

**Examination Regulations (Rules)
of the Faculty of Mathematical and Natural Sciences
at Christian-Albrechts-Universität zu Kiel (Kiel University)
for students of the degree programme “Molecular Biology and Evolution”, leading to a
Master of Science degree (degree specific examination regulations MAMBE)
of 10 June 2015**

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[non-official publication]

Based on Section 52 (1) 1 of the Schleswig-Holstein Higher Education Act (HSG) in the version published on 28 February 2007 (GVOBl. Schl.-H. 2007 p. 184), last amended by § 34 of the law of 11 December 2014 (GVOBl. Schl.-H., p. 440), after a resolution was passed by the Convention of the Faculty of Mathematics and Natural Sciences of 20 May 2015, the following Rules were issued:

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Section 1 General Provisions

§ 1

Scope of application

- (1) These Examination Regulations (FPO) in conjunction with the Examination Procedure Regulations (Rules) of Kiel University for students of Bachelor's and Master's Degree Programmes (Prüfungsverfahrensordnung PVO) apply to the Master's degree programme in "Molecular Biology and Evolution" at Kiel University.
- (2) For modules offered by other faculties or other institutes of the same faculty, the examination regulations of the respective faculties or institutes apply, in particular regarding admission and examinations.

Section 2 Examination Provisions for the Master's degree programme

§ 2

Objective of the degree programme

- (1) The Master's degree programme leads to an in-depth degree with professional qualifications. Within the framework of the degree programme, the candidate is trained in the interdisciplinary application of evolutionary biological, molecular biological and genetic research approaches in order to gain a deeper understanding of biological phenomena.
- (2) The Master's degree enables graduates to perform independent scientific work in selected fields, either as a prerequisite for a doctoral degree or scientific work in industry or the public sector.

§ 3

Academic Title

The student is awarded the degree of Master of Science (M.Sc.) if he or she has passed the Master's examination at least with the grade 'sufficient'.

§ 4

Admission to the Master's degree programme

- (1) Admission to the Master's degree programme in Molecular Biology and Evolution is only open to those who have completed a Bachelor's degree programme in the same or an equivalent subject, covering at least 180 ECTS credits, with a standard period of study of at least three years, at a German university or comparable foreign institution of higher education.
- (2) Further prerequisites for admission are:
 1. an overall grade for the Bachelor's degree of at least 2.5 or qualifying among the best 30% of the relevant degree cohort based on the ECTS Grading Table (see ECTS User's Guide, European Communities 2009),
 2. a good knowledge of English, evidenced by:
 - a. TOEFL® ITP (Paper-based test): 580 points or
 - b. TOEFL® iBT (Internet-based test): 90 points or

- c. IELTS 6.5 (no part scoring under 6.0) or
 - d. Cambridge Certificate in Advanced English or
 - e. comparable test or
 - f. evidence of at least 8 academic years of English language lessons in lower and upper secondary education (German applicants) or
 - g. evidence of a 6-month stay in an English-speaking country (school or university) or
 - h. completion of an English-language bachelor's degree programme
3. passing a subject-specific entrance test.
- (3) The Examination Board shall decide on the specialist aptitude.

§ 5

Structure of curriculum

- (1) The standard period of study for the Master's degree programme is four semesters. The degree programme encompasses approximately 100 weekly 45-minute teaching units for the duration of one semester of about 12 weeks (Semesterwochenstunden, SWS) and 120 ECTS credits, including 30 ECTS credits for the Master's thesis. The number of SWS may deviate slightly from this, depending on the optional modules taken.
- (2) The Master of Science in Molecular Biology and Evolution has two main focus areas:
 - "Evolution of organisms and molecules"
 - "Molecular biology of dynamic processes"
- (3) In the first three semesters, as per the programme schedule, the following modules totalling 90 ECTS credits must be completed:
 - 2 basic compulsory modules, each worth 10 ECTS, on the two main focus areas (1st and 2nd semester)
 - a total of 5 optional modules, each worth 5 ECTS, from the two main focus areas, of which 2 or 3 optional modules must be from the first focus area and 2 or 3 optional modules, each worth 5 ECTS, must be from the second focus area (1st and 2nd semester)
 - 1 compulsory module "Scientific Presentation and Management" worth 10 ECTS in the 1st and 2nd semester
 - 1 compulsory elective module "Biological Data Analysis"
 - 2 research modules, each worth 10 ECTS, in the 3rd semester
 - 1 module on "Development of a scientific project" worth 10 ECTS in the 3rd semester

The optional modules in the elective fields are listed in the annex.
- (4) The Master's thesis is usually completed during the 4th semester.

