module code / module title	**D – IEPR/** **Investigation and Engineering of Plant Reproduction Using State of the Art Gene Editing Tools**

date / version of the module description	26.10.2021

1	**INFORMATION ON THE MODULE**
1a	module code	D-IPER
1b	module title *(German title)*	Klicken Sie hier, um Text einzugeben.
1c	module title *(English title)*	Investigation and Engineering of Plant Reproduction Using State of the Art Gene Editing Tools
1d	credit points	6
1e	responsible for the module	Prof. Dr. Rita Groß-Hardt
1f	type of module	elective module
1g	programs using the module	M.Sc. Biochemistry and Molecular Biology
1h	organizational unit offering the module	
1i	content-related prior knowledge or skills	n.a.
1j	learning contents	Plants play key role in sustaining life on earth as source of food, shelter and energy. Polyploidization, an increase in genome copies, has been a major driving force for the increase in performance of crop plants and continues to be important breeding goal. We recently discovered that polyspermy, the fusion of an egg with two sperm, is route towards polyploidization. However, polyspermy barriers are in place making this a rare event. To tackle the bottleneck of polyspermy block, the students will target potential polyspermy regulating molecular factors making use of CRISPR/Cas9 based gene editing tool.

		Learning contents: Master students will have the opportunity to develop and realize their own research idea with the support of experts in the field. As part of the holistic concept the students will generate CRISPR/Cas9 genome editing construct to then follow the approach up until the generation and identification of the mutant. Special attention is given to the conceptualization and design of experiments. In addition, students will learn basic techniques for science communication, professional presentation, and poster design.
1k	learning outcomes/ competencies/ targeted competencies	• Students can design and implement CRISPR/Cas9 based genome editing • Students have the ability to conceive and develop their own research project • Students can apply their conceptional knowledge to design experiments • Students can communicate and present scientific findings professionally • Student have in-depth knowledge regarding the mechanism of plant reproduction

The total amount of the presence time and working hours of the module has to be calculated additionally in the detailed calculation a) to c).

a) detailed calculation:
   SWS / presence time/working hours in each course of the module

☒	1	lecture(s) with	1	SWS/ contact hours	14	hours of presence time
☒	1	seminar(s) with	2	SWS/ contact hours	28	hours of presence time
☐		exercise(s) with		SWS/ contact hours		hours of presence time
☐		internship(s) with		sum of working hours		
☐		seminar(s) with		SWS/ contact hours		total hours of presence time
☒	1	laboratory/laboratories with	4	SWS/ contact hours	56	total hours of presence time
☐		tutorial(s) with		SWS/ contact hours		
☐		excursion(s) with		SWS contact hours in total		working hours

1l — calculation of student workload

(part a: calculation of presence time and working hours)

		☐ other form of course (e.g. block seminar), namely this: Klicken Sie hier, um Text einzugeben. with　　　SWS / with totaly　　　contact hours　☐ presence time　☐ working hours = sum of presence time and working hours: 98
	calculation of student workload *(part b: preparation time and follow-up work/self-study)*	**b) working hours for preparation/follow-up work of the course(s) and/or self-study** = sum of working hours: 22
	calculation of student workload *(part c: exam preparation etc.)*	**c) exam preparation (incl. examination)** = sum of working hours: 60
	calculation of student workload *(total amount of hours including a) - c))*	**Total amount of the presence time and working hours a) to c):** 180
1m	description of possible optional courses in the module	<u>Can a student choose between different courses within the module?</u> NO <u>Short description of selection option</u> Klicken Sie hier, um Text einzugeben.
1n	language(s) of instruction	☐ German　☒ English　☐ Spanish　☐ French ☐ Other, namely this: Klicken Sie hier, um Text einzugeben.
1o	frequency	*(regular cycle module is offered) e.g.: winter semester, yearly or summer semester, yearly or each semester* summer semester yearly Klicken Sie hier, um Text einzugeben.
1p	duration	one semester module Klicken Sie hier, um Text einzugeben.
1q	Literature (*optional*)	Klicken Sie hier, um Text einzugeben.

1r	more information on the module (*optional*)	Klicken Sie hier, um Text einzugeben.

2	**INFORMATION ON THE MODULE EXAMINATION** (see also AT Art. 5 section 8)

2a	type of examination	☒ module exam; i.e. exam with only one component (MP) ☐ combination exam, i.e. exam with several components (administered by instructors) (KP) ☐ partial exam; i.e. exam with several components (administered by registrar) (TP)
2b	exam components or prerequisites *(type, number)*	*PL* = *graded component of the examination* *SL* = *ungraded component of the examination, coursework* *PVL* = *prerequisite of the examination (see AT Art. 5 Section 10)* ☒ PL | 1 ☐ SL | ☐ PVL | justification If necessary, further explanations: PL = Portfolio, consisting of: design of a scientific poster (30%), oral presentation (70%)
2c	Give this information for combination examinations only: Weights (in percentage) of component grades	PL 1: PL 2: PL 3: Klicken Sie hier, um Text einzugeben. PL 4: Klicken Sie hier, um Text einzugeben. If necessary, further comments: Klicken Sie hier, um Text einzugeben.
2d	form of examination (see AT BPO/AT MPO Art. 8, 9 and 10)	☐ Assignment ☐ Oral examination (single) ☐ Presentation, oral ☐ Written examination ☐ Group examination, oral ☐ Presentation and written assignment ☒ Portfolio ☐ Project report ☐ Bachelor Thesis ☐ Internship report ☐ Colloquium ☐ Master Thesis ☐ Other (concrete definition is given in the examination regulations):
2e	language(s) of instruction	☐ German ☒ English ☐ Spanish ☐ French ☐ Other, namely this: Klicken Sie hier, um Text einzugeben.