

Subdivided Module Catalogue  
for the Subject  
**Biology**  
as a Bachelor's with 1 major  
with the degree "Bachelor of Science"  
(180 ECTS credits)

Examination regulations version: 2015  
Responsible: Faculty of Biology

## Learning Outcomes

German contents and learning outcome available but not translated yet.

### Wissenschaftliche Befähigung

- Die Absolventinnen und Absolventen verstehen die mathematischen, theoretischen und experimentellen Grundlagen der Biologie und können diese anwenden.
- Die Absolventinnen und Absolventen können unter Anleitung Experimente durchführen, analysieren und die erhaltenen Ergebnisse darstellen und bewerten.
- Die Absolventinnen und Absolventen setzen die erlernten theoretischen und experimentellen Methoden unter Anleitung zur Erlangung neuer Erkenntnisse ein.
- Die Absolventinnen und Absolventen sind in der Lage, naturwissenschaftliche Probleme durch Anwendung der wissenschaftlichen Arbeitsweise und unter Beachtung der Regeln guter wissenschaftlicher Praxis (Dokumentation, Fehleranalyse) zu bearbeiten.
- Die Absolventinnen und Absolventen können ihr Wissen und ihre Erkenntnisse einem Fachpublikum gegenüber darstellen und vertreten.
- Die Absolventinnen und Absolventen können ein breites Grundlagenwissen aus den wichtigsten Teilgebieten der Biologie sowie tiefergehende Kenntnisse in mindestens einem Teilgebiet abrufen.
- Die Absolventinnen und Absolventen verstehen die wesentlichen Zusammenhänge und Konzepte der einzelnen Teilgebiete der Biologie.
- Die Absolventinnen und Absolventen sind in der Lage, sich mit Hilfe von Fachliteratur in neue Aufgabengebiete einzuarbeiten, naturwissenschaftliche Methoden unter Anleitung auf konkrete experimentelle oder theoretische physikalische Aufgabenstellungen anzuwenden, Lösungswege zu entwickeln und die Ergebnisse zu interpretieren und zu bewerten.
- Die Absolventinnen und Absolventen besitzen Abstraktionsvermögen, analytisches Denken, Problemlösungskompetenz und die Fähigkeit, komplexe Zusammenhänge zu strukturieren.

### Befähigung zur Aufnahme einer Erwerbstätigkeit

- Die Absolventinnen und Absolventen können ihr Wissen und ihre Erkenntnisse einem Fachpublikum gegenüber darstellen und vertreten.
- Die Absolventinnen und Absolventen sind in der Lage, konstruktiv und zielorientiert in einem heterogenen Team zusammenzuarbeiten, unterschiedliche und abweichende Ansichten produktiv zur Zielerreichung zu nutzen und auftretende Konflikte zu lösen (Teamfähigkeit).
- Die Absolventinnen und Absolventen können ihre erworbenen Kompetenzen in unterschiedlichen interkulturellen Kontexten und in international zusammengesetzten Teams anwenden.
- Die Absolventinnen und Absolventen sind in der Lage, Probleme und deren Lösungen zielgruppengerecht und auch in einer Fremdsprache aufzubereiten und darzustellen.
- Die Absolventinnen und Absolventen sind in der Lage natur- und biowissenschaftliche Methoden unter Anleitung auf konkrete experimentelle oder theoretische biologische Aufgabenstellungen anzuwenden, Lösungswege zu entwickeln und die Ergebnisse zu interpretieren und zu bewerten.
- Die Absolventinnen und Absolventen kennen die wichtigsten Anforderungen und Arbeitsweisen im industriellen Umfeld sowie in Forschung und Entwicklung.
- Die Absolventinnen und Absolventen sind befähigt, komplexere Probleme zu analysieren und zu lösen und sich sehr schnell auch in weniger vertraute Themenkomplexe einzuarbeiten.

### Persönlichkeitsentwicklung

- Die Absolventinnen und Absolventen kennen die Regeln guter wissenschaftlicher Praxis und beachten sie.
- Die Absolventinnen und Absolventen können ihr Wissen und ihre Erkenntnisse einem Fachpublikum gegenüber darstellen und vertreten.

### **Befähigung zum gesellschaftlichen Engagement**

- Die Absolventinnen und Absolventen können naturwissenschaftliche Entwicklungen kritisch reflektieren und deren Auswirkungen auf die Wirtschaft, Gesellschaft und die Umwelt in Ansätzen erfassen (Technikfolgenabschätzung).
- Die Absolventinnen und Absolventen haben ihr Wissen bezüglich wirtschaftlicher, gesellschaftlicher, naturwissenschaftlicher, kultureller etc. Fragestellungen erweitert und können begründet Position beziehen.
- Die Absolventinnen und Absolventen entwickeln die Bereitschaft und Fähigkeit, ihre Kompetenzen in partizipative Prozesse einzubringen und aktiv an Entscheidungen mitzuwirken.

## Abbreviations used

Course types: **E** = field trip, **K** = colloquium, **O** = conversatorium, **P** = placement/lab course, **R** = project, **S** = seminar, **T** = tutorial, **Ü** = exercise, **V** = lecture

Term: **SS** = summer semester, **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B/NB** = (not) successfully completed

Regulations: **(L)ASPO** = general academic and examination regulations (for teaching-degree programmes), **FSB** = subject-specific provisions, **SFB** = list of modules

Other: **A** = thesis, **LV** = course(s), **PL** = assessment(s), **TN** = participants, **VL** = prerequisite(s)

## Conventions

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

## Notes

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

## In accordance with

the general regulations governing the degree subject described in this module catalogue:

**ASPO2015**

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

**22-Jul-2015 (2015-38)**

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.



## The subject is divided into

Abbreviation	Module title	ECTS credits	Method of grading	page
<b>Compulsory Courses (91 ECTS credits)</b>				
<b>Module Group General Biology I</b>				
07-1A1TI-152-m01	Evolution and the Animal Kingdom	5	NUM	56
07-1A1ZE-152-m01	Structure and Function of Cells	5	NUM	58
07-1A1ZPF-152-m01	The Plant Kingdom	5	NUM	60
<b>Module Group General Biology II</b>				
07-2A2PHYPR-152-m01	Physiology of Prokaryotes	4	NUM	66
07-2A2PHYPF-152-m01	Plant Physiology	4	NUM	64
07-2A2PHYTI-152-m01	Animal Physiology	4	NUM	67
07-2A2GENV-152-m01	Genetics, Neurobiology, Behaviour	5	NUM	62
<b>Module Group General Biology III</b>				
07-3A3OEKO-152-m01	Plant and Animal Ecology	6	NUM	74
07-3A3EBIOTI-152-m01	Developmental Biology of Animals	4	NUM	70
07-3A3EBIOPF-152-m01	Developmental Biology of Plants	4	NUM	69
07-3A3GEMT-152-m01	Genes, Molecules, Technologies	6	NUM	72
07-3A3BC-152-m01	Basic Biochemistry	4	NUM	68
<b>Module Group Mathematics/Quantitative Biology</b>				
07-M-BST-152-m01	Mathematical Biology and Biostatistics	4	NUM	205
10-M-MCB-152-m01	Mathematics for students in Chemistry and Biology	5	NUM	347
<b>Module Group Chemistry</b>				
08-PC-Bio-152-m01	Physical Chemistry for Biology Majors	5	NUM	346
08-AC-Bio-152-m01	Inorganic Chemistry for Biology Majors	5	NUM	339
08-OC-Bio-152-m01	Organic Chemistry for Students of Biology	10	NUM	345
<b>Module Group Physics</b>				
11-ENF-Bio1-152-m01	Introduction to Physics for Students of Biology	2	NUM	349
11-ENF-Bio2-152-m01	Introduction to Physics for Students of Biology	4	B/NB	350
<b>Compulsory Electives (57 ECTS credits)</b>				
<b>Subfield General Biology IV (7 ECTS credits)</b>				
07-4A4FLO-152-m01	The Flora of Germany	7	NUM	78
07-4A4FAU-152-m01	The Fauna of Germany	7	NUM	76
<b>Subfield Advanced Biology (10 ECTS credits)</b>				
07-4BFPS2-152-m01	Membranebiology of Plants for Advanced Students	5	NUM	96
07-4BFNVO1-152-m01	Neurobiology for Advanced Students	5	NUM	88
07-4BFNVO2-152-m01	Behavioral Physiology	5	NUM	90
07-4BFNVO3-152-m01	Basics in Ecology of Animals	5	NUM	92
07-4BFMZ1-152-m01	Cell- and Developmental Biology for Advanced Students	5	NUM	80
07-4BFMZ3-152-m01	Microbiology for Advanced Students	5	NUM	82
07-4BFMZ4-152-m01	Bioinformatics for Advanced Students	5	NUM	84
07-4BFMZ5-152-m01	Biotechnology 1	5	NUM	86
07-4BFPS1-152-m01	Molecular Physiology for Advanced Students	5	NUM	94
07-4BFPS3-152-m01	Protein Biochemistry and Photobiology for Advanced Students	5	NUM	98
07-4BFPS4-152-m01	Basic Plant Ecophysiology	5	NUM	100
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07-4BFPS5-152-m01	Pharmaceutical Bioanalytics	5	NUM	102
07-4BFPS6-152-m01	Pharmaceutical Biotechnology	5	NUM	104
<b>Subfield Special Biosciences I (5 ECTS credits)</b>				
07-4S1MEER-152-m01	Ecology and Developmental Biology of Marine Organisms	5	NUM	110
08-BC1-152-m01	Biochemistry 1	5	NUM	340
08-BC2-152-m01	Biochemistry 2	5	NUM	342
07-4S1AMB-152-m01	Methods in Biotechnology	5	NUM	106
07-4S1MOLB-152-m01	Aspects of Molecular Biotechnology	5	NUM	112
07-4S1MZ6-152-m01	Special Bioinformatics 1	5	NUM	118
07-4S1MZ1-152-m01	Basics in Light- and Electron-Microscopy	5	NUM	114
07-4S1NVO1-152-m01	Neurobiology 1	5	NUM	124
07-4S1NVO2-152-m01	Integrative Behavioral Biology 1	5	NUM	126
07-4S1NVO3-152-m01	Functional Morphology of Arthropods	5	NUM	128
07-4S1NVO5-152-m01	Biology and Ecology of Arthropods	5	NUM	130
07-4S1NVO6-152-m01	Biology and Ecology of Arthropods	5	NUM	132
07-4S1MZ2-152-m01	Analysis of Chromosomes	5	NUM	116
07-4S1LAND-152-m01	Excursion on the Ecology and Faunistics of Terrestrial Ecosystems of the Temperate Zone	5	NUM	108
07-4S1TROP-152-m01	Excursion on the Ecology and Faunistics of a Tropical Ecosystem	5	NUM	142
07-4S1MZ7-152-m01	Specific Cell- and Developmental Biology 1	5	NUM	120
07-4S1MZ8-152-m01	Specific Methods in Proteinbiochemistry and Cell Biology	5	NUM	122
07-4S1PS1-152-m01	Molecular modelling - From DNA to Protein	5	NUM	134
07-4S1PS2-152-m01	Methods in Plant Ecophysiology	5	NUM	136
07-4S1PS3-152-m01	Pharmaceutical Drugs in Plants	5	NUM	138
07-4S1PS4-152-m01	Basic Methods in Pharmaceutical Biology	5	NUM	140
03-4S1IMM-152-m01	Immunology 1	5	NUM	12
03-4S1VIR-152-m01	Virology 1	5	NUM	16
03-4S1PC-152-m01	Developmental Biochemistry	5	NUM	14
03-4S1HUG-152-m01	Human Genetics	5	NUM	10
08-BCPB-152-m01	Biochemical Practical Course for Students in Biology	5	B/NB	344
07-S1-LP1-152-m01	Laboratory Practical Course I	5	NUM	210
07-S1-Ex1-152-m01	Excursion I	5	NUM	207
07-S1-IP1-152-m01	Interdisciplinary Project I	5	NUM	208
<b>Subfield Special Biosciences II (20 ECTS credits)</b>				
07-5S2MZ4-152-m01	Specific Biotechnology 2	10	NUM	152
07-5S2NVO1-152-m01	Neurobiology 2	10	NUM	154
07-5S2NVO2-152-m01	Integrative Behavioural Biology 2	10	NUM	156
07-5S2NVO3-152-m01	Animal Ecology 2	10	NUM	158
07-5S2MZ1-152-m01	Specific Cell- and Developmental Biology 2	10	NUM	146
07-5S2MZ2-152-m01	Specific Microbiology 2	10	NUM	148
07-5S2MZ3-152-m01	Specific Bioinformatics 2	10	NUM	150
07-5S2PS1-152-m01	Specific Membranebiology of Plants 2	10	NUM	160
07-5S2PS2-152-m01	Specific Molecular Physiology of Plants 2	10	NUM	162
07-5S2PS3-152-m01	Analysis of Biosensors	10	NUM	164
07-5S2PS4-152-m01	Advanced Plant Ecophysiology	10	NUM	166
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07-5S2PS5-152-m01	Molecular Biological Methods in Pharmaceutical Biology	10	NUM	168
03-5S2IM-152-m01	Immunology 2	10	NUM	18
03-5S2VL-152-m01	Virology 2	10	NUM	30
03-5S2PC-152-m01	Physiological Chemistry 2	10	NUM	24
03-5S2KB-152-m01	Clinical Biochemistry 1 / Laboratory Medicine	10	NUM	20
03-5S2ST-152-m01	Structural Biology 2	10	NUM	26
03-5S2ZT-152-m01	Cellular Tumorbiology 2	10	NUM	34
03-5S2ZM-152-m01	Molecular Biology of Cells 2	10	NUM	32
03-5S2TE-152-m01	Tissue engineering 2	10	NUM	28
03-5S2KN-152-m01	Clinical Neurobiology 2	10	NUM	22
07-5EP-152-m01	External Practical Course	10	NUM	145
07-S2-EX2-152-m01	Excursion II	10	NUM	212
07-S2-IP2-152-m01	Interdisciplinary Project II	10	NUM	214
07-S2-LP2-152-m01	Laboratory Practical Course II	10	NUM	216
07-5AP-152-m01	Practical Course as Exchange Student	10	NUM	144
<b>Subfield Special Biosciences III (15 ECTS credits)</b>				
07-6S3NVO1-152-m01	Neurobiology 3	15	NUM	179
07-6S3NVO2-152-m01	Integrative Behavioural Biology 3	15	NUM	181
07-6S3NVO7-152-m01	Animal Ecology 4	15	NUM	191
07-6S3NVO31-152-m01	Advanced Animal Ecology 3	10	NUM	183
07-6S3NVO32-152-m01	Ecological Modelling	5	NUM	185
07-6S3NVO33-152-m01	Nature Conservation Biology	5	NUM	187
07-6S3NVO34-152-m01	Tropical Biology	5	NUM	189
07-6S3MZ1-152-m01	Specific Cell- and Developmental Biology 3	15	NUM	171
07-6S3MZ3-152-m01	Specific Microbiology 3	15	NUM	173
07-6S3MZ4-152-m01	Specific Biotechnology 3	15	NUM	175
07-6S3MZ5-152-m01	Specific Bioinformatics 3	15	NUM	177
07-6S3PS1-152-m01	Specific molecular Physiology of Plants 3	15	NUM	193
07-6S3PS2-152-m01	Structural and functional Analysis of Biosensors 3	15	NUM	195
07-6S3PS3-152-m01	Specific Membrane Biology of Plants 3	15	NUM	197
07-6S3PS4-152-m01	Scientific Work in Plant Ecophysiology	15	NUM	199
07-6S3PS5-152-m01	Research Project in Pharmaceutical Biology with Focus on Molecular Biology	15	NUM	201
07-6S3PS6-152-m01	Research Project in Pharmaceutical Biology with Focus on Molecular Biochemistry	15	NUM	203
03-6S3IM-152-m01	Immunology 3	15	NUM	36
03-6S3VL-152-m01	Virology 3	15	NUM	50
03-6S3KB-152-m01	Clinical Biochemistry 3 / Laboratory Medicine	15	NUM	38
03-6S3PC-152-m01	Physiological Chemistry 3	15	NUM	42
03-6S3ST-152-m01	Structural Biology 3	15	NUM	46
03-6S3ZT-152-m01	Cellular Tumorbiology 3	15	NUM	54
03-6S3ZM-152-m01	Cellular Molecular Biology 3	15	NUM	52
03-6S3PH-152-m01	Physiology	15	NUM	44
03-6S3KN-152-m01	Clinical Neurobiology 3	15	NUM	40
03-6S3TE-152-m01	Tissue Engineering 3	15	NUM	48
07-S3-Ex3-152-m01	Excursion III	15	NUM	218
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07-S3-IP3-152-m01	Interdisciplinary Project III	15	NUM	219
07-S3-LP3-152-m01	Laboratory Practical Course III	15	NUM	220
<b>Key Skills Area (20 ECTS credits)</b>				
<b>General Key Skills (5 ECTS credits)</b>				
In addition to the modules offered as part of the pool of general transferable skills (ASQ) of JMU, students may also take the following modules.				
<b>General Key Skills (subject-specific)</b>				
07-SQA-EFQ2-152-m01	Additional Key Qualification 2	2	B/NB	221
07-SQA-EFQ3-152-m01	Additional Key Qualification 3	3	B/NB	222
07-SQA-EFQ4-152-m01	Additional Key Qualification 4	4	B/NB	223
07-SQA-EFQ5-152-m01	Additional Key Qualification 5	5	B/NB	224
07-SQA-WP1-152-m01	Designing a Scientific Poster	3	B/NB	225
<b>Subject-specific Key Skills (15 ECTS credits)</b>				
Completion of module 07-SQF-RETH is mandatory.				
07-SQF-TFB3-152-m01	Supervising Tutorial for Basic Courses 3	3	B/NB	279
07-SQF-TFB4-152-m01	Supervising Tutorial for Basic Courses 4	4	B/NB	280
07-SQF-TFB5-152-m01	Supervising Tutorial for Basic Courses 5	5	B/NB	281
07-SQF-TSB2-152-m01	Supervising Tutorial for Biology 2	2	B/NB	282
07-SQF-TSB3-152-m01	Supervising Tutorial for Biology 3	3	B/NB	283
07-SQF-UBG-152-m01	Environmental Education in the Botanic Garden of Würzburg University	2	B/NB	284
07-SQF-BGA-152-m01	Biotechnology and Social Acceptance	3	NUM	226
07-SQF-RETH-152-m01	Legal and Ethical Aspects in Biological Sciences	5	NUM	274
07-SQF-PBD-152-m01	Principles of Image Data Processing	2	B/NB	270
07-SQF-GSA-152-m01	Basics in System Administration	2	B/NB	250
07-SQF-CTA-152-m01	Computertools for Molecular Biology	2	B/NB	228
07-SQF-EDV-152-m01	Basic Data Processing	3	NUM	237
07-SQF-OSB-152-m01	Organisation and Safety in Biosciences	5	NUM	268
07-SQF-GGL-152-m01	Basic Principles for Laboratory Work	3	NUM	239
07-SQF-GXP-152-m01	Good Practices in Laboratory, Clinics and Production	3	NUM	260
07-SQF-IKK-152-m01	Tutorial Intercultural Competence	4	B/NB	264
07-SQF-KEB-152-m01	Career Perspectives, Personal Competence and Communication Skills	5	NUM	266
07-SQF-RPI-152-m01	Research, Presentation, Information	5	NUM	275
07-SQF-GHE-152-m01	Global Acting in Globally and Locally linked Decision Processes	3	NUM	241
07-SQF-HVB-152-m01	Outstanding Publications in Biology	3	NUM	262
07-SQF-PRB-152-m01	Patents in Biology	2	NUM	272
07-SQF-SAL-152-m01	Operational Safety in Ecophysiological Laboratories	1	NUM	277
07-SQF-WIP-152-m01	Publishing Scientific Data	3	NUM	287
07-SQF-GTA-152-m01	Teamwork in Natural Science	2	B/NB	259
07-SQF-UDB-152-m01	Entrepreneurial Thinking in Biosciences	3	B/NB	286
07-SQF-ZQN2-152-m01	Additional Qualification in Natural Sciences 2	2	B/NB	314
07-SQF-ZQN3-152-m01	Additional Qualification in Natural Sciences 3	3	B/NB	319
07-SQF-ZQN4-152-m01	Additional Qualification in Natural Sciences 4	4	B/NB	324
07-SQF-ZQN5-152-m01	Additional Qualification in Natural Sciences 5	5	B/NB	329
07-SQF-ZQN6-152-m01	Additional Qualification in Natural Sciences 6	5	NUM	334
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07-SQF-ZQA2-152-m01	Additional Qualification outside Natural Sciences 2	2	B/NB	289
07-SQF-ZQA3-152-m01	Additional Qualification outside Natural Sciences 3	3	B/NB	294
07-SQF-ZQA4-152-m01	Additional Qualification outside Natural Sciences 4	4	B/NB	299
07-SQF-ZQA5-152-m01	Additional Qualification outside Natural Sciences 5	5	B/NB	304
07-SQF-ZQA6-152-m01	Additional Qualification outside Natural Sciences 6	5	NUM	309
<b>Thesis Area (12 ECTS credits)</b>				
07-6BT-152-m01	Thesis Biology	12	NUM	170

Module title		Abbreviation
Human Genetics		03-4S1HUG-152-m01
Module coordinator		Module offered by
holder of the Chair of of Human Genetics		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Fundamentals of and analytical methods in human and vertebrate cytogenetics. Characterisation of the normal human karyotype and chromosome aberrations. Introduction to chromosome evolution.		
<b>Intended learning outcomes</b>		
Students who complete this module will acquire the theoretical basis of and practical experience in human cytogenetics. They will learn how to prepare and identify human chromosomes and critically interpret cytogenetic findings.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (1,5) + S (0,5)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 30 minutes)		
<b>Allocation of places</b>		
<p>15 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 %</p>		

of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)



Module title		Abbreviation
Immunology 1		03-4S1IMM-152-m01
Module coordinator		Module offered by
holder of the Professorship of Immunogenetics		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
<p>This module gives an introduction to immunology. The following questions will be addressed: How does the body recognise and eliminate pathogens and tumour cells? How can the immune system damage its own body (allergies, autoimmunity)? Organs, cells and molecules of the immune system will be presented with an emphasis on genetic and molecular mechanisms of recognition and elimination of foreign substances by the immune system. The most important immunological techniques will be introduced and applied.</p>		
Intended learning outcomes		
<p>The students acquire a practical knowledge of cellular and molecular techniques for the analysis of the immune system. They are familiar with the mechanisms of self and non-self discrimination by the adaptive and innate immune systems. They acquire a fundamental knowledge of lymphocyte development as well as major immune effector cell functions and molecules.</p>		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (1) + P (3)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
<p>written examination (approx. 45 minutes) Assessment offered: Once a year, summer semester</p>		
Allocation of places		
<p>BA Biologie: 16 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking.</p>		



Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)

Module title		Abbreviation
<b>Developmental Biochemistry</b>		03-4S1PC-152-m01
Module coordinator		Module offered by
holder of the Chair of Physiological Chemistry		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
General anatomy, physiology and developmental biology of fishes. Special usefulness of the mainstream fish model systems (zebrafish, medaka, Xiphophorus) for biomedical research. Phenotyping of mutants. Microinjection of DNA and RNA in single-cell embryos. Fluorescent microscopy-based bioimaging techniques. Visualisation of selected tissues and organs (neural tissues, cartilage). In-situ hybridisation of mRNA. Immunohistochemical detection of proteins in-situ. Demonstration of basic techniques for electron microscopy. Behavioural analyses of locomotor activity.		
<b>Intended learning outcomes</b>		
Students are able to independently produce transient transgenic fish. They are able to delineate and describe temporal and spatial RNA and protein expression in situ, appraise expression patterns and recognise phenotypes of developmental mutants. They are able to evaluate fish models of biomedicine for their usefulness to answer specific questions.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (4)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes)		
<b>Allocation of places</b>		
<p>16 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking.</p>		

Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)

Module title			Abbreviation
Virology 1			03-4S1VIR-152-m01
Module coordinator		Module offered by	
holder of the Chair of Virology		Faculty of Medicine	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Introduction to virology; the infectious cycle; virus structure and assembly; adsorption and entry; genomes and genetics; RNA-viruses: mRNA-synthesis and RNA-genome replication; retroviruses: reverse transcription and integration; DNA-viruses: transcription and genome replication. Foundations of cell biology. Introduction to the scientific method and scientific approach; principles of antiviral therapy and vaccination; introduction to clinical virology; HIV and AIDS. Safe work in a BSL-2 laboratory; cell culture; virus production, titre test; virus sequencing, phylogenetic analysis of viral quasispecies.			
Intended learning outcomes			
Fundamental knowledge of molecular virology, the structure and replication of viruses and virus-host interactions; principles of antiviral vaccines and chemotherapeutics; principal techniques in cell and molecular biology for virological research.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + S (1) + P (3)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Assessment offered: Once a year, summer semester			
Allocation of places			
BA Biologie: 18 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they ha-			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 16 / 350

ve achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
Immunology 2		03-5S2IM-152-m01
Module coordinator		Module offered by
holder of the Professorship of Immunogenetics		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Specific problems in immunology such as immune modulation, immunogenetics, infection immunology, signal transduction in immune cells.		
<b>Intended learning outcomes</b>		
The students acquire specific competence about the functional mechanisms of the immune system. They are qualified to plan and perform experiments under supervision and present the data, taking into account current literature.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
P (8) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
<b>Allocation of places</b>		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their		
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average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### **Additional information**

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#### **Workload**

300 h

#### **Teaching cycle**

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#### **Referred to in LPO I** (examination regulations for teaching-degree programmes)

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#### **Module appears in**

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)



Module title			Abbreviation
Clinical Biochemistry 1 / Laboratory Medicine			03-5S2KB-152-m01
Module coordinator		Module offered by	
holder of the Chair of Clinical Biochemistry and Pathobiology		Faculty of Medicine	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Basic research practice and analytical approaches that are used in pathobiology and clinical biochemistry are presented by means of selected examples. Pathological mechanisms are compared to the respective regular physiological processes (e. g. thrombocyte function, cardiovascular transformation) and the underlying biochemical and genetic variations are discussed.			
Intended learning outcomes			
Students have developed a fundamental knowledge of techniques and approaches that are commonly used in modern molecular biology and biochemistry and have developed a fundamental understanding of how to approach, analyse and interpret problems in clinical biochemistry. They also have developed skills in experimental design, bench work, data analysis and the presentation of scientific results both orally and in writing.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (6) + S (2) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English			
Allocation of places			
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.			



Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)

Module title		Abbreviation
<b>Clinical Neurobiology 2</b>		03-5S2KN-152-m01
Module coordinator		Module offered by
holder of the Chair of Clinical Neurobiology		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Students who successfully completed this module will have acquired insights into the foundations of clinical neurobiology. In this module, the cellular and molecular mechanisms which are important for survival as well as the cell death of neurons and glial cells of vertebrates will be compared during development as well as under pathological conditions. The module will also focus on the function of neurons and glial cells, synaptic activity, plasticity as well as disturbances in these functions and diseases of the nervous system, comparison of physiological processes in pathological conditions of neurodegenerative disorders such as motoneuron disorders. Using distinct examples in neurobiology, molecular genetic and functional biochemical connections will be analysed.		
Intended learning outcomes		
Students who successfully complete this module will have a fair knowledge of the basic functions of the nervous system. Students will be able to independently work on a distinct project using techniques of modern neurobiology, to solve general problems and to understand the mechanisms of neurodegenerative disorders. They will be able to analyse data and to interpret it in the context of literature. They will also have developed skills in experimental design, bench work, data analysis and the presentation of scientific results both orally and in writing.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (6) + S (2) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
Allocation of places		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already ha-		

ve successfully completed at least one other module component of the respective module will be given preferential consideration.

A waiting list will be maintained and places re-allocated as they become available.

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
Physiological Chemistry 2		03-5S2PC-152-m01
Module coordinator		Module offered by
holders of the Chairs of Physiological Chemistry, Developmental Biochemistry, Biochemistry and Molecular Biology		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Fundamentals and analytical approaches of physiological chemistry are taught based on selected questions from human biochemistry. Physiological processes are compared with examples of pathological aberrations. Molecular genetic and functional biochemical networks are presented using examples from developmental biochemistry, pathobiochemistry and cellular biochemistry.		
Intended learning outcomes		
Students have developed the ability to approach, analyse and interpret general problems in physiological chemistry based on individually assigned tasks, using techniques of modern molecular biology and biochemistry. They also have developed skills in experimental design, bench work, data analysis and the presentation of scientific results.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (7) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
Allocation of places		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.		

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)

Module title		Abbreviation
<b>Structural Biology 2</b>		03-5S2ST-152-m01
Module coordinator		Module offered by
holder of the Chair of Structural Biology		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
This module will use examples from current research reflecting different topics to provide fundamental biological insights and to also illustrate the fundamental concepts of structural biology. Scientific projects may be selected from the following list: DNA repair, ubiquitin-dependent protein degradation, transport and anchoring of inhibitory neurotransmitter receptors and structure-based design of new pharmaceutical agents.		
Intended learning outcomes		
Students will gain the ability to solve problems in structural biology on the basis of individually assigned tasks, employing different techniques from the fields of molecular biology, biochemistry and crystallography. They will also acquire skills in the design of experiments, their performance and evaluation as well as in the oral and written presentation of scientific results.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (6) + S (2) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
Allocation of places		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they ha-		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 26 / 350



ve achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Tissue engineering 2			03-5S2TE-152-m01
Module coordinator		Module offered by	
holder of the Chair of Tissue Engineering (University Hospital)		Faculty of Medicine	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Cell culture, tissue culture for medical applications, development of bioreactors in which tissue grows, simulation of physiological circumstances for culturing functional tissue.			
Intended learning outcomes			
Students have developed a fundamental knowledge of cell biology, cell culture, tissue engineering and regenerative medicine. In addition, they have acquired hands-on expertise in histological, molecular and biochemical methods for the quantitative and qualitative characterisation of cells and tissue.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (6) + S (2) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English			
Allocation of places			
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics))			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
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at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Virology 2			03-5S2VL-152-m01
Module coordinator		Module offered by	
holder of the Chair of Virology		Faculty of Medicine	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
This module addresses special virological problems using selected examples such as viral pathogenesis, interaction of viruses with host cells or the complete host, new developments in molecular virology, prevention and treatment of viral infections and the pathogenesis of prion diseases.			
Intended learning outcomes			
The students have acquired a specific knowledge of molecular virology. They are able to plan and perform experiments under guidance as well as to present them, taking into account current literature.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + S (1) + P (6) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English			
Allocation of places			
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
		page 30 / 350	

average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Molecular Biology of Cells 2</b>		03-5S2ZM-152-m01
Module coordinator		Module offered by
holder of the Chair of Medical Radiation and Cell Research		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
In this module, current problems in the research areas of stem cell biology and cellular differentiation will be discussed and specific solutions will be taught. With the help of selected examples, participants will acquire practical molecular biological techniques.		
Intended learning outcomes		
Students have developed the ability to approach, analyse and critically interpret current problems in cellular molecular biology based on individually assigned tasks, using techniques of modern molecular and cell biology. They also have developed skills in experimental design, bench work, data analysis and the presentation of scientific results both orally and in writing.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (6) + S (2) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
Allocation of places		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components		
Bachelor's with 1 major Biology (2015)		page 32 / 350

in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Cellular Tumorbiology 2			03-5S2ZT-152-m01
Module coordinator		Module offered by	
Chair of Rudolf Virchow Center for Experimental Biomedicine		Faculty of Medicine	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Using specific examples and applying both biochemical analytical procedures and imaging techniques, this module will provide students with fundamental insights into cellular tumour biology and will acquaint them with the approaches of cellular tumour biology. With the help of selected examples, the module will explain fundamental causal relationships and approaches.			
Intended learning outcomes			
Students have developed the ability to approach, analyse and critically interpret general problems in tumour biology based on individually assigned tasks, using techniques of modern cell biology and, in particular, imaging methods. They also have developed skills in experimental design, bench work, data analysis and the presentation of scientific results.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (6) + S (2) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English			
Allocation of places			
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.			

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)



Module title		Abbreviation
Immunology 3		03-6S3IM-152-m01
Module coordinator		Module offered by
holder of the Professorship of Immunogenetics		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
In 6-week lab courses that will be accompanied by seminars, the module will address specific problems in immunology such as immunomodulation, immunogenetics, infection immunology, signal transduction in immune cells.		
Intended learning outcomes		
The students acquire extended knowledge and skills in the area of immune functions. They are qualified to plan and perform experiments under supervision and present the data, taking into account current literature.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (9) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
Allocation of places		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their		
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average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### **Additional information**

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#### **Workload**

450 h

#### **Teaching cycle**

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#### **Referred to in LPO I** (examination regulations for teaching-degree programmes)

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#### **Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Clinical Biochemistry 3 / Laboratory Medicine</b>		03-6S3KB-152-m01
Module coordinator		Module offered by
holder of the Professorship Clinical Biochemistry at the Rudolf Virchow Center for Experimental Biomedicine		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Basic research practice and analytical approaches that are used in clinical biochemistry II are presented by means of selected examples. Pathological mechanisms are compared to the respective regular physiological processes (e. g. thrombocyte function, cardiovascular transformation). Molecular genetic and functional biochemical networks are presented using examples from pathobiochemistry and cellular biochemistry.		
Intended learning outcomes		
Students have developed a fundamental knowledge of techniques and approaches that are commonly used in modern molecular biology and biochemistry and have developed a fundamental understanding of how to approach, analyse and interpret problems in clinical biochemistry. They also have developed skills in experimental design, bench work, data analysis and the presentation of scientific results both orally and in writing.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (9) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
Allocation of places		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.		