§ 6

Academic year

- (1) The degree programme governed by these degree-specific examination regulations is structured by academic year, beginning with the winter semester. As a general rule, a course will be offered once annually. Courses which, according to the curriculum are planned for an odd-numbered semester, are generally offered in the winter semester. Courses which, according to the curriculum are planned for an even-numbered semester, are generally offered in the summer semester.
- (2) Registrations during odd-numbered semesters are only possible for a winter semester. Registrations during even-numbered semesters are only possible for a summer semester.

§ 7

Teaching and examination language

- (1) All compulsory, compulsory elective and advanced modules for the Master's degree programme in Molecular Biology and Evolution will only be offered in English.
- (2) Examinations will always be held in the same language as lectures.

§ 8

Examination Board

- (1) Contrary to Section 3 (2) Sentence 1 of the Examinations Regulations (PVO), the Examination Board consists of four members who are Higher Education Institute Lecturers, one member from the area of scientific services and one member from the student body.
- (2) The duties of the Examination Board are stipulated by the Examination Procedure Regulations (PVO) of Kiel University.
- (3) The Examination Board also conducts the aptitude assessment procedure in accordance with Section 4 and shall decide on admission to the Master's degree programme.

§ 9

Module examinations and module grades

- (1) The type and number of examinations required as part of the modules can be found in the Annex.
- (2) The duration of a written examination must be at least 30 minutes and no longer than two hours.
- (3) If a module examination consists of several examinations, the module grade will be calculated using the arithmetic average of the grades for individual examinations or in accordance with the weighting of the individual examinations indicated in the module description.

§ 10

Restriction of admission to compulsory or compulsory elective courses

- (1) The number of places available for the individual compulsory or compulsory elective courses will be determined by the Faculty Conventions at the request of the Section Biology. If more students initially register for the practical exercises, seminars or excersices than there are places available, the Examination Board will determine whether the remaining students can be accommodated through other or additional courses.
- (2) If it is not possible to accommodate all the remaining students, the course administrator will select a number of students from those registered for a degree programme in which the course is envisaged as part of the curriculum, who have promptly registered by the date stipulated by the course administrator and who satisfy the conditions of attendance, according tot he following criteria:
 - a. The first entitlement goes to students for whom attendance at this specific course is essential for them to duly complete their studies according to the curriculum, and who, in the previous semester, were set back by one semester due to capacities.
 - b. The second entitlement goes to students who are currently in the semester for which the course is envisaged according to the curriculum, and to students who did not obtain the necessary certificate in the previous semester and therefore would have to retake the course in accordance with these examination regulations. Within this entitlement, the first group is entitled to 90% of the places and the second group to 10%.

- c. The third entitlement goes to students who are not currently in the semester for which the course is envisaged according to the curriculum and who register for the course at issue for the first time, and to students who already received a place on the course at issue in a previous semester but had to give it up with valid reasons in accordance with Section 52 (4) of the Schleswig-Holstein Higher Education Act, or for a comparable reason.
- d. The fourth entitlement goes to students who already received a place on the course at issue in a previous semester and who vacated the course without evidence of a valid reason.

In the case of equal entitlement, the student with fewer semesters will be selected. If the number of semesters is the same, students will be selected by drawing lots. The Examination Board shall decide on special cases of hardship.

- (3) The MAMBE compulsory modules (biol600, biol601 and biol604) may only be taken by MAMBE students, all other modules are open to students of the 1-subject Master's degree programme in Biology.

