Modultitel	Modulcode
Selection in Plant Breeding	agrigAEF020-01a
Modulverantwortliche(r)	
Prof. Dr. Christian Jung	
Veranstalter	
Institut für Pflanzenbau und Pflanzenzüchtung - Pflanzenzüchtung	
Fakultät	
Agrar- und Ernährungswissenschaftliche Fakultät	
Prüfungsamt	
Prüfungsamt Agrar- und Ernährungswissenschaftliche Fakultät	

Leistungspunkte	6
Bewertung	Benotet
Dauer	1 Semester
Angebotshäufigkeit	Findet nur im Sommersemester statt
Arbeitsaufwand pro Leistungspunkt	30 hours
Arbeitsaufwand insgesamt	180 hours
Präsenzstudium	60 hours
Selbststudium	120 hours
Lehrsprache	Englisch

Empfohlene Voraussetzung			
Advanced understanding of genetics and breeding methodologies according to modules Introduction to Molecular Biology AEF-agrig001 and Introduction to Crop and Animal breeding AEF-agrig004			

Modulveranstaltung(en)			
Veranstaltungsart	**Lehrveranstaltungstitel**	**Pflicht/Wahl**	**SWS**
Vorlesung	Selection in Plant Breeding	Pflicht	1
Praktische Übung	Selection in Plant Breeding	Pflicht	2
Exkursion	Selection in Plant Breeding	Pflicht	1

Prüfung(en)				
Prüfungstitel	**Prüfungsform**	**Bewertung**	**Pflicht/Wahl**	**Gewicht**
Referat: Selection in Plant Breeding	Referat	Benotet	Pflicht	100

Weitere Bemerkungen zu der/den Prüfung(en)
1. + 2. period in summer semester 1. period in winter semester Examiner: Dr. Nazgol Emrani (if Dr. Emrani is absent, Prof. Dr. Christian Jung will examine) Qis: 100200 with number of Examination 100210

Lehrinhalte
The concept of molecular markers to map single genes and QTL Marker assisted selection, DNA isolation PCR and and agarose gel electrophoresis Phenotyping a barley DH population for agronomically important traits Molecular and phenotypic marker genotyping Chi-square test to analyze segregation ratios in the DH population Calculating recombination rates manually and by applying the JOINMAP program package

Lernziele
This course will give the students the opportunity to learn the concept of molecular markers and genetic linkage through lectures, practical experiments and exercises. During the lecture, the students learn the basics of linkage mapping and the concept and different types of molecular markers. Then they will conduct an experiment in the practical part of the course to detect genetic linkage between molecular markers and loci controlling traits like spikelet or awn characters in barley. The students will isolate DNA from 92 DH lines from Oregon Wolfe Barely population. Then they will genotype the population alongside with parents with molecular markers. Simultaneously, the students will phenotype the DH lines for different spikelet and awn characters. At the end of the course, the students will assess the existence of genetic linkage between the markers and the loci controlling the phenotyped traits using a statistical test (#2 test). In case of genetic linkage, the recombination rate will be calculated. Additionally, the lecturer will provide the students with several examples for calculating the recombination frequency from different segregating populations as additional exercises

Literatur
will be announced at the beginning of the course, Lab protocol, Lecture slides, Scientific literature, Text-books

Weitere Angaben
Maximum number of participants: 10 (5 AgriGenomics and 5 Agricultural Science) Enrolment by OLAT within workdays Monday Through Friday in the 1nd week of the 2. audit period of the preceding semester. Following information is necessary: matriculation number last name first name striven degree study study program stu-Email The allocation of the places takes place in the 2nd week f the 2. audit period of the preceding semester. Acceptance of the place by students only through participation at the first day of the course. Students without aplace can get a place at the first day of the course by move-up procedure

Verwendung	Pflicht/Wahl	Fachsemester
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Agrarökonomie, (Version 2017)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Agrarökonomie, (Version 2013)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Agribusiness, (Version 2017)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Agribusiness, (Version 2013)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Nutzpflanzenwissenschaften, (Version 2017)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Nutzpflanzenwissenschaften, (Version 2013)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Nutztierwissenschaften, (Version 2017)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Nutztierwissenschaften, (Version 2013)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Umweltwissenschaften, (Version 2017)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Umweltwissenschaften, (Version 2013)	Wahl	-
Master, 1-Fach, AgriGenomics, (Version 2017)	Wahl	-
Master, 1-Fach, Ernährungs- und Lebensmittelwissenschaften, (Version 2013)	Wahl	-
Master, 1-Fach, Ernährungs- und Verbraucherökonomie, (Version 2017)	Wahl	-
Master, 1-Fach, Ernährungs- und Verbraucherökonomie, (Version 2013)	Wahl	-