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Clinical Neurobiology 3</b>		03-6S3KN-152-m01
Module coordinator		Module offered by
holder of the Chair of Clinical Neurobiology		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Using the example of specific problems in the neurobiology of humans, this module will acquaint students with the fundamental principles of as well as analytical techniques used in clinical neurobiology. Physiological processes will be compared with pathological conditions (e. g. Parkinson's and Alzheimer's disease). Using selected examples of neurobiology, the module will discuss molecular, genetic and functional biochemical correlations to distinct diseases.		
Intended learning outcomes		
Students who successfully complete this module will have a fair knowledge that will enable them to work on individual tasks, using techniques of modern neurobiology to solve, analyse and interpret general problems. Students will also have a fair knowledge that will enable them to plan and perform experiments as well as to interpret their data and present their research results both orally and in writing.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (9) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
Allocation of places		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.		

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)

Module title		Abbreviation
Physiological Chemistry 3		03-6S3PC-152-m01
Module coordinator		Module offered by
holders of the Chairs of Physiological Chemistry, Developmental Biochemistry, Biochemistry and Molecular Biology		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Advanced knowledge and research-oriented approaches of physiological chemistry are taught based on selected questions from human biochemistry. Physiological processes are compared with examples of pathological aberrations. Molecular genetic and functional biochemical networks are presented using examples from developmental biochemistry, pathobiochemistry and cellular biochemistry.		
Intended learning outcomes		
Students have developed the ability to approach, analyse and interpret special problems in physiological chemistry based on individually assigned tasks, using techniques of modern molecular biology and biochemistry. They also have developed in-depth skills in experimental design, bench work, data analysis and the presentation of scientific results.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (9) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
Allocation of places		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.		

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title			Abbreviation
Physiology			03-6S3PH-152-m01
Module coordinator		Module offered by	
holder of the Chair of Physiology I		Faculty of Medicine	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will become familiar with the fundamental principles of as well as analytical procedures in physiology. Physiological processes will be compared with pathological conditions (e. g. hormonal or cardiovascular disorders). Using selected examples of physiological and pathophysiological conditions, the module will explain the underlying physiological und biochemical mechanisms.			
Intended learning outcomes			
Students have developed the ability to approach, analyse and interpret specific problems in physiology based on individually assigned tasks, using techniques of modern physiology and biochemistry. They also have developed skills in experimental design, bench work, data analysis and the presentation of scientific results.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English			
Allocation of places			
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components			
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in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Structural Biology 3</b>		03-6S3ST-152-m01
Module coordinator		Module offered by
holder of the Chair of Structural Biology		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
This module will use examples from current research reflecting different topics to provide fundamental biological insights and to also illustrate the fundamental concepts of structural biology. Scientific projects may be selected from the following list: DNA repair, protein folding in the endoplasmic reticulum, ubiquitin-dependent protein degradation and structure-based design of new pharmaceutical agents.		
Intended learning outcomes		
Students will gain the ability to solve problems in structural biology on the basis of individually assigned tasks, employing different techniques from the fields of molecular biology, biochemistry and crystallography. They will also acquire skills in the design of experiments, their performance and evaluation as well as in the oral and written presentation of scientific results.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (9) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
Allocation of places		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they ha-		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 46 / 350

ve achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Tissue Engineering 3			03-6S3TE-152-m01
Module coordinator		Module offered by	
holder of the Chair of Tissue Engineering (University Hospital)		Faculty of Medicine	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Cell culture, tissue culture for medical applications, development of bioreactors in which tissue grows, simulation of physiological circumstances for culturing functional tissue.			
Intended learning outcomes			
The students have acquired knowledge on both the latest research in the field of tissue engineering and the methods used. They are able to work on scientific problems.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English			
Allocation of places			
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their			
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average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### **Additional information**

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#### **Workload**

450 h

#### **Teaching cycle**

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#### **Referred to in LPO I** (examination regulations for teaching-degree programmes)

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#### **Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title			Abbreviation
Virology 3			03-6S3VL-152-m01
Module coordinator		Module offered by	
holder of the Chair of Virology		Faculty of Medicine	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In 6-week lab courses that will be accompanied by seminars, the module will address specific and current problems in virology and, in particular, questions of the viral pathogenesis of selected viruses and viral gene therapy.			
Intended learning outcomes			
The students acquire an advanced knowledge of molecular and cellular virology including the application of viral vectors (retroviral, adenoviral or AAV-based vectors) for gene therapy of innate or acquired diseases. They also develop skills in experimental design, the performance and evaluation of experiments as well as in the oral and written presentation of scientific results, taking into account current literature.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (8) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English			
Allocation of places			
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 50 / 350



in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Cellular Molecular Biology 3</b>		03-6S3ZM-152-m01
Module coordinator		Module offered by
holder of the Chair of Medical Radiation and Cell Research		Faculty of Medicine
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
In this module, current problems in the research areas of stem cell biology and cellular differentiation will be discussed and specific solutions will be taught. With the help of selected examples, participants will acquire practical molecular biological techniques.		
Intended learning outcomes		
Students have developed the ability to approach, analyse and critically interpret current problems in cellular molecular biology based on individually assigned tasks, using techniques of modern molecular and cell biology. They also have developed skills in experimental design, bench work, data analysis and the presentation of scientific results both orally and in writing.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (9) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English		
Allocation of places		
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components		

in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Cellular Tumorbiology 3			03-6S3ZT-152-m01
Module coordinator		Module offered by	
Chair of Rudolf Virchow Center for Experimental Biomedicine		Faculty of Medicine	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Discussing specific problems, this module will impart to students a more in-depth knowledge of tumour biology and will acquaint them with approaches in tumour biology.			
Intended learning outcomes			
Students have developed the ability to approach, analyse and critically interpret specific problems in tumour biology based on individually assigned tasks, using modern techniques and, in particular, imaging methods. They also have developed advanced skills in experimental design, bench work, data analysis and the presentation of scientific results.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English			
Allocation of places			
3 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components			
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in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
Evolution and the Animal Kingdom		07-1A1TI-152-m01
Module coordinator		Module offered by
holder of the Professorship of Zoology at the Department of Electronmicroscopy		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
Contents		
<p>The lecture <i>Evolution</i> will acquaint students with fundamental concepts and mechanisms of evolutionary biology: the origins of diversity; natural and sexual selection; speciation; population genetics. It will provide students with an introduction to phylogenetic reconstruction and will thus enable them to develop an understanding of the system of plants and animals. During the exercise, students will complete exercises on mechanistic evolution and evolutionary history. The lecture <i>Tierreich (Animal Kingdom)</i> will discuss the diversity of animal organisms on the basis of the phyla of the animal kingdom focusing on phylogenetic criteria. It will address the ecological constraints that led to the development of different types of body plans with their different structures and functions. In this context, the lecture will also develop an awareness in students of how important a knowledge of the fundamental principles of zoology is for research and applications not only but in particular in biology and medicine. In the exercise, students will prepare and/or examine selected species and histological preparations and will thus become familiar with the functional and morphological characteristics of the major multicellular animal phyla. In this context, students will practise working with light microscopes and stereo microscopes and will acquire fundamental preparation skills. They will prepare drawings, documenting and interpreting what they have seen.</p>		
Intended learning outcomes		
Students will be familiar with the fundamental concepts and mechanisms of evolutionary biology and will know that these are key to understanding biological processes. They will have gained an overview of the diversity of animals on the basis of different types of body plans and will understand important structures in both a functional and an ecological context.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (2) + Ü (3)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) creditable for bonus		
Allocation of places		
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Additional information		
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Workload		
150 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
§ 41 I Nr. 1 (4 ECTS credits) and § 41 I Nr. 4 (1 ECTS credits) § 61 I Nr. 1 (4 ECTS credits) and § 61 I Nr. 4 (1 ECTS credits)		
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### Module appears in

Bachelor's degree (1 major) Biology (2015)  
 Bachelor's degree (1 major) Computer Science (2015)  
 Bachelor's degree (1 major) Mathematics (2015)  
 Bachelor's degree (1 major) Computational Mathematics (2015)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
 Bachelor's degree (1 major) Biology (2017)  
 Bachelor's degree (1 major) Computer Science (2017)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major) Biology (2021)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
 Bachelor's degree (1 major) Biology (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023)  
 Bachelor's degree (1 major) Mathematics (2023)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)



Module title		Abbreviation
Structure and Function of Cells		07-1A1ZE-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance of exercises (minimum 80%) and successful completion of the respective exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
Contents		
<p>The course will acquaint students with the elementary building blocks of life as well as biological categories. Building on this knowledge, the course will then discuss the cell, the smallest unit of life, starting with its macroscopic structure before moving on to its microscopic structure. The course will point out differences and similarities between prokaryotic cells (bacteria, archaeobacteria) and eukaryotic cells (animals, plants). Students will acquire the fundamental knowledge necessary to understand the forms and functions of prokaryotic, animal and plant organisms, with morphology and cytology being discussed in a physiological context. The contents of the module are relevant for biological disciplines at all levels of biological organisation. Students will also acquire and practise some of the fundamental preparation skills bioscientists are often required to possess.</p>		
Intended learning outcomes		
<ul style="list-style-type: none"> <li>• Knowledge of the structures of prokaryotic and eukaryotic cells and their (biological) macromolecules.</li> <li>• Knowledge of the specific characteristics of the intracellular and extracellular structures of prokaryotes as well as animal and plant cells.</li> <li>• Ability to recognise evolution as the driving force behind the phylogeny of species.</li> <li>• Familiarity with the distinguishing characteristics of major representatives of prokaryotes, animals and plants.</li> <li>• Familiarity with the components and functioning of microscopes.</li> <li>• Fundamental skills in the interpretation of macroscopic and histologic preparations by light microscopy.</li> <li>• Fundamental preparation skills.</li> </ul>		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1.5) + Ü (3.5)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
<p>written examination (approx. 60 minutes) creditable for bonus</p>		
Allocation of places		
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Additional information		
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Workload		
150 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 58 / 350

Bachelor's degree (1 major) Biology (2017)  
 Bachelor's degree (1 major) Biology (2021)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
 Bachelor's degree (1 major) Biology (2022)  
 exchange program Biosciences (2022)

Module title		Abbreviation
The Plant Kingdom		07-1A1ZPF-152-m01
Module coordinator		Module offered by
Dean of Studies Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance of exercises (minimum 80%) and successful completion of the respective exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
Contents		
Using the example of plants, students will be introduced to the phylogenetic diversity of eukaryotes in particular. At the level of groups in the plant kingdom, students will acquire the fundamental knowledge necessary to understand the forms and functions of plant organisms, with morphology and cytology being discussed in an evolutionary and ecological context. The contents of the module are relevant for biological disciplines at all levels of biological organisation. Students will also acquire and practise some of the fundamental preparation skills bioscientists are often required to possess.		
Intended learning outcomes		
<ul style="list-style-type: none"> <li>• Knowledge of the specific characteristics of the intracellular and extracellular structures of plant cells and fungi.</li> <li>• Ability to recognise evolution as the driving force behind the phylogeny of species.</li> <li>• Familiarity with the concepts of phylogenetic relationships between plants/fungi.</li> <li>• Familiarity with the distinguishing characteristics and major representatives of fungi as well as groups in the plant kingdom.</li> <li>• Ability to select those plant and fungal organisms that are most suitable for particular scientific issues.</li> <li>• Familiarity with the components and functioning of microscopes.</li> <li>• Fundamental skills in the interpretation of macroscopic and histologic preparations by light microscopy.</li> <li>• Fundamental preparation skills.</li> </ul>		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1.5) + Ü (2.5)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) creditable for bonus		
Allocation of places		
--		
Additional information		
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Workload		
150 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 60 / 350

Bachelor's degree (1 major) Computational Mathematics (2015)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
 Bachelor's degree (1 major) Biology (2017)  
 Bachelor's degree (1 major) Biology (2021)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
 Bachelor's degree (1 major) Biology (2022)  
 Bachelor's degree (1 major) Mathematics (2023)

Module title		Abbreviation
<b>Genetics, Neurobiology, Behaviour</b>		07-2A2GENV-152-m01
Module coordinator		Module offered by
Dean of Studies Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
<b>Contents</b>		
Fundamental principles of genetics, neurobiology and behavioural biology.		
<b>Intended learning outcomes</b>		
Students will understand that there are molecular, cellular and system biological mechanisms and processes involved in animal behaviour and will be able to relate animal behaviour to the molecular and formal bases of inheritance.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (3)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 to 90 minutes) creditable for bonus		
<b>Allocation of places</b>		
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<b>Additional information</b>		
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<b>Workload</b>		
150 h		
<b>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
§ 61 I Nr. 2 (2 ECTS credits) § 61 I Nr. 3 (1 ECTS credits) § 61 I Nr. 4 (1 ECTS credits)		
<b>Module appears in</b>		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Computer Science (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Computer Science (2017) Bachelor's degree (1 major) Computer Science (2019) Module studies (Bachelor) Biologie (2019) Module studies (Bachelor) Orientierungsstudien (2020) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 62 / 350

Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
 Bachelor's degree (1 major) Biology (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023)  
 Bachelor's degree (1 major) Mathematics (2023)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)

Module title		Abbreviation
Plant Physiology		07-2A2PHYPF-152-m01
Module coordinator		Module offered by
Dean of Studies Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
4	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
Contents		
This module will acquaint students with the principles of general plant physiology and will provide them with an opportunity to develop the fundamental skills for working in a biological laboratory. The module will first address the biochemistry of the cell and will then move on to discuss the physiological processes that regulate the internal environment of plants in particular. Using the example of plants, the module will introduce students to the general principles of physiology. The module will also elaborate on the characteristic peculiarities of plants in comparison with animals and prokaryotes.		
Intended learning outcomes		
- Familiarity with general physiological processes in plants and the regulation of these. - Familiarity with the factors that distinguish plant physiology from animal and prokaryotic physiology. - Fundamental knowledge and skills on how to perform, analyse and present scientific experiments. - Essential lab skills. - Familiarity with methods for the investigation of fundamental physiological processes in plants.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (2)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) creditable for bonus		
Allocation of places		
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Additional information		
--		
Workload		
120 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
§ 61 I Nr. 2		
Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 64 / 350



Bachelor's degree (1 major) Biology (2022)  
Bachelor's degree (1 major) Mathematics (2023)

Module title		Abbreviation
Physiology of Prokaryotes		07-2A2PHYPR-152-m01
Module coordinator		Module offered by
Dean of Studies Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
4	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
<b>Contents</b>		
The module provides knowledge about the structure and function of a bacterial cell and the versatile bacterial metabolism. During exercises, fundamental principles of bacterial physiology will be illustrated by help of suitable experiments.		
<b>Intended learning outcomes</b>		
Students are familiar with the fundamental principles of bacterial physiology. They are familiar with basic techniques in experimental microbiology and able to apply them.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (2)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) creditable for bonus		
<b>Allocation of places</b>		
--		
<b>Additional information</b>		
The exercises take place all day as a block event.		
<b>Workload</b>		
120 h		
<b>Teaching cycle</b>		
--		
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
§ 61 I Nr. 3		
<b>Module appears in</b>		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
Animal Physiology		07-2A2PHYTI-152-m01
Module coordinator		Module offered by
Dean of Studies Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
4	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
<b>Contents</b>		
This module will acquaint students with the principles of general and comparative animal physiology and will provide them with an opportunity to develop the fundamental skills for working in a physiological laboratory. The module will focus on neurophysiology and sensory physiology as well as aspects of metabolic physiology (respiration and excretion).		
<b>Intended learning outcomes</b>		
Students have developed an understanding of the physiological functions and regulation of organisms. They have acquired fundamental knowledge on planning, setup, interpretation and presentation of scientific results.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (2)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) creditable for bonus		
<b>Allocation of places</b>		
--		
<b>Additional information</b>		
--		
<b>Workload</b>		
120 h		
<b>Teaching cycle</b>		
--		
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
§ 41 I Nr. 2 § 61 I Nr. 2		
<b>Module appears in</b>		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021) Bachelor's degree (1 major) Biology (2022) Bachelor's degree (1 major) Mathematics (2023)		

Module title		Abbreviation
Basic Biochemistry		07-3A3BC-152-m01
Module coordinator		Module offered by
Dean of Studies Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
4	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance of exercises (minimum 80%) and successful completion of the respective exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
Contents		
With the module component <i>Makromoleküle (Macromolecules)</i> as a starting point, the lecture will provide students with deeper insights into the molecular biology and biochemistry of prokaryotes and eukaryotes. Students will become familiar with fundamental principles of molecular biology (replication, transcription, splicing and translation) and the biochemistry of carbohydrates, lipids, proteins and nucleic acids. Experiments will be performed on selected topics that were discussed in the lecture. The exercise will cover practical aspects of lab work (PCR, DNA and protein gel electrophoresis, blot, enzyme kinetics and detection, protein isolation).		
Intended learning outcomes		
Students are familiar with the fundamental principles of biochemistry.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (2)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
120 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
--		
Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021) Bachelor's degree (1 major) Biology (2022) Bachelor's degree (1 major) Mathematics (2023)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 68 / 350

Module title		Abbreviation
Developmental Biology of Plants		07-3A3EBIOPF-152-m01
Module coordinator		Module offered by
Dean of Studies Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
4	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
<b>Contents</b>		
In this module, students will acquire an insight into the fundamental processes of plant developmental biology over a plant's entire life cycle from germination to reproduction. The module will discuss the molecular determination and regulation of different developmental biological processes in plants as well as their plasticity.		
<b>Intended learning outcomes</b>		
1. Fundamental concepts in plant developmental biology. 2. Developmental biology of selected plant model organisms. 3. Developmental biological processes at specific stages in the life cycle of plants. 4. Molecular mechanisms underlying pattern formation, morphogenesis and organogenesis in plants. 5. Establishment of plant embryonic axes. 6. Physiological aspects of the developmental processes in plants that were discussed. 7. Plasticity of developmental biological processes: regulation by endogenous and environmental factors.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (3)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) creditable for bonus		
<b>Allocation of places</b>		
--		
<b>Additional information</b>		
--		
<b>Workload</b>		
120 h		
<b>Teaching cycle</b>		
--		
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
§ 61 I Nr. 5		
<b>Module appears in</b>		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021) Bachelor's degree (1 major) Biology (2022) Bachelor's degree (1 major) Mathematics (2023)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 69 / 350

Module title		Abbreviation
Developmental Biology of Animals		07-3A3EBIOTI-152-m01
Module coordinator		Module offered by
Dean of Studies Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
4	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
Contents		
In this module, students will acquire theoretical and practical background knowledge on animal developmental biology. The following topics will be covered: early embryonic development of various model organisms (amphibians, nematodes, Drosophila, mouse) and relevance for the systematics of animals, gametogenesis (production of spermatozoa and ova), differential gene expression, cell growth and molecular regulation of cell development, organogenesis, pattern formation, carcinogenesis, stem cell research and cloning, metamorphosis (amphibians, insects), eco-devo, evo-devo.		
Intended learning outcomes		
1. Fundamental concepts in developmental biology. 2. Embryonic and postembryonic development of selected model organisms (pattern formation). 3. Molecular mechanisms as well as control of cell development. 4. Interdisciplinary connections between developmental biology and other branches of biology. 5. Cell biology of cotyledon, cancer and stem cells as well as gametes. 6. Interrelations between ontogeny and evolution/environment. 7. Physiological aspects of the developmental processes discussed.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (3)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
120 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
§ 61 I Nr. 5		
Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Biomedicine (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biomedicine (2018)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 70 / 350

Bachelor's degree (1 major) Biomedicine (2020)  
 Bachelor's degree (1 major) Biology (2021)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
 Bachelor's degree (1 major) Biology (2022)  
 Bachelor's degree (1 major) Mathematics (2023)



Module title		Abbreviation
<b>Genes, Molecules, Technologies</b>		07-3A3GEMT-152-m01
Module coordinator		Module offered by
Dean of Studies Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
6	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
<p>The module <i>Gene, Moleküle, Technologien</i> (<i>Genes, Molecules, Technologies</i>) will include lectures on the following topics: The section <i>Spezielle Genetik</i> (<i>Special Genetics</i>) will build on <i>Einführung in die Genetik</i> (<i>Introduction to Genetics</i>) and will deepen the students' knowledge of topics from the following areas: structure and evolution of the eukaryotic genome, regulatory RNA, epigenetically and evolutionarily significant genetic mechanisms. The section will also focus on methods of gene expression profiling, reverse genetics and modern methods of gene function and gene sequence analysis. In the lecture <i>Einführung in die Bioinformatik</i> (<i>Introduction to Bioinformatics</i>), students will acquire an overview of major areas in the field of bioinformatics: protein sequence and protein domain analysis, phylogeny and evolution of sequences, protein structure, RNA/DNA sequences and structures, cellular networks (regulation, metabolism) and systems biology. During the section <i>Einführung in die Biotechnologie</i> (<i>Introduction to Biotechnology</i>), students will acquire an overview of the following topics: history of biotechnology, DNA and RNA technologies, recombinant antibodies, molecular diagnostics, nanobiotechnology, biomaterials, bioprocess engineering, microbial biotechnology, transgenic animals and plants, microfluidics. The lecture <i>Einführung in die Pharmakokinetik</i> (<i>Introduction to Pharmacokinetics</i>) will provide students with an overview of the rational development of drugs and active agents. The module component will discuss an important aspect for biologists in more detail: the optimisation of the pharmacokinetics of small molecules and proteins. Pharmacokinetics describes the uptake, distribution, metabolism and elimination of a drug or xenobiotic in an organism.</p>		
Intended learning outcomes		
<p>Students possess an advanced knowledge on genome evolution and the regulation of gene expression and are familiar with current methods in genetics as well as methods for the analysis of DNA and protein databases. They have acquired an overview of both traditional and modern methods in biotechnology and are familiar with fundamental topics in biotechnology. Students have acquired an overview of the fundamental principles of the development and review of active agents in research, clinical practice and the pharmaceutical industry. They are familiar with methods and technologies in biology and are able to evaluate potential applications of these in research and industry.</p>		
Courses (type, number of weekly contact hours, language — if other than German)		
V (4)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 90 minutes) creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
180 h		
Teaching cycle		
--		

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
 Bachelor's degree (1 major) Computer Science (2015)  
 Bachelor's degree (1 major) Mathematics (2015)  
 Bachelor's degree (1 major) Computational Mathematics (2015)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
 Bachelor's degree (1 major) Biology (2017)  
 Bachelor's degree (1 major) Computer Science (2017)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major) Biology (2021)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
 Bachelor's degree (1 major) Biology (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022)  
 exchange program Biosciences (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023)  
 Bachelor's degree (1 major) Mathematics (2023)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)

Module title			Abbreviation
Plant and Animal Ecology			07-3A3OEKO-152-m01
Module coordinator		Module offered by	
Dean of Studies Biologie (Biology)		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
6	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
This module will provide students with an overview of the interactions of plants and animals with their abiotic and biotic environments. The module will focus on the functional adaptation to environmental conditions as well as on the structure and dynamics of populations, communities and ecosystems. Students will be introduced to fundamental model concepts of ecology, will become familiar with examples of research findings and will acquire the fundamental knowledge necessary to develop an understanding of current ecological problems.			
Intended learning outcomes			
Students are familiar with the fundamental principles of research in the field of ecology and with the most important abiotic and biotic factors that influence the distribution and frequency of occurrence of organisms in their environment. In addition, they understand the scientific relevance ecology has to the assessment of environmental issues.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (2) + Ü (2)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
written examination (approx. 90 minutes) creditable for bonus			
Allocation of places			
--			
Additional information			
--			
Workload			
180 h			
Teaching cycle			
--			
Referred to in LPO I (examination regulations for teaching-degree programmes)			
§ 61 I Nr. 4			
Module appears in			
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Geography (2015) Bachelor's degree (1 major) Computer Science (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) First state examination for the teaching degree Gymnasium Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Computer Science (2017) Bachelor's degree (1 major) Computer Science (2019) Bachelor's degree (1 major) Biology (2021)			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 74 / 350

Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
 Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
 Bachelor's degree (1 major) Computer Science und Sustainability (2021)  
 Bachelor's degree (1 major) Biology (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022)  
 exchange program Biosciences (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023)  
 Bachelor's degree (1 major) Mathematics (2023)  
 Bachelor's degree (1 major) Geography (2023)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)

Module title		Abbreviation
The Fauna of Germany		07-4A4FAU-152-m01
Module coordinator		Module offered by
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
7	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: regular attendance of field trips (minimum 80%) and completion of exercises. Regular attendance of exercises (minimum 80%) and successful completion of the respective exercises (approx. 25 to 30 hours) is a prerequisite for admission to assessment.
Contents		
<p>In this module, students will acquire an overview of selected groups of animals to be found in Central Europe. They will acquire a fundamental knowledge of the systematics and taxonomy of these animals and will practise identifying species, using specimens of animals. Selection of specimens will be taxon-specific and will represent specific habitats or lifestyles. Exercises in a variety of habitats will provide students with an opportunity to consolidate the knowledge and skills they acquired in the lab by identifying living specimens including their ecology and behavioural biology.</p>		
Intended learning outcomes		
<p>Students possess species identification skills. They know how to taxonomically classify selected representatives of the indigenous fauna (vertebrates, invertebrates) and use identification keys. They are familiar with selected Central European habitats as well as their faunas and phenology. On the basis of the morphology and habitats of species, students are able to predict the biology and ecology of these species as well as, where applicable, to predict whether they function as indicators and are of conservation concern.</p>		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (2) + E (2.5)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
<p>written examination (approx. 45 minutes) and practical identification assignment (approx. 45 minutes), weighted 1:1 Assessment offered: Once a year, summer semester creditable for bonus</p>		
Allocation of places		
<p>180 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.</p>		

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

210 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)  
Bachelor's degree (1 major) Mathematics (2023)

Module title			Abbreviation
The Flora of Germany			07-4A4FLO-152-m01
Module coordinator		Module offered by	
holder of the Chair of Ecophysiology and Vegetation Ecology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
7	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	Modules 12-NW-EBWL and 12-NW-EVWL are not open for students of the following subjects: Wirtschaftswissenschaft (Business Management and Economics) Bachelor's (BSc with 180 ECTS credits), Wirtschaftsinformatik (Business Information Systems) Bachelor's (BSc with 180 ECTS credits) and Wirtschaftsmathematik (Mathematics for Economics) Bachelor's (BSc with 180 ECTS credits).	
Contents			
The module will discuss the fundamental principles of the systematics and ecology of indigenous flowering plants. Students will acquire an overview of major indigenous plant families as well as their ecological and economic importance. Using a field guide, the course will demonstrate how dichotomous keys are used, and students will practise identifying freshly-gathered plants using dichotomous keys. Identifying plants, students will learn how to identify major morphological plant characteristics and will become familiar with the respective terminology. The module will also include field trips to typical habitats in the Botanical Garden and the vicinity of Würzburg. Students will become familiar with the common as well as scientific names of the plants found and will be introduced to the family- as well as species-specific characteristics of these plants. Students will practise using field guides and identification keys on site. Habitat ecological, geobotanical, climatic as well as conservation-relevant characteristics will also be discussed. The module will also include sessions at the Botanical Garden of the University of Würzburg with its outdoor facilities and greenhouses to help students acquire species identification skills.			
Intended learning outcomes			
Students have acquired knowledge and skills related to the ecology, systematics and taxonomy of indigenous flowering plants. They are familiar with the terminology of plant morphology and know how to use Floras and set up scientific herbaria.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (2) + E (2.5)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
written examination (approx. 45 minutes) and practical identification assignment (approx. 45 minutes), weighted 1:1 Assessment offered: Once a year, summer semester creditable for bonus			
Allocation of places			
180 places. Students applying after not having successfully completed assessment in the past two semesters will be given preferential consideration. The remaining places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available. Places on all courses of the module with a restricted number of places will be allocated in the same procedure.			
Additional information			
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Workload			
210 h			



<b>Teaching cycle</b>
--
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)
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<b>Module appears in</b>
<p>Bachelor's degree (1 major) Biology (2015)</p> <p>Bachelor's degree (1 major) Geography (2015)</p> <p>Bachelor's degree (1 major) Mathematics (2015)</p> <p>Bachelor's degree (1 major) Computational Mathematics (2015)</p> <p>Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)</p> <p>Bachelor's degree (1 major) Biology (2017)</p> <p>Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)</p>

Module title			Abbreviation
Cell- and Developmental Biology for Advanced Students			07-4BFMZ1-152-m01
Module coordinator		Module offered by	
holder of the Chair of Cell Biology and Developmental Bio- logy		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
This module will acquaint students with the fundamental principles of the molecular developmental biology of animals. Particular emphasis will be placed on providing students with an opportunity to become proficient in fundamental methods and applications, using the help of examples.			
Intended learning outcomes			
Students are able to use fundamental methods to approach simple problems in animal developmental biology.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (5)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
32 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 80 / 350

to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### **Additional information**

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#### **Workload**

150 h

#### **Teaching cycle**

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#### **Referred to in LPO I** (examination regulations for teaching-degree programmes)

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#### **Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Microbiology for Advanced Students			07-4BFMZ3-152-m01
Module coordinator		Module offered by	
holder of the Chair of Microbiology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
This module comprises a lecture and accompanying exercises. During the theoretical part, students will acquire the fundamentals of bacterial genetics; during exercises, these will be illustrated by help of suitable experiments.			
Intended learning outcomes			
Students are familiar with the fundamental principles of bacterial genetics. They are familiar with simple experimental techniques for addressing scientific issues in bacterial genetics and are able to apply these.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (5)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
40 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
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to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### **Additional information**

The exercises are to be completed as a block event in two consecutive weeks.

#### **Workload**

150 h

#### **Teaching cycle**

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#### **Referred to in LPO I** (examination regulations for teaching-degree programmes)

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#### **Module appears in**

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)

Module title			Abbreviation
Bioinformatics for Advanced Students			07-4BFMZ4-152-m01
Module coordinator		Module offered by	
holder of the Chair of Bioinformatics		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
The module will introduce students to the practice of bioinformatics and will cover the following topics: sequence analysis, structure analysis, genome analysis, cellular and metabolic networks as well as gene regulation.			
Intended learning outcomes			
Students are able to use appropriate bioinformatic algorithms to address simple problems as well as to interpret their results.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (5)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
Log (approx. 10 to 20 pages) creditable for bonus			
Allocation of places			
<p>40 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 %</p>			
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of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)



<b>Module title</b>		<b>Abbreviation</b>
<b>Biotechnology 1</b>		07-4BFMZ5-152-m01
<b>Module coordinator</b>		<b>Module offered by</b>
holder of the Chair of Biotechnology and Biophysics		Faculty of Biology
<b>ECTS</b>	<b>Method of grading</b>	<b>Only after succ. compl. of module(s)</b>
5	numerical grade	--
<b>Duration</b>	<b>Module level</b>	<b>Other prerequisites</b>
1 semester	undergraduate	--
<b>Contents</b>		
<p>In this module (lab course and seminar), students will acquire fundamental specialist knowledge in the areas of biotechnology, biophysics and microscopic imaging. Students will gain an insight into different topics in biotechnology and biophysics at the molecular and cellular level. The following topics will be covered: introduction to photon absorption, (UV/VIS) spectroscopy, fluorescence anisotropy, time-resolved fluorescence measurement, fluorescent labelling of proteins, circular dichroism, confocal laser scanning microscopy (CLSM), electrophysiological techniques, osmoregulation in animal cells, dielectric analysis and electromanipulation of cells. During the practical part, students will become familiar with the abovementioned technologies and will perform several experiments under expert guidance.</p>		
<b>Intended learning outcomes</b>		
<p>Students will have acquired a knowledge of fundamental biotechnological and biophysical methods and their applications that will enable them to independently review relevant literature. In addition, they will have become acquainted with - or, where necessary, will be able to independently acquaint themselves with - biophysical mechanisms. Students will have acquired practical experience performing experiments, using a variety of scientific tools. In the seminar, students will have acquired detailed theoretical knowledge on these experiments and will have delivered a short presentation (15 minutes) on one of the experiments they performed.</p>		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
Ü (4) + S (1)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
<p>a) written examination (approx. 45 to 60 minutes) or  b) log (approx. 10 to 20 pages) or  c) oral examination of one candidate each (approx. 30 minutes) or  d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or  e) presentation (approx. 20 to 30 minutes) or  f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours).  Students will be informed about the method and length of the assessment prior to the course.  creditable for bonus</p>		
<b>Allocation of places</b>		
<p>24 places.  Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already ha-</p>		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 86 / 350

ve successfully completed at least one other module component of the respective module will be given preferential consideration.

A waiting list will be maintained and places re-allocated as they become available.

