and in writing.	First year of the Master program	**30**
Laboratory Course in Plant Biotechnology (optional) *	The student will become acquainted with the basic techniques in plant cell culture and gene transfer	The laboratory practicals include relevant techniques in plant cell culture (callus and suspension cultures, haploid cultures, protoplast isolation and micropropagation) as well as techniques related to plant gene transfer methods (agrobacterium-mediated, particle bombardment, electroporation) and assays for gene expression (reporter genes encoding GUS, LUC, GFP)	Course in S3	**5**
Selection Theory (S4 in 2020 and in 2022) (optional) *	After the course students know the concept of breeding value and genetic correlation in quantitative traits. Students understand how to define the breeding goal and how to select for multiple traits simultaneously. Students can predict the selection response in a breeding program and control the risk (rate of inbreeding) in a breeding scheme	Before the course (period I) a possibility to take a briefing in matrix calculus and R-programming. Genetic (co)variances, heritability, genetic correlation, breeding value, breeding goal, total merit index, selection, mating systems, expected genetic response and controlling risk in the selection scheme	Course in S3	**5**
Finnish course	An ability to deal with simple, straightforward information and begin to express oneself in familiar contexts	The main topics are living and home, telling about yourself and your past, and making plans. The following grammar issues are discussed: possessive structure, object case marking, some infinite verb forms, and past tenses. The course includes exercises on everyday conversations.	Course in S3	**

*If you choose 5 ECTS here, your MSc thesis will be started in S3 and you can choose only 5 ECTS optional courses in S3

**No ECTS but an official language certificate