

Module Name Population Genetics and Molecular Evolution						
Type of Module Advanced Module				Module Code AM-B-SM (C 1)		
Identification Number	Workload	Credit Points	Term	Offered Every	Start	Duration
MN-B-SM (C 1)	360 Hours	12 CP	1. – 3. Semester	SuSe, 1st half	Summer Term Only	7 weeks
1	Course Types		Contact Time	Private Study		Planned Group Size
	a) Lecture		48 h	96 h		16 Students
	b) Seminar		48 h	127 h		
	c) Exercise		5 h	36 h		
2	Module Objectives and Skills to be Acquired					
	Students who successfully completed this module ...					
	<ul style="list-style-type: none"> • have acquired detailed knowledge on fundamental concepts and theoretical models in population genetics and molecular evolution. • are able to measure, statistically evaluate and interpret genetic data and put these in the context of molecular evolution. • are skilled in the analysis of polymorphism data from natural populations and can independently carry out small scientific projects related to the topic of the module. • have learned how to present research results in oral and written form and to critically discuss scientific publications related to the topic of the module on a professional level. • are able to transfer skills acquired in this module to other fields of biology. 					
3	Module Content					
	<ul style="list-style-type: none"> • Principles of population genetics, population genomics and molecular evolution • Statistical tests of genetic data • Mathematical modeling • Intra- and interspecific comparative analyses of genome sequences • Analysis of gene variant and expression data • Work with polymorphism data (e.g., VCF file format and VCF-tools) 					
4	Teaching Methods					
	<ul style="list-style-type: none"> • Lectures; Practical/Lab (Project work); Seminar; Computer exercises; Guidance to independent research; Training on presentation techniques in oral and written form 					
5	Prerequisites (for the Module)					
	Formally: none					
	Additional academic requirements:					
	Good mathematical and quantitative skills are highly recommended.					
6	Type of examination					
	The final examination consists of three parts: 30 min oral examination about topics of the lectures (50 % of the total module mark), oral presentation (25 % of the total module mark) and seminar paper (weekly home work exercises, aggregate to 25 % of the total module mark)					
7	Credits Awarded					
	Regular and active participation;					
	Each examination part at least “sufficient” (see appendix of the examination regulations for details)					

8	Compatibility with other Curricula None
9	Proportion of Final Grade 12/114
10	Module Coordinator Prof. Dr. Thomas Wiehe,
11	Further Information Participating faculty: Dr. S. Laurent, Prof. Dr. M. Nothnagel, Dr. D. Valenzano, Prof. Dr. T. Wiehe Literature: <ul style="list-style-type: none"> • Information about textbooks and other reading material will be given on the ILIAS representation of the course General time schedule: Weeks 1-6 (Mon.-Fri., approx. 4 hours contact time per day): Lectures, practical/lab, writing seminar paper (= weekly home work exercises) and preparation for the seminar talk held in week 6; Week 7 (Mon.-Fri.): Preparation for the oral examination Note: The module contains hand-on laboratory work conducted by small groups of students and is taught in research laboratories. The module contains computer-based practicals/research as a main component.