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
Neurobiology for Advanced Students		07-4BFNVO1-152-m01
Module coordinator		Module offered by
holder of the Chair of Neurobiology and Genetics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
<p>The module <i>Neurobiologie für Fortgeschrittene (Neurobiology for Advanced Students)</i> will comprise lectures, exercises and talks. The lecture will address different aspects of the human brain, and students will acquire a knowledge of the respective fundamental principles. A new aspect will be discussed each day. Wherever possible, parallels will be drawn with the neurobiology of the fruit fly, <i>Drosophila melanogaster</i>, and advantages and limitations of this model organism will be discussed. Students will deliver short talks to complement the lecture. The topics of these talks will have a connection with the topics covered in the lecture and will be assigned to students prior to the lab course. The module will also include small-scale exercises/experiments on the contents of each lecture.</p>		
Intended learning outcomes		
Students have acquired an advanced knowledge in the area of neurobiology and recognise the relevance research findings in neurobiology have to medicine.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (5)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
<p>a) written examination (approx. 45 to 60 minutes) or  b) log (approx. 10 to 20 pages) or  c) oral examination of one candidate each (approx. 30 minutes) or  d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or  e) presentation (approx. 20 to 30 minutes) or  f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours).  Students will be informed about the method and length of the assessment prior to the course.  creditable for bonus</p>		
Allocation of places		
<p>40 places.  Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.  A waiting list will be maintained and places re-allocated as they become available.</p>		

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)

Module title			Abbreviation
Behavioral Physiology			07-4BFNVO2-152-m01
Module coordinator		Module offered by	
holder of the Chair of Behavioral Physiology and Sociobiology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Specific and comparative animal physiology with a focus on neurophysiology, sensory physiology and behavioural ecology.			
Intended learning outcomes			
Students have acquired knowledge and skills in the area of behavioural physiology. They are familiar with hypotheses and are proficient in methods used in research in this field.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (5)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
36 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according			
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to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### **Additional information**

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#### **Workload**

150 h

#### **Teaching cycle**

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#### **Referred to in LPO I** (examination regulations for teaching-degree programmes)

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#### **Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title			Abbreviation
Basics in Ecology of Animals			07-4BFNV03-152-m01
Module coordinator		Module offered by	
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Selected topics in autecology and synecology; experimental design, data collection and analysis in animal ecology.			
Intended learning outcomes			
Students have acquired an advanced knowledge in the area of animal ecology. They are able to design simple ecological lab and field experiments as well as to interpret and present their findings.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (5)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
40 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking			
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will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### **Additional information**

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#### **Workload**

150 h

#### **Teaching cycle**

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#### **Referred to in LPO I** (examination regulations for teaching-degree programmes)

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#### **Module appears in**

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)

Module title		Abbreviation
<b>Molecular Physiology for Advanced Students</b>		07-4BFPS1-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
This module will equip students with the theoretical foundations of fundamental processes in plants, such as nitrogen and carbon metabolism. The methodological approaches in experimental plant physiology will be discussed and the molecular techniques for functional gene analysis (reverse genetics and other techniques) will be applied.		
<b>Intended learning outcomes</b>		
Students have acquired fundamental knowledge on plant nutrient cycles and are proficient in molecular and physiological methods in experimental plant physiology.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (5)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus		
<b>Allocation of places</b>		
16 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their		
Bachelor's with 1 major Biology (2015)		page 94 / 350

average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Membranebiology of Plants for Advanced Students</b>		07-4BFPS2-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
In this module, students will acquire the general fundamentals of plant membrane transport and the biophysical methods with which it can be characterised. For this purpose, students will be introduced to modern methods of molecular biology and imaging as well as data collection and analysis.		
Intended learning outcomes		
Students understand basic membrane transport processes and are able to use experimental methods in experiments with intact plants, isolated plant cells as well as animal expression systems.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (5)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus		
Allocation of places		
16 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according		
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to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Nanostructure Technology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Nanostructure Technology (2020)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Quantum Technology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Protein Biochemistry and Photobiology for Advanced Students			07-4BFPS3-152-m01
Module coordinator		Module offered by	
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will become acquainted with the most important plant, biological and microbial photo-receptors and will learn the fundamental principles of the biochemical and molecular biological methods for the expression, isolation and purification as well as the biophysical characterisation of receptors.			
Intended learning outcomes			
Students are familiar with the biochemistry, molecular biology and function of biological photoreceptors and are able to analyse these using appropriate methods.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (5)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
16 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according			
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to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)



Module title			Abbreviation
Basic Plant Ecophysiology			07-4BFPS4-152-m01
Module coordinator		Module offered by	
holder of the Chair of Ecophysiology and Vegetation Ecology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Using the examples of selected systems, this module will introduce students to the theoretical fundamentals of the interaction between plants and their environment and will make students familiar with the molecular biological, chemical analytical as well as ecophysiological methods necessary to investigate this interaction.			
Intended learning outcomes			
Students will be able to recognise, describe and evaluate interactions between plants and their environment. They will be able to perform basic experiments to analyse these interactions.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (5)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
written examination (approx. 60 minutes) creditable for bonus			
Allocation of places			
48 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot. Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology;			
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among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
exchange program Biosciences (2022)

Module title			Abbreviation
Pharmaceutical Bioanalytics			07-4BFPS5-152-m01
Module coordinator		Module offered by	
holder of the Chair of Pharmaceutical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will acquire the theoretical and methodological fundamentals of drug and metabolite analysis. It will include an introduction to chromatographic methods of analysis as well as modern methods in computational chemistry. Qualitative and quantitative analyses of active agents and metabolites will be performed on, for example, complex drug, plant and urine samples.			
Intended learning outcomes			
Students have developed fundamental knowledge and skills in the area of drug and metabolite analysis and are proficient in chromatographic methods.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (4) + S (1)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
16 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their			
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average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Pharmaceutical Biotechnology			07-4BFPS6-152-m01
Module coordinator		Module offered by	
holder of the Chair of Pharmaceutical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
<p>This module will focus on the molecular biological and protein chemical methods of pharmaceutical biotechnology. The following methods/topics will be addressed: Methods: construction of vector plasmids (cloning), production of genetically modified plants (Agrobacterium-mediated transformation, transient transformation of protoplasts), detection of heterologous gene expression (real-time PCR, Western blot, GFP, GUS and LUC reporter genes), usage of inducible promoters. Topics: Agrobacterium tumefaciens, function of transcription factors, pharmaceutical products in plants.</p>			
Intended learning outcomes			
<p>Students have gained an insight into current technologies and are able to choose the appropriate technology to solve a scientific problem.</p>			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (4) + S (1)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
<p>a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours).</p> <p>Students will be informed about the method and length of the assessment prior to the course.</p> <p>creditable for bonus</p>			
Allocation of places			
<p>16 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components</p>			
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in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title		Abbreviation
<b>Methods in Biotechnology</b>		07-4S1AMB-152-m01
Module coordinator		Module offered by
holder of the Chair of Biotechnology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
This module (lecture and seminar) will provide students with an overview of instrument-based methods in biotechnology and biomedicine and the underlying physical principles. It will discuss modern methods for the analysis of biological matter on the molecular and cellular level. These methods include light microscopy, fluorescence spectroscopy, electron microscopy, atomic force microscopy, flow cytometry and microfluidics.		
<b>Intended learning outcomes</b>		
Students will gain an overview of key methods in biotechnology and their respective advantages and disadvantages. They will learn to decide what method is most suitable for addressing a particular issue.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (2) + S (2)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 30 to 60 minutes) creditable for bonus		
<b>Allocation of places</b>		
<p>25 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology;</p>		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 106 / 350



among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Nanostructure Technology (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Nanostructure Technology (2020)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Quantum Technology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)  
Bachelor's degree (1 major) Mathematics (2023)

Module title			Abbreviation
Excursion on the Ecology and Faunistics of Terrestrial Ecosystems of the Temperate Zone			07-4S1LAND-152-m01
Module coordinator		Module offered by	
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
During this field trip, students will become acquainted with the species characteristic of a terrestrial ecosystem of the temperate zone in an ecological context. Faunistic surveys will be carried out using different methods of ecological data collection.			
Intended learning outcomes			
Students will have enhanced their knowledge of form as well as their understanding of concepts in synecology. In addition, they will have learned how to systematically collect ecological field data.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (4) + E (2)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
term paper (approx. 10 to 20 pages) creditable for bonus			
Allocation of places			
12 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot. Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 %			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
		page 108 / 350	

of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
Ecology and Developmental Biology of Marine Organisms		07-4S1MEER-152-m01
Module coordinator		Module offered by
head of the Department of Electronmicroscopy		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
A combination of lab work and field trips, this module will provide students with an insight both into the organismal diversity of a marine ecosystem and into the biocenosis of the littoral of the island of Helgoland in the North Sea.		
<b>Intended learning outcomes</b>		
Students will have enhanced their knowledge of form as well as their understanding of concepts in synecology. In addition, they will have learned how to systematically collect ecological field data.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
Ü (4) + E (2) + S (2)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Log (approx. 10 to 20 pages) creditable for bonus		
<b>Allocation of places</b>		
<p>18 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module. In this case, places on all courses of a module that are concerned will be allocated in the same procedure.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements.</p> <p>For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken in all modules in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking.</p> <p>Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters,</p>		
Bachelor's with 1 major Biology (2015)		page 110 / 350

places will be allocated by lot. Quota 3 (25 % of places): lottery. Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
First state examination for the teaching degree Grundschule Biology (2015)  
First state examination for the teaching degree Realschule Biology (2015)  
First state examination for the teaching degree Gymnasium Biology (2015)  
First state examination for the teaching degree Mittelschule Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
First state examination for the teaching degree Mittelschule Biology (2020 (Prüfungsordnungsversion 2015))  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Aspects of Molecular Biotechnology			07-4S1MOLB-152-m01
Module coordinator		Module offered by	
holder of the Chair of Biotechnology and Biophysics		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Fundamental principles of "white" biotechnology, bioreactors, biocatalysis, immobilisation of cells and enzymes, production of biomolecules, molecular biology, recombinant DNA technology, protein engineering, biosensor design, drug design, drug targeting, molecular diagnostics, recombinant antibodies, hybridoma technology, electromanipulation of cells.			
Intended learning outcomes			
Students will gain an overview of traditional and modern methods in biotechnology and their respective advantages and disadvantages. They will learn to decide what method is most suitable for addressing a particular issue. Students will acquire a knowledge of fundamental methods in biotechnology that will enable them to independently review relevant literature. In addition, they will become acquainted with - or, where necessary, will be able to independently acquaint themselves with - relevant mechanisms.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (2) + S (2)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
written examination (approx. 30 to 60 minutes) creditable for bonus			
Allocation of places			
25 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking.			

Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Nanostructure Technology (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Master's degree (1 major) Functional Materials (2016)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Nanostructure Technology (2020)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Quantum Technology (2021)  
Bachelor's degree (1 major) Biology (2022)  
Master's degree (1 major) Functional Materials (2022)  
exchange program Biosciences (2022)  
Bachelor's degree (1 major) Mathematics (2023)  
Master's degree (1 major) Functional Materials (2025)



Module title		Abbreviation
<b>Basics in Light- and Electron-Microscopy</b>		07-4S1MZ1-152-m01
Module coordinator		Module offered by
head of the Department of Electronmicroscopy		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Fundamental principles of confocal laser scanning microscopy and electron microscopy.		
<b>Intended learning outcomes</b>		
Students have acquired theoretical knowledge and practical skills in the area of light and electron microscopy.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (5)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 30 to 60 minutes) creditable for bonus		
<b>Allocation of places</b>		
<p>18 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.</p>		

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Nanostructure Technology (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Nanostructure Technology (2020)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
Bachelor's degree (1 major) Quantum Technology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Analysis of Chromosomes</b>		07-4S1MZ2-152-m01
Module coordinator		Module offered by
head of the Department of Electronmicroscopy		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Overview of the structure of chromosomes of somatic and meiotic cells.		
<b>Intended learning outcomes</b>		
Students are able to analyse chromosomal structures.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (5)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 30 to 60 minutes) creditable for bonus		
<b>Allocation of places</b>		
<p>18 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.</p>		

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
<b>Special Bioinformatics 1</b>		07-4S1MZ6-152-m01
Module coordinator		Module offered by
holder of the Chair of Bioinformatics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Fundamental principles of the tree of life, fundamental principles of phylogenetics (methods and markers), fundamental principles of evolutionary biology (concepts), sequence analysis, RNA structure prediction, phylogenetic reconstruction.		
<b>Intended learning outcomes</b>		
Students are able to use software and databases for sequence analysis, RNA structure prediction and phylogenetic reconstruction.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (5)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Log (approx. 10 to 20 pages) Language of assessment: German or English creditable for bonus		
<b>Allocation of places</b>		
<p>20 places. Should the number of applications exceed the number of available places, places will be allocated as follows:</p> <p>Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology;</p>		
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among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Nanostructure Technology (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Nanostructure Technology (2020)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Quantum Technology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)  
Bachelor's degree (1 major) Mathematics (2023)

Module title			Abbreviation
Specific Cell- and Developmental Biology 1			07-4S1MZ7-152-m01
Module coordinator		Module offered by	
holder of the Chair of Cell Biology and Developmental Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this course, you will acquire practical experience of developmental biology. Imaging and genetic methods such as time-resolved stereo fluorescence microscopy, electron microscopy, in-situ hybridisation and RNA interference will be used to make processes visible as well as to manipulate and digitally document these. This module will provide you with an opportunity to use transgenic <i>c. elegans</i> , <i>Chlamydomonas</i> , <i>Dictyostelium</i> , <i>Drosophila</i> , <i>Hydra</i> , <i>Trypanosoma</i> and mammalian cells as model organisms. Hopefully, we will also get a chance to work with urchins - this is virtually a must at the Theodor-Boveri-Institute. The main aim of this practical course is to provide you with an opportunity to use cutting-edge technologies to explore selected fundamental concepts of cellular developmental biology.			
Intended learning outcomes			
Ability to use basic and advanced methods to approach simple problems in animal developmental biology.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (5)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
40 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.			



Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

Module title			Abbreviation
Specific Methods in Proteinbiochemistry and Cell Biology			07-4S1MZ8-152-m01
Module coordinator		Module offered by	
holder of the Chair of Cell Biology and Developmental Bio- logy		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Fundamental principles, theory and application of modern methods in cell biology. Since many of these methods are based on molecular biology and protein chemistry approaches, we will also discuss these techniques. Using practical examples, this course will acquaint students with the following methods: - cell fractionation - protein separation by one- and two-dimensional gel electrophoresis - identification of proteins and protein complexes with immunoblots - immunoprecipitation - overlay techniques or pull-down experiment - intracellular localisation of proteins by immunofluorescence microscopy - preparing cultivated cells and tissues for immunofluorescence microscopy - whole-mount immunolocalisation for the analysis of the expression pattern of a protein in the Xenopus embryo - whole-mount in situ hybridisation for the analysis of the expression pattern of an mRNA in the Xenopus embryo - investigation of the dynamic behaviour of proteins in living cells: expression of a fluorescent (GFP) fusion protein in human cells after transfection with a DNA vector - determination of the subclass of antibodies by immunodiffusion (Ouchterlony test). Basic experiments in molecular biology.			
Intended learning outcomes			
Students will be familiar with the methods discussed in class and will know what problems in cell biology may be addressed with these methods.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (5)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
20 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already ha-			
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ve successfully completed at least one other module component of the respective module will be given preferential consideration.

A waiting list will be maintained and places re-allocated as they become available.

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)

Module title			Abbreviation
Neurobiology 1			07-4S1NVO1-152-m01
Module coordinator		Module offered by	
holder of the Chair of Neurobiology and Genetics		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Neurobiology and methods in molecular neurobiology (neurogenetic model system Drosophila and humans) -- focus: sleep behaviour and endogenous clock.			
Intended learning outcomes			
Students have acquired an advanced knowledge of the neurobiology of a model organism and are able to apply the relevant methods in neurobiology.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (4) + S (1)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
20 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking			
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will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)  
Bachelor's degree (1 major) Mathematics (2023)

Module title			Abbreviation
Integrative Behavioral Biology 1			07-4S1NVO2-152-m01
Module coordinator		Module offered by	
holder of the Chair of Behavioral Physiology and Sociobiology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Communication in the animal kingdom, neuroethology and behavioural development, perception and processing of olfactory signals, temporal organisation of behaviour, adaptive feeding behaviour, reproductive behaviour, social behaviour, orientation mechanisms.			
Intended learning outcomes			
Students have acquired an advanced knowledge in the area of behavioural biology and are able to deliver presentations on current studies on relevant topics.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (2) + S (2)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
20 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their			

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average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)  
Bachelor's degree (1 major) Mathematics (2023)



Module title		Abbreviation
<b>Functional Morphology of Arthropods</b>		07-4S1NVO3-152-m01
Module coordinator		Module offered by
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Morphology, anatomy, phylogeny and ecology of arthropods.		
<b>Intended learning outcomes</b>		
Students are able to explain arthropod radiations in a functional context as well as to explain the importance of arthropods to ecosystems.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (5)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
term paper (approx. 5 to 10 pages) creditable for bonus		
<b>Allocation of places</b>		
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.</p>		
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Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
Bachelor's degree (1 major) Biology (2022)

Module title			Abbreviation
Biology and Ecology of Arthropods			07-4S1NVO5-152-m01
Module coordinator		Module offered by	
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
More in-depth discussion of the structure and dynamics of human and animal populations; regulation of population density; management.			
Intended learning outcomes			
Students are able to interpret the structure and dynamics of populations and metapopulations on the basis of model concepts in population ecology and to apply more advanced methods of quantitative analysis to these.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (4) + S (1)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
15 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking			

Bachelor's with 1 major Biology (2015)

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will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)  
Bachelor's degree (1 major) Mathematics (2023)

Module title			Abbreviation
Biology and Ecology of Arthropods			07-4S1NVO6-152-m01
Module coordinator		Module offered by	
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
All aspects of the biology and ecology of arthropods, from phylogeny and morphology through to behaviour and ecology. The lecture will provide you with an overview of the biology and ecology of arthropods or will focus on specific taxa. It will discuss findings of basic and applied research on and with arthropods and will highlight the diversity of relationships between arthropods and humans. Practical exercises that will vary according to the group of arthropods we focused on will provide you with an opportunity to consolidate your knowledge on the topics covered in the lecture.			
Intended learning outcomes			
Ability to conduct research on and with arthropods to address suitable problems as well as to explain the role of arthropods in ecosystems.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (5) + V (1)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
15 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components			
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in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)



Module title		Abbreviation
<b>Molecular modelling - From DNA to Protein</b>		07-4S1PS1-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
This module will equip students with advanced knowledge on the structure and function of nucleic acids and proteins as well as on the search for and analysis and modelling of plant macromolecules using databases and specific software.		
<b>Intended learning outcomes</b>		
Students have acquired a specialist knowledge of the structure-function relationships of macromolecules and are able to work with relevant databases and software.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (5)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
computerised practical examination (approx. 6 hours) creditable for bonus		
<b>Allocation of places</b>		
<p>18 places. Should the number of applications exceed the number of available places, places will be allocated as follows:</p> <p>Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 %</p>		
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of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
<b>Methods in Plant Ecophysiology</b>		07-4S1PS2-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Complex experiments to introduce students to the current state of research in plant ecophysiology as well as discussion of experimental findings in a comprehensive scientific context.		
<b>Intended learning outcomes</b>		
Students are able to use current methods in plant ecophysiology as well as to document experimental findings and put these in a scientific context.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
Ü (4) + S (1)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Log (approx. 10 to 20 pages) creditable for bonus		
<b>Allocation of places</b>		
<p>15 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 %</p>		

of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)

Module title			Abbreviation
Pharmaceutical Drugs in Plants			07-4S1PS3-152-m01
Module coordinator		Module offered by	
holder of the Chair of Pharmaceutical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
This module will introduce students to the major active agent groups in medicinal plants and phytopharmaceuticals as well as to their application in pharmacy. Microscopic and phytochemical analyses will be performed and the requirements and analytical methods of the pharmacopoeia will be explained.			
Intended learning outcomes			
Students have acquired a specialist knowledge on active agents from medicinal plants and phytopharmaceuticals as well as on the requirements and analytical methods of the pharmacopoeia.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (4) + S (1)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
15 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according			
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to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Mathematics (2015)  
Bachelor's degree (1 major) Computational Mathematics (2015)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)  
Bachelor's degree (1 major) Mathematics (2023)

Module title			Abbreviation
Basic Methods in Pharmaceutical Biology			07-4S1PS4-152-m01
Module coordinator		Module offered by	
holder of the Chair of Pharmaceutical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
This module will provide students with a theoretical and methodological introduction to fundamental techniques in molecular biology and drug analysis. (For more information, please refer to <a href="http://www.pbio.biozentrum.uni-wuerzburg.de">www.pbio.biozentrum.uni-wuerzburg.de</a> .)			
Intended learning outcomes			
Students are able to analyse groups of drugs, using a variety of methods.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (4) + S (1)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
6 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking			
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will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)



Module title			Abbreviation
Excursion on the Ecology and Faunistics of a Tropical Ecosystem			07-4S1TROP-152-m01
Module coordinator		Module offered by	
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In a tropical ecosystem in the Paleotropics or Neotropics, participants will implement small projects on ecological or nature conservation-related issues and will undertake field trips to become familiar with the local flora and fauna. Participants will become familiar with different project stages from experiment design, implementation and data analysis through to data presentation.			
Intended learning outcomes			
Students have acquired an advanced knowledge on tropical species diversity. They know how to design, perform and present ecological experiments in the Paleotropics or Neotropics.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (4) + E (2)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
term paper (approx. 10 to 20 pages) creditable for bonus			
Allocation of places			
5 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot. Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology;			
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among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
Practical Course as Exchange Student		07-5AP-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
Contents		
Practical course to be completed at universities abroad. Students may complete this course in the context of exchange programmes such as Erasmus etc. Contents of the course should correspond to the contents of <i>Spezielle Biowissenschaften 2 (Advanced Biosciences 2)</i> ; please consult with the competent coordinator in advance.		
Intended learning outcomes		
Students are familiar with working methods at universities in countries other than Germany. They have developed professional competencies as well as language and interpersonal skills.		
Courses (type, number of weekly contact hours, language — if other than German)		
P (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
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Additional information		
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Workload		
300 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022) exchange program Biosciences (2022)		

Module title		Abbreviation
External Practical Course		07-5EP-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
Contents		
Students will complete a placement at an authority, a non-university research institution or a business. Contents to be determined by the respective institution.		
Intended learning outcomes		
Students are familiar with the structures of external institutions and businesses and have developed skills which qualify them to work in their profession.		
Courses (type, number of weekly contact hours, language — if other than German)		
P (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
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Additional information		
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Workload		
300 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022) exchange program Biosciences (2022) Bachelor's degree (1 major) Mathematics (2023)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 145 / 350

Module title			Abbreviation
Specific Cell- and Developmental Biology 2			07-5S2MZ1-152-m01
Module coordinator		Module offered by	
holder of the Chair of Cell Biology and Developmental Bio-logy		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Advanced cell and developmental biology II: The cell cycle. This 4-week practical course will focus on dynamic cell cycle control and the part the cell cycle plays in the development of organisms. We will offer a variety of model organisms ranging from bacteria and yeasts to frogs and mammals. How is growth controlled? How are cell components redistributed during the cell cycle? What controls mitosis and replication? We will perform experiments to answer these and other fundamental questions. In addition to the practical part, the course will also include lectures, eLectures and, in particular, virtual experiments that will teach you how to independently design series of experiments. The methods you will use range from in vitro fertilisation as well as quantitative fluorescence and electron microscopy to methods in molecular biology such as Western blot and RNA interference.			
Intended learning outcomes			
Students have acquired knowledge about general strategies and methods of molecular and cell biology. They are able to independently perform scientific laboratory work.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (7) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
20 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already ha			

ve successfully completed at least one other module component of the respective module will be given preferential consideration.

A waiting list will be maintained and places re-allocated as they become available.

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title			Abbreviation
Specific Microbiology 2			07-5S2MZ2-152-m01
Module coordinator		Module offered by	
holder of the Chair of Microbiology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will investigate relevant problems in the infection biology of a variety of pathogenic microorganisms. Students will investigate interactions of obligate intracellular and facultative intracellular bacteria with their host cells, e. g. the internalization of pathogens by mammalian cells or interactions with cellular signalling pathways.			
Intended learning outcomes			
Students are familiar with basic experimental techniques used in Cellular Microbiology and are able to apply them.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (7) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
30 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components			
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in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

The exercises are offered as a full-day block event.

#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Specific Bioinformatics 2			07-5S2MZ3-152-m01
Module coordinator		Module offered by	
holder of the Chair of Bioinformatics		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
The module will cover two topics from the area of bioinformatics to be selected from the following list: - sequence analysis, phylogenetics and evolution - gene expression profiling - protein structure analysis - programming for bioinformatics - network analysis			
Intended learning outcomes			
Students have acquired knowledge about general strategies and methods of bioinformatics. They are able to independently perform scientific laboratory work.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (7) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
16 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics))			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
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at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Specific Biotechnology 2			07-5S2MZ4-152-m01
Module coordinator		Module offered by	
holder of the Chair of Biotechnology and Biophysics		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
<p>This practical course provides students with an insight into different biotechnological and biophysical topics. Under expert guidance, students will perform selected experiments on the following topics: cellular and molecular biotechnology, nano and microsystems biotechnology, biomaterials and biosensors, high-resolution fluorescence microscopy, fluorescence spectroscopy, analysis and electromanipulation of cells.</p>			
Intended learning outcomes			
<p>Students will have acquired a knowledge of fundamental biotechnological and biophysical methods and their applications that will enable them to independently review relevant literature. In addition, they will have become acquainted with - or, where necessary, will be able to independently acquaint themselves with - biophysical mechanisms. Students will have acquired practical experience performing experiments, using a variety of scientific tools. In the seminar, students will have acquired detailed theoretical knowledge on these experiments and will have delivered a short presentation (15 minutes) on one of the experiments they performed.</p>			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (7) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
<p>a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours).</p> <p>Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus</p>			
Allocation of places			
<p>18 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p>			
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A waiting list will be maintained and places re-allocated as they become available.

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Nanostructure Technology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Nanostructure Technology (2020)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Quantum Technology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
Neurobiology 2		07-5S2NVO1-152-m01
Module coordinator		Module offered by
holder of the Chair of Neurobiology and Genetics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
<p>This module will provide students with deeper insights into the following topics: the neuronal bases of cognition, sensory systems, learning and memory. Using suitable model systems, the module will train students in modern methods in neurobiology, ranging from fundamental methods in histology and immunohistochemistry, ultrastructural analysis, in vivo imaging and behavioural experiments through to methods in molecular biology. Students will also acquire an in-depth insight into the theory of molecular and clinical neurobiology and will obtain an overview of current research focuses at the University of Würzburg. The module will comprise a lecture, practical exercises on the contents of the lecture as well as a seminar during which students will deliver presentations on the experiments performed during exercises or will present and discuss literature on individual topics.</p>		
Intended learning outcomes		
Students are able to acquaint themselves with and deliver presentations on advanced topics in neurobiology, taking into account current literature.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (7) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
<p>a) written examination (approx. 45 to 60 minutes) or  b) log (approx. 10 to 20 pages) or  c) oral examination of one candidate each (approx. 30 minutes) or  d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or  e) presentation (approx. 20 to 30 minutes) or  f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours).</p> <p>Students will be informed about the method and length of the assessment prior to the course.  Language of assessment: German and/or English  creditable for bonus</p>		
Allocation of places		
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p>		



A waiting list will be maintained and places re-allocated as they become available.

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

300 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title			Abbreviation
Integrative Behavioural Biology 2			07-5S2NVO2-152-m01
Module coordinator		Module offered by	
holder of the Chair of Behavioral Physiology and Sociobiology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will acquire an in-depth insight into behavioural physiology and sociobiology with a particular focus on the biology of social insects.			
Intended learning outcomes			
Students have acquired knowledge and skills in the areas of behavioural physiology and sociobiology. They are familiar with hypotheses and are proficient in methods used in research on social insects.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (7) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
18 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics))			
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at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Animal Ecology 2			07-5S2NVO3-152-m01
Module coordinator		Module offered by	
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will acquire an insight into the statistical analysis of data in animal ecology and into experiment design. The module will comprise exercises in statistics as well as experiments during which students will have an opportunity to put their acquired knowledge and skills into practice.			
Intended learning outcomes			
Students are able to design appropriate experiments to address a scientific issue as well as to analyse, present and interpret the results.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (6) + V (1) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
20 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics))			
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at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Specific Membranebiology of Plants 2</b>		07-5S2PS1-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
The module will address topics in contemporary research on plant membrane transport with modern molecular biological and biophysical methods. On the basis of current scientific publications, different aspects of plant physiology will be presented and discussed.		
Intended learning outcomes		
Students are familiar with current research in the field of plant membrane transport as well as with the methods used. They are able to interpret and deliver presentations on scientific publications.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (7) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
5 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics))		
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at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title		Abbreviation
<b>Specific Molecular Physiology of Plants 2</b>		07-5S2PS2-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
In this module, students will acquire advanced knowledge and skills in techniques of molecular biology for questions of plant physiology. Every student will perform a physiological experiment that will be analysed using the methods the students have learned. Current scientific publications in the field of plant physiology will be presented and discussed.		
Intended learning outcomes		
Students are able to perform advanced experiments in plant physiology as well as to interpret and deliver presentations on scientific publications.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (7) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
5 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components		



in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Analysis of Biosensors</b>		07-5S2PS3-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
In this module, students will acquire a knowledge of methods for recombinant protein expression, protein isolation and protein purification as well as the biophysical and biochemical analysis of proteins. Current scientific publications on these topics will be presented and discussed.		
Intended learning outcomes		
Students have acquired knowledge and skills in the areas of recombinant protein expression and subsequent purification as well as protein analysis. They are able to interpret and deliver presentations on scientific publications.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (7) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
5 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components		
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in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Advanced Plant Ecophysiology			07-5S2PS4-152-m01
Module coordinator		Module offered by	
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will learn to independently apply advanced molecular biological, chemical analytical or ecological methods. Experimental findings will be evaluated, interpreted and documented in the context of the current state of research.			
Intended learning outcomes			
Students are able to independently perform complex experiments in the field of plant ecophysiology, to interpret their findings in the context of the current state of research as well as to document these.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (7) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
15 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics))			
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at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Molecular Biological Methods in Pharmaceutical Biology			07-5S2PS5-152-m01
Module coordinator		Module offered by	
holder of the Chair of Pharmaceutical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Being involved in a current research project, students will become proficient in advanced methods in molecular biology, molecular biochemistry or metabolite analysis.			
Intended learning outcomes			
Students are proficient in advanced methods in pharmaceutical biology with a focus on molecular biology or molecular biochemistry and possess the skills necessary for conducting research in the context of research projects.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (7) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
10 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics))			
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at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

300 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title		Abbreviation
Thesis Biology		07-6BT-152-m01
Module coordinator		Module offered by
chairperson of examination committee Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
12	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Within a time frame of ten weeks, students will research and write on a defined scientific question. They will plan and perform experiments, collect data and present it in a thesis and will deliver a presentation on and discuss their topic in a seminar. For more information on the structure of the thesis, please refer to <a href="http://www.biostudium.uni-wuerzburg.de">www.biostudium.uni-wuerzburg.de</a> .		
Intended learning outcomes		
Students will be able to research and write on a scientific problem within a given time frame (10 weeks), adhering to the principles of good scientific practice. They will be able to document their findings in both written and oral form, to discuss their findings as well as to place them in the context of the present knowledge in the field.		
Courses (type, number of weekly contact hours, language — if other than German)		
No courses assigned to module Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written thesis (approx. 20 to 40 pages) Language of assessment: German and/or English		
Allocation of places		
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Additional information		
Time to complete: 10 weeks.		
Workload		
360 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title			Abbreviation
Specific Cell- and Developmental Biology 3			07-6S3MZ1-152-m01
Module coordinator		Module offered by	
holder of the Chair of Cell Biology and Developmental Bio-logy		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will acquire an in-depth insight into approaches and methods in cell biology. Students will learn to apply methods in cell biology to address a scientific question.			
Intended learning outcomes			
The students are able to independently address scientific issues in molecular cell biology, using appropriate me- thods. They are able to design the appropriate experiments as well as to analyse, present and interpret the re- sults.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
20 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential con- sideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be alloca- ted to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a mi- nimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathema- tik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as po- tentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uni- form regulation for the courses of one module component. In this case, places on all courses of a module com- ponent that are concerned will be allocated in the same procedure. In this procedure, applicants who already ha- ve successfully completed at least one other module component of the respective module will be given preferen- tial consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous acade- mic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they ha- ve achieved and their average grade of all assessments taken during their studies or of all module components			
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in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Specific Microbiology 3			07-6S3MZ3-152-m01
Module coordinator		Module offered by	
holder of the Chair of Microbiology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Using the example of a problem taken from a current research project, this module will provide students with an opportunity to acquire an in-depth insight into modern methods in microbiology.			
Intended learning outcomes			
Students are able to independently address a problem in microbiology, to design appropriate experiments as well as to analyse, interpret and present their findings.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
25 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their			
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average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### **Additional information**

The exercise is to be completed as a full-day block event over 5-6 weeks.

#### **Workload**

450 h

#### **Teaching cycle**

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#### **Referred to in LPO I** (examination regulations for teaching-degree programmes)

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#### **Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Specific Biotechnology 3</b>		07-6S3MZ4-152-m01
Module coordinator		Module offered by
holder of the Chair of Biotechnology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
<p>This practical course provides students with an insight into different biotechnological and biophysical topics and is close to laboratory research. Under expert guidance, students will perform selected experiments on one of the following topics: cellular and molecular biotechnology, nano and microsystems biotechnology, biomaterials and biosensors, high-resolution fluorescence microscopy, fluorescence spectroscopy, analysis and electromanipulation of cells. Performing experiments under expert guidance, students will become acquainted with techniques and instruments. Over the duration of the course, students will then be required to work increasingly independently on current research topics. Work on current research topics will spark the students' interest in topics and will help them select a topic for their Bachelor's thesis.</p>		
Intended learning outcomes		
<p>Students will become acquainted with modern biophysical methods and their applications in biotechnology. They will be able to independently work on scientific problems, to independently study relevant literature and to develop a quantitative understanding of biophysical mechanisms. In the seminar, students will acquire further theoretical knowledge on experiments and will give short presentations on experiments performed.</p>		
Courses (type, number of weekly contact hours, language — if other than German)		
<p>Ü (9) + S (1) Module taught in: German and/or English</p>		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
<p>a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus</p>		
Allocation of places		
<p>18 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already ha-</p>		

ve successfully completed at least one other module component of the respective module will be given preferential consideration.