§ 11

Further prerequisites for admission to examinations

- (1) If a module encompasses practical exercises, field trips or lab courses, admission to the examination is subject to regular participation in these courses. The following applies for these courses:
 - a. In the case of courses held once a week for the whole lecture period, a maximum of one date may be missed without proof of a valid reason, as long as no examination or part of an examination is missed.
 - b. In all other cases, no course date may be missed without proof of a valid reason.
 - c. If a student misses more dates - but not more than a total of 40% of all course dates - due to illness or other good reasons, the authorised examining teacher responsible for the course may authorise the student to make up for the parts missed by delivering an equivalent achievement. However, students do not have the right to demand this.

The reasons for failing to attend courses must be proven immediately; in the case of illness by a doctor's note.

Details will be published at the start of the course.

- (2) Further prerequisites for admission to examinations can be found in the Annex.

§ 12

Master's thesis

- (1) Any candidate who has obtained at least 60 ECTS credits from module examinations in compulsory and optional modules may be admitted to the Master's thesis.
- (2) The period from when the topic is issued until the Master's thesis is submitted is six months. The Chair of the Examination Board may extend the deadline for preparing the thesis upon request of the candidate on a case-by-case basis in accordance with Section 12 (4) PVO, if the underlying data for the thesis cannot be collected in due time or the thesis cannot be prepared on time for technical or other reasons for which the candidate cannot be held responsible.
- (3) The topic of the Master's thesis may be handed back only once and only within the first six weeks.

- (4) When applying for admission to the Master's thesis, the candidate is to propose a topic to the examiner. This does not automatically give rise to the claim for the proposal to be considered.
- (5) The Master's thesis may be supervised by the first examiner or second examiner.
- (6) First examiners are normally members of the Faculty of Mathematics and Natural Sciences and should be members of the Department of Biology. Membership of the faculty may not be necessary if the Department of Biology has a special interest in the external supervision of the thesis, e.g. in connection with research networks.
- (7) Membership of the Department of Biology may also not be necessary if the first supervisor is a member of an institute that provides teaching for the MAMBE degree programme. When assigning supervisors for Bachelor's and Master's theses, the Chair of the Examination Board should give reasonable consideration to individuals from institutes that are not part of the Department of Biology who are entitled to act as supervisors in accordance with their teaching record in the relevant degree programme.
- (8) The second examiner must be a member of the Department of Biology or MPI Plön. The Examination Board shall decide on cases of exception to these rules.
- (9) First and second examiners should not be members of the same working group. At least one of the examiners should be from the Department of Biology. If the first examiner is not a member of the Department of Biology, the second examiner must be a member of the Department of Biology.
- (10) In principle, first and second examiners must be university lecturers or non-faculty lecturers.
If it has good reason to do so, the Examination Board may on a case-by-case basis appoint other individuals who are less qualified as examiners as long as they are at least qualified as stipulated in Section 5 (2) PVO.
- (11) In exceptional cases and with the consent of the Examination Board, the Master's thesis may be prepared at an institution outside the University, provided that appropriate supervision of the candidate is available there.
- (12) The Master's thesis must be written in English.
- (13) The grade for the Master's thesis is calculated as follows: 80% comes from the grade for the written thesis and 20% comes from the grade for the oral presentation of its content.
- (14) The Master's thesis is to be submitted to the responsible Examination Office in the form of two hard copies and additionally one copy saved on a medium suitable for electronic data processing.
- (15) The Master's thesis will be graded by both examiners within six weeks of submission.

§ 13

Calculation of the overall grade

The overall grade is calculated from the module grades for all basic compulsory modules (biol600 + biol601), all advanced optional modules (biol602 + biol603), the optional module "Biological Data Analysis" (biol605), all research modules (biol606 + biol607) (see modules in bold print in the attached programme schedule) and the grade for the Master's thesis. The module grades and the grade for the Master's thesis are weighted according to the allocated ECTS credits and form the overall grade.

Section 3 Special examination provisions for the fast-track doctoral degree with simultaneous acquisition of the Master's degree in Molecular Biology and Evolution

§ 14

Requirements for admission to the fast-track doctoral degree with simultaneous acquisition of the Master's degree

Supplementary to Sections 7 and 22 of the Doctoral Degree Regulations of the Faculty of Mathematics and Natural Sciences and the Faculty of Engineering (PromO MNF and TF), individuals may be admitted to the doctoral examination procedure for the fast-track doctoral degree with a Master of Science in Molecular Biology and Evolution if they

1. have obtained an excellent Bachelor's degree in Biology or closely related subject in accordance with Section 4, normally completed in the standard period of study, and are one of the top 1% of graduates among their comparative cohort or, if the comparative cohort contains fewer than 100 individuals, the top 1% of graduates of the last two years, and
2. are registered for the 1-subject Master's degree programme in Molecular Biology and Evolution at Kiel University, and
3. have concluded a supervision agreement pursuant to Section 6 PromO, and
4. can present a letter of recommendation certifying the applicant's outstanding aptitude for academic work by the Examination Board, and
5. have received confirmation in a selection interview with the Examination Board that they have the necessary aptitude for the fast-track doctoral degree with simultaneous acquisition of the Master's degree. The interview may relate, in particular, to the necessary aptitude, motivation and relevant previous experience of the applicant as well as additional achievements not listed in the transcript of records.

External applicants must also submit a letter of recommendation from the university at which they completed their Bachelor's degree and provide the necessary certificates themselves.

§ 15

Application for the fast-track doctoral degree with simultaneous acquisition of the Master's degree

- (1) The applicant must submit a written request to the Dean for acceptance as a doctoral researcher in accordance with Section 23 of the Doctoral Degree Regulations, before the end of the first year of study of the Master's degree programme.
- (2) The application must include:
 1. the Bachelor's degree certificate,
 2. proof as stipulated in Section 14 Number 1 that the applicant is one of the top 1% of graduates among their comparative cohort or, if the comparative cohort contains fewer than 100 individuals, the top 1% of graduates of the last two years and that his/her degree was completed within the standard period of study. If the degree was not completed within the standard period of study, the reason for this must be provided separately.
 3. the letter of recommendation by the Examination Board in accordance with Section 14 Number 4. If the Bachelor's degree was not obtained in Biology at Kiel University, a letter of recommendation from the university at which the Bachelor's degree was completed must also be provided.

4. the matriculation certificate in accordance with Section 22 (2) Number 2 PromO,
5. the supervision agreement in accordance with Section 6 PromO,
6. proof of academic achievements to date in the Master's degree programme, and
7. a motivational letter stating why the applicant considers him/herself a suitable candidate for a fast-track doctoral degree with simultaneous acquisition of the Master of Science in Molecular Biology and Evolution.

§ 16

Acceptance as a doctoral researcher for a fast-track doctoral degree with simultaneous acquisition of the Master's degree