A waiting list will be maintained and places re-allocated as they become available.

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title			Abbreviation
Specific Bioinformatics 3			07-6S3MZ5-152-m01
Module coordinator		Module offered by	
holder of the Chair of Bioinformatics		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will acquire an in-depth insight into approaches and methods in bioinformatics. Students will learn to address a scientific problem in bioinformatics.			
Intended learning outcomes			
The students are able to independently address scientific issues in bioinformatics, using appropriate methods. They are able to design the appropriate experiments as well as to analyse, present and interpret the results.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
18 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their			
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average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
Neurobiology 3		07-6S3NVO1-152-m01
Module coordinator		Module offered by
holder of the Chair of Neurobiology and Genetics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
In this module, students will acquire specific insights into topics, approaches and methods in neurobiology. Students will also be involved in current research projects.		
Intended learning outcomes		
Students will be proficient in the theory and practice of research in the field of neurobiology and will have developed skills required for a career in research.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (9) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
16 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their		

average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Integrative Behavioural Biology 3			07-6S3NVO2-152-m01
Module coordinator		Module offered by	
holder of the Chair of Behavioral Physiology and Sociobiology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will acquire specific insights into topics, approaches and methods in integrative behavioural biology. Students will also be involved in current research projects in the area of experimental behavioural physiology and sociobiology.			
Intended learning outcomes			
Students will be proficient in the theory and practice of research in the field of integrative behavioural biology and will have developed skills required for a career in research.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
18 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
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in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)



Module title		Abbreviation
<b>Advanced Animal Ecology 3</b>		07-6S3NVO31-152-m01
Module coordinator		Module offered by
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
In this module, students will acquire insights into topics, approaches and methods in special animal ecology. Students will also be involved in current research projects. Module component 07-6S3NVO3-1 is mandatory. Out of the other module components, one must be selected.		
<b>Intended learning outcomes</b>		
Students are proficient in the theory and practice of research in the field of special animal ecology. They are able to analyse their own research findings, to present these as well as to discuss these in the context of current publications.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
Ü (6) + S (1) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Log (approx. 10 to 30 pages) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p>		
Bachelor's with 1 major Biology (2015)		<p>JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015</p>
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Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

300 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)

Module title			Abbreviation
Ecological Modelling			07-6S3NVO32-152-m01
Module coordinator		Module offered by	
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
On the basis of exemplary tasks in ecology, the students will learn about different simulation techniques and modelling methods. At the same time, they will develop their own simulation program to address demographical or evolutionary questions.			
Intended learning outcomes			
The students will expand their knowledge in the theory and practice of ecological modelling. They will be able to develop, apply and interpret adequate modelling techniques.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + Ü (1) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 30 to 60 minutes) or b) log (approx. 10 to 30 pages) Language of assessment: German and/or English creditable for bonus			
Allocation of places			
20 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
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Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
Nature Conservation Biology		07-6S3NVO33-152-m01
Module coordinator		Module offered by
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
The module will discuss biodiversity, focusing on the issue of biodiversity loss and related issues in the area of nature conservation. By way of examples, students will be introduced to the theory and practice of conservation biology.		
<b>Intended learning outcomes</b>		
Students have developed skills in the area of national and international nature conservation. They are able to critically evaluate whether particular steps in the project management cycle can help reach the defined conservation targets.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + S (1) + E (1) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
presentation (approx. 20 to 45 minutes) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p>		
Bachelor's with 1 major Biology (2015)		page 187 / 350

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
Tropical Biology		07-6S3NVO34-152-m01
Module coordinator		Module offered by
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
This module provides the fundamentals of the biology of tropical habitats and tropical communities.		
<b>Intended learning outcomes</b>		
Students will be able to recognise the special position of tropical habitats within the biosphere and to explain the significance tropical habitats have for the ecosystem. They will be able to discuss and deliver presentations on current publications in the field of tropical biology.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + S (2) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 30 to 60 minutes) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology;</p>		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 189 / 350

among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

150 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)  
Bachelor's degree (1 major) Biology (2022)



Module title			Abbreviation
Animal Ecology 4			07-6S3NVO7-152-m01
Module coordinator		Module offered by	
holder of the Chair of Animal Ecology and Tropical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
In this module, students will acquire insights into topics, approaches and methods in special animal ecology. Students will also be involved in current research projects. Module component 07-6S3NVO3-1 is mandatory. Out of the other module components, one must be selected.			
Intended learning outcomes			
Students are proficient in the theory and practice of research in the field of special animal ecology. They are able to analyse their own research findings, to present these as well as to discuss these in the context of current publications.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
Log (approx. 10 to 30 pages) Language of assessment: German and/or English creditable for bonus			
Allocation of places			
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p>			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
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Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

450 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Specific molecular Physiology of Plants 3</b>		07-6S3PS1-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Using the examples of topics in contemporary research, students will be introduced to the concepts of good scientific practice, including planning research strategies, performing complex experiments as well as documenting and communicating research findings in the form of a presentation, a publication or a term paper. Students will be involved in ongoing research and will learn how to independently apply advanced methods in modern plant sciences. In addition they will acquire an advanced knowledge of the molecular basics of membrane transport.		
Intended learning outcomes		
Students are able to independently use advanced methods in plant molecular biology. They are able to independently address and document questions in the field of plant biology, adhering to the principles of good scientific practice.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (9) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
5 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.		

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
<b>Structural and functional Analysis of Biosensors 3</b>		07-6S3PS2-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Using the examples of topics in contemporary research, students will be introduced to the concepts of good scientific practice, including planning research strategies, performing complex experiments as well as documenting and communicating research findings in the form of a presentation, a publication or a term paper. Students will be involved in ongoing research and will learn to independently apply advanced methods in biophysics and protein chemistry. In addition, they will acquire an advanced knowledge of the mechanisms and structure-function relationships of chemo- and photoreceptors in particular.		
Intended learning outcomes		
Students are able to independently use advanced methods in the protein chemistry of biosensors. They are able to independently address and document questions in the field of plant biology, adhering to the principles of good scientific practice.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (9) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
5 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.		

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title			Abbreviation
Specific Membrane Biology of Plants 3			07-6S3PS3-152-m01
Module coordinator		Module offered by	
holder of the Chair of Ecophysiology and Vegetation Ecology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Using the examples of topics in contemporary research, students will be introduced to the concepts of good scientific practice, including planning research strategies, performing complex experiments as well as documenting and communicating research findings in the form of a presentation, a publication or a term paper. Students will be involved in ongoing research and will learn how to independently apply advanced methods in molecular biology and biophysics. In addition they will acquire an advanced knowledge of membrane transport in particular.			
Intended learning outcomes			
Students are able to independently use advanced methods in the experimental biology of membrane transport. They are able to independently address and document questions in the field of plant biology, adhering to the principles of good scientific practice.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
5 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
		page 197 / 350	



A waiting list will be maintained and places re-allocated as they become available.

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

450 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Scientific Work in Plant Ecophysiology			07-6S3PS4-152-m01
Module coordinator		Module offered by	
holder of the Chair of Ecophysiology and Vegetation Ecology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Using the examples of topics in contemporary research, students will be introduced to the concepts of good scientific practice, including planning research strategies, performing complex experiments as well as documenting and communicating research findings in the form of a presentation, a publication or a term paper. Students will be involved in ongoing research and will learn how to independently apply advanced methods in ecophysiology, analytical chemistry or molecular biology.			
Intended learning outcomes			
Students are able to independently conduct research on the ecophysiology of plants. They are able to independently address and document questions in the field of plant biology, adhering to the principles of good scientific practice.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (8) + R (1) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
15 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
		page 199 / 350	

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Research Project in Pharmaceutical Biology with Focus on Molecular Biology			07-6S3PS5-152-m01
Module coordinator		Module offered by	
holder of the Chair of Pharmaceutical Biology		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Using the examples of topics in contemporary research, students will be introduced to the concepts of good scientific practice, including planning research strategies, performing complex experiments as well as documenting and communicating research findings in the form of a presentation, a publication or a term paper. Students will be involved in ongoing research and will learn how to independently apply specific methods in pharmaceutical biology with a focus on molecular biology.			
Intended learning outcomes			
Students are able to independently pursue research projects in the field of pharmaceutical biology with a focus on molecular biology. They are able to independently address and document questions in the field of plant biology, adhering to the principles of good scientific practice.			
Courses (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
8 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.			

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

<b>Module title</b>			<b>Abbreviation</b>
<b>Research Project in Pharmaceutical Biology with Focus on Molecular Biochemistry</b>			07-6S3PS6-152-m01
<b>Module coordinator</b>		<b>Module offered by</b>	
holder of the Chair of Pharmaceutical Biology		Faculty of Biology	
<b>ECTS</b>	<b>Method of grading</b>	<b>Only after succ. compl. of module(s)</b>	
15	numerical grade	--	
<b>Duration</b>	<b>Module level</b>	<b>Other prerequisites</b>	
1 semester	undergraduate	--	
<b>Contents</b>			
Using the examples of topics in contemporary research, students will be introduced to the concepts of good scientific practice, including planning research strategies, performing complex experiments as well as documenting and communicating research findings in the form of a presentation, a publication or a term paper. Students will be involved in ongoing research and will learn how to independently apply specific methods in pharmaceutical biology with a focus on molecular biochemistry.			
<b>Intended learning outcomes</b>			
Students are able to independently pursue research projects in the field of pharmaceutical biology with a focus on molecular biochemistry. They are able to independently address and document questions in the field of plant biology, adhering to the principles of good scientific practice.			
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)			
Ü (9) + S (1) Module taught in: German and/or English			
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
<b>Allocation of places</b>			
8 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available.			



Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

450 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title			Abbreviation
Mathematical Biology and Biostatistics			07-M-BST-152-m01
Module coordinator		Module offered by	
holder of the Chair of Bioinformatics		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
4	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Fundamental principles of the most important mathematical and statistical methods in biology.			
Intended learning outcomes			
Students will have acquired fundamental skills in the evaluation of experiments, the interpretation of readings and numbers as well as the mathematical description of biological processes.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (2) + Ü (2)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
written examination (approx. 60 minutes) creditable for bonus			
Allocation of places			
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Additional information			
--			
Workload			
120 h			
Teaching cycle			
--			
Referred to in LPO I (examination regulations for teaching-degree programmes)			
--			
Module appears in			
Bachelor's degree (1 major) Biochemistry (2015) Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Computer Science (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biochemistry (2017) Bachelor's degree (1 major) Computer Science (2017) Bachelor's degree (1 major) Computer Science (2019) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021) Bachelor's degree (1 major) Computer Science und Sustainability (2021) Bachelor's degree (1 major) Biochemistry (2022) Bachelor's degree (1 major) Biology (2022) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022)			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 205 / 350

Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023)  
Bachelor's degree (1 major) Mathematics (2023)  
Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)

Module title			Abbreviation
Excursion I			07-S1-Ex1-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	Please consult with course advisory service in advance.	
Contents			
Contents of the field trip to be determined by the respective institution.			
Intended learning outcomes			
Students have developed skills which qualify them to work in their profession.			
Courses (type, number of weekly contact hours, language — if other than German)			
E (2) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
--			
Additional information			
--			
Workload			
150 h			
Teaching cycle			
--			
Referred to in LPO I (examination regulations for teaching-degree programmes)			
--			
Module appears in			
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021) Bachelor's degree (1 major) Biology (2022) Bachelor's degree (1 major) Mathematics (2023)			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 207 / 350

Module title			Abbreviation
Interdisciplinary Project I			07-S1-IP1-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	Please consult with course advisory service in advance.	
Contents			
Contents of the project to be determined by the competent coordinators; contents will vary according to topic.			
Intended learning outcomes			
Students have developed skills which qualify them to work in their profession.			
Courses (type, number of weekly contact hours, language — if other than German)			
R (5) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus			
Allocation of places			
--			
Additional information			
--			
Workload			
150 h			
Teaching cycle			
--			
Referred to in LPO I (examination regulations for teaching-degree programmes)			
--			
Module appears in			
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021) Bachelor's degree (1 major) Computer Science und Sustainability (2021) Bachelor's degree (1 major) Biology (2022)			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 208 / 350

Bachelor's degree (1 major) Mathematics (2023)

Module title		Abbreviation
Laboratory Practical Course I		07-S1-LP1-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
<b>Contents</b>		
This practical course is offered by an institution that is part of the University. Contents to be determined by the respective institution.		
<b>Intended learning outcomes</b>		
Students have developed skills which qualify them to work in their profession.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
P (5) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. creditable for bonus		
<b>Allocation of places</b>		
--		
<b>Additional information</b>		
--		
<b>Workload</b>		
150 h		
<b>Teaching cycle</b>		
--		
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
--		
<b>Module appears in</b>		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021) Bachelor's degree (1 major) Biology (2022)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 210 / 350

Bachelor's degree (1 major) Mathematics (2023)



Module title			Abbreviation
Excursion II			07-S2-EX2-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
10	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	Please consult with course advisory service in advance.	
Contents			
Contents of the field trip to be determined by the respective institution.			
Intended learning outcomes			
Students have developed skills which qualify them to work in their profession.			
Courses (type, number of weekly contact hours, language — if other than German)			
E (8) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
--			
Additional information			
--			
Workload			
300 h			
Teaching cycle			
--			
Referred to in LPO I (examination regulations for teaching-degree programmes)			
--			
Module appears in			
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021) Bachelor's degree (1 major) Biology (2022)			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 212 / 350

exchange program Biosciences (2022)  
Bachelor's degree (1 major) Mathematics (2023)

Module title		Abbreviation
Interdisciplinary Project II		07-S2-IP2-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
<b>Contents</b>		
Contents of the project to be determined by the competent coordinators; contents will vary according to topic.		
<b>Intended learning outcomes</b>		
Students have developed skills which qualify them to work in their profession.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
R (8) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
--		
<b>Additional information</b>		
--		
<b>Workload</b>		
300 h		
<b>Teaching cycle</b>		
--		
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
--		
<b>Module appears in</b>		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021) Bachelor's degree (1 major) Biology (2022)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 214 / 350

exchange program Biosciences (2022)  
Bachelor's degree (1 major) Mathematics (2023)

Module title		Abbreviation
Laboratory Practical Course II		07-S2-LP2-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
Contents		
This practical course is offered by an institution that is part of the University. Contents to be determined by the respective institution.		
Intended learning outcomes		
Students are familiar with the structures of internal institutions and have developed skills which qualify them to work in their profession.		
Courses (type, number of weekly contact hours, language — if other than German)		
P (8) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
300 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
--		
Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2020) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2021)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 216 / 350

Bachelor's degree (1 major) Biology (2022)  
Bachelor's degree (1 major) Mathematics (2023)

Module title			Abbreviation
Excursion III			07-S3-Ex3-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
15	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	Please consult with course advisory service in advance.	
Contents			
Contents of the field trip to be determined by the respective institution; field trip may include visits to institutions and businesses or fieldwork in the area of organismic biology.			
Intended learning outcomes			
Students will forge links with non-university institutions and industry, will receive first-hand information and will learn about additional non-academic aspects of careers in biology. Fieldwork in the area of organismic biology will provide students with an opportunity to learn how to collect and interpret data in the field.			
Courses (type, number of weekly contact hours, language — if other than German)			
E (10) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
--			
Additional information			
--			
Workload			
450 h			
Teaching cycle			
--			
Referred to in LPO I (examination regulations for teaching-degree programmes)			
--			
Module appears in			
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022) exchange program Biosciences (2022)			



Module title		Abbreviation
Interdisciplinary Project III		07-S3-IP3-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
<b>Contents</b>		
Contents of the project to be determined by the competent coordinators; contents will vary according to topic.		
<b>Intended learning outcomes</b>		
Students have developed skills which qualify them to work in their profession.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
R (10) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
--		
<b>Additional information</b>		
--		
<b>Workload</b>		
450 h		
<b>Teaching cycle</b>		
--		
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
--		
<b>Module appears in</b>		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022) exchange program Biosciences (2022)		

Module title		Abbreviation
Laboratory Practical Course III		07-S3-LP3-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
15	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
Contents		
This practical course is offered by an institution that is part of the University. Contents to be determined by the respective institution.		
Intended learning outcomes		
Students are familiar with the structures of internal institutions and have developed skills which qualify them to work in their profession.		
Courses (type, number of weekly contact hours, language — if other than German)		
P (10) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
450 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
--		
Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022) exchange program Biosciences (2022)		

Module title		Abbreviation
Additional Key Qualification 2		07-SQA-EFQ2-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
2	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
Contents		
Other courses (not offered as part of the pool of general transferable skills (ASQ)) offered by JMU or external institutions that will equip participants with general and interdisciplinary knowledge and skills, e. g. modules offered by Virtuelle Hochschule Bayern (vhb) or courses equipping students with knowledge and skills in the areas of educational science, pedagogy or psychology. Decision on credit transfer to be made by module coordinators.		
Intended learning outcomes		
Students have enhanced their interpersonal skills, general problem solving skills or decision making skills.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (0.5) + S (0.5) + Ü (0.5) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
60 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
--		
Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
Additional Key Qualification 3		07-SQA-EFQ3-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
Contents		
Other courses (not offered as part of the pool of general transferable skills (ASQ)) offered by JMU or external institutions that will equip participants with general and interdisciplinary knowledge and skills, e. g. modules offered by Virtuelle Hochschule Bayern (vhb) or courses equipping students with knowledge and skills in the areas of educational science, pedagogy or psychology. Decision on credit transfer to be made by module coordinators.		
Intended learning outcomes		
Students have enhanced their interpersonal skills, general problem solving skills or decision making skills.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (0.5) + S (1) + Ü (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
90 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
--		
Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
Additional Key Qualification 4		07-SQA-EFQ4-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
4	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
Contents		
Other courses (not offered as part of the pool of general transferable skills (ASQ)) offered by JMU or external institutions that will equip participants with general and interdisciplinary knowledge and skills, e. g. modules offered by Virtuelle Hochschule Bayern (vhb) or courses equipping students with knowledge and skills in the areas of educational science, pedagogy or psychology. Decision on credit transfer to be made by module coordinators.		
Intended learning outcomes		
Students have enhanced their interpersonal skills, general problem solving skills or decision making skills.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (0.5) + S (2) + Ü (2) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
120 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
--		
Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
Additional Key Qualification 5		07-SQA-EFQ5-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Please consult with course advisory service in advance.
Contents		
Other courses (not offered as part of the pool of general transferable skills (ASQ)) offered by JMU or external institutions that will equip participants with general and interdisciplinary knowledge and skills, e. g. modules offered by Virtuelle Hochschule Bayern (vhb) or courses equipping students with knowledge and skills in the areas of educational science, pedagogy or psychology. Decision on credit transfer to be made by module coordinators.		
Intended learning outcomes		
Students have enhanced their interpersonal skills, general problem solving skills or decision making skills.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + S (1) + Ü (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
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Workload		
150 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
<b>Designing a Scientific Poster</b>		07-SQA-WP1-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
In this module, students will present the results of (their own) research - conducted for their thesis or during lab course projects, for example - in the form of a poster meeting the standards of (international) conferences. Preparation of the poster will be supervised and graded by the respective thesis/project supervisor.		
Intended learning outcomes		
Students will be able to present the results of their work in a condensed yet comprehensible form. They will be able to present key aspects of their work in a clear and appropriate manner, providing all the necessary information to allow both experts in the field and scientists who are not familiar with every detail to understand the matter. Having prepared scientific posters, students will find it easier to structure scientific manuscripts.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (0.5) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Completed poster meeting the standards of national and international conferences Language of assessment: German and/or English creditable for bonus		
Allocation of places		
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Additional information		
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Workload		
90 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		



Module title		Abbreviation
<b>Biotechnology and Social Acceptance</b>		07-SQF-BGA-152-m01
Module coordinator		Module offered by
holder of the Chair of Plant Physiology and Biophysics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Applications of green biotechnology; biological background, economic interests, ecological risks, social acceptability.		
<b>Intended learning outcomes</b>		
Students are able to discuss/evaluate society's views of biotechnology. They know how to conduct a literature search and are able to critically review scientific publications as well as issues raised by society. Students have enhanced their oral and written presentation skills and are able to use these to present the data they have collected.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (1) + S (2) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
term paper or preparing educational materials (approx. 5 to 10 pages) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p>		
Bachelor's with 1 major Biology (2015)		page 226 / 350

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

90 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Nanostructure Technology (2015)  
Bachelor's degree (1 major) Nanostructure Technology (2020)  
Bachelor's degree (1 major) Quantum Technology (2021)

Module title		Abbreviation
<b>Computertools for Molecular Biology</b>		07-SQF-CTA-152-m01
Module coordinator		Module offered by
holder of the Chair of Bioinformatics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
2	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Students know how simple and free tools for molecular biological analysis work.		
<b>Intended learning outcomes</b>		
Students will be familiar with the methods discussed in class and will know what problems may be addressed with these methods.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (0.5) + Ü (0.5) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination or practical examination (approx. 30 minutes) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 %</p>		
Bachelor's with 1 major Biology (2015)		<p>JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015</p>
		page 228 / 350

of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

60 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

First state examination for the teaching degree Grundschule English (2009)  
First state examination for the teaching degree Grundschule Biology (2009)  
First state examination for the teaching degree Grundschule Chemistry (2009)  
First state examination for the teaching degree Grundschule Geography (2009)  
First state examination for the teaching degree Grundschule Protestant Theology (2009)  
First state examination for the teaching degree Grundschule German (2009)  
First state examination for the teaching degree Grundschule History (2009)  
First state examination for the teaching degree Grundschule History (2015)  
First state examination for the teaching degree Grundschule Catholic Theology (2009)  
First state examination for the teaching degree Grundschule Mathematics (2009)  
First state examination for the teaching degree Grundschule Music (2009)  
First state examination for the teaching degree Grundschule Physics (2009)  
First state examination for the teaching degree Grundschule Social Science (2009)  
First state examination for the teaching degree Grundschule Science of Sport (2009)  
First state examination for the teaching degree Hauptschule English (2009)  
First state examination for the teaching degree Hauptschule Biology (2009)  
First state examination for the teaching degree Hauptschule Chemistry (2009)  
First state examination for the teaching degree Hauptschule Geography (2009)  
First state examination for the teaching degree Hauptschule Protestant Theology (2009)  
First state examination for the teaching degree Hauptschule German (2009)  
First state examination for the teaching degree Hauptschule History (2009)  
First state examination for the teaching degree Hauptschule Catholic Theology (2009)  
First state examination for the teaching degree Hauptschule Mathematics (2009)  
First state examination for the teaching degree Hauptschule Music (2009)  
First state examination for the teaching degree Hauptschule Physics (2009)  
First state examination for the teaching degree Hauptschule Social Science (2009)  
First state examination for the teaching degree Hauptschule Science of Sport (2009)  
First state examination for the teaching degree Realschule English (2009)  
First state examination for the teaching degree Realschule Biology (2009)  
First state examination for the teaching degree Realschule Chemistry (2009)  
First state examination for the teaching degree Realschule Geography (2009)  
First state examination for the teaching degree Realschule Protestant Theology (2009)  
First state examination for the teaching degree Realschule French Studies (2009)  
First state examination for the teaching degree Realschule German (2009)  
First state examination for the teaching degree Realschule History (2009)  
First state examination for the teaching degree Realschule Computer Science (2012)  
First state examination for the teaching degree Realschule Catholic Theology (2009)  
First state examination for the teaching degree Realschule Mathematics (2009)

First state examination for the teaching degree Realschule Music (2009)  
 First state examination for the teaching degree Realschule Physics (2009)  
 First state examination for the teaching degree Realschule Science of Sport (2009)  
 First state examination for the teaching degree Gymnasium English (2009)  
 First state examination for the teaching degree Gymnasium Biology (2009)  
 First state examination for the teaching degree Gymnasium Chemistry (2009)  
 First state examination for the teaching degree Gymnasium Geography (2009)  
 First state examination for the teaching degree Gymnasium French Studies (2009)  
 First state examination for the teaching degree Gymnasium German (2009)  
 First state examination for the teaching degree Gymnasium History (2009)  
 First state examination for the teaching degree Gymnasium Greek Philology (2009)  
 First state examination for the teaching degree Gymnasium Computer Science (2009)  
 First state examination for the teaching degree Gymnasium Italian Studies (2009)  
 First state examination for the teaching degree Gymnasium Catholic Theology (2009)  
 First state examination for the teaching degree Gymnasium Latin Philology (2009)  
 First state examination for the teaching degree Gymnasium Mathematics (2012)  
 First state examination for the teaching degree Gymnasium Mathematics (2009)  
 First state examination for the teaching degree Gymnasium Music (2009)  
 First state examination for the teaching degree Gymnasium Physics (2009)  
 First state examination for the teaching degree Gymnasium Russian (2009)  
 First state examination for the teaching degree Gymnasium Social Science (2009)  
 First state examination for the teaching degree Gymnasium Spanish Studies (2009)  
 First state examination for the teaching degree Gymnasium Science of Sport (2009)  
 First state examination for the teaching degree Gymnasium Music Education, Advanced Studies (2009)  
 First state examination for the teaching degree Sonderpädagogik Pedagogy of Secondary Education (2009)  
 First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2009)  
 First state examination for the teaching degree Sonderpädagogik Teaching at the German Mittelschule (2013)  
 First state examination for the teaching degree Mittelschule English (2013)  
 First state examination for the teaching degree Mittelschule Biology (2013)  
 First state examination for the teaching degree Mittelschule Chemistry (2013)  
 First state examination for the teaching degree Mittelschule Geography (2013)  
 First state examination for the teaching degree Mittelschule Protestant Theology (2013)  
 First state examination for the teaching degree Mittelschule German (2013)  
 First state examination for the teaching degree Mittelschule History (2013)  
 First state examination for the teaching degree Mittelschule Catholic Theology (2013)  
 First state examination for the teaching degree Mittelschule Mathematics (2013)  
 First state examination for the teaching degree Mittelschule Physics (2013)  
 First state examination for the teaching degree Mittelschule Social Science (2013)  
 First state examination for the teaching degree Mittelschule Science of Sport (2013)  
 Bachelor's degree (1 major) Biology (2015)  
 First state examination for the teaching degree Grundschule English (2015)  
 First state examination for the teaching degree Grundschule Biology (2015)  
 First state examination for the teaching degree Grundschule Chemistry (2015)  
 First state examination for the teaching degree Grundschule Geography (2015)  
 First state examination for the teaching degree Grundschule German (2015)  
 First state examination for the teaching degree Grundschule Catholic Theology (2015)  
 First state examination for the teaching degree Grundschule Mathematics (2015)  
 First state examination for the teaching degree Grundschule Pedagogy of Primary Education (2015)  
 First state examination for the teaching degree Grundschule Physics (2015)  
 First state examination for the teaching degree Grundschule Social Science (2015)  
 First state examination for the teaching degree Grundschule Didactics in English (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Biology (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)



First state examination for the teaching degree Grundschule Didactics in Geography (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in German (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in History (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Catholic Theology (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Art Education in Primary School (2015)  
 First state examination for the teaching degree Grundschule Didactics in Science of Sport (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Mathematics (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Music Education in Primary School (2015)  
 First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Social Science (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Science of Sport (2015)  
 First state examination for the teaching degree Realschule English (2015)  
 First state examination for the teaching degree Realschule Biology (2015)  
 First state examination for the teaching degree Realschule Chemistry (2015)  
 First state examination for the teaching degree Realschule Geography (2015)  
 First state examination for the teaching degree Realschule Protestant Theology (2015)  
 First state examination for the teaching degree Realschule French Studies (2015)  
 First state examination for the teaching degree Realschule German (2015)  
 First state examination for the teaching degree Realschule History (2015)  
 First state examination for the teaching degree Realschule Computer Science (2015)  
 First state examination for the teaching degree Realschule Catholic Theology (2015)  
 First state examination for the teaching degree Realschule Mathematics (2015)  
 First state examination for the teaching degree Realschule Physics (2015)  
 First state examination for the teaching degree Realschule Science of Sport (2015)  
 First state examination for the teaching degree Gymnasium English (2015)  
 First state examination for the teaching degree Gymnasium Biology (2015)  
 First state examination for the teaching degree Gymnasium Chemistry (2015)  
 First state examination for the teaching degree Gymnasium Geography (2015)  
 First state examination for the teaching degree Gymnasium French Studies (2015)  
 First state examination for the teaching degree Gymnasium German (2015)  
 First state examination for the teaching degree Gymnasium History (2015)  
 First state examination for the teaching degree Gymnasium Greek Philology (2015)  
 First state examination for the teaching degree Gymnasium Computer Science (2015)  
 First state examination for the teaching degree Gymnasium Italian Studies (2015)  
 First state examination for the teaching degree Gymnasium Catholic Theology (2015)  
 First state examination for the teaching degree Gymnasium Latin Philology (2015)  
 First state examination for the teaching degree Gymnasium Mathematics (2015)  
 First state examination for the teaching degree Gymnasium Physics (2015)  
 First state examination for the teaching degree Gymnasium Russian (2015)  
 First state examination for the teaching degree Gymnasium Social Science (2015)  
 First state examination for the teaching degree Gymnasium Spanish Studies (2015)  
 First state examination for the teaching degree Gymnasium Science of Sport (2015)  
 First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in German (Primary School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Primary School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Art Education in Primary School (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Primary School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Music Education in Primary School (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Ergonomics (Teaching at the German Mittelschule) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Biology (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Geography (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in German (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in History (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Art Education in Middle School (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Music Education in Middle School (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Social Science (Middle School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Teaching at the German Mittelschule (2015)  
 First state examination for the teaching degree Mittelschule English (2015)  
 First state examination for the teaching degree Mittelschule Biology (2015)  
 First state examination for the teaching degree Mittelschule Chemistry (2015)  
 First state examination for the teaching degree Mittelschule Geography (2015)  
 First state examination for the teaching degree Mittelschule Protestant Theology (2015)  
 First state examination for the teaching degree Mittelschule German (2015)  
 First state examination for the teaching degree Mittelschule History (2015)  
 First state examination for the teaching degree Mittelschule Catholic Theology (2015)  
 First state examination for the teaching degree Mittelschule Mathematics (2015)  
 First state examination for the teaching degree Mittelschule Physics (2015)  
 First state examination for the teaching degree Mittelschule Social Science (2015)  
 First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Ergonomics (Teaching at the German Mittelschule) (2015)  
 First state examination for the teaching degree Mittelschule Didactics in Biology (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Didactics in Geography (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Didactics in Protestant Theology (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Didactics in German (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Didactics in History (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Didactics in Catholic Theology (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Art Education in Middle School (2015)  
 First state examination for the teaching degree Mittelschule Didactics in Science of Sport (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Music Education in Middle School (2015)  
 First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Didactics in Social Science (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Science of Sport (2015)  
 First state examination for the teaching degree Mittelschule Teaching at the German Mittelschule (2015)



First state examination for the teaching degree Grundschule Protestant Theology (2015)  
 First state examination for the teaching degree Grundschule Music (2015)  
 First state examination for the teaching degree Grundschule Didactics in Protestant Theology (Primary School) (2015)  
 First state examination for the teaching degree Realschule Music (2015)  
 First state examination for the teaching degree Gymnasium Music (2015)  
 First state examination for the teaching degree Gymnasium Music Education, Advanced Studies (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Primary School) (2015)  
 First state examination for the teaching degree Mittelschule Music (2015)  
 First state examination for the teaching degree Gymnasium French Studies (2016)  
 First state examination for the teaching degree Gymnasium Italian Studies (2016)  
 First state examination for the teaching degree Gymnasium Spanish Studies (2016)  
 First state examination for the teaching degree Realschule French Studies (2016)  
 First state examination for the teaching degree Grundschule English (2016)  
 First state examination for the teaching degree Grundschule Didactics in English (Primary School) (2016)  
 First state examination for the teaching degree Realschule English (2016)  
 First state examination for the teaching degree Gymnasium English (2016)  
 First state examination for the teaching degree Mittelschule English (2016)  
 First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2016)  
 First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2016)  
 Bachelor's degree (1 major) Biology (2017)  
 First state examination for the teaching degree Gymnasium Greek Philology (2018)  
 First state examination for the teaching degree Grundschule Physics (2018)  
 First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2018)  
 First state examination for the teaching degree Realschule Physics (2018)  
 First state examination for the teaching degree Gymnasium Physics (2018)  
 First state examination for the teaching degree Mittelschule Physics (2018)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018)  
 First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018)  
 First state examination for the teaching degree Gymnasium Mathematics (2019)  
 First state examination for the teaching degree Mittelschule Biology (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Sonderpädagogik Didactics in Biology (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in Biology (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule German (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in German (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule English (2020 (Prüfungsordnungsversion 2016))  
 First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2020 (Prüfungsordnungsversion 2016))  
 First state examination for the teaching degree Mittelschule Protestant Theology (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in Protestant Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Geography (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in Geography (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule History (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in History (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Catholic Theology (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Catholic Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Mathematics (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Art Education in Middle School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Science of Sport (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Science of Sport (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Music (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Music Education in Middle School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Teaching at the German Mittelschule (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2020 (Prüfungsordnungsversion 2016))