- (1) The Doctoral Degree Committee shall decide on the application for acceptance on the basis of the documents submitted in accordance with Section 15 and the regulations listed in the following paragraph via written notification.
- (2) 60 ECTS credits in the modules biol600, biol601, biol602, biol603, biol604, biol606, biol607, biol608, biol226 and biol258 must be obtained at the latest by the end of the third semester of the Master's degree programme of the fast-track doctoral degree programme. The selection of modules and the ECTS credits to be obtained in the individual sections are listed in the programme schedule. At least 10 and at most 20 ECTS credits must be derived from the modules biol600 and biol601, at least 5 and at most 10 ECTS credits from the modules biol226 and biol258, at least 10 and at most 25 ECTS credits from the modules biol602, biol603 and biol604, and at least 10 and at most 30 ECTS credits from the modules biol606, biol607 and biol608.
The average grade for modules weighted by ECTS credits from Section 16 (2) must be at least 1.5. The doctoral researcher may be provisionally accepted if these requirements are not met at the time of acceptance. If the requirements are not obtained by the end of the third semester of the Master's degree programme, the acceptance as a fast-track doctoral researcher shall expire.
- (3) Once 60 ECTS credits have been obtained in accordance with Section 16 (2) an interim evaluation is conducted by an examining group in the form of a colloquium. The examining group comprises the supervisor of the dissertation and at least two other professors from the Department of Biology. The subject of the evaluation comprises a written scientific report by the doctoral researcher, a 10 to 15 minute presentation and a 30 minute colloquium. In the case of a positive decision by the examining group, the acceptance of the doctoral researcher by the Doctoral Degree Committee is once again confirmed. Otherwise, the acceptance will be cancelled.
- (4) On approval, the interim evaluation is recognised by the Examination Board as the equivalent of a Master's thesis worth 30 ECTS credits. The grade for the Master's thesis results from the grade from the interim evaluation. 40% of the grade for the interim evaluation is derived from the written report, 30% from the presentation and 30% from the colloquium.
- (5) A negative interim evaluation in the fast-track procedure is not regarded as a failed attempt at a doctoral degree. The opportunity to continue with the Master's degree programme shall remain unaffected. Section 17 (2) applies accordingly.
- (6) The module biol671 is successfully completed if evidence is provided that skills in scientific methods have been acquired within the framework of laboratory work towards the doctoral thesis. This module is completed without an examination.
- (7) The overall grade for the Master's degree in the fast-track procedure is calculated from the module grades for all compulsory elective modules in accordance with Section 16 (2) and the grade for the Master's thesis. The module grades and the grade for the Master's thesis are weighted according to the allocated ECTS credits and form the overall grade.

Programme schedule for the Master's degree programme of the fast-track doctoral degree programme

	Modul	Module zur Auswahl/Modules for selection	SL	LV	SWS	P/W P	PL	LP
1.-3. Sem	biol600	Evolution of organisms and molecules Part I	WS	V/S	2/2	WP	K (50%)	10-20
		Evolution of organisms and molecules Part II	SS	V/S	2/2	WP	K (50%)	
	biol601	Molecular biology of dynamic processes Part I	WS	V/PrÜ	2/2	WP	K (50%)	
		Molecular biology of dynamic processes Part II	SS	V/PrÜ	2/2	WP	K (50%)	
	biol226	Biostatistics	SS	V/P	2/4	WP	K (100%)	5-10
	biol258	Computational and Comparative Genomics	SS	V/P	2/4	WP	K (100%) PA unbenotet	
	biol602	Evolution of organisms and molecules				WP	je nach Wahlmodul	10-25
	biol603	Molecular biology of dynamic processes				WP	je nach Wahlmodul	
	biol604	Scientific Presentation and Management I	WS	S/PrÜ	2/2	WP	V (50%)	
		Scientific Presentation and Management II	SS	S/PrÜ	2/2	WP	V (50%)	
	biol606	Introductory Research Module	WS/S S	KGP	8	WP	P (80%) SL (20%)	10-30
	biol607	Advanced Research Module	WS/S S	KGP	8	WP	P (80%) SL (20%)	
biol608	Development of a scientific Project	WS/S S	KGP	8	WP	SA (80%) Ko (20%)		
Σ 60								
	biol671	Erwerb wissenschaftl. Methoden im Rahmen der Doktorarbeit/ Acquisition of scientific methods within the scope of the doctoral thesis				P	ohne PL	30
		Masterarbeit: Anerkennung der Zwischenevaluation/ Master thesis: Recognition of the interim evaluation				P	SA (40%) Ko (30%) SL (30%)	30
Σ 60								

Erläuterungen/Explanations:

Modul:	Titel des Moduls in Form der Modulnummer/ Title of the module in the form of a module code
Name:	Modulbezeichnung/Module name
LF/LV:	Lehrform, Art der Lehrveranstaltung, Teaching form: V: Vorlesung/Lecture S: Seminar/Seminar PrÜ: praktische Übung, Practical Exercises KGP: Kleingruppenprojekt, Small Group Project P: Praktikum, Internship EA: Eigenständiges Arbeiten, Independent working
SWS:	Semesterwochenstunden der LV, Course semester hours
P / WP:	Status der Lehrveranstaltung (Pflicht / Wahlpflicht) Module status (P=compulsory / WP = compulsory elective)
Voraussetzung:	Zugangsvoraussetzung für die Lehrveranstaltung Module prerequisite
PL:	Prüfungsleistung/Type of Examination: K: Klausur, Written Examination P: Protokoll(e), Protocol(s) PA: Praktikumsaufgaben, Assignment V: Vortrag, Presentation Ko: Kolloquium, Colloquium M: Mündliche Prüfung, Oral Exam SL: Seminarleistung, Seminar Coursework SA: Schriftliche Ausarbeitung, Written Report B: Bericht, Report
LP:	Leistungspunkte, Credit Points

§ 17

Completion of the fast-track doctoral degree with simultaneous acquisition of the Master's degree

- (1) The Master of Science in Molecular Biology and Evolution is awarded, on the one hand, if all the examinations stipulated in Section 16 for the fast-track procedure with simultaneous acquisition of the Master's degree have been completed and, on the other hand, if the fast-track doctoral degree has been successfully concluded.
- (2) If the Master's degree programme is continued after an irrevocably failed doctoral degree procedure pursuant to Section 13 PromO, the written thesis in accordance with Section 16 (3) and the dissertation may be submitted as a Master's thesis in a revised form in line with the scope of a Master's thesis.

Section 4 Transitional and final provisions

§ 18

Entry into force

These Examination Regulations enter into force on the day following their announcement.

The University Board at Kiel University granted its approval in accordance with Section 52 (1) of the Schleswig-Holstein Higher Education Act in its letter dated 10 June 2015.

Kiel, 10 June 2015

Prof. Dr. Wolfgang Duschl
Dean of the Faculty of Mathematics and Natural Sciences
at Kiel University

Article 2 of the amended Examination Regulations of 27 July 2017:

These Examination Regulations enter into force on 1 October 2017.

Article 2 of the amended Examination Regulations of 17 May 2018:

These Examination Regulations enter into force on the day following their announcement.

Article 2 of the amended Examination Regulations of 11 January 2019:

These Examination Regulations enter into force on the day following their announcement.

Article 2 of the amended Examination Regulations of 14 February 2020:

These Examination Regulations enter into force on the day following their announcement.

Article 2 of the amended Examination Regulations of 20 July 2020:

These Examination Regulations enter into force on the day following their announcement.

Article 2 of the amended Examination Regulations of 12 January 2022:

These Examination Regulations enter into force on the day following their announcement.

Article 2 of the amended Examination Regulations of 8 August 2022:

These Examination Regulations enter into force on the day following their announcement.

Article 2 of the amended Examination Regulations of 20 July 2023:

These Examination Regulations enter into force on the day following their announcement.

Annex:

Programme schedule for the Master of Science in „Molecular Biology and Evolution“ (Study programme 600)

(Modules in bold are used for grade calculation)

	Modul/ Module	Modulbezeichnung/Module name	LF	SWS	P / WP	Voraus- setzung	PL	LP	
								Sem.	Jahr
1. Semester	biol 600	Evolution of organisms and molecules Part I	V/S	2/2	P		K (50%)	5	
	biol 601	Molecular biology of dynamic processes Part I	V/PrÜ	2/2	P		K (50%)	5	
	biol 602	Wahlbereich: Evolution of organisms and molecules*		X	WP		je nach Wahlmod	5	
	biol 603	Wahlbereich: Molecular biology of dynamic processes*		X	WP		je nach Wahlmod	2(1)x5	
	biol 604	Scientific presentation and management I	S/PrÜ	2/2	P		V (50%)	5	
	Σ								Σ 30
2. Semester	biol 600	Evolution of organisms and molecules Part II	V/S	2/2	P		K (50%)	5	
	biol 601	Molecular biology of dynamic processes Part II	V/PrÜ	2/2	P		K (50%)	5	
	biol 602	Wahlbereich: Evolution of organisms and molecules*		X	WP		je nach Wahlmod	1(2)x5	
	biol 603	Wahlbereich: Molecular biology of dynamic processes*		X	WP		je nach Wahlmod	5	
	biol 604	Scientific presentation and management II	S/PrÜ	2/2	P		V (50%)	5	
	biol 605	Wahlbereich: Biological Data Analysis	V/P	X	WP		je nach Wahlmod	5	
Σ								Σ 30	Σ 60
3. Semester**	biol 606	Introductory Research Module	KGP	8	WP		P (80%) SL (20%)	10	
	biol 607	Advanced Research Module	KGP	8	WP		P (80%) SL (20%)	10	
	biol 608-01a	Development of a scientific Project	KGP	6	P		SA (80%) Ko (20%)	10	
	Σ								Σ 30
4. Semester	biol 609	Masterarbeit, 6 Months			P		SA (80%) V (20%)	30	
	Σ								Σ 30

* In den Wahlbereichen biol 602 und biol603 sind insgesamt 5 Module à 5 LP zu erbringen, mind. zwei Module aus jedem Bereich./ In the elective sections biol 602 and biol603 a total of 5 modules of 5 LP each must be completed, at least two modules from each section.

Wahlmodulangebot siehe Anhang/Optional module offer see annex

** Das 3. Semester ist als Mobilitätsfenster besonders geeignet./ The 3rd semester is particularly suitable as a mobility window

Erläuterungen/Explanations:

Modul: Titel des Moduls in Form der Modulnummer/
Title of the module in the form of a module code

Name: Modulbezeichnung/Module name

LF/LV: Lehrform, Art der Lehrveranstaltung, Teaching form:
V: Vorlesung/Lecture
S: Seminar/Seminar
PrÜ: praktische Übung, Practical Exercises
KGP: Kleingruppenprojekt, Small Group Project
P: Praktikum, Internship
EA: Eigenständiges Arbeiten, Independent working

SWS: Semesterwochenstunden der LV, course semester hours

P / WP: Status der Lehrveranstaltung (Pflicht / Wahlpflicht)
Module status (P=compulsory / WP = compulsory elective)

Voraussetzung: Zugangsvoraussetzung für die Lehrveranstaltung
Module prerequisite

PL: Prüfungsleistung/Type of Examination:
K: Klausur, Written Examination
P: Protokoll(e), Protocol(s)
PA: Praktikumsaufgaben, Assignment
V: Vortrag, Presentation
Ko: Kolloquium, Colloquium
M: Mündliche Prüfung, Oral Exam
SL: Seminarleistung, Seminar Coursework
SA: Schriftliche Ausarbeitung, Written Report

LP:

B: Bericht, Report
Leistungspunkte, Credit Points

**Optional modules in the „Molecular Biology and Evolution“ Master of Science
(degree programme 600)**

Wahlmodule/Optional modules	Module zur Auswahl/Modules for selection	Modul-Nr.	PL	SL
biol602 Evolution of organisms and molecules				
	Evolutionary and ecological applications in Medicine Seminar 2 SWS Practical Excersises 2 SWS	biol227-01a	SL (50%) P (50%)	WS
	Marine Evolutionary Ecology Lecture 1 SWS Practical Excersises 3 SWS	biol228-01a	SL (50%) P (50%)	SS
	Inference of positive selection Seminar 2 SWS Praktikum 4 SWS	biol243	SL (50%) SA (50%)	SS
	Population genomics Seminar 2 SWS Praktikum 4 SWS	biol244	SL (100%)	WS
	Molecular evolution of biotic interactions Practical Excersises with Seminar 4 SWS	biol247	K (60%) SL (40%)	SS
	Functional Morphology of Invertebrates Lecture 1 SWS Seminar 1 SWS Practical Excersises 2 SWS	biol251	SL (40%) M (60%) P bestanden	WS
	Biomechanics and Biomimetics/Bionik Lecture 1 SWS Seminar 1 SWS Practical Excersises 2 SWS	biol252	SL (40%) M (60%) P bestanden	SS
	Evolutionary genetics Seminar 1 SWS Practical Excersises 3 SWS	biol253	SL (50%) P (50%)	SS
	Evolutionary game theory Lecture 1 SWS Practical Excersises 3 SWS	biol620	M (100%)	WS

For information purposes only, the German original is binding.