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Geography (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in German (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in History (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Art Education in Middle School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Music Education in Middle School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Teaching at the German Mittelschule (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Art Education in Primary School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Music Education in Primary School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in German (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020)

First state examination for the teaching degree Grundschule Physics (2020)

First state examination for the teaching degree Gymnasium Physics (2020)

First state examination for the teaching degree Realschule Physics (2020)

First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020)

First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020)

First state examination for the teaching degree Mittelschule Physics (2020)

First state examination for the teaching degree Grundschule Political and Social Studies (2020)

First state examination for the teaching degree Grundschule Didactics in Political and Social Studies (Primary School) (2020)

First state examination for the teaching degree Sonderpädagogik MS-Didaktik Career and Economics (2020)

First state examination for the teaching degree Sonderpädagogik Didactics in Political and Social Studies (Secondary School) (2020)

First state examination for the teaching degree Mittelschule MS-Didaktik Career and Economics (2020)

First state examination for the teaching degree Mittelschule Didactics in Political and Social Studies (Secondary School) (2020)

First state examination for the teaching degree Mittelschule Political and Social Studies (2020)

First state examination for the teaching degree Gymnasium Political and Social Studies (2020)

Bachelor's degree (1 major) Biology (2021)

First state examination for the teaching degree Grundschule History (2021)

First state examination for the teaching degree Gymnasium History (2021)

First state examination for the teaching degree Realschule History (2021)

First state examination for the teaching degree Mittelschule History (2021)

First state examination for the teaching degree Grundschule Pedagogy of Primary Education (2021)

First state examination for the teaching degree Gymnasium English (2021)

First state examination for the teaching degree Gymnasium Philosophy and Ethics (2021)

First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2021)

Bachelor's degree (1 major) Biology (2022)

First state examination for the teaching degree Gymnasium Philosophy and Ethics (2022)

First state examination for the teaching degree Gymnasium Russian (2023)

First state examination for the teaching degree Gymnasium Mathematics (2023)

First state examination for the teaching degree Gymnasium English (2023)

First state examination for the teaching degree Realschule English (2023)

First state examination for the teaching degree Grundschule English (2023)

First state examination for the teaching degree Grundschule Didactics in English (Primary School) (2023)

First state examination for the teaching degree Mittelschule English (2023)

First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2023)

First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2023)

First state examination for the teaching degree Gymnasium Geography (2023)

First state examination for the teaching degree Realschule Geography (2023)

First state examination for the teaching degree Grundschule Geography (2023)

First state examination for the teaching degree Mittelschule Geography (2023)

First state examination for the teaching degree Grundschule German (2024)

First state examination for the teaching degree Gymnasium German (2024)

First state examination for the teaching degree Realschule German (2024)

First state examination for the teaching degree Sonderpädagogik Didactics in German (Middle School) (2024)

First state examination for the teaching degree Mittelschule Didactics in German (Middle School) (2024)

First state examination for the teaching degree Grundschule Didactics in German (Primary School) (2024)  
 First state examination for the teaching degree Sonderpädagogik Didactics in German (Primary School) (2024)  
 First state examination for the teaching degree Mittelschule German (2024)  
 First state examination for the teaching degree Grundschule Music Education in Primary School (2024)  
 First state examination for the teaching degree Sonderpädagogik Music Education in Primary School (2024)  
 First state examination for the teaching degree Mittelschule Music Education in Middle School (2024)  
 First state examination for the teaching degree Sonderpädagogik Music Education in Middle School (2024)  
 First state examination for the teaching degree Gymnasium Latin Philology (2024)  
 First state examination for the teaching degree Gymnasium English (2024)  
 First state examination for the teaching degree Mittelschule MS-Didaktik Career and Economics (2024)  
 First state examination for the teaching degree Sonderpädagogik MS-Didaktik Career and Economics (2024)  
 First state examination for the teaching degree Grundschule History (2024)  
 First state examination for the teaching degree Gymnasium History (2024)  
 First state examination for the teaching degree Realschule History (2024)  
 First state examination for the teaching degree Mittelschule History (2024)  
 First state examination for the teaching degree Mittelschule Didactics in History (Middle School) (2024)  
 First state examination for the teaching degree Sonderpädagogik Didactics in History (Middle School) (2024)  
 First state examination for the teaching degree Grundschule Didactics in History (Primary School) (2024)  
 First state examination for the teaching degree Gymnasium Greek Philology (2024)  
 First state examination for the teaching degree Grundschule Art Education in Primary School (2024)  
 First state examination for the teaching degree Sonderpädagogik Art Education in Primary School (2024)  
 First state examination for the teaching degree Sonderpädagogik Art Education in Middle School (2024)  
 First state examination for the teaching degree Mittelschule Art Education in Middle School (2024)

Module title		Abbreviation
<b>Basic Data Processing</b>		07-SQF-EDV-152-m01
Module coordinator		Module offered by
holder of the Chair of Bioinformatics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
In this module, students will acquire fundamental computer skills that are essential not only for students of biology: - up-to-date information on hardware and software, data protection and data security - basic information on Windows and Linux operating systems - in the area of software, the course will focus on Office applications students will be required to work with during their university studies: word processing, spreadsheets, presentation and database software - in addition, the course will focus on topics from the areas of communication technology, the internet, network technology and image processing		
Intended learning outcomes		
Students have developed fundamental knowledge on the state of the art in the area of computers and software for bioscientists. They have gained an overview of prevalent operating systems and know how to backup and protect data. Students are able to use MS Office-like software to address in particular scientific issues and know how to search for information on the internet. They know how to create and maintain web pages and are familiar with tools for these purposes. Students are proficient in image editing software and techniques and know how to embed images into documents in specific formats, as they will be required to do when writing scientific publications.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (2) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
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Additional information		
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Workload		
90 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title		Abbreviation
Basic Principles for Laboratory Work		07-SQF-GGL-152-m01
Module coordinator		Module offered by
degree programme coordinator Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
<p>This module will teach students basic rules regarding everyday lab procedures, e. g. designing experiments, the sensible use of checks, keeping lab notebooks, handling of reagents, storage and disposal, maintenance of lab equipment, handling of radioactivity; background knowledge on electrophoresis, centrifugation and light microscopy. In addition, the course will discuss fundamental cell culture techniques (eukaryotic and bacterial) as well as fundamental techniques for the molecular biological analysis of DNA, RNA and proteins.</p>		
Intended learning outcomes		
<p>Students are able to effectively structure research projects - from experiment design through to the publication of findings -, to design relevant follow-up experiments if initial experiments suggest certain findings, and to progress from hypotheses to ready-to-publish results.</p>		
Courses (type, number of weekly contact hours, language — if other than German)		
<p>V (1) + Ü (1) Module taught in: German and/or English</p>		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
<p>written examination or practical examination (approx. 20 minutes) Language of assessment: German and/or English creditable for bonus</p>		
Allocation of places		
<p>50 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking.</p>		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 239 / 350



Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

90 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
Global Acting in Globally and Locally linked Decision Processes		07-SQF-GHE-152-m01
Module coordinator		Module offered by
holder of the Chair of Bioinformatics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Decision making processes in the context of global and local requirements. The course will discuss findings from different fields of biology and/or biotechnology with regard to their socio-political relevance. Topics will vary and will reflect the latest trends and developments. Topics that might be covered include: - Global threats -- making the right decision. - Decision making and disposal. - Decision making processes of social insects. - Ecosystems as an example of "ecology vs. economy".		
Intended learning outcomes		
Students will be able to meet global requirements in spite of local constraints and requirements and will understand the limitations in decision making processes. They will have developed a deeper awareness of complex issues and will be better qualified to adapt the opportunities and/or necessities associated with global challenges to specific local conditions as well as to implement these. With the help of topical examples from nature (e. g. ecology, sociobiology), the course will have acquainted students with principles that may help understand problems relevant to society and develop approaches to solution.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (2) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Log (approx. 10 to 20 pages) Language of assessment: German and/or English creditable for bonus		
Allocation of places		
<p>25 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their</p>		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 241 / 350

average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

90 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

First state examination for the teaching degree Grundschule English (2009)  
First state examination for the teaching degree Grundschule Biology (2009)  
First state examination for the teaching degree Grundschule Chemistry (2009)  
First state examination for the teaching degree Grundschule Geography (2009)  
First state examination for the teaching degree Grundschule Protestant Theology (2009)  
First state examination for the teaching degree Grundschule German (2009)  
First state examination for the teaching degree Grundschule History (2009)  
First state examination for the teaching degree Grundschule History (2015)  
First state examination for the teaching degree Grundschule Catholic Theology (2009)  
First state examination for the teaching degree Grundschule Mathematics (2009)  
First state examination for the teaching degree Grundschule Music (2009)  
First state examination for the teaching degree Grundschule Physics (2009)  
First state examination for the teaching degree Grundschule Social Science (2009)  
First state examination for the teaching degree Grundschule Science of Sport (2009)  
First state examination for the teaching degree Hauptschule English (2009)  
First state examination for the teaching degree Hauptschule Biology (2009)  
First state examination for the teaching degree Hauptschule Chemistry (2009)  
First state examination for the teaching degree Hauptschule Geography (2009)  
First state examination for the teaching degree Hauptschule Protestant Theology (2009)  
First state examination for the teaching degree Hauptschule German (2009)  
First state examination for the teaching degree Hauptschule History (2009)  
First state examination for the teaching degree Hauptschule Catholic Theology (2009)  
First state examination for the teaching degree Hauptschule Mathematics (2009)  
First state examination for the teaching degree Hauptschule Music (2009)  
First state examination for the teaching degree Hauptschule Physics (2009)  
First state examination for the teaching degree Hauptschule Social Science (2009)  
First state examination for the teaching degree Hauptschule Science of Sport (2009)  
First state examination for the teaching degree Realschule English (2009)  
First state examination for the teaching degree Realschule Biology (2009)  
First state examination for the teaching degree Realschule Chemistry (2009)

First state examination for the teaching degree Realschule Geography (2009)  
 First state examination for the teaching degree Realschule Protestant Theology (2009)  
 First state examination for the teaching degree Realschule French Studies (2009)  
 First state examination for the teaching degree Realschule German (2009)  
 First state examination for the teaching degree Realschule History (2009)  
 First state examination for the teaching degree Realschule Computer Science (2012)  
 First state examination for the teaching degree Realschule Catholic Theology (2009)  
 First state examination for the teaching degree Realschule Mathematics (2009)  
 First state examination for the teaching degree Realschule Music (2009)  
 First state examination for the teaching degree Realschule Physics (2009)  
 First state examination for the teaching degree Realschule Science of Sport (2009)  
 First state examination for the teaching degree Gymnasium English (2009)  
 First state examination for the teaching degree Gymnasium Biology (2009)  
 First state examination for the teaching degree Gymnasium Chemistry (2009)  
 First state examination for the teaching degree Gymnasium Geography (2009)  
 First state examination for the teaching degree Gymnasium French Studies (2009)  
 First state examination for the teaching degree Gymnasium German (2009)  
 First state examination for the teaching degree Gymnasium History (2009)  
 First state examination for the teaching degree Gymnasium Greek Philology (2009)  
 First state examination for the teaching degree Gymnasium Computer Science (2009)  
 First state examination for the teaching degree Gymnasium Italian Studies (2009)  
 First state examination for the teaching degree Gymnasium Catholic Theology (2009)  
 First state examination for the teaching degree Gymnasium Latin Philology (2009)  
 First state examination for the teaching degree Gymnasium Mathematics (2012)  
 First state examination for the teaching degree Gymnasium Mathematics (2009)  
 First state examination for the teaching degree Gymnasium Music (2009)  
 First state examination for the teaching degree Gymnasium Physics (2009)  
 First state examination for the teaching degree Gymnasium Russian (2009)  
 First state examination for the teaching degree Gymnasium Social Science (2009)  
 First state examination for the teaching degree Gymnasium Spanish Studies (2009)  
 First state examination for the teaching degree Gymnasium Science of Sport (2009)  
 First state examination for the teaching degree Gymnasium Music Education, Advanced Studies (2009)  
 First state examination for the teaching degree Sonderpädagogik Pedagogy of Secondary Education (2009)  
 First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2009)  
 First state examination for the teaching degree Sonderpädagogik Teaching at the German Mittelschule (2013)  
 First state examination for the teaching degree Mittelschule English (2013)  
 First state examination for the teaching degree Mittelschule Biology (2013)  
 First state examination for the teaching degree Mittelschule Chemistry (2013)  
 First state examination for the teaching degree Mittelschule Geography (2013)  
 First state examination for the teaching degree Mittelschule Protestant Theology (2013)  
 First state examination for the teaching degree Mittelschule German (2013)  
 First state examination for the teaching degree Mittelschule History (2013)  
 First state examination for the teaching degree Mittelschule Catholic Theology (2013)  
 First state examination for the teaching degree Mittelschule Mathematics (2013)  
 First state examination for the teaching degree Mittelschule Physics (2013)  
 First state examination for the teaching degree Mittelschule Social Science (2013)  
 First state examination for the teaching degree Mittelschule Science of Sport (2013)  
 Bachelor's degree (1 major) Biology (2015)  
 First state examination for the teaching degree Grundschule English (2015)  
 First state examination for the teaching degree Grundschule Biology (2015)  
 First state examination for the teaching degree Grundschule Chemistry (2015)  
 First state examination for the teaching degree Grundschule Geography (2015)  
 First state examination for the teaching degree Grundschule German (2015)

First state examination for the teaching degree Grundschule Catholic Theology (2015)  
 First state examination for the teaching degree Grundschule Mathematics (2015)  
 First state examination for the teaching degree Grundschule Pedagogy of Primary Education (2015)  
 First state examination for the teaching degree Grundschule Physics (2015)  
 First state examination for the teaching degree Grundschule Social Science (2015)  
 First state examination for the teaching degree Grundschule Didactics in English (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Biology (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Geography (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in German (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in History (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Catholic Theology (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Art Education in Primary School (2015)  
 First state examination for the teaching degree Grundschule Didactics in Science of Sport (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Mathematics (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Music Education in Primary School (2015)  
 First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Didactics in Social Science (Primary School) (2015)  
 First state examination for the teaching degree Grundschule Science of Sport (2015)  
 First state examination for the teaching degree Realschule English (2015)  
 First state examination for the teaching degree Realschule Biology (2015)  
 First state examination for the teaching degree Realschule Chemistry (2015)  
 First state examination for the teaching degree Realschule Geography (2015)  
 First state examination for the teaching degree Realschule Protestant Theology (2015)  
 First state examination for the teaching degree Realschule French Studies (2015)  
 First state examination for the teaching degree Realschule German (2015)  
 First state examination for the teaching degree Realschule History (2015)  
 First state examination for the teaching degree Realschule Computer Science (2015)  
 First state examination for the teaching degree Realschule Catholic Theology (2015)  
 First state examination for the teaching degree Realschule Mathematics (2015)  
 First state examination for the teaching degree Realschule Physics (2015)  
 First state examination for the teaching degree Realschule Science of Sport (2015)  
 First state examination for the teaching degree Gymnasium English (2015)  
 First state examination for the teaching degree Gymnasium Biology (2015)  
 First state examination for the teaching degree Gymnasium Chemistry (2015)  
 First state examination for the teaching degree Gymnasium Geography (2015)  
 First state examination for the teaching degree Gymnasium French Studies (2015)  
 First state examination for the teaching degree Gymnasium German (2015)  
 First state examination for the teaching degree Gymnasium History (2015)  
 First state examination for the teaching degree Gymnasium Greek Philology (2015)  
 First state examination for the teaching degree Gymnasium Computer Science (2015)  
 First state examination for the teaching degree Gymnasium Italian Studies (2015)  
 First state examination for the teaching degree Gymnasium Catholic Theology (2015)  
 First state examination for the teaching degree Gymnasium Latin Philology (2015)  
 First state examination for the teaching degree Gymnasium Mathematics (2015)  
 First state examination for the teaching degree Gymnasium Physics (2015)  
 First state examination for the teaching degree Gymnasium Russian (2015)  
 First state examination for the teaching degree Gymnasium Social Science (2015)  
 First state examination for the teaching degree Gymnasium Spanish Studies (2015)  
 First state examination for the teaching degree Gymnasium Science of Sport (2015)  
 First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in German (Primary School) (2015)



First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Primary School) (2015)
First state examination for the teaching degree Sonderpädagogik Art Education in Primary School (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Primary School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2015)
First state examination for the teaching degree Sonderpädagogik Music Education in Primary School (2015)
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 Bachelor's degree (1 major) Biology (2017)  
 First state examination for the teaching degree Gymnasium Greek Philology (2018)  
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 First state examination for the teaching degree Gymnasium Mathematics (2019)  
 First state examination for the teaching degree Mittelschule Biology (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Sonderpädagogik Didactics in Biology (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in Biology (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule German (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in German (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule English (2020 (Prüfungsordnungsversion 2016))  
 First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2020 (Prüfungsordnungsversion 2016))



First state examination for the teaching degree Mittelschule Protestant Theology (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Protestant Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Geography (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Geography (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule History (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in History (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Catholic Theology (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Catholic Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Mathematics (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Art Education in Middle School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Science of Sport (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Science of Sport (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Music (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Music Education in Middle School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Teaching at the German Mittelschule (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2020 (Prüfungsordnungsversion 2016))

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Geography (Middle School) (2020 (Prüfungsordnungsversion 2015))

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First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020)

First state examination for the teaching degree Grundschule Physics (2020)

First state examination for the teaching degree Gymnasium Physics (2020)

First state examination for the teaching degree Realschule Physics (2020)

First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020)

First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020)

First state examination for the teaching degree Mittelschule Physics (2020)

First state examination for the teaching degree Grundschule Political and Social Studies (2020)

First state examination for the teaching degree Grundschule Didactics in Political and Social Studies (Primary School) (2020)

First state examination for the teaching degree Sonderpädagogik MS-Didaktik Career and Economics (2020)

First state examination for the teaching degree Sonderpädagogik Didactics in Political and Social Studies (Secondary School) (2020)

First state examination for the teaching degree Mittelschule MS-Didaktik Career and Economics (2020)

First state examination for the teaching degree Mittelschule Didactics in Political and Social Studies (Secondary School) (2020)

First state examination for the teaching degree Mittelschule Political and Social Studies (2020)

First state examination for the teaching degree Gymnasium Political and Social Studies (2020)

Bachelor's degree (1 major) Biology (2021)

First state examination for the teaching degree Grundschule History (2021)

First state examination for the teaching degree Gymnasium History (2021)

First state examination for the teaching degree Realschule History (2021)

First state examination for the teaching degree Mittelschule History (2021)

First state examination for the teaching degree Grundschule Pedagogy of Primary Education (2021)

First state examination for the teaching degree Gymnasium English (2021)

First state examination for the teaching degree Gymnasium Philosophy and Ethics (2021)

First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2021)

Bachelor's degree (1 major) Biology (2022)

First state examination for the teaching degree Gymnasium Philosophy and Ethics (2022)

exchange program Biosciences (2022)

First state examination for the teaching degree Gymnasium Russian (2023)

First state examination for the teaching degree Gymnasium Mathematics (2023)

First state examination for the teaching degree Gymnasium English (2023)

First state examination for the teaching degree Realschule English (2023)

First state examination for the teaching degree Grundschule English (2023)

First state examination for the teaching degree Grundschule Didactics in English (Primary School) (2023)

First state examination for the teaching degree Mittelschule English (2023)

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 First state examination for the teaching degree Mittelschule Art Education in Middle School (2024)

Module title		Abbreviation
<b>Basics in System Administration</b>		07-SQF-GSA-152-m01
Module coordinator		Module offered by
holder of the Chair of Bioinformatics		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
2	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
The lecture will introduce students to the functioning of a variety of operating systems (Linux, Mac OSX, Windows). Practical exercises in the computer room will accompany the interactive lecture.		
<b>Intended learning outcomes</b>		
Students will demonstrate a basic familiarity with the operating systems discussed and will be able to perform basic operations in different system environments. They will be able to work with a broader range of operating systems than just one.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (0.5) + Ü (0.5) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination or practical examination (approx. 30 minutes) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p>		

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

60 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

First state examination for the teaching degree Grundschule English (2009)  
First state examination for the teaching degree Grundschule Biology (2009)  
First state examination for the teaching degree Grundschule Chemistry (2009)  
First state examination for the teaching degree Grundschule Geography (2009)  
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First state examination for the teaching degree Hauptschule English (2009)  
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First state examination for the teaching degree Realschule French Studies (2009)  
First state examination for the teaching degree Realschule German (2009)  
First state examination for the teaching degree Realschule History (2009)



First state examination for the teaching degree Realschule Computer Science (2012)  
 First state examination for the teaching degree Realschule Catholic Theology (2009)  
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 First state examination for the teaching degree Gymnasium Geography (2015)  
 First state examination for the teaching degree Gymnasium French Studies (2015)  
 First state examination for the teaching degree Gymnasium German (2015)  
 First state examination for the teaching degree Gymnasium History (2015)  
 First state examination for the teaching degree Gymnasium Greek Philology (2015)  
 First state examination for the teaching degree Gymnasium Computer Science (2015)  
 First state examination for the teaching degree Gymnasium Italian Studies (2015)  
 First state examination for the teaching degree Gymnasium Catholic Theology (2015)  
 First state examination for the teaching degree Gymnasium Latin Philology (2015)  
 First state examination for the teaching degree Gymnasium Mathematics (2015)  
 First state examination for the teaching degree Gymnasium Physics (2015)  
 First state examination for the teaching degree Gymnasium Russian (2015)  
 First state examination for the teaching degree Gymnasium Social Science (2015)  
 First state examination for the teaching degree Gymnasium Spanish Studies (2015)  
 First state examination for the teaching degree Gymnasium Science of Sport (2015)  
 First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in German (Primary School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Primary School) (2015)  
 First state examination for the teaching degree Sonderpädagogik Art Education in Primary School (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Primary School) (2015)



First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2015)

First state examination for the teaching degree Sonderpädagogik Music Education in Primary School (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Ergonomics (Teaching at the German Mittelschule) (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in Biology (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in Geography (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in German (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in History (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Art Education in Middle School (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Music Education in Middle School (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Didactics in Social Science (Middle School) (2015)

First state examination for the teaching degree Sonderpädagogik Teaching at the German Mittelschule (2015)

First state examination for the teaching degree Mittelschule English (2015)

First state examination for the teaching degree Mittelschule Biology (2015)

First state examination for the teaching degree Mittelschule Chemistry (2015)

First state examination for the teaching degree Mittelschule Geography (2015)

First state examination for the teaching degree Mittelschule Protestant Theology (2015)

First state examination for the teaching degree Mittelschule German (2015)

First state examination for the teaching degree Mittelschule History (2015)

First state examination for the teaching degree Mittelschule Catholic Theology (2015)

First state examination for the teaching degree Mittelschule Mathematics (2015)

First state examination for the teaching degree Mittelschule Physics (2015)

First state examination for the teaching degree Mittelschule Social Science (2015)

First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2015)

First state examination for the teaching degree Mittelschule Ergonomics (Teaching at the German Mittelschule) (2015)

First state examination for the teaching degree Mittelschule Didactics in Biology (Middle School) (2015)

First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)

First state examination for the teaching degree Mittelschule Didactics in Geography (Middle School) (2015)

First state examination for the teaching degree Mittelschule Didactics in Protestant Theology (Middle School) (2015)

First state examination for the teaching degree Mittelschule Didactics in German (Middle School) (2015)

First state examination for the teaching degree Mittelschule Didactics in History (Middle School) (2015)

First state examination for the teaching degree Mittelschule Didactics in Catholic Theology (Middle School) (2015)

First state examination for the teaching degree Mittelschule Art Education in Middle School (2015)

First state examination for the teaching degree Mittelschule Didactics in Science of Sport (Middle School) (2015)

First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2015)

First state examination for the teaching degree Mittelschule Music Education in Middle School (2015)

First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2015)

First state examination for the teaching degree Mittelschule Didactics in Social Science (Middle School) (2015)  
 First state examination for the teaching degree Mittelschule Science of Sport (2015)  
 First state examination for the teaching degree Mittelschule Teaching at the German Mittelschule (2015)  
 First state examination for the teaching degree Grundschule Protestant Theology (2015)  
 First state examination for the teaching degree Grundschule Music (2015)  
 First state examination for the teaching degree Grundschule Didactics in Protestant Theology (Primary School) (2015)  
 First state examination for the teaching degree Realschule Music (2015)  
 First state examination for the teaching degree Gymnasium Music (2015)  
 First state examination for the teaching degree Gymnasium Music Education, Advanced Studies (2015)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Primary School) (2015)  
 First state examination for the teaching degree Mittelschule Music (2015)  
 First state examination for the teaching degree Gymnasium French Studies (2016)  
 First state examination for the teaching degree Gymnasium Italian Studies (2016)  
 First state examination for the teaching degree Gymnasium Spanish Studies (2016)  
 First state examination for the teaching degree Realschule French Studies (2016)  
 First state examination for the teaching degree Grundschule English (2016)  
 First state examination for the teaching degree Grundschule Didactics in English (Primary School) (2016)  
 First state examination for the teaching degree Realschule English (2016)  
 First state examination for the teaching degree Gymnasium English (2016)  
 First state examination for the teaching degree Mittelschule English (2016)  
 First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2016)  
 First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2016)  
 Bachelor's degree (1 major) Biology (2017)  
 First state examination for the teaching degree Gymnasium Greek Philology (2018)  
 First state examination for the teaching degree Grundschule Physics (2018)  
 First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2018)  
 First state examination for the teaching degree Realschule Physics (2018)  
 First state examination for the teaching degree Gymnasium Physics (2018)  
 First state examination for the teaching degree Mittelschule Physics (2018)  
 First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018)  
 First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018)  
 First state examination for the teaching degree Gymnasium Mathematics (2019)  
 First state examination for the teaching degree Mittelschule Biology (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Sonderpädagogik Didactics in Biology (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in Biology (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule German (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in German (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule English (2020 (Prüfungsordnungsversion 2016))  
 First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2020 (Prüfungsordnungsversion 2016))  
 First state examination for the teaching degree Mittelschule Protestant Theology (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Didactics in Protestant Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))  
 First state examination for the teaching degree Mittelschule Geography (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Geography (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule History (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in History (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Catholic Theology (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Catholic Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Mathematics (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Art Education in Middle School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Science of Sport (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Science of Sport (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Music (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Music Education in Middle School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Teaching at the German Mittelschule (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2020 (Prüfungsordnungsversion 2016))

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Geography (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in German (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in History (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Art Education in Middle School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Music Education in Middle School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Teaching at the German Mittelschule (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Art Education in Primary School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Music Education in Primary School (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in German (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Primary School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020)

First state examination for the teaching degree Grundschule Physics (2020)

First state examination for the teaching degree Gymnasium Physics (2020)

First state examination for the teaching degree Realschule Physics (2020)

First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020)

First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020)

First state examination for the teaching degree Mittelschule Physics (2020)

First state examination for the teaching degree Grundschule Political and Social Studies (2020)

First state examination for the teaching degree Grundschule Didactics in Political and Social Studies (Primary School) (2020)

First state examination for the teaching degree Sonderpädagogik MS-Didaktik Career and Economics (2020)

First state examination for the teaching degree Sonderpädagogik Didactics in Political and Social Studies (Secondary School) (2020)

First state examination for the teaching degree Mittelschule MS-Didaktik Career and Economics (2020)

First state examination for the teaching degree Mittelschule Didactics in Political and Social Studies (Secondary School) (2020)

First state examination for the teaching degree Mittelschule Political and Social Studies (2020)

First state examination for the teaching degree Gymnasium Political and Social Studies (2020)

Bachelor's degree (1 major) Biology (2021)

First state examination for the teaching degree Grundschule History (2021)

First state examination for the teaching degree Gymnasium History (2021)

First state examination for the teaching degree Realschule History (2021)

First state examination for the teaching degree Mittelschule History (2021)

First state examination for the teaching degree Grundschule Pedagogy of Primary Education (2021)

First state examination for the teaching degree Gymnasium English (2021)

First state examination for the teaching degree Gymnasium Philosophy and Ethics (2021)

First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2021)

Bachelor's degree (1 major) Biology (2022)

First state examination for the teaching degree Gymnasium Philosophy and Ethics (2022)

First state examination for the teaching degree Gymnasium Russian (2023)

First state examination for the teaching degree Gymnasium Mathematics (2023)

First state examination for the teaching degree Gymnasium English (2023)

First state examination for the teaching degree Realschule English (2023)

First state examination for the teaching degree Grundschule English (2023)

First state examination for the teaching degree Grundschule Didactics in English (Primary School) (2023)

First state examination for the teaching degree Mittelschule English (2023)

First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2023)

First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2023)

First state examination for the teaching degree Gymnasium Geography (2023)

First state examination for the teaching degree Realschule Geography (2023)

First state examination for the teaching degree Grundschule Geography (2023)

First state examination for the teaching degree Mittelschule Geography (2023)

First state examination for the teaching degree Grundschule German (2024)

First state examination for the teaching degree Gymnasium German (2024)  
 First state examination for the teaching degree Realschule German (2024)  
 First state examination for the teaching degree Sonderpädagogik Didactics in German (Middle School) (2024)  
 First state examination for the teaching degree Mittelschule Didactics in German (Middle School) (2024)  
 First state examination for the teaching degree Grundschule Didactics in German (Primary School) (2024)  
 First state examination for the teaching degree Sonderpädagogik Didactics in German (Primary School) (2024)  
 First state examination for the teaching degree Mittelschule German (2024)  
 First state examination for the teaching degree Grundschule Music Education in Primary School (2024)  
 First state examination for the teaching degree Sonderpädagogik Music Education in Primary School (2024)  
 First state examination for the teaching degree Mittelschule Music Education in Middle School (2024)  
 First state examination for the teaching degree Sonderpädagogik Music Education in Middle School (2024)  
 First state examination for the teaching degree Gymnasium Latin Philology (2024)  
 First state examination for the teaching degree Gymnasium English (2024)  
 First state examination for the teaching degree Mittelschule MS-Didaktik Career and Economics (2024)  
 First state examination for the teaching degree Sonderpädagogik MS-Didaktik Career and Economics (2024)  
 First state examination for the teaching degree Grundschule History (2024)  
 First state examination for the teaching degree Gymnasium History (2024)  
 First state examination for the teaching degree Realschule History (2024)  
 First state examination for the teaching degree Mittelschule History (2024)  
 First state examination for the teaching degree Mittelschule Didactics in History (Middle School) (2024)  
 First state examination for the teaching degree Sonderpädagogik Didactics in History (Middle School) (2024)  
 First state examination for the teaching degree Grundschule Didactics in History (Primary School) (2024)  
 First state examination for the teaching degree Gymnasium Greek Philology (2024)  
 First state examination for the teaching degree Grundschule Art Education in Primary School (2024)  
 First state examination for the teaching degree Sonderpädagogik Art Education in Primary School (2024)  
 First state examination for the teaching degree Sonderpädagogik Art Education in Middle School (2024)  
 First state examination for the teaching degree Mittelschule Art Education in Middle School (2024)



Module title		Abbreviation
Teamwork in Natural Science		07-SQF-GTA-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
2	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Working in (interdisciplinary) teams: features and opportunities, development and phases of team building. In teams of 3 to 7 students, participants will work on a range of problems/projects. They will summarise and deliver a presentation on their results.		
Intended learning outcomes		
Having investigated specific problems in small teams, students will have acquired experience working in a team-based environment. They will know how their team projects were different from real teamwork. Students will be familiar with the advantages of teamwork as well as with disadvantages teamwork has compared to individual work. In addition, they will have become familiar with the different phases of team building.		
Courses (type, number of weekly contact hours, language — if other than German)		
S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
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Additional information		
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Workload		
60 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title			Abbreviation
Good Practices in Laboratory, Clinics and Production			07-SQF-GXP-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
3	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
<p>This module component will acquaint students with the legal provisions and ethical guidelines for work in both the laboratory and clinical context, including clinical research, as well as in pharmaceutical, chemical and biotechnological production. The course will discuss the guidelines for safeguarding good scientific practice that are in place at American, European and German authorities, universities and organisations that are active in the abovementioned areas. In addition, the course will teach students basic rules regarding everyday lab procedures, e. g. designing experiments, the sensible use of checks, keeping lab notebooks, handling of reagents, storage and disposal, maintenance of lab equipment, handling of radioactivity; background knowledge on electrophoresis, centrifugation and light microscopy. In addition, the course will discuss fundamental cell culture techniques (eukaryotic and bacterial) as well as fundamental techniques for the molecular biological analysis of DNA, RNA and proteins.</p>			
Intended learning outcomes			
<p>Students have acquired an overview of general and specific rules and regulations governing scientific research, work in research labs, clinical trials as well as pharmaceutical and biotechnological production. They are familiar with the competent national and international regulatory bodies and standardisation authorities and, where necessary, are able to come up with answers to specific problems, referring to the relevant regulations. Students are able to adhere to existing guidelines, both during lab courses at university and in their future workplace. They are able to effectively structure research projects - from experiment design through to the publication of findings -, to design relevant follow-up experiments if initial experiments suggest certain findings, and to progress from hypotheses to ready-to-publish results.</p>			
Courses (type, number of weekly contact hours, language — if other than German)			
V (2) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
written examination or practical examination (approx. 20 minutes) Language of assessment: German and/or English creditable for bonus			
Allocation of places			
NA Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already ha-			



ve successfully completed at least one other module component of the respective module will be given preferential consideration.

A waiting list will be maintained and places re-allocated as they become available.

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

90 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

Module title			Abbreviation
Outstanding Publications in Biology			07-SQF-HVB-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
3	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Students will discuss selected scientific publications in the field of biology, publications that are either of historical significance and therefore considered ground-breaking or that discuss methods and techniques that helped advance research in the area of biology.			
Intended learning outcomes			
Students are able to trace the development of a modern discipline in the natural sciences, using the example of biology. They understand the importance of ground-breaking ideas and methods that opened up new horizons. Students are able to understand as well as to critically present and discuss key elements of major scientific findings/publications. A retrospective review of these "key publications" has given students a feeling for how to evaluate new developments in science.			
Courses (type, number of weekly contact hours, language — if other than German)			
S (2) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
presentation (approx. 20 to 30 minutes) Language of assessment: German and/or English creditable for bonus			
Allocation of places			
25 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking.			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
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Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

90 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
Tutorial Intercultural Competence		07-SQF-IKK-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
4	(not) successfully completed	--
Duration	Module level	Other prerequisites
2 semester	undergraduate	--
<b>Contents</b>		
To support international students on their way toward academic success and to foster the international focus of the Faculty of Biology at the University of Würzburg, we aim to offer more intensive mentoring for first-year students from abroad (in particular from non-EU states) studying biology. For this purpose, we train tutors to help international students with issues regarding scientific contents, to overcome language problems with the help of small-group tutorials and to help encourage the integration of international students in general.		
<b>Intended learning outcomes</b>		
The tutors will acquire general transferable skills including intercultural and international competencies, the ability to communicate complex concepts in a clear and structured way as well as the ability to supervise groups.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
Ü (2) + T (1) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Log (approx. 10 to 20 pages) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
<p>4 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking.</p>		

Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

120 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

exchange program Biosciences (2022)

Module title		Abbreviation
Career Perspectives, Personal Competence and Communication Skills		07-SQF-KEB-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
<p>This module will provide students with information on potential areas of employment for life scientists and will address the topic of job application and staff selection. It will discuss methods for analysing personality types and will acquaint students with criteria for developing personal and social skills. Building on this, the module will develop fundamental criteria for working in groups and teams. The fundamental principles of a project-oriented approach to work and of communication (incl. rhetoric and body language) will be discussed. Students will also receive advice on how to design and structure talks.</p>		
Intended learning outcomes		
<p>Students know what it takes to succeed in the job market. They are familiar with current developments in the job market, know how to go job hunting, and are familiar with recruitment practices of employers. Students have developed a fundamental knowledge of personality assessment methods and are familiar with conflict management methods. They are able to work in a team-based environment and have developed a fundamental knowledge of project management methods and approaches. Students have enhanced their teaching skills and are proficient in the theory and practice of communication. They know how to design and structure talks as well as to present data in both oral and written form. Students are aware of what body language may communicate.</p>		
Courses (type, number of weekly contact hours, language — if other than German)		
<p>V (1) + S (2) Module taught in: German and/or English</p>		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
<p>written examination (approx. 30 to 60 minutes) Language of assessment: German and/or English creditable for bonus</p>		
Allocation of places		
<p>120 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components</p>		
Bachelor's with 1 major Biology (2015)		page 266 / 350

in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Module studies (Bachelor) Biology (2019)  
Module studies (Bachelor) Orientierungsstudien (2020)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title			Abbreviation
Organisation and Safety in Biosciences			07-SQF-OSB-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Safety procedures in the biosciences, in particular radiation protection, handling of genetically modified organisms, hygiene procedures and hazardous substances, working with lab animals. Fundamental concepts that help ensure an effective and efficient workflow in the biosciences. Structure and organisation of institutions in the bioscience/biotech sector. Process-based project management. HR management in the biosciences, responsibilities of managers/supervisors, appraisal interviews, target agreements, management styles.			
Intended learning outcomes			
Students have developed a fundamental knowledge of the regulations governing work in the bioscience sector and are familiar with fundamental organisational principles that are relevant for work in research and production. They are also familiar with fundamental principles of process-based project work in the biosciences.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + S (2)			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
written examination (60 minutes) Language of assessment: German and/or English creditable for bonus			
Allocation of places			
120 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking.			

Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
<b>Principles of Image Data Processing</b>		07-SQF-PBD-152-m01
Module coordinator		Module offered by
degree programme coordinator Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
2	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Students are familiar with fundamental principles of image data processing as well as different data formats, compression and storage methods.		
<b>Intended learning outcomes</b>		
Students will be familiar with the methods discussed in class and will know what problems may be addressed with these methods.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (0.5) + Ü (0.5) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination or practical examination (approx. 30 minutes) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p> <p>Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology;</p>		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 270 / 350

among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

60 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title			Abbreviation
Patents in Biology			07-SQF-PRB-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
2	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Patents in biology: types, application, specification, patent rights, patent search.			
Intended learning outcomes			
Students have acquired a fundamental knowledge of the criteria that determine whether ideas, inventions and developments in the life sciences in general and in biotechnology in particular are patentable. They are familiar with patent authorities and relevant data sources. Students are able to judge whether ideas, developments and inventions are patentable and, where necessary, to consult with competent advisors at the University that will help them conduct a cost-benefit analysis prior to publishing their ideas.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (0.5) + S (0.5) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
written examination (approx. 20 minutes) Language of assessment: German and/or English creditable for bonus			
Allocation of places			
<p>25 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.</p>			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	
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Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.  
Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

60 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)

Module title		Abbreviation
Legal and Ethical Aspects in Biological Sciences		07-SQF-RETH-152-m01
Module coordinator		Module offered by
Dean of Studies Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Admission prerequisite to assessment: exercises. Regular attendance of exercises (minimum 80%) and successful completion of the respective exercises (approx. 25 to 30 hours) are prerequisites for admission to assessment.
Contents		
Good scientific practice; legal and ethical aspects surrounding stem cell research, cloning, transgenic animals, animal testing, genetic engineering in agriculture, biodiversity and nature conservation, biotechnology and microbiology, medicine and neurogenetics.		
Intended learning outcomes		
Students are familiar with the principles of good scientific practice. They are familiar with legal aspects surrounding stem cell research, cloning, transgenic animals, animal testing, genetic engineering in agriculture, biodiversity and nature conservation, biotechnology and microbiology, medicine and neurogenetics and are able to evaluate these in different cultural contexts. Students are able to critically reflect on and critically discuss these topics.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + Ü (1)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 30 to 60 minutes) Language of assessment: German and/or English creditable for bonus		
Allocation of places		
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Additional information		
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Workload		
150 h		
Teaching cycle		
Teaching cycle: every year, summer semester		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major, 1 minor) Biology (Minor, 2015) Bachelor's degree (1 major) Biology (2017) exchange program Biosciences (2022)		



Module title		Abbreviation
Research, Presentation, Information		07-SQF-RPI-152-m01
Module coordinator		Module offered by
degree programme coordinator Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
<p>This module is aimed at students with an interest in zoology who would like to practise searching for material as well as preparing and delivering talks. Students will deliver talks on topics from the area of zoology using, among others, objects from the zoological teaching collection of the Biocentre. In an introductory lecture, students will receive information and advice on how to prepare and/or deliver talks, presentations and position papers.</p>		
<b>Intended learning outcomes</b>		
<p>Students will have learned how to gather information and present complex concepts in both oral and written form, using media aids.</p>		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
<p>V (0.5) + S (1.5) Module taught in: German and/or English</p>		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
<p>presentation (approx. 10 to 20 minutes) Language of assessment: German and/or English creditable for bonus</p>		
<b>Allocation of places</b>		
<p>20 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking.</p>		

Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

150 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
<b>Operational Safety in Ecophysiological Laboratories</b>		07-SQF-SAL-152-m01
Module coordinator		Module offered by
degree programme coordinator Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
1	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
There are risks and hazards associated with working in ecophysiology and analytical chemistry laboratories. In this module, students will become familiar with the fundamentals for recognising, assessing, avoiding and eliminating potential safety hazards and will practise safe laboratory working procedures in accordance with statutory provisions.		
<b>Intended learning outcomes</b>		
Students know how to handle hazardous substances typically used in ecophysiology and analytical chemistry laboratories and are able to recognise and eliminate safety hazards. They are familiar with the most important statutory provisions on health and safety and accident prevention. Students are able to adhere to the respective safety practices when working in the lab and have developed an increased alertness toward potential safety hazards in the lab.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (0.5) + Ü (0.5) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 15 minutes) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
<p>20 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p> <p>Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking</p>		
Bachelor's with 1 major Biology (2015)		<p>JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015</p> <p>page 277 / 350</p>

will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

30 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)

Bachelor's degree (1 major) Biology (2017)

Bachelor's degree (1 major) Biology (2021)

Bachelor's degree (1 major) Biology (2022)

Module title		Abbreviation
Supervising Tutorial for Basic Courses 3		07-SQF-TFB3-152-m01
Module coordinator		Module offered by
degree programme coordinator Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Working as tutors, students will mentor other students during the modules <i>Allgemeine Biologie (General Biology)</i> I through III in particular. Tutors will help students improve upon their understanding of material, consolidate their knowledge and prepare for assessments. They will correct exercises, will discuss these with students and will help them fill gaps in their knowledge. Tutors will support other students on their way towards academic success.		
Intended learning outcomes		
The tutors are able to communicate complex concepts in a clear and structured way. They have gained experience supervising a group. Having prepared for answering specific questions and explaining material in detail, the tutors have also enhanced their own subject-specific skills. They have enhanced their teaching skills.		
Courses (type, number of weekly contact hours, language — if other than German)		
T (o)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Proof of tutoring activities and report (approx. 2 to 3 pages) creditable for bonus		
Allocation of places		
--		
Additional information		
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Workload		
90 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) First state examination for the teaching degree Grundschule Biology (2015) First state examination for the teaching degree Realschule Biology (2015) First state examination for the teaching degree Gymnasium Biology (2015) First state examination for the teaching degree Mittelschule Biology (2015) Bachelor's degree (1 major) Biology (2017) First state examination for the teaching degree Mittelschule Biology (2020 (Prüfungsordnungsversion 2015)) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
Supervising Tutorial for Basic Courses 4		07-SQF-TFB4-152-m01
Module coordinator		Module offered by
degree programme coordinator Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
4	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Working as tutors, students will mentor other students during the modules <i>Allgemeine Biologie (General Biology)</i> I through III in particular. Tutors will help students improve upon their understanding of material, consolidate their knowledge and prepare for assessments. They will correct exercises, will discuss these with students and will help them fill gaps in their knowledge. Tutors will support other students on their way towards academic success.		
Intended learning outcomes		
The tutors are able to communicate complex concepts in a clear and structured way. They have gained experience supervising a group. Having prepared for answering specific questions and explaining material in detail, the tutors have also enhanced their own subject-specific skills. They have enhanced their teaching skills.		
Courses (type, number of weekly contact hours, language — if other than German)		
T (o)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Proof of tutoring activities and report (approx. 2 to 3 pages) creditable for bonus		
Allocation of places		
--		
Additional information		
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Workload		
120 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) First state examination for the teaching degree Grundschule Biology (2015) First state examination for the teaching degree Realschule Biology (2015) First state examination for the teaching degree Gymnasium Biology (2015) First state examination for the teaching degree Mittelschule Biology (2015) Bachelor's degree (1 major) Biology (2017) First state examination for the teaching degree Mittelschule Biology (2020 (Prüfungsordnungsversion 2015)) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
Supervising Tutorial for Basic Courses 5		07-SQF-TFB5-152-m01
Module coordinator		Module offered by
degree programme coordinator Biologie (Biology)		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Working as tutors, students will mentor other students during the modules <i>Allgemeine Biologie (General Biology)</i> I through III in particular. Tutors will help students improve upon their understanding of material, consolidate their knowledge and prepare for assessments. They will correct exercises, will discuss these with students and will help them fill gaps in their knowledge. Tutors will support other students on their way towards academic success.		
Intended learning outcomes		
The tutors are able to communicate complex concepts in a clear and structured way. They have gained experience supervising a group. Having prepared for answering specific questions and explaining material in detail, the tutors have also enhanced their own subject-specific skills. They have enhanced their teaching skills.		
Courses (type, number of weekly contact hours, language — if other than German)		
T (o)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Proof of tutoring activities and report (approx. 2 to 3 pages) creditable for bonus		
Allocation of places		
--		
Additional information		
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Workload		
150 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) First state examination for the teaching degree Grundschule Biology (2015) First state examination for the teaching degree Realschule Biology (2015) First state examination for the teaching degree Gymnasium Biology (2015) First state examination for the teaching degree Mittelschule Biology (2015) Bachelor's degree (1 major) Biology (2017) First state examination for the teaching degree Mittelschule Biology (2020 (Prüfungsordnungsversion 2015)) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		



Module title		Abbreviation
Supervising Tutorial for Biology 2		07-SQF-TSB2-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
2	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	graduate	--
Contents		
Regular specific lecture, seminar, workshop, retreat or practical course (1 weekly contact hour), offered by JMU or other institutions, in which students will acquire additional skills in areas other than biology or the natural sciences. Assessment ungraded, pass required (2 ECTS credits); decision on credit transfer to be made by module coordinators. Possible subjects are philosophy, pedagogy, history, languages, social studies, psychology, economics, and law.		
Intended learning outcomes		
Specific skills and knowledge on a specific subject in an area other than biology or the natural sciences.		
Courses (type, number of weekly contact hours, language — if other than German)		
T (o)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Proof of tutoring activities and report (approx. 2 to 3 pages) creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
60 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) First state examination for the teaching degree Grundschule Biology (2015) First state examination for the teaching degree Realschule Biology (2015) First state examination for the teaching degree Gymnasium Biology (2015) First state examination for the teaching degree Mittelschule Biology (2015) Bachelor's degree (1 major) Biology (2017) First state examination for the teaching degree Mittelschule Biology (2020 (Prüfungsordnungsversion 2015)) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
Supervising Tutorial for Biology 3		07-SQF-TSB3-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	graduate	--
Contents		
Regular specific lecture, seminar, workshop, retreat or practical course (1 weekly contact hour), offered by JMU or other institutions, in which students will acquire additional skills in areas other than biology or the natural sciences. Assessment ungraded, pass required (2 ECTS credits); decision on credit transfer to be made by module coordinators. Possible subjects are philosophy, pedagogy, history, languages, social studies, psychology, economics, and law.		
Intended learning outcomes		
Specific skills and knowledge on a specific subject in an area other than biology or the natural sciences.		
Courses (type, number of weekly contact hours, language — if other than German)		
T (o)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Proof of tutoring activities and report (approx. 2 to 3 pages) creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
90 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) First state examination for the teaching degree Grundschule Biology (2015) First state examination for the teaching degree Realschule Biology (2015) First state examination for the teaching degree Gymnasium Biology (2015) First state examination for the teaching degree Mittelschule Biology (2015) Bachelor's degree (1 major) Biology (2017) First state examination for the teaching degree Mittelschule Biology (2020 (Prüfungsordnungsversion 2015)) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
Environmental Education in the Botanic Garden of Würzburg University		07-SQF-UBG-152-m01
Module coordinator		Module offered by
head of Botanical Garden		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
2	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
<p>The Botanical Garden of the University of Würzburg is primarily used for teaching and research-related activities. In addition, it is used for activities in the area of general environmental education with the plants in the different sections and collections being used to inform interested members of the public about topics in the areas of botany, ecology and gardening. In this module, students will develop appropriate educational concepts for imparting, in a comprehensible way, specialist knowledge to interested laypersons. They will practise designing and using appropriate aids (information boards, leaflets etc.) and applying methodological approaches (guidelines) for the comprehensible presentation of complex concepts. Students will be organised into teams to complete the following tasks: develop contents tailored to the needs of selected target groups, acquire the specialist knowledge necessary for presenting these contents, select appropriate methods for presenting these contents.</p>		
<b>Intended learning outcomes</b>		
<p>Students will be able to communicate concepts in ecology and botany to a lay audience. They will be able to tailor contents to a target audience, selecting and using appropriate aids and techniques. Students will have acquired an overview of the sectors of the Botanical Garden and will be able to prepare information material on individual sections. They will have developed both botanical knowledge and teaching skills that will enable them to guide tours through the Botanical Garden, imparting knowledge in a way that is tailored to their target audience.</p>		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
Ü (0.5) + E (0.5) Module taught in: German and/or English		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
term paper (or preparing educational materials and materials for demonstrations) (approx. 10 to 20 pages) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
6 places.		
<b>Additional information</b>		
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<b>Workload</b>		
60 h		
<b>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
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<b>Module appears in</b>		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major, 1 minor) Museology and material culture (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major, 1 minor) Museology and material culture (2017) Module studies (Bachelor) Biology (2019)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 284 / 350

Bachelor's degree (1 major, 1 minor) Museology and material culture (2020)  
 Bachelor's degree (1 major) Biology (2021)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2022)  
 Bachelor's degree (1 major) Biology (2022)  
 exchange program Biosciences (2022)

Module title		Abbreviation
<b>Entrepreneurial Thinking in Biosciences</b>		07-SQF-UDB-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
<p>This module will provide students with an insight into how the biotech and pharma industry functions: innovative therapeutics: from bench to bedside - the work of scouts - introduction to pharmaceutical drug development - the long journey from the research project via biotechnology and the pharma industry to the patient - biotech, pharma industry and the academic world: why join forces? - development of therapeutics at Novo Nordisk - what makes a successful biotech entrepreneur? - advances in antibody-based immunotherapy - the development of antibodies: a success story - risks and side effects - the TGN1412 study - current trends in antibody development.</p>		
Intended learning outcomes		
Students will see behind the curtain of businesses and will understand the procedures and processes used by businesses in the bioscience sector.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (1) + S (2) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
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Workload		
90 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 286 / 350

Module title			Abbreviation
Publishing Scientific Data			07-SQF-WIP-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
3	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
<p>Either alone or in small groups of two or three persons, students will select several journal articles from the field of life sciences. These will serve as the basis for a review article to be prepared by students. With two or three "core publications" as a basis, students will search data bases (e. g. PubMed) for literature that is directly related to these articles. The most important current original publications will be summed up in a review article; where applicable, students may also use their own raw data. The structure of this review article will comply with the standards of the scientific community as defined in the instructions to authors of a scientific journal. The article will contain at least one figure, one table as well as one schematic representation of the contents and will be divided up into the following sections: title, abstract, introduction and/or hypothesis/problem to be investigated, summary of results as well as current developments and discussion thereof. The article will also contain citations in the specified format. Students will also deliver a presentation on the contents of the article.</p>			
Intended learning outcomes			
<p>Students will have learned to conduct a literature search on a specific topic. They will know how to get an overview of recent publications on a specific topic and will be familiar with basic rules for summing up original publications in a review article complying with the standards of the scientific community. Students will be familiar with the standards regarding the structure of reviews and will be able to properly cite sources. They will thus know what to keep in mind when writing scientific articles. In addition, students will be able to prepare and deliver an oral presentation on raw scientific data.</p>			
Courses (type, number of weekly contact hours, language — if other than German)			
S (2) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
term paper (approx. 5 to 10 pages) and presentation (approx. 15 minutes), weighted 2:1 Language of assessment: German and/or English creditable for bonus			
Allocation of places			
<p>30 places.</p> <p>Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one place in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in the same procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration.</p> <p>A waiting list will be maintained and places re-allocated as they become available.</p>			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 287 / 350

Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot.

Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25 % of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25 % of places): lottery.

Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

#### Additional information

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#### Workload

90 h

#### Teaching cycle

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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#### Module appears in

Bachelor's degree (1 major) Biology (2015)  
Bachelor's degree (1 major) Biology (2017)  
Module studies (Bachelor) Biology (2019)  
Bachelor's degree (1 major) Biology (2021)  
Bachelor's degree (1 major) Biology (2022)  
exchange program Biosciences (2022)



Module title		Abbreviation
Additional Qualification outside Natural Sciences 2		07-SQF-ZQA2-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
2	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Courses in areas other than the natural sciences that are not offered as part of the pool of general transferable skills (ASQ) and that provide students with an opportunity to strengthen their general background in the natural sciences. These courses may be offered by the University of Würzburg or by external institutions. Decision on credit transfer to be made by examination committee. Will include 2 to 3 all-day courses.		
Intended learning outcomes		
Students have expanded their interdisciplinary knowledge and have thus enhanced their general scientific skills. They have acquired additional expertise and have developed additional skills in areas other than biology.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (0.5) + S (0.5) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
60 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2011) Bachelor's degree (1 major) Chemistry (2010) Bachelor's degree (1 major) Psychology (2010) Bachelor's degree (1 major, 1 minor) Pedagogy (2013) Bachelor's degree (1 major, 1 minor) Political and Social Studies (2013) Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2008)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 289 / 350

Bachelor's degree (2 majors) Special Education (2009)  
 Magister Theologiae Catholic Theology (2013)  
 Bachelor's degree (2 majors) English and American Studies (2009)  
 Bachelor's degree (2 majors) German Language and Literature (2013)  
 Bachelor's degree (1 major) Biology (2015)  
 Bachelor's degree (1 major) Chemistry (2015)  
 Bachelor's degree (1 major) Geography (2015)  
 Bachelor's degree (1 major) Mathematics (2015)  
 Bachelor's degree (1 major) Musicology (2015)  
 Bachelor's degree (1 major) Physics (2015)  
 Bachelor's degree (1 major) Psychology (2015)  
 Bachelor's degree (1 major) Business Management and Economics (2015)  
 Bachelor's degree (1 major) Nanostructure Technology (2015)  
 Bachelor's degree (1 major) Music Education (2015)  
 Bachelor's degree (1 major) Computational Mathematics (2015)  
 Bachelor's degree (1 major) Political and Social Studies (2015)  
 Bachelor's degree (1 major) Functional Materials (2015)  
 Bachelor's degree (1 major) Academic Speech Therapy (2015)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Egyptology (2015)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2015)  
 Bachelor's degree (1 major, 1 minor) History (2015)  
 Bachelor's degree (1 major, 1 minor) Musicology (2015)  
 Bachelor's degree (1 major, 1 minor) Philosophy (2015)  
 Bachelor's degree (1 major, 1 minor) Pre- and Protohistoric Archaeology (2015)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2015)  
 Bachelor's degree (1 major, 1 minor) Philosophy and Religion (2015)  
 Bachelor's degree (1 major, 1 minor) Theological Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2015)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2015)  
 Bachelor's degree (2 majors) Egyptology (2015)  
 Bachelor's degree (2 majors) Pedagogy (2015)  
 Bachelor's degree (2 majors) Protestant Theology (2015)  
 Bachelor's degree (2 majors) Musicology (2015)  
 Bachelor's degree (2 majors) Philosophy (2015)  
 Bachelor's degree (2 majors) Special Education (2015)  
 Bachelor's degree (2 majors) Pre- and Protohistoric Archaeology (2015)  
 Bachelor's degree (2 majors) Latin Philology (2015)  
 Bachelor's degree (2 majors) Music Education (2015)  
 Bachelor's degree (2 majors) Philosophy and Religion (2015)  
 Bachelor's degree (2 majors) Theological Studies (2015)  
 Bachelor's degree (2 majors) Political and Social Studies (2015)  
 Bachelor's degree (2 majors) Russian Language and Culture (2015)  
 Bachelor's degree (2 majors) Greek Philology (2015)  
 Bachelor's degree (2 majors) European Ethnology (2015)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2015)  
 Bachelor's degree (2 majors) Geography (2015)  
 Bachelor's degree (2 majors) French Studies (2015)  
 Bachelor's degree (2 majors) History (2015)  
 Bachelor's degree (2 majors) Sport Science (Focus on health and Pedagogics in Movement) (2015)  
 Bachelor's degree (2 majors) German Language and Literature (2015)  
 Bachelor's degree (1 major) Mathematical Physics (2016)

Bachelor's degree (1 major, 1 minor) French Studies (2016)  
 Bachelor's degree (2 majors) French Studies (2016)  
 Bachelor's degree (1 major, 1 minor) Italian Studies (2016)  
 Bachelor's degree (2 majors) Italian Studies (2016)  
 Bachelor's degree (1 major, 1 minor) Spanish Studies (2016)  
 Bachelor's degree (2 majors) Spanish Studies (2016)  
 Bachelor's degree (1 major) Romanic Languages (French/Italian) (2016)  
 Bachelor's degree (1 major) Romanic Languages (French/Spanish) (2016)  
 Bachelor's degree (1 major) Romanic Languages (Italian/Spanish) (2016)  
 Bachelor's degree (1 major) Business Information Systems (2016)  
 Bachelor's degree (1 major) Games Engineering (2016)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2016)  
 Bachelor's degree (2 majors) English and American Studies (2016)  
 Bachelor's degree (1 major) Media Communication (2016)  
 Bachelor's degree (1 major) Food Chemistry (2016)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2016)  
 Bachelor's degree (1 major) Biology (2017)  
 Bachelor's degree (1 major, 1 minor) Geography (2017)  
 Bachelor's degree (1 major, 1 minor) History of Medieval and Modern Art (2017)  
 Bachelor's degree (2 majors) History of Medieval and Modern Art (2017)  
 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2017)  
 Bachelor's degree (1 major) Aerospace Computer Science (2017)  
 Bachelor's degree (1 major) Biochemistry (2017)  
 Bachelor's degree (1 major) Chemistry (2017)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2017)  
 Bachelor's degree (1 major) Econometrics (2017)  
 Bachelor's degree (1 major) Games Engineering (2017)  
 Bachelor's degree (1 major) Computer Science (2017)  
 Bachelor's degree (1 major) Media Communication (2018)  
 Bachelor's degree (1 major) Biomedicine (2018)  
 Bachelor's degree (1 major) Human-Computer Systems (2018)  
 Bachelor's degree (2 majors) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)  
 Bachelor's degree (2 majors) Digital Humanities (2018)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2019)  
 Module studies (Bachelor) Biology (2019)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Information Systems (2019)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Management and Economics (2019)  
 Bachelor's degree (1 major) Modern China (2019)  
 Bachelor's degree (1 major) Biomedicine (2020)  
 Bachelor's degree (1 major) Pedagogy (2020)  
 Bachelor's degree (1 major) Political and Social Studies (2020)  
 Bachelor's degree (1 major) Business Information Systems (2020)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) European Ethnology (2020)  
 Bachelor's degree (2 majors) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) Special Education (2020)  
 Bachelor's degree (1 major) Physics (2020)  
 Bachelor's degree (1 major) Nanostructure Technology (2020)

Bachelor's degree (1 major) Mathematical Physics (2020)  
 Bachelor's degree (1 major) Aerospace Computer Science (2020)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2020)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2020)  
 Bachelor's degree (2 majors) Pedagogy (2020)  
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 Bachelor's degree (1 major) Biology (2021)  
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 Bachelor's degree (1 major) Functional Materials (2021)  
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 Bachelor's degree (1 major) Human-Computer-Interaction (2024)  
 Bachelor's degree (2 majors) Art Education (2024)  
 Bachelor's degree (1 major) Digital Business & Data Science (2024)  
 Bachelor's degree (1 major) Classics (2024)  
 Bachelor's degree (1 major) Diversity, Ethics and Religions (2024)  
 Bachelor's degree (1 major) Functional Materials (2025)  
 Bachelor's degree (1 major) (2025)  
 Bachelor's degree (1 major) Food Chemistry (2025)  
 Bachelor's degree (1 major, 1 minor) European Ethnology/Empiric Cultural Studies (2025)  
 Bachelor's degree (1 major) Pedagogy (2025)  
 Bachelor's degree (2 majors) Pedagogy (2025)  
 Bachelor's degree (1 major) Economathematics (2025)  
 Bachelor's degree (1 major) Academic Speech Therapy (2025)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2025)  
 Bachelor's degree (1 major) Games Engineering (2025)

Module title		Abbreviation
Additional Qualification outside Natural Sciences 3		07-SQF-ZQA3-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Courses in areas other than the natural sciences that are not offered as part of the pool of general transferable skills (ASQ) and that provide students with an opportunity to strengthen their general background in the natural sciences. These courses may be offered by the University of Würzburg or by external institutions. Decision on credit transfer to be made by examination committee. Will include courses with 1 weekly contact hour.		
Intended learning outcomes		
Students have expanded their interdisciplinary knowledge and have thus enhanced their general scientific skills. They have acquired additional expertise and have developed additional skills in areas other than biology.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (0.5) + S (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
90 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2011) Bachelor's degree (1 major) Chemistry (2010) Bachelor's degree (1 major) Psychology (2010) Bachelor's degree (1 major, 1 minor) Pedagogy (2013) Bachelor's degree (1 major, 1 minor) Political and Social Studies (2013) Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2008)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 294 / 350



Bachelor's degree (2 majors) Special Education (2009)  
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 Bachelor's degree (2 majors) English and American Studies (2009)  
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 Bachelor's degree (1 major) Musicology (2015)  
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 Bachelor's degree (1 major) Psychology (2015)  
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 Bachelor's degree (1 major) Nanostructure Technology (2015)  
 Bachelor's degree (1 major) Music Education (2015)  
 Bachelor's degree (1 major) Computational Mathematics (2015)  
 Bachelor's degree (1 major) Political and Social Studies (2015)  
 Bachelor's degree (1 major) Functional Materials (2015)  
 Bachelor's degree (1 major) Academic Speech Therapy (2015)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Egyptology (2015)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2015)  
 Bachelor's degree (1 major, 1 minor) History (2015)  
 Bachelor's degree (1 major, 1 minor) Musicology (2015)  
 Bachelor's degree (1 major, 1 minor) Philosophy (2015)  
 Bachelor's degree (1 major, 1 minor) Pre- and Protohistoric Archaeology (2015)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2015)  
 Bachelor's degree (1 major, 1 minor) Philosophy and Religion (2015)  
 Bachelor's degree (1 major, 1 minor) Theological Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2015)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2015)  
 Bachelor's degree (2 majors) Egyptology (2015)  
 Bachelor's degree (2 majors) Pedagogy (2015)  
 Bachelor's degree (2 majors) Protestant Theology (2015)  
 Bachelor's degree (2 majors) Musicology (2015)  
 Bachelor's degree (2 majors) Philosophy (2015)  
 Bachelor's degree (2 majors) Special Education (2015)  
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 Bachelor's degree (1 major) Mathematical Physics (2016)



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 Bachelor's degree (1 major) Chemistry (2017)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2017)  
 Bachelor's degree (1 major) Econometrics (2017)  
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 Bachelor's degree (1 major) Computer Science (2017)  
 Bachelor's degree (1 major) Media Communication (2018)  
 Bachelor's degree (1 major) Biomedicine (2018)  
 Bachelor's degree (1 major) Human-Computer Systems (2018)  
 Bachelor's degree (2 majors) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)  
 Bachelor's degree (2 majors) Digital Humanities (2018)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2019)  
 Module studies (Bachelor) Biology (2019)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Information Systems (2019)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Management and Economics (2019)  
 Bachelor's degree (1 major) Modern China (2019)  
 Bachelor's degree (1 major) Biomedicine (2020)  
 Bachelor's degree (1 major) Pedagogy (2020)  
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 Bachelor's degree (1 major) Business Information Systems (2020)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) European Ethnology (2020)  
 Bachelor's degree (2 majors) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) Special Education (2020)  
 Bachelor's degree (1 major) Physics (2020)  
 Bachelor's degree (1 major) Nanostructure Technology (2020)

Bachelor's degree (1 major) Mathematical Physics (2020)  
 Bachelor's degree (1 major) Aerospace Computer Science (2020)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2020)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2020)  
 Bachelor's degree (2 majors) Pedagogy (2020)  
 Bachelor's degree (1 major) Psychology (2020)  
 Bachelor's degree (1 major) Biology (2021)  
 Magister Theologiae Catholic Theology (2021)  
 Bachelor's degree (2 majors) History (2021)  
 Bachelor's degree (1 major, 1 minor) History (2021)  
 Bachelor's degree (1 major) Media Communication (2021)  
 Bachelor's degree (2 majors) Theological Studies (2021)  
 Bachelor's degree (1 major, 1 minor) Theological Studies (2021)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2021)  
 Bachelor's degree (2 majors) English and American Studies (2021)  
 Bachelor's degree (1 major) Functional Materials (2021)  
 Bachelor's degree (1 major) Computer Science und Sustainability (2021)  
 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2021)  
 Bachelor's degree (1 major) Food Chemistry (2021)  
 Bachelor's degree (1 major) Quantum Technology (2021)  
 Bachelor's degree (2 majors) Special Education (2021)  
 Bachelor's degree (1 major) Business Information Systems (2021)  
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 Bachelor's degree (1 major) Business Management and Economics (2021)  
 Bachelor's degree (1 major) Human-Computer Systems (2022)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2022)  
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 Bachelor's degree (2 majors) Ancient Near Eastern Studies (2022)  
 Bachelor's degree (1 major) Franco-German studies: language, culture, digital competence (2022)  
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 Bachelor's degree (1 major) Geography (2023)  
 Bachelor's degree (2 majors) Geography (2023)  
 Bachelor's degree (1 major, 1 minor) Geography (2023)  
 Bachelor's degree (2 majors) European Ethnology/Empiric Cultural Studies (2023)  
 Bachelor's degree (1 major) Mathematical Physics (2024)  
 Bachelor's degree (2 majors) German Language and Literature (2024)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2024)

Bachelor's degree (1 major) Music Education (2024)  
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 Bachelor's degree (2 majors) Art Education (2024)  
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 Bachelor's degree (1 major) Food Chemistry (2025)  
 Bachelor's degree (1 major, 1 minor) European Ethnology/Empiric Cultural Studies (2025)  
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 Bachelor's degree (1 major) Academic Speech Therapy (2025)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2025)  
 Bachelor's degree (1 major) Games Engineering (2025)