Wahlmodule/Optional modules	Module zur Auswahl/Modules for selection	Modul-Nr.	PL	SL
biol603 Molecular biology of dynamic processes				
	Environmental stress adaptation in plants Seminar 1 SWS Practical Exercises 3 SWS	biol214	SL (30%) K (70%)	WS
	Molecular microbiology: Metagenomic and biotechnology Lecture 1 SWS Practical Exercises 2 SWS Seminar 1 SWS	biol216	P unbenotet K (100%)	WS
	(Marine) Microbial Omics – from sample to function Lecture 1 SWS Practical Exercises 3 SWS	biol217-01a	P unbenotet K (100%)	WS
	Molecular Genetics and Cellular Biology of Plants and Fungi Lecture 1 SWS Practical Exercises 3 SWS	biol218	P (25%) K (75%)	WS
	Molecular Fundamentals of Ethology and Neurobiology Seminar 1 SWS Practical Exercises 3 SWS	biol222	SL (50%) P (50%)	WS
	Evolution of RNA regulatory elements in prokaryotes Lecture 1 SWS Practical Exercises 3 SWS	biol231*	K (100%)	WS
	Evolution and Development Practical Exercises 3 SWS Seminar 1 SWS	biol233	K (100%)	WS
	Developmental Biology of Marine Invertebrates Practical Exercises with Seminar as Block Seminar 1 SWS Practical Exercises 3 SWS	biol235	SL (100%)	SS
	Molecular microbiology: (Transposon)mutagenesis approaches and biotechnology Lecture 1 SWS Practical Exercises 2 SWS Seminar 1 SWS	biol237	P bestanden K (100%)	SS
	Biochemistry and Cell Biology of prokaryotes Lecture 1 SWS Practical Exercises 2 SWS Seminar 1 SWS	biol239-01a	P bestanden K (100%)	SS
	Evolution and Biology of Lateral Gene Transfer Mechanisms in Prokaryotes Lecture: 2 SWS Practical Exercises 2 SWS	biol254	P (100%)	SS
	Simple Animal Models for Human Disease Seminar 2 SWS Practical Exercises 2 SWS	biol256	P (50%) SL (50%)	SS
*Voraussetzung für den Besuch von biol231 ist der erfolgreiche Abschluss von biol237.				

Wahlmodule/Optional Modules	Module zur Auswahl/Modules for selection	Modul-Nr.	PL	SL
biol605 Biological Data Analysis				
	Biostatistics Lecture 2 SWS Praktikum 4 SWS	biol226	K (100%)	SS
	Computational and Comparative Genomics Lecture 2 SWS Praktikum 4 SWS	biol258-01a	P (100%)	SS

Wahlmodule/Optional modules	Module zur Auswahl/Modules for selection	Modul-Nr.
biol 606/607 Introductory/Advanced Research Module		
	Molecular Genetics of Plants and Fungi	biol260
	Vertebrate Evolution	biol261-01a
	Comparative Immunology and Molecular Parasitology	biol262
	Marine Symbioses	biol264-01a
	Marine Evolutionary Biology	biol267-01a
	Molecularbiology of Microorganisms	biol268
	Comparative Developmental and Immunobiology	biol271
	Microbial Biochemistry and Cell Biology	biol275
	Chemical Ecology and Molecular Evolution	biol276
	Molecular Physiology	biol278
	Evolution, Ecology and Geneitics	biol280-01a
	Methods of Biomechanics and Biomimetics	biol281
	Evolutionary and Genomic Microbiology	biol283
	Evolutionary Genomics of Pathogens	biol285
	Collection-based research on marine invertebrates	biol286e-01a
	Evolutionary Biology at Max-Planck-Institute I	biol640
	Evolutionary Biology at Max-Planck-Institute II	biol641