Module title		Abbreviation
Additional Qualification outside Natural Sciences 4		07-SQF-ZQA4-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
4	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Courses in areas other than the natural sciences that are not offered as part of the pool of general transferable skills (ASQ) and that provide students with an opportunity to strengthen their general background in the natural sciences. These courses may be offered by the University of Würzburg or by external institutions. Decision on credit transfer to be made by examination committee. Will include one week of all-day courses.		
Intended learning outcomes		
Students have expanded their interdisciplinary knowledge and have thus enhanced their general scientific skills. They have acquired additional expertise and have developed additional skills in areas other than biology.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (0.5) + S (1.5) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
120 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
--		
Module appears in		
Bachelor's degree (1 major) Biology (2011) Bachelor's degree (1 major) Chemistry (2010) Bachelor's degree (1 major) Psychology (2010) Bachelor's degree (1 major, 1 minor) Pedagogy (2013) Bachelor's degree (1 major, 1 minor) Political and Social Studies (2013) Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2008)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 299 / 350

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Bachelor's degree (1 major, 1 minor) French Studies (2016)  
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 Bachelor's degree (2 majors) Spanish Studies (2016)  
 Bachelor's degree (1 major) Romanic Languages (French/Italian) (2016)  
 Bachelor's degree (1 major) Romanic Languages (French/Spanish) (2016)  
 Bachelor's degree (1 major) Romanic Languages (Italian/Spanish) (2016)  
 Bachelor's degree (1 major) Business Information Systems (2016)  
 Bachelor's degree (1 major) Games Engineering (2016)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2016)  
 Bachelor's degree (2 majors) English and American Studies (2016)  
 Bachelor's degree (1 major) Media Communication (2016)  
 Bachelor's degree (1 major) Food Chemistry (2016)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2016)  
 Bachelor's degree (1 major) Biology (2017)  
 Bachelor's degree (1 major, 1 minor) Geography (2017)  
 Bachelor's degree (1 major, 1 minor) History of Medieval and Modern Art (2017)  
 Bachelor's degree (2 majors) History of Medieval and Modern Art (2017)  
 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2017)  
 Bachelor's degree (1 major) Aerospace Computer Science (2017)  
 Bachelor's degree (1 major) Biochemistry (2017)  
 Bachelor's degree (1 major) Chemistry (2017)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2017)  
 Bachelor's degree (1 major) Econometrics (2017)  
 Bachelor's degree (1 major) Games Engineering (2017)  
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 Bachelor's degree (2 majors) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)  
 Bachelor's degree (2 majors) Digital Humanities (2018)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2019)  
 Module studies (Bachelor) Biology (2019)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Information Systems (2019)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Management and Economics (2019)  
 Bachelor's degree (1 major) Modern China (2019)  
 Bachelor's degree (1 major) Biomedicine (2020)  
 Bachelor's degree (1 major) Pedagogy (2020)  
 Bachelor's degree (1 major) Political and Social Studies (2020)  
 Bachelor's degree (1 major) Business Information Systems (2020)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) European Ethnology (2020)  
 Bachelor's degree (2 majors) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) Special Education (2020)  
 Bachelor's degree (1 major) Physics (2020)  
 Bachelor's degree (1 major) Nanostructure Technology (2020)

Bachelor's degree (1 major) Mathematical Physics (2020)  
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 Bachelor's degree (2 majors) European Ethnology/Empirical Cultural Studies (2023)  
 Bachelor's degree (1 major) Mathematical Physics (2024)  
 Bachelor's degree (2 majors) German Language and Literature (2024)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2024)



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 Bachelor's degree (1 major) Academic Speech Therapy (2025)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2025)  
 Bachelor's degree (1 major) Games Engineering (2025)

Module title		Abbreviation
Additional Qualification outside Natural Sciences 5		07-SQF-ZQA5-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
5	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Courses in areas other than the natural sciences that are not offered as part of the pool of general transferable skills (ASQ) and that provide students with an opportunity to strengthen their general background in the natural sciences. These courses may be offered by the University of Würzburg or by external institutions. Decision on credit transfer to be made by examination committee. Will include courses with 2 weekly contact hours.		
Intended learning outcomes		
Students have expanded their interdisciplinary knowledge and have thus enhanced their general scientific skills. They have acquired additional expertise and have developed additional skills in areas other than biology.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (0.5) + S (2) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
150 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
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Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 304 / 350

Bachelor's degree (2 majors) Special Education (2009)  
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Bachelor's degree (1 major, 1 minor) Egyptology (2015)  
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Bachelor's degree (1 major, 1 minor) History (2015)  
Bachelor's degree (1 major, 1 minor) Musicology (2015)  
Bachelor's degree (1 major, 1 minor) Philosophy (2015)  
Bachelor's degree (1 major, 1 minor) Pre- and Protohistoric Archaeology (2015)  
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Bachelor's degree (1 major, 1 minor) Philosophy and Religion (2015)  
Bachelor's degree (1 major, 1 minor) Theological Studies (2015)  
Bachelor's degree (1 major, 1 minor) Political and Social Studies (2015)  
Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2015)  
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Bachelor's degree (2 majors) Egyptology (2015)  
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 Bachelor's degree (2 majors) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)  
 Bachelor's degree (2 majors) Digital Humanities (2018)  
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 Module studies (Bachelor) Biology (2019)  
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 Bachelor's degree (1 major) Functional Materials (2021)  
 Bachelor's degree (1 major) Computer Science und Sustainability (2021)  
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 Bachelor's degree (1 major, 1 minor) Pedagogy (2025)  
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Module title			Abbreviation
Additional Qualification outside Natural Sciences 6			07-SQF-ZQA6-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Courses in the natural sciences not offered as part of the pool of general transferable skills (ASQ) that equip students with advanced knowledge in the natural sciences that is related to their discipline. These courses may be offered by the University of Würzburg or by external institutions. Decision on credit transfer to be made by examination committee.			
Intended learning outcomes			
Students have developed an improved scientific knowledge and have thus enhanced their specific qualifications. They have acquired additional expertise that will help them specialise in their field.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (0.5) + S (2) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
--			
Additional information			
--			
Workload			
150 h			
Teaching cycle			
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Referred to in LPO I (examination regulations for teaching-degree programmes)			
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Module appears in			
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Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 309 / 350



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 Bachelor's degree (1 major) Media Communication (2016)  
 Bachelor's degree (1 major) Food Chemistry (2016)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2016)  
 Bachelor's degree (1 major) Biology (2017)  
 Bachelor's degree (1 major, 1 minor) Geography (2017)  
 Bachelor's degree (1 major, 1 minor) History of Medieval and Modern Art (2017)  
 Bachelor's degree (2 majors) History of Medieval and Modern Art (2017)  
 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2017)  
 Bachelor's degree (1 major) Aerospace Computer Science (2017)  
 Bachelor's degree (1 major) Biochemistry (2017)  
 Bachelor's degree (1 major) Chemistry (2017)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2017)  
 Bachelor's degree (1 major) Econometrics (2017)  
 Bachelor's degree (1 major) Games Engineering (2017)  
 Bachelor's degree (1 major) Computer Science (2017)  
 Bachelor's degree (1 major) Media Communication (2018)  
 Bachelor's degree (1 major) Biomedicine (2018)  
 Bachelor's degree (1 major) Human-Computer Systems (2018)  
 Bachelor's degree (2 majors) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)  
 Bachelor's degree (2 majors) Digital Humanities (2018)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2019)  
 Module studies (Bachelor) Biology (2019)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Information Systems (2019)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Management and Economics (2019)  
 Bachelor's degree (1 major) Modern China (2019)  
 Bachelor's degree (1 major) Biomedicine (2020)  
 Bachelor's degree (1 major) Pedagogy (2020)  
 Bachelor's degree (1 major) Political and Social Studies (2020)  
 Bachelor's degree (1 major) Business Information Systems (2020)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) European Ethnology (2020)  
 Bachelor's degree (2 majors) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) Special Education (2020)  
 Bachelor's degree (1 major) Physics (2020)  
 Bachelor's degree (1 major) Nanostructure Technology (2020)

Bachelor's degree (1 major) Mathematical Physics (2020)  
 Bachelor's degree (1 major) Aerospace Computer Science (2020)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2020)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2020)  
 Bachelor's degree (2 majors) Pedagogy (2020)  
 Bachelor's degree (1 major) Psychology (2020)  
 Bachelor's degree (1 major) Biology (2021)  
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 Bachelor's degree (1 major, 1 minor) English and American Studies (2021)  
 Bachelor's degree (2 majors) English and American Studies (2021)  
 Bachelor's degree (1 major) Functional Materials (2021)  
 Bachelor's degree (1 major) Computer Science und Sustainability (2021)  
 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2021)  
 Bachelor's degree (1 major) Food Chemistry (2021)  
 Bachelor's degree (1 major) Quantum Technology (2021)  
 Bachelor's degree (2 majors) Special Education (2021)  
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 Bachelor's degree (1 major) Mathematical Data Science (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022)  
 Bachelor's degree (2 majors) Ancient Near Eastern Archaeology (2022)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2022)  
 Bachelor's degree (2 majors) Ancient Near Eastern Studies (2022)  
 Bachelor's degree (1 major) Franco-German studies: language, culture, digital competence (2022)  
 Bachelor's degree (1 major) European Law (2023)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2023)  
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 Bachelor's degree (2 majors) Geography (2023)  
 Bachelor's degree (1 major, 1 minor) Geography (2023)  
 Bachelor's degree (2 majors) European Ethnology/Empiric Cultural Studies (2023)  
 Bachelor's degree (1 major) Mathematical Physics (2024)  
 Bachelor's degree (2 majors) German Language and Literature (2024)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2024)

Bachelor's degree (1 major) Music Education (2024)  
 Bachelor's degree (2 majors) Music Education (2024)  
 Bachelor's degree (1 major, 1 minor) Music Education (2024)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2024)  
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 Bachelor's degree (1 major, 1 minor) Digital Humanities (2024)  
 Bachelor's degree (1 major) Midwifery (2024)  
 Bachelor's degree (2 majors) Greek Philology (2024)  
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 Bachelor's degree (1 major) Business Information Systems (2024)  
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 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)  
 Bachelor's degree (1 major) Human-Computer-Interaction (2024)  
 Bachelor's degree (2 majors) Art Education (2024)  
 Bachelor's degree (1 major) Digital Business & Data Science (2024)  
 Bachelor's degree (1 major) Classics (2024)  
 Bachelor's degree (1 major) Diversity, Ethics and Religions (2024)  
 Bachelor's degree (1 major) Functional Materials (2025)  
 Bachelor's degree (1 major) (2025)  
 Bachelor's degree (1 major) Food Chemistry (2025)  
 Bachelor's degree (1 major, 1 minor) European Ethnology/Empiric Cultural Studies (2025)  
 Bachelor's degree (1 major) Pedagogy (2025)  
 Bachelor's degree (2 majors) Pedagogy (2025)  
 Bachelor's degree (1 major) Economathematics (2025)  
 Bachelor's degree (1 major) Academic Speech Therapy (2025)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2025)  
 Bachelor's degree (1 major) Games Engineering (2025)

Module title			Abbreviation
Additional Qualification in Natural Sciences 2			07-SQF-ZQN2-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
2	(not) successfully completed	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Courses in the natural sciences not offered as part of the pool of general transferable skills (ASQ) that equip students with advanced knowledge in the natural sciences that is related to their discipline. These courses may be offered by the University of Würzburg or by external institutions. Decision on credit transfer to be made by examination committee.			
Intended learning outcomes			
Students have developed an improved scientific knowledge and have thus enhanced their specific qualifications. They have acquired additional expertise that will help them specialise in their field.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (0.5) + S (0.5) + Ü (0.5) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
--			
Additional information			
--			
Workload			
60 h			
Teaching cycle			
--			
Referred to in LPO I (examination regulations for teaching-degree programmes)			
--			
Module appears in			
Bachelor's degree (1 major) Biology (2011) Bachelor's degree (1 major) Chemistry (2010) Bachelor's degree (1 major) Psychology (2010) Bachelor's degree (1 major, 1 minor) Pedagogy (2013) Bachelor's degree (1 major, 1 minor) Political and Social Studies (2013) Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2008)			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	

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Bachelor's degree (2 majors) Special Education (2009)  
 Magister Theologiae Catholic Theology (2013)  
 Bachelor's degree (2 majors) English and American Studies (2009)  
 Bachelor's degree (2 majors) German Language and Literature (2013)  
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 Bachelor's degree (1 major) Mathematics (2015)  
 Bachelor's degree (1 major) Musicology (2015)  
 Bachelor's degree (1 major) Physics (2015)  
 Bachelor's degree (1 major) Psychology (2015)  
 Bachelor's degree (1 major) Business Management and Economics (2015)  
 Bachelor's degree (1 major) Nanostructure Technology (2015)  
 Bachelor's degree (1 major) Music Education (2015)  
 Bachelor's degree (1 major) Computational Mathematics (2015)  
 Bachelor's degree (1 major) Political and Social Studies (2015)  
 Bachelor's degree (1 major) Functional Materials (2015)  
 Bachelor's degree (1 major) Academic Speech Therapy (2015)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Egyptology (2015)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2015)  
 Bachelor's degree (1 major, 1 minor) History (2015)  
 Bachelor's degree (1 major, 1 minor) Musicology (2015)  
 Bachelor's degree (1 major, 1 minor) Philosophy (2015)  
 Bachelor's degree (1 major, 1 minor) Pre- and Protohistoric Archaeology (2015)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2015)  
 Bachelor's degree (1 major, 1 minor) Philosophy and Religion (2015)  
 Bachelor's degree (1 major, 1 minor) Theological Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2015)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2015)  
 Bachelor's degree (2 majors) Egyptology (2015)  
 Bachelor's degree (2 majors) Pedagogy (2015)  
 Bachelor's degree (2 majors) Protestant Theology (2015)  
 Bachelor's degree (2 majors) Musicology (2015)  
 Bachelor's degree (2 majors) Philosophy (2015)  
 Bachelor's degree (2 majors) Special Education (2015)  
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 Bachelor's degree (2 majors) Latin Philology (2015)  
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 Bachelor's degree (2 majors) Political and Social Studies (2015)  
 Bachelor's degree (2 majors) Russian Language and Culture (2015)  
 Bachelor's degree (2 majors) Greek Philology (2015)  
 Bachelor's degree (2 majors) European Ethnology (2015)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2015)  
 Bachelor's degree (2 majors) Geography (2015)  
 Bachelor's degree (2 majors) French Studies (2015)  
 Bachelor's degree (2 majors) History (2015)  
 Bachelor's degree (2 majors) Sport Science (Focus on health and Pedagogics in Movement) (2015)  
 Bachelor's degree (2 majors) German Language and Literature (2015)  
 Bachelor's degree (1 major) Mathematical Physics (2016)

Bachelor's degree (1 major, 1 minor) French Studies (2016)  
 Bachelor's degree (2 majors) French Studies (2016)  
 Bachelor's degree (1 major, 1 minor) Italian Studies (2016)  
 Bachelor's degree (2 majors) Italian Studies (2016)  
 Bachelor's degree (1 major, 1 minor) Spanish Studies (2016)  
 Bachelor's degree (2 majors) Spanish Studies (2016)  
 Bachelor's degree (1 major) Romanic Languages (French/Italian) (2016)  
 Bachelor's degree (1 major) Romanic Languages (French/Spanish) (2016)  
 Bachelor's degree (1 major) Romanic Languages (Italian/Spanish) (2016)  
 Bachelor's degree (1 major) Business Information Systems (2016)  
 Bachelor's degree (1 major) Games Engineering (2016)  
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 Bachelor's degree (2 majors) English and American Studies (2016)  
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 Bachelor's degree (1 major) Biochemistry (2017)  
 Bachelor's degree (1 major) Chemistry (2017)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2017)  
 Bachelor's degree (1 major) Econometrics (2017)  
 Bachelor's degree (1 major) Games Engineering (2017)  
 Bachelor's degree (1 major) Computer Science (2017)  
 Bachelor's degree (1 major) Media Communication (2018)  
 Bachelor's degree (1 major) Biomedicine (2018)  
 Bachelor's degree (1 major) Human-Computer Systems (2018)  
 Bachelor's degree (2 majors) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)  
 Bachelor's degree (2 majors) Digital Humanities (2018)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2019)  
 Module studies (Bachelor) Biology (2019)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Information Systems (2019)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Management and Economics (2019)  
 Bachelor's degree (1 major) Modern China (2019)  
 Bachelor's degree (1 major) Biomedicine (2020)  
 Bachelor's degree (1 major) Pedagogy (2020)  
 Bachelor's degree (1 major) Political and Social Studies (2020)  
 Bachelor's degree (1 major) Business Information Systems (2020)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) European Ethnology (2020)  
 Bachelor's degree (2 majors) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) Special Education (2020)  
 Bachelor's degree (1 major) Physics (2020)  
 Bachelor's degree (1 major) Nanostructure Technology (2020)



Bachelor's degree (1 major) Mathematical Physics (2020)  
 Bachelor's degree (1 major) Aerospace Computer Science (2020)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2020)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2020)  
 Bachelor's degree (2 majors) Pedagogy (2020)  
 Bachelor's degree (1 major) Psychology (2020)  
 Bachelor's degree (1 major) Biology (2021)  
 Magister Theologiae Catholic Theology (2021)  
 Bachelor's degree (2 majors) History (2021)  
 Bachelor's degree (1 major, 1 minor) History (2021)  
 Bachelor's degree (1 major) Media Communication (2021)  
 Bachelor's degree (2 majors) Theological Studies (2021)  
 Bachelor's degree (1 major, 1 minor) Theological Studies (2021)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2021)  
 Bachelor's degree (2 majors) English and American Studies (2021)  
 Bachelor's degree (1 major) Functional Materials (2021)  
 Bachelor's degree (1 major) Computer Science und Sustainability (2021)  
 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2021)  
 Bachelor's degree (1 major) Food Chemistry (2021)  
 Bachelor's degree (1 major) Quantum Technology (2021)  
 Bachelor's degree (2 majors) Special Education (2021)  
 Bachelor's degree (1 major) Business Information Systems (2021)  
 Bachelor's degree (1 major) Economathematics (2021)  
 Bachelor's degree (1 major) Business Management and Economics (2021)  
 Bachelor's degree (1 major) Human-Computer Systems (2022)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2022)  
 Bachelor's degree (1 major) Biochemistry (2022)  
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 Bachelor's degree (2 majors) Ancient Near Eastern Archaeology (2022)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2022)  
 Bachelor's degree (2 majors) Ancient Near Eastern Studies (2022)  
 Bachelor's degree (1 major) Franco-German studies: language, culture, digital competence (2022)  
 Bachelor's degree (1 major) European Law (2023)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2023)  
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 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023)  
 Bachelor's degree (1 major) Mathematics (2023)  
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 Bachelor's degree (1 major) Economathematics (2023)  
 Bachelor's degree (1 major, 1 minor) History of Medieval and Modern Art (2023)  
 Bachelor's degree (2 majors) History of Medieval and Modern Art (2023)  
 Bachelor's degree (2 majors) Special Education (2023)  
 Bachelor's degree (1 major) Business Management and Economics (2023)  
 Bachelor's degree (1 major) Geography (2023)  
 Bachelor's degree (2 majors) Geography (2023)  
 Bachelor's degree (1 major, 1 minor) Geography (2023)  
 Bachelor's degree (2 majors) European Ethnology/Empiric Cultural Studies (2023)  
 Bachelor's degree (1 major) Mathematical Physics (2024)  
 Bachelor's degree (2 majors) German Language and Literature (2024)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2024)

Bachelor's degree (1 major) Music Education (2024)  
 Bachelor's degree (2 majors) Music Education (2024)  
 Bachelor's degree (1 major, 1 minor) Music Education (2024)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2024)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2024)  
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 Bachelor's degree (1 major, 1 minor) Ancient World (2024)  
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 Bachelor's degree (1 major, 1 minor) Digital Humanities (2024)  
 Bachelor's degree (1 major) Midwifery (2024)  
 Bachelor's degree (2 majors) Greek Philology (2024)  
 Bachelor's degree (2 majors) Latin Philology (2024)  
 Bachelor's degree (1 major) Business Information Systems (2024)  
 Bachelor's degree (1 major) Economathematics (2024)  
 Bachelor's degree (1 major) Business Management and Economics (2024)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)  
 Bachelor's degree (1 major) Human-Computer-Interaction (2024)  
 Bachelor's degree (2 majors) Art Education (2024)  
 Bachelor's degree (1 major) Digital Business & Data Science (2024)  
 Bachelor's degree (1 major) Classics (2024)  
 Bachelor's degree (1 major) Diversity, Ethics and Religions (2024)  
 Bachelor's degree (1 major) Functional Materials (2025)  
 Bachelor's degree (1 major) (2025)  
 Bachelor's degree (1 major) Food Chemistry (2025)  
 Bachelor's degree (1 major, 1 minor) European Ethnology/Empiric Cultural Studies (2025)  
 Bachelor's degree (1 major) Pedagogy (2025)  
 Bachelor's degree (2 majors) Pedagogy (2025)  
 Bachelor's degree (1 major) Economathematics (2025)  
 Bachelor's degree (1 major) Academic Speech Therapy (2025)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2025)  
 Bachelor's degree (1 major) Games Engineering (2025)

Module title		Abbreviation
Additional Qualification in Natural Sciences 3		07-SQF-ZQN3-152-m01
Module coordinator		Module offered by
Coordinator BioCareers		Faculty of Biology
ECTS	Method of grading	Only after succ. compl. of module(s)
3	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Courses in the natural sciences not offered as part of the pool of general transferable skills (ASQ) that equip students with advanced knowledge in the natural sciences that is related to their discipline. These courses may be offered by the University of Würzburg or by external institutions. Decision on credit transfer to be made by examination committee.		
Intended learning outcomes		
Students have developed an improved scientific knowledge and have thus enhanced their specific qualifications. They have acquired additional expertise that will help them specialise in their field.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (0.5) + S (1) + Ü (1) Module taught in: German and/or English		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus		
Allocation of places		
--		
Additional information		
--		
Workload		
90 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
--		
Module appears in		
Bachelor's degree (1 major) Biology (2011) Bachelor's degree (1 major) Chemistry (2010) Bachelor's degree (1 major) Psychology (2010) Bachelor's degree (1 major, 1 minor) Pedagogy (2013) Bachelor's degree (1 major, 1 minor) Political and Social Studies (2013) Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2008)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 319 / 350

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 Bachelor's degree (1 major) Biochemistry (2017)  
 Bachelor's degree (1 major) Chemistry (2017)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2017)  
 Bachelor's degree (1 major) Econometrics (2017)  
 Bachelor's degree (1 major) Games Engineering (2017)  
 Bachelor's degree (1 major) Computer Science (2017)  
 Bachelor's degree (1 major) Media Communication (2018)  
 Bachelor's degree (1 major) Biomedicine (2018)  
 Bachelor's degree (1 major) Human-Computer Systems (2018)  
 Bachelor's degree (2 majors) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)  
 Bachelor's degree (2 majors) Digital Humanities (2018)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2019)  
 Module studies (Bachelor) Biology (2019)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Information Systems (2019)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Management and Economics (2019)  
 Bachelor's degree (1 major) Modern China (2019)  
 Bachelor's degree (1 major) Biomedicine (2020)  
 Bachelor's degree (1 major) Pedagogy (2020)  
 Bachelor's degree (1 major) Political and Social Studies (2020)  
 Bachelor's degree (1 major) Business Information Systems (2020)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) European Ethnology (2020)  
 Bachelor's degree (2 majors) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) Special Education (2020)  
 Bachelor's degree (1 major) Physics (2020)  
 Bachelor's degree (1 major) Nanostructure Technology (2020)



Bachelor's degree (1 major) Mathematical Physics (2020)  
 Bachelor's degree (1 major) Aerospace Computer Science (2020)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2020)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2020)  
 Bachelor's degree (2 majors) Pedagogy (2020)  
 Bachelor's degree (1 major) Psychology (2020)  
 Bachelor's degree (1 major) Biology (2021)  
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 Bachelor's degree (2 majors) Theological Studies (2021)  
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 Bachelor's degree (1 major, 1 minor) English and American Studies (2021)  
 Bachelor's degree (2 majors) English and American Studies (2021)  
 Bachelor's degree (1 major) Functional Materials (2021)  
 Bachelor's degree (1 major) Computer Science und Sustainability (2021)  
 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2021)  
 Bachelor's degree (1 major) Food Chemistry (2021)  
 Bachelor's degree (1 major) Quantum Technology (2021)  
 Bachelor's degree (2 majors) Special Education (2021)  
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 Bachelor's degree (1 major, 1 minor) Ancient World (2022)  
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 Bachelor's degree (1 major) Franco-German studies: language, culture, digital competence (2022)  
 Bachelor's degree (1 major) European Law (2023)  
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 Bachelor's degree (1 major) Mathematics (2023)  
 Bachelor's degree (1 major) Business Information Systems (2023)  
 Bachelor's degree (1 major) Economathematics (2023)  
 Bachelor's degree (1 major, 1 minor) History of Medieval and Modern Art (2023)  
 Bachelor's degree (2 majors) History of Medieval and Modern Art (2023)  
 Bachelor's degree (2 majors) Special Education (2023)  
 Bachelor's degree (1 major) Business Management and Economics (2023)  
 Bachelor's degree (1 major) Geography (2023)  
 Bachelor's degree (2 majors) Geography (2023)  
 Bachelor's degree (1 major, 1 minor) Geography (2023)  
 Bachelor's degree (2 majors) European Ethnology/Empiric Cultural Studies (2023)  
 Bachelor's degree (1 major) Mathematical Physics (2024)  
 Bachelor's degree (2 majors) German Language and Literature (2024)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2024)



Bachelor's degree (1 major) Music Education (2024)  
 Bachelor's degree (2 majors) Music Education (2024)  
 Bachelor's degree (1 major, 1 minor) Music Education (2024)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2024)  
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 Bachelor's degree (1 major, 1 minor) Indology/South Asian Studies (2024)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2024)  
 Bachelor's degree (2 majors) Digital Humanities (2024)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2024)  
 Bachelor's degree (1 major) Midwifery (2024)  
 Bachelor's degree (2 majors) Greek Philology (2024)  
 Bachelor's degree (2 majors) Latin Philology (2024)  
 Bachelor's degree (1 major) Business Information Systems (2024)  
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 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)  
 Bachelor's degree (1 major) Human-Computer-Interaction (2024)  
 Bachelor's degree (2 majors) Art Education (2024)  
 Bachelor's degree (1 major) Digital Business & Data Science (2024)  
 Bachelor's degree (1 major) Classics (2024)  
 Bachelor's degree (1 major) Diversity, Ethics and Religions (2024)  
 Bachelor's degree (1 major) Functional Materials (2025)  
 Bachelor's degree (1 major) (2025)  
 Bachelor's degree (1 major) Food Chemistry (2025)  
 Bachelor's degree (1 major, 1 minor) European Ethnology/Empiric Cultural Studies (2025)  
 Bachelor's degree (1 major) Pedagogy (2025)  
 Bachelor's degree (2 majors) Pedagogy (2025)  
 Bachelor's degree (1 major) Economathematics (2025)  
 Bachelor's degree (1 major) Academic Speech Therapy (2025)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2025)  
 Bachelor's degree (1 major) Games Engineering (2025)

Module title			Abbreviation
Additional Qualification in Natural Sciences 4			07-SQF-ZQN4-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
4	(not) successfully completed	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Courses in the natural sciences not offered as part of the pool of general transferable skills (ASQ) that equip students with advanced knowledge in the natural sciences that is related to their discipline. These courses may be offered by the University of Würzburg or by external institutions. Decision on credit transfer to be made by examination committee.			
Intended learning outcomes			
Students have developed an improved scientific knowledge and have thus enhanced their specific qualifications. They have acquired additional expertise that will help them specialise in their field.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (0.5) + S (2) + Ü (2) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
--			
Additional information			
--			
Workload			
120 h			
Teaching cycle			
--			
Referred to in LPO I (examination regulations for teaching-degree programmes)			
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Module appears in			
Bachelor's degree (1 major) Biology (2011) Bachelor's degree (1 major) Chemistry (2010) Bachelor's degree (1 major) Psychology (2010) Bachelor's degree (1 major, 1 minor) Pedagogy (2013) Bachelor's degree (1 major, 1 minor) Political and Social Studies (2013) Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2008)			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 324 / 350

Bachelor's degree (2 majors) Special Education (2009)  
 Magister Theologiae Catholic Theology (2013)  
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 Bachelor's degree (2 majors) German Language and Literature (2013)  
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 Bachelor's degree (1 major) Musicology (2015)  
 Bachelor's degree (1 major) Physics (2015)  
 Bachelor's degree (1 major) Psychology (2015)  
 Bachelor's degree (1 major) Business Management and Economics (2015)  
 Bachelor's degree (1 major) Nanostructure Technology (2015)  
 Bachelor's degree (1 major) Music Education (2015)  
 Bachelor's degree (1 major) Computational Mathematics (2015)  
 Bachelor's degree (1 major) Political and Social Studies (2015)  
 Bachelor's degree (1 major) Functional Materials (2015)  
 Bachelor's degree (1 major) Academic Speech Therapy (2015)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Egyptology (2015)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2015)  
 Bachelor's degree (1 major, 1 minor) History (2015)  
 Bachelor's degree (1 major, 1 minor) Musicology (2015)  
 Bachelor's degree (1 major, 1 minor) Philosophy (2015)  
 Bachelor's degree (1 major, 1 minor) Pre- and Protohistoric Archaeology (2015)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2015)  
 Bachelor's degree (1 major, 1 minor) Philosophy and Religion (2015)  
 Bachelor's degree (1 major, 1 minor) Theological Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2015)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2015)  
 Bachelor's degree (2 majors) Egyptology (2015)  
 Bachelor's degree (2 majors) Pedagogy (2015)  
 Bachelor's degree (2 majors) Protestant Theology (2015)  
 Bachelor's degree (2 majors) Musicology (2015)  
 Bachelor's degree (2 majors) Philosophy (2015)  
 Bachelor's degree (2 majors) Special Education (2015)  
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 Bachelor's degree (2 majors) Russian Language and Culture (2015)  
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 Bachelor's degree (2 majors) European Ethnology (2015)  
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 Bachelor's degree (2 majors) French Studies (2015)  
 Bachelor's degree (2 majors) History (2015)  
 Bachelor's degree (2 majors) Sport Science (Focus on health and Pedagogics in Movement) (2015)  
 Bachelor's degree (2 majors) German Language and Literature (2015)  
 Bachelor's degree (1 major) Mathematical Physics (2016)

Bachelor's degree (1 major, 1 minor) French Studies (2016)  
 Bachelor's degree (2 majors) French Studies (2016)  
 Bachelor's degree (1 major, 1 minor) Italian Studies (2016)  
 Bachelor's degree (2 majors) Italian Studies (2016)  
 Bachelor's degree (1 major, 1 minor) Spanish Studies (2016)  
 Bachelor's degree (2 majors) Spanish Studies (2016)  
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 Bachelor's degree (1 major) Business Information Systems (2016)  
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 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2017)  
 Bachelor's degree (1 major) Aerospace Computer Science (2017)  
 Bachelor's degree (1 major) Biochemistry (2017)  
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 Bachelor's degree (1 major, 1 minor) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)  
 Bachelor's degree (2 majors) Digital Humanities (2018)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2019)  
 Module studies (Bachelor) Biology (2019)  
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 Bachelor's degree (1 major) Physics (2020)  
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 Bachelor's degree (1 major) Biology (2021)  
 Magister Theologiae Catholic Theology (2021)  
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 Bachelor's degree (1 major, 1 minor) Theological Studies (2021)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2021)  
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 Bachelor's degree (1 major) Computer Science und Sustainability (2021)  
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 Bachelor's degree (1 major) Quantum Technology (2021)  
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 Bachelor's degree (2 majors) Ancient Near Eastern Archaeology (2022)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2022)  
 Bachelor's degree (2 majors) Ancient Near Eastern Studies (2022)  
 Bachelor's degree (1 major) Franco-German studies: language, culture, digital competence (2022)  
 Bachelor's degree (1 major) European Law (2023)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2023)  
 Bachelor's degree (2 majors) English and American Studies (2023)  
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 Bachelor's degree (1 major) Economathematics (2023)  
 Bachelor's degree (1 major, 1 minor) History of Medieval and Modern Art (2023)  
 Bachelor's degree (2 majors) History of Medieval and Modern Art (2023)  
 Bachelor's degree (2 majors) Special Education (2023)  
 Bachelor's degree (1 major) Business Management and Economics (2023)  
 Bachelor's degree (1 major) Geography (2023)  
 Bachelor's degree (2 majors) Geography (2023)  
 Bachelor's degree (1 major, 1 minor) Geography (2023)  
 Bachelor's degree (2 majors) European Ethnology/Empiric Cultural Studies (2023)  
 Bachelor's degree (1 major) Mathematical Physics (2024)  
 Bachelor's degree (2 majors) German Language and Literature (2024)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2024)

Bachelor's degree (1 major) Music Education (2024)  
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 Bachelor's degree (1 major, 1 minor) Digital Humanities (2024)  
 Bachelor's degree (1 major) Midwifery (2024)  
 Bachelor's degree (2 majors) Greek Philology (2024)  
 Bachelor's degree (2 majors) Latin Philology (2024)  
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 Bachelor's degree (2 majors) Art Education (2024)  
 Bachelor's degree (1 major) Digital Business & Data Science (2024)  
 Bachelor's degree (1 major) Classics (2024)  
 Bachelor's degree (1 major) Diversity, Ethics and Religions (2024)  
 Bachelor's degree (1 major) Functional Materials (2025)  
 Bachelor's degree (1 major) (2025)  
 Bachelor's degree (1 major) Food Chemistry (2025)  
 Bachelor's degree (1 major, 1 minor) European Ethnology/Empiric Cultural Studies (2025)  
 Bachelor's degree (1 major) Pedagogy (2025)  
 Bachelor's degree (2 majors) Pedagogy (2025)  
 Bachelor's degree (1 major) Economathematics (2025)  
 Bachelor's degree (1 major) Academic Speech Therapy (2025)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2025)  
 Bachelor's degree (1 major) Games Engineering (2025)



Module title			Abbreviation
Additional Qualification in Natural Sciences 5			07-SQF-ZQN5-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	(not) successfully completed	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Courses in the natural sciences not offered as part of the pool of general transferable skills (ASQ) that equip students with advanced knowledge in the natural sciences that is related to their discipline. These courses may be offered by the University of Würzburg or by external institutions. Decision on credit transfer to be made by examination committee.			
Intended learning outcomes			
Students have developed an improved scientific knowledge and have thus enhanced their specific qualifications. They have acquired additional expertise that will help them specialise in their field.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + S (1) + Ü (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
--			
Additional information			
--			
Workload			
150 h			
Teaching cycle			
--			
Referred to in LPO I (examination regulations for teaching-degree programmes)			
--			
Module appears in			
Bachelor's degree (1 major) Biology (2011) Bachelor's degree (1 major) Chemistry (2010) Bachelor's degree (1 major) Psychology (2010) Bachelor's degree (1 major, 1 minor) Pedagogy (2013) Bachelor's degree (1 major, 1 minor) Political and Social Studies (2013) Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2008)			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 329 / 350

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 Bachelor's degree (2 majors) Digital Humanities (2018)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2019)  
 Module studies (Bachelor) Biology (2019)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Information Systems (2019)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Management and Economics (2019)  
 Bachelor's degree (1 major) Modern China (2019)  
 Bachelor's degree (1 major) Biomedicine (2020)  
 Bachelor's degree (1 major) Pedagogy (2020)  
 Bachelor's degree (1 major) Political and Social Studies (2020)  
 Bachelor's degree (1 major) Business Information Systems (2020)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) European Ethnology (2020)  
 Bachelor's degree (2 majors) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) Special Education (2020)  
 Bachelor's degree (1 major) Physics (2020)  
 Bachelor's degree (1 major) Nanostructure Technology (2020)

Bachelor's degree (1 major) Mathematical Physics (2020)  
 Bachelor's degree (1 major) Aerospace Computer Science (2020)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2020)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2020)  
 Bachelor's degree (2 majors) Pedagogy (2020)  
 Bachelor's degree (1 major) Psychology (2020)  
 Bachelor's degree (1 major) Biology (2021)  
 Magister Theologiae Catholic Theology (2021)  
 Bachelor's degree (2 majors) History (2021)  
 Bachelor's degree (1 major, 1 minor) History (2021)  
 Bachelor's degree (1 major) Media Communication (2021)  
 Bachelor's degree (2 majors) Theological Studies (2021)  
 Bachelor's degree (1 major, 1 minor) Theological Studies (2021)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2021)  
 Bachelor's degree (2 majors) English and American Studies (2021)  
 Bachelor's degree (1 major) Functional Materials (2021)  
 Bachelor's degree (1 major) Computer Science und Sustainability (2021)  
 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2021)  
 Bachelor's degree (1 major) Food Chemistry (2021)  
 Bachelor's degree (1 major) Quantum Technology (2021)  
 Bachelor's degree (2 majors) Special Education (2021)  
 Bachelor's degree (1 major) Business Information Systems (2021)  
 Bachelor's degree (1 major) Econometrics (2021)  
 Bachelor's degree (1 major) Business Management and Economics (2021)  
 Bachelor's degree (1 major) Human-Computer Systems (2022)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2022)  
 Bachelor's degree (1 major) Biochemistry (2022)  
 Bachelor's degree (1 major) Biology (2022)  
 Bachelor's degree (1 major) Econometrics (2022)  
 Bachelor's degree (1 major) Mathematical Data Science (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022)  
 Bachelor's degree (2 majors) Ancient Near Eastern Archaeology (2022)  
 exchange program Biosciences (2022)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2022)  
 Bachelor's degree (2 majors) Ancient Near Eastern Studies (2022)  
 Bachelor's degree (1 major) Franco-German studies: language, culture, digital competence (2022)  
 Bachelor's degree (1 major) European Law (2023)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2023)  
 Bachelor's degree (2 majors) English and American Studies (2023)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023)  
 Bachelor's degree (1 major) Mathematics (2023)  
 Bachelor's degree (1 major) Business Information Systems (2023)  
 Bachelor's degree (1 major) Econometrics (2023)  
 Bachelor's degree (1 major, 1 minor) History of Medieval and Modern Art (2023)  
 Bachelor's degree (2 majors) History of Medieval and Modern Art (2023)  
 Bachelor's degree (2 majors) Special Education (2023)  
 Bachelor's degree (1 major) Business Management and Economics (2023)  
 Bachelor's degree (1 major) Geography (2023)  
 Bachelor's degree (2 majors) Geography (2023)  
 Bachelor's degree (1 major, 1 minor) Geography (2023)  
 Bachelor's degree (2 majors) European Ethnology/Empirical Cultural Studies (2023)  
 Bachelor's degree (1 major) Mathematical Physics (2024)  
 Bachelor's degree (2 majors) German Language and Literature (2024)

Bachelor's degree (1 major, 1 minor) German Language and Literature (2024)  
 Bachelor's degree (1 major) Music Education (2024)  
 Bachelor's degree (2 majors) Music Education (2024)  
 Bachelor's degree (1 major, 1 minor) Music Education (2024)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2024)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2024)  
 Bachelor's degree (1 major, 1 minor) Indology/South Asian Studies (2024)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2024)  
 Bachelor's degree (2 majors) Digital Humanities (2024)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2024)  
 Bachelor's degree (1 major) Midwifery (2024)  
 Bachelor's degree (2 majors) Greek Philology (2024)  
 Bachelor's degree (2 majors) Latin Philology (2024)  
 Bachelor's degree (1 major) Business Information Systems (2024)  
 Bachelor's degree (1 major) Econometrics (2024)  
 Bachelor's degree (1 major) Business Management and Economics (2024)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)  
 Bachelor's degree (1 major) Human-Computer-Interaction (2024)  
 Bachelor's degree (2 majors) Art Education (2024)  
 Bachelor's degree (1 major) Digital Business & Data Science (2024)  
 Bachelor's degree (1 major) Classics (2024)  
 Bachelor's degree (1 major) Diversity, Ethics and Religions (2024)  
 Bachelor's degree (1 major) Functional Materials (2025)  
 Bachelor's degree (1 major) (2025)  
 Bachelor's degree (1 major) Food Chemistry (2025)  
 Bachelor's degree (1 major, 1 minor) European Ethnology/Empirical Cultural Studies (2025)  
 Bachelor's degree (1 major) Pedagogy (2025)  
 Bachelor's degree (2 majors) Pedagogy (2025)  
 Bachelor's degree (1 major) Econometrics (2025)  
 Bachelor's degree (1 major) Academic Speech Therapy (2025)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2025)  
 Bachelor's degree (1 major) Games Engineering (2025)

Module title			Abbreviation
Additional Qualification in Natural Sciences 6			07-SQF-ZQN6-152-m01
Module coordinator		Module offered by	
Coordinator BioCareers		Faculty of Biology	
ECTS	Method of grading	Only after succ. compl. of module(s)	
5	numerical grade	--	
Duration	Module level	Other prerequisites	
1 semester	undergraduate	--	
Contents			
Courses in the natural sciences not offered as part of the pool of general transferable skills (ASQ) that equip students with advanced knowledge in the natural sciences that is related to their discipline. These courses may be offered by the University of Würzburg or by external institutions. Decision on credit transfer to be made by examination committee.			
Intended learning outcomes			
Students have developed an improved scientific knowledge and have thus enhanced their specific qualifications. They have acquired additional expertise that will help them specialise in their field.			
Courses (type, number of weekly contact hours, language — if other than German)			
V (1) + S (1) + Ü (1) Module taught in: German and/or English			
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)			
a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete will vary according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course. Language of assessment: German and/or English creditable for bonus			
Allocation of places			
--			
Additional information			
--			
Workload			
150 h			
Teaching cycle			
--			
Referred to in LPO I (examination regulations for teaching-degree programmes)			
--			
Module appears in			
Bachelor's degree (1 major) Biology (2011) Bachelor's degree (1 major) Chemistry (2010) Bachelor's degree (1 major) Psychology (2010) Bachelor's degree (1 major, 1 minor) Pedagogy (2013) Bachelor's degree (1 major, 1 minor) Political and Social Studies (2013) Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2008)			
Bachelor's with 1 major Biology (2015)		JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 334 / 350



Bachelor's degree (2 majors) Special Education (2009)  
 Magister Theologiae Catholic Theology (2013)  
 Bachelor's degree (2 majors) English and American Studies (2009)  
 Bachelor's degree (2 majors) German Language and Literature (2013)  
 Bachelor's degree (1 major) Biology (2015)  
 Bachelor's degree (1 major) Chemistry (2015)  
 Bachelor's degree (1 major) Geography (2015)  
 Bachelor's degree (1 major) Mathematics (2015)  
 Bachelor's degree (1 major) Musicology (2015)  
 Bachelor's degree (1 major) Physics (2015)  
 Bachelor's degree (1 major) Psychology (2015)  
 Bachelor's degree (1 major) Business Management and Economics (2015)  
 Bachelor's degree (1 major) Nanostructure Technology (2015)  
 Bachelor's degree (1 major) Music Education (2015)  
 Bachelor's degree (1 major) Computational Mathematics (2015)  
 Bachelor's degree (1 major) Political and Social Studies (2015)  
 Bachelor's degree (1 major) Functional Materials (2015)  
 Bachelor's degree (1 major) Academic Speech Therapy (2015)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Egyptology (2015)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2015)  
 Bachelor's degree (1 major, 1 minor) History (2015)  
 Bachelor's degree (1 major, 1 minor) Musicology (2015)  
 Bachelor's degree (1 major, 1 minor) Philosophy (2015)  
 Bachelor's degree (1 major, 1 minor) Pre- and Protohistoric Archaeology (2015)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2015)  
 Bachelor's degree (1 major, 1 minor) Philosophy and Religion (2015)  
 Bachelor's degree (1 major, 1 minor) Theological Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2015)  
 Bachelor's degree (1 major, 1 minor) Russian Language and Culture (2015)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2015)  
 Bachelor's degree (2 majors) Egyptology (2015)  
 Bachelor's degree (2 majors) Pedagogy (2015)  
 Bachelor's degree (2 majors) Protestant Theology (2015)  
 Bachelor's degree (2 majors) Musicology (2015)  
 Bachelor's degree (2 majors) Philosophy (2015)  
 Bachelor's degree (2 majors) Special Education (2015)  
 Bachelor's degree (2 majors) Pre- and Protohistoric Archaeology (2015)  
 Bachelor's degree (2 majors) Latin Philology (2015)  
 Bachelor's degree (2 majors) Music Education (2015)  
 Bachelor's degree (2 majors) Philosophy and Religion (2015)  
 Bachelor's degree (2 majors) Theological Studies (2015)  
 Bachelor's degree (2 majors) Political and Social Studies (2015)  
 Bachelor's degree (2 majors) Russian Language and Culture (2015)  
 Bachelor's degree (2 majors) Greek Philology (2015)  
 Bachelor's degree (2 majors) European Ethnology (2015)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2015)  
 Bachelor's degree (2 majors) Geography (2015)  
 Bachelor's degree (2 majors) French Studies (2015)  
 Bachelor's degree (2 majors) History (2015)  
 Bachelor's degree (2 majors) Sport Science (Focus on health and Pedagogics in Movement) (2015)  
 Bachelor's degree (2 majors) German Language and Literature (2015)  
 Bachelor's degree (1 major) Mathematical Physics (2016)

Bachelor's degree (1 major, 1 minor) French Studies (2016)  
 Bachelor's degree (2 majors) French Studies (2016)  
 Bachelor's degree (1 major, 1 minor) Italian Studies (2016)  
 Bachelor's degree (2 majors) Italian Studies (2016)  
 Bachelor's degree (1 major, 1 minor) Spanish Studies (2016)  
 Bachelor's degree (2 majors) Spanish Studies (2016)  
 Bachelor's degree (1 major) Romanic Languages (French/Italian) (2016)  
 Bachelor's degree (1 major) Romanic Languages (French/Spanish) (2016)  
 Bachelor's degree (1 major) Romanic Languages (Italian/Spanish) (2016)  
 Bachelor's degree (1 major) Business Information Systems (2016)  
 Bachelor's degree (1 major) Games Engineering (2016)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2016)  
 Bachelor's degree (2 majors) English and American Studies (2016)  
 Bachelor's degree (1 major) Media Communication (2016)  
 Bachelor's degree (1 major) Food Chemistry (2016)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2016)  
 Bachelor's degree (1 major) Biology (2017)  
 Bachelor's degree (1 major, 1 minor) Geography (2017)  
 Bachelor's degree (1 major, 1 minor) History of Medieval and Modern Art (2017)  
 Bachelor's degree (2 majors) History of Medieval and Modern Art (2017)  
 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2017)  
 Bachelor's degree (1 major) Aerospace Computer Science (2017)  
 Bachelor's degree (1 major) Biochemistry (2017)  
 Bachelor's degree (1 major) Chemistry (2017)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2017)  
 Bachelor's degree (1 major) Econometrics (2017)  
 Bachelor's degree (1 major) Games Engineering (2017)  
 Bachelor's degree (1 major) Computer Science (2017)  
 Bachelor's degree (1 major) Media Communication (2018)  
 Bachelor's degree (1 major) Biomedicine (2018)  
 Bachelor's degree (1 major) Human-Computer Systems (2018)  
 Bachelor's degree (2 majors) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Classical Archaeology (2018)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)  
 Bachelor's degree (2 majors) Digital Humanities (2018)  
 Bachelor's degree (1 major) Computer Science (2019)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2019)  
 Module studies (Bachelor) Biology (2019)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Information Systems (2019)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2019)  
 Bachelor's degree (1 major) Business Management and Economics (2019)  
 Bachelor's degree (1 major) Modern China (2019)  
 Bachelor's degree (1 major) Biomedicine (2020)  
 Bachelor's degree (1 major) Pedagogy (2020)  
 Bachelor's degree (1 major) Political and Social Studies (2020)  
 Bachelor's degree (1 major) Business Information Systems (2020)  
 Bachelor's degree (1 major, 1 minor) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) European Ethnology (2020)  
 Bachelor's degree (2 majors) Political and Social Studies (2020)  
 Bachelor's degree (2 majors) Special Education (2020)  
 Bachelor's degree (1 major) Physics (2020)  
 Bachelor's degree (1 major) Nanostructure Technology (2020)

Bachelor's degree (1 major) Mathematical Physics (2020)  
 Bachelor's degree (1 major) Aerospace Computer Science (2020)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2020)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2020)  
 Bachelor's degree (2 majors) Pedagogy (2020)  
 Bachelor's degree (1 major) Psychology (2020)  
 Bachelor's degree (1 major) Biology (2021)  
 Magister Theologiae Catholic Theology (2021)  
 Bachelor's degree (2 majors) History (2021)  
 Bachelor's degree (1 major, 1 minor) History (2021)  
 Bachelor's degree (1 major) Media Communication (2021)  
 Bachelor's degree (2 majors) Theological Studies (2021)  
 Bachelor's degree (1 major, 1 minor) Theological Studies (2021)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2021)  
 Bachelor's degree (2 majors) English and American Studies (2021)  
 Bachelor's degree (1 major) Functional Materials (2021)  
 Bachelor's degree (1 major) Computer Science und Sustainability (2021)  
 Bachelor's degree (2 majors) Comparative Indo-European Linguistics (2021)  
 Bachelor's degree (1 major) Food Chemistry (2021)  
 Bachelor's degree (1 major) Quantum Technology (2021)  
 Bachelor's degree (2 majors) Special Education (2021)  
 Bachelor's degree (1 major) Business Information Systems (2021)  
 Bachelor's degree (1 major) Economathematics (2021)  
 Bachelor's degree (1 major) Business Management and Economics (2021)  
 Bachelor's degree (1 major) Human-Computer Systems (2022)  
 Bachelor's degree (1 major, 1 minor) Museology and material culture (2022)  
 Bachelor's degree (1 major) Biochemistry (2022)  
 Bachelor's degree (1 major) Biology (2022)  
 Bachelor's degree (1 major) Economathematics (2022)  
 Bachelor's degree (1 major) Mathematical Data Science (2022)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022)  
 Bachelor's degree (2 majors) Ancient Near Eastern Archaeology (2022)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2022)  
 Bachelor's degree (2 majors) Ancient Near Eastern Studies (2022)  
 Bachelor's degree (1 major) Franco-German studies: language, culture, digital competence (2022)  
 Bachelor's degree (1 major) European Law (2023)  
 Bachelor's degree (1 major, 1 minor) English and American Studies (2023)  
 Bachelor's degree (2 majors) English and American Studies (2023)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023)  
 Bachelor's degree (1 major) Mathematics (2023)  
 Bachelor's degree (1 major) Business Information Systems (2023)  
 Bachelor's degree (1 major) Economathematics (2023)  
 Bachelor's degree (1 major, 1 minor) History of Medieval and Modern Art (2023)  
 Bachelor's degree (2 majors) History of Medieval and Modern Art (2023)  
 Bachelor's degree (2 majors) Special Education (2023)  
 Bachelor's degree (1 major) Business Management and Economics (2023)  
 Bachelor's degree (1 major) Geography (2023)  
 Bachelor's degree (2 majors) Geography (2023)  
 Bachelor's degree (1 major, 1 minor) Geography (2023)  
 Bachelor's degree (2 majors) European Ethnology/Empiric Cultural Studies (2023)  
 Bachelor's degree (1 major) Mathematical Physics (2024)  
 Bachelor's degree (2 majors) German Language and Literature (2024)  
 Bachelor's degree (1 major, 1 minor) German Language and Literature (2024)

Bachelor's degree (1 major) Music Education (2024)  
 Bachelor's degree (2 majors) Music Education (2024)  
 Bachelor's degree (1 major, 1 minor) Music Education (2024)  
 Bachelor's degree (1 major) Indology/South Asian Studies (2024)  
 Bachelor's degree (2 majors) Indology/South Asian Studies (2024)  
 Bachelor's degree (1 major, 1 minor) Indology/South Asian Studies (2024)  
 Bachelor's degree (1 major, 1 minor) Ancient World (2024)  
 Bachelor's degree (2 majors) Digital Humanities (2024)  
 Bachelor's degree (1 major, 1 minor) Digital Humanities (2024)  
 Bachelor's degree (1 major) Midwifery (2024)  
 Bachelor's degree (2 majors) Greek Philology (2024)  
 Bachelor's degree (2 majors) Latin Philology (2024)  
 Bachelor's degree (1 major) Business Information Systems (2024)  
 Bachelor's degree (1 major) Economathematics (2024)  
 Bachelor's degree (1 major) Business Management and Economics (2024)  
 Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)  
 Bachelor's degree (1 major) Human-Computer-Interaction (2024)  
 Bachelor's degree (2 majors) Art Education (2024)  
 Bachelor's degree (1 major) Digital Business & Data Science (2024)  
 Bachelor's degree (1 major) Classics (2024)  
 Bachelor's degree (1 major) Diversity, Ethics and Religions (2024)  
 Bachelor's degree (1 major) Functional Materials (2025)  
 Bachelor's degree (1 major) (2025)  
 Bachelor's degree (1 major) Food Chemistry (2025)  
 Bachelor's degree (1 major, 1 minor) European Ethnology/Empiric Cultural Studies (2025)  
 Bachelor's degree (1 major) Pedagogy (2025)  
 Bachelor's degree (2 majors) Pedagogy (2025)  
 Bachelor's degree (1 major) Economathematics (2025)  
 Bachelor's degree (1 major) Academic Speech Therapy (2025)  
 Bachelor's degree (1 major, 1 minor) Pedagogy (2025)  
 Bachelor's degree (1 major) Games Engineering (2025)

Module title		Abbreviation
Inorganic Chemistry for Biology Majors		o8-AC-Bio-152-mo1
Module coordinator		Module offered by
lecturer of lecture "Allgemeine und Anorganische Chemie für Studierende der Medizin, Zahnmedizin und Biologie" (General and Inorganic Chemistry for Students of Medicine, Dentistry and Biology)		Institute of Inorganic Chemistry
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
2 semester	undergraduate	Successful completion of the written examination serves as proof of all safety-related skills and is a prerequisite for attendance of the lab course.
Contents		
This module provides students with an overview of the theoretical principles of inorganic chemistry. In addition, it introduces the fundamental techniques of inorganic chemistry in a lab course.		
Intended learning outcomes		
Students have become familiar with the fundamental principles of inorganic chemistry. They are able to identify fundamental problems in chemistry and perform experiments to solve them.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (2) + P (3)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) and assessment of practical skills during lab course (ungraded): Vor-testate/Nachtestate (pre and post-experiment exams, approx. 15 minutes each), assessment of practical assignments, log (approx. 5 to 10 pages) Assessment offered: Once a year, summer semester		
Allocation of places		
--		
Additional information		
--		
Workload		
150 h		
Teaching cycle		
--		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
--		
Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021)		

Module title		Abbreviation
<b>Biochemistry 1</b>		o8-BC1-152-m01
Module coordinator		Module offered by
holder of the Chair of Biochemistry		Chair of Biochemistry
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Comprising lectures and exercises, this module acquaints students with the fundamental principles of biochemistry. A particular focus is on the biochemistry of proteins (amino acids, peptide bonds, primary, secondary, tertiary and quaternary structures), catalytic strategies and enzyme kinetics, carbohydrate metabolism (glycolysis, gluconeogenesis, citric acid cycle, cellular respiration, photosynthesis), fatty acid metabolism (beta oxidation, fatty acid synthesis), nucleotide metabolism, the urea cycle and amino acid metabolism. The module also discusses the structure of the DNA and the central dogma of molecular biology.		
<b>Intended learning outcomes</b>		
Students have become familiar with the fundamental principles of the topics in biochemistry that were discussed in the module. They are able to describe the key biochemical processes in cellular systems.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (2) + Ü (1)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 to 90 minutes)		
<b>Allocation of places</b>		
--		
<b>Additional information</b>		
according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. II 2nd letter e) and No. II 1st letter c) of annex 1 to the APOLmCh and No. 3 of annex 3 to the APOLmCh		
<b>Workload</b>		
150 h		
<b>Teaching cycle</b>		
--		
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
§ 42 I Nr. 2 § 62 I Nr. 2		
<b>Module appears in</b>		
Bachelor's degree (1 major) Biochemistry (2015) Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Chemistry (2015) Bachelor's degree (1 major) Food Chemistry (2015) Bachelor's degree (1 major) Functional Materials (2015) First state examination for the teaching degree Grundschule Chemistry (2015) First state examination for the teaching degree Realschule Chemistry (2015) First state examination for the teaching degree Gymnasium Chemistry (2015) First state examination for the teaching degree Mittelschule Chemistry (2015) Bachelor's degree (1 major) Food Chemistry (2016) Bachelor's degree (1 major) Biology (2017)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 340 / 350



Bachelor's degree (1 major) Biochemistry (2017)  
 Bachelor's degree (1 major) Chemistry (2017)  
 Module studies (Bachelor) Chemistry (2019)  
 Bachelor's degree (1 major) Food Chemistry (2019)  
 Module studies (Bachelor) Orientierungsstudien (2020)  
 First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))  
 Bachelor's degree (1 major) Biology (2021)  
 Bachelor's degree (1 major) Functional Materials (2021)  
 Bachelor's degree (1 major) Food Chemistry (2021)  
 Bachelor's degree (1 major) Biochemistry (2022)  
 Bachelor's degree (1 major) Biology (2022)  
 Bachelor's degree (1 major) Functional Materials (2025)  
 Bachelor's degree (1 major) Food Chemistry (2025)

Module title		Abbreviation
Biochemistry 2		o8-BC2-152-m01
Module coordinator		Module offered by
holder of the Chair of Biochemistry		Chair of Biochemistry
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Comprising lectures and exercises, this module acquaints students with the fundamental principles of biochemistry. A particular focus is on replication, DNA repair, transcription, mRNA maturation, translation and translational regulation, protein targeting, nuclear transport and protein degradation. The module also discusses the fundamental principles of cellular signal transduction.		
<b>Intended learning outcomes</b>		
Students have become familiar with the fundamental principles of the topics in biochemistry that were discussed in the module. They are able to describe the key biochemical processes in cellular systems.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (2) + Ü (1)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 to 90 minutes)		
<b>Allocation of places</b>		
--		
<b>Additional information</b>		
Pursuant to Section 2 Subsection 2 Sentence 2 Verordnung über die Ausbildung und Prüfung der Staatlich geprüften Lebensmittelchemikerinnen und Lebensmittelchemiker (Regulation on the training and examination of state-certified food chemists, APOLmCh) in conjunction with No. II 2. Letter e) and No. II 1. Letter c) of Annex 1 of APOLmCh and No. 3 of Annex 3 of APOLmCh.		
<b>Workload</b>		
150 h		
<b>Teaching cycle</b>		
--		
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
--		
<b>Module appears in</b>		
Bachelor's degree (1 major) Biochemistry (2015) Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Chemistry (2015) Bachelor's degree (1 major) Food Chemistry (2015) Bachelor's degree (1 major) Food Chemistry (2016) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biochemistry (2017) Bachelor's degree (1 major) Chemistry (2017) Bachelor's degree (1 major) Food Chemistry (2019) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Food Chemistry (2021) Bachelor's degree (1 major) Biochemistry (2022)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 342 / 350

Bachelor's degree (1 major) Biology (2022)  
Bachelor's degree (1 major) Food Chemistry (2025)

Module title		Abbreviation
Biochemical Practical Course for Students in Biology		o8-BCPB-152-m01
Module coordinator		Module offered by
holder of the Chair of Biochemistry		Chair of Biochemistry
ECTS	Method of grading	Only after succ. compl. of module(s)
5	(not) successfully completed	o8-BC1
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Practical exercises give students the opportunity to learn the fundamental principles of conducting biochemical experiments.		
<b>Intended learning outcomes</b>		
Students have become proficient in essential methods in biochemistry.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
P (6)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
Log (approx. 30 pages) Assessment offered: Once a year, summer semester		
<b>Allocation of places</b>		
Biologie: 6 places. (grade), should the number of applications exceed the number of available places, applicants will be ranked according to the grade achieved in module o8-BC1. Places will be allocated according to this ranking. Among applicants with the same ranking, places will be allocated by lot.		
<b>Additional information</b>		
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<b>Workload</b>		
150 h		
<b>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
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<b>Module appears in</b>		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
<b>Organic Chemistry for Students of Biology</b>		o8-OC-Bio-152-m01
Module coordinator		Module offered by
lecturer of lecture "Organische Chemie für Studierende der Medizin, Biomedizin, Zahnmedizin, Ingenieur- und Naturwissenschaften"		Institute of Organic Chemistry
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
2 semester	undergraduate	Successful completion of the written examination serves as proof of all safety-related skills and is a prerequisite for attendance of the lab course.
Contents		
This module provides students with an overview of the theoretical principles of organic chemistry. In addition, it introduces the fundamental techniques of organic chemistry in a lab course.		
Intended learning outcomes		
Students have become familiar with the fundamental principles of organic chemistry. They are able to identify fundamental problems in chemistry and perform experiments to solve them.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (2) + V (3) + P (5)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) and assessment of practical skills during lab course (ungraded): Vor-testate/Nachtestate (pre and post-experiment exams, approx. 15 minutes each), assessment of practical assignments, log (approx. 5 to 10 pages) Assessment offered: Once a year, winter semester		
Allocation of places		
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Additional information		
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Workload		
300 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021)		

Module title		Abbreviation
Physical Chemistry for Biology Majors		o8-PC-Bio-152-mo1
Module coordinator		Module offered by
lecturer of lecture "Thermodynamik, Kinetik, Elektrochemie für Studierende der Biologie und Lebensmittelchemie"		Institute of Physical and Theoretical Chemistry
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	Successful completion of the written examination serves as proof of all safety-related skills and is a prerequisite for attendance of the lab course.
Contents		
This module discusses the fundamental principles of thermodynamics, kinetics and electrochemistry.		
Intended learning outcomes		
Students have become familiar with the fundamental principles of thermodynamics, kinetics and electrochemistry. They are able to understand and explain fundamental processes in nature and engineering.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (2) + Ü (1) + P (1)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 minutes) and assessment of practical skills during lab course (ungraded): Vortestate/Nachtestate (pre and post-experiment exams, approx. 15 minutes each), assessment of practical assignments, log (approx. 5 to 10 pages) Assessment offered: Once a year, winter semester		
Allocation of places		
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Additional information		
Pursuant to Section 2 Subsection 2 Sentence 2 Verordnung über die Ausbildung und Prüfung der Staatlich geprüften Lebensmittelchemikerinnen und Lebensmittelchemiker (Regulation on the training and examination of state-certified food chemists, APOLmCh) in conjunction with No. I 2. Letter c) and No. I 1. Letter c) of Annex 1 of APOLmCh and No. 3 of Annex 2 of APOLmCh.		
Workload		
150 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Food Chemistry (2015) Bachelor's degree (1 major) Food Chemistry (2016) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Food Chemistry (2019) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Food Chemistry (2021)		



Module title		Abbreviation
Mathematics for students in Chemistry and Biology		10-M-MCB-152-m01
Module coordinator		Module offered by
Dean of Studies Mathematik (Mathematics)		Institute of Mathematics
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Functional relations, differentiation and integration of functions in one variable, curve sketching, differentiation of functions in several variables, power series, ordinary differential equations, systems of linear equations, basic notions in statistics.		
<b>Intended learning outcomes</b>		
The student is able to recognise and phrase simple questions from natural sciences as mathematical problems, apply basic mathematical methods to them and interpret the results.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (3) + Ü (2)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 90 to 120 minutes) and written exercises (approx. 25)		
<b>Allocation of places</b>		
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<b>Additional information</b>		
Pursuant to Section 2 Subsection 2 Sentence 2 Verordnung über die Ausbildung und Prüfung der Staatlich geprüften Lebensmittelchemikerinnen und Lebensmittelchemiker (Regulation on the training and examination of state-certified food chemists, APOLmCh) in conjunction with No. I 2. Letter f) of Annex 1 of APOLmCh.		
<b>Workload</b>		
150 h		
<b>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
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<b>Module appears in</b>		
Bachelor's degree (1 major) Biochemistry (2015) Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Chemistry (2015) Bachelor's degree (1 major) Food Chemistry (2015) Bachelor's degree (1 major) Food Chemistry (2016) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major, 1 minor) Digital Humanities (2018) Bachelor's degree (1 major, 1 minor) Digital Humanities (Minor, 2018) Bachelor's degree (2 majors) Digital Humanities (2018) Bachelor's degree (1 major) Food Chemistry (2019) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Food Chemistry (2021) Bachelor's degree (1 major) Biology (2022) exchange program Mathematics (2023)		
Bachelor's with 1 major Biology (2015)	JMU Würzburg • generated 18-Apr-2025 • exam. reg. data record Bachelor (180 ECTS) Biologie - 2015	page 347 / 350

Bachelor's degree (1 major) Food Chemistry (2025)

Module title		Abbreviation
Introduction to Physics for Students of Biology		11-ENF-Bio1-152-m01
Module coordinator		Module offered by
Managing Director of the Institute of Applied Physics		Faculty of Physics and Astronomy
ECTS	Method of grading	Only after succ. compl. of module(s)
2	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
<b>Contents</b>		
Fundamentals of mechanics and vibration theory.		
<b>Intended learning outcomes</b>		
The students understand the basic contexts of mechanics and have knowledge of experimental observations.		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (4)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
written examination (approx. 60 to 120 minutes)		
<b>Allocation of places</b>		
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<b>Additional information</b>		
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<b>Workload</b>		
60 h		
<b>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
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<b>Module appears in</b>		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		

Module title		Abbreviation
Introduction to Physics for Students of Biology		11-ENF-Bio2-152-m01
Module coordinator		Module offered by
Managing Director of the Institute of Applied Physics		Faculty of Physics and Astronomy
ECTS	Method of grading	Only after succ. compl. of module(s)
4	(not) successfully completed	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Fundamentals of optics.		
Intended learning outcomes		
The students understand the basic contexts of optics and have knowledge of experimental observations. They have detected and understood physical contexts on the basis of the implementation of own experiments. They have a basic understanding of physical phenomena and know the basic ideas and ways of functioning of different measuring and imaging methods as well as their applications, especially in the field of Biomedicine.		
Courses (type, number of weekly contact hours, language — if other than German)		
V (3) + P (4)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)		
oral test during experiments (approx. 15 minutes) and written examination (90 minutes). Each experiment comprises preparation, performance and evaluation. Test as well as performance of experiments can each be repeated once. a) practical assignment with oral test (approx. 15 minutes) and b) written examination (approx. 90 minutes)		
Allocation of places		
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Additional information		
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Workload		
120 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Bachelor's degree (1 major) Biology (2015) Bachelor's degree (1 major) Biology (2017) Bachelor's degree (1 major) Biology (2021) Bachelor's degree (1 major) Biology (2022)		