Introduction

Master Biology

Program coordinator

Elisabeth Brunner

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Office hours:
Wednesday, Thursday 8 am – 1 pm
Friday 8 am – 3 pm

During office hours you can come any time for a personal consultation.

For a consultation on the phone or per zoom you can contact me Monday to Friday, 8 am to 5 pm

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Master Biology

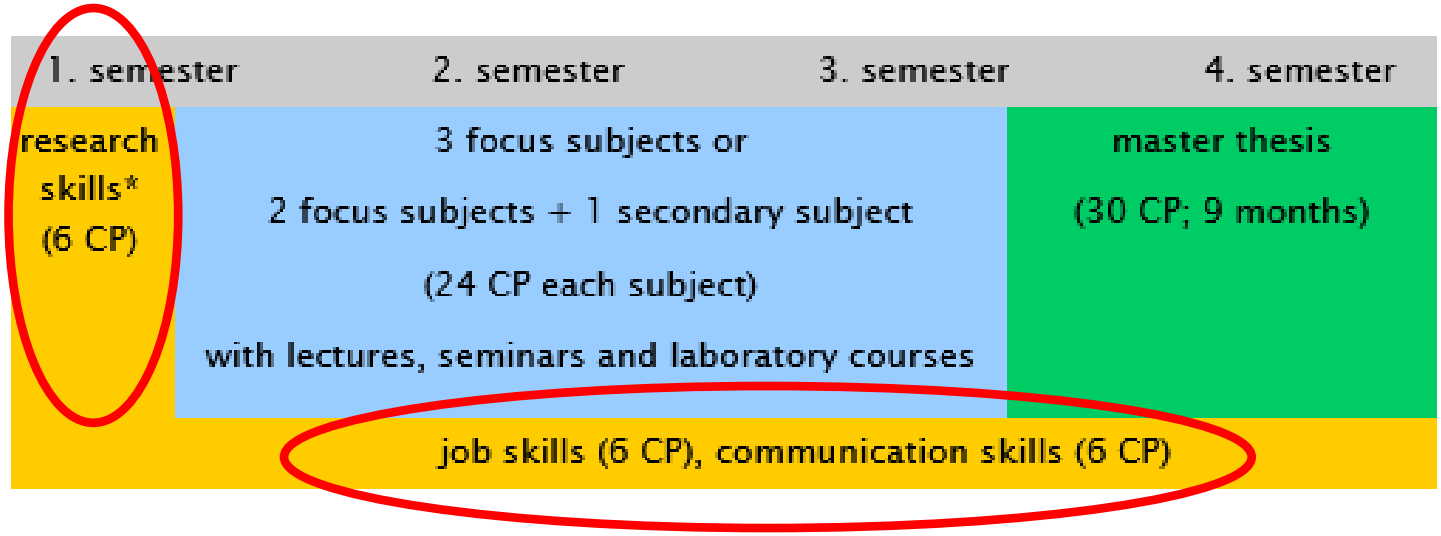
Fakultät für Biologie und Vorklinische Medizin

- → Information for first-year students
- → Skills Modules
- → Subjects
- → Master thesis
- → Downloads
- → Contact us
- → Semester abroad
- → Writing advice (protcols, master's thesis)

Overview - Master Biology

<table>
<tr><th>1. semester</th><th>2. semester</th><th>3. semester</th><th>4. semester</th></tr>
<tr><td>research skills*
(6 CP)</td><td colspan="2">3 focus subjects or
2 focus subjects + 1 secondary subject
(24 CP each subject)
with lectures, seminars and laboratory courses</td><td>master thesis
(30 CP; 9 months)</td></tr>
<tr><td colspan="4">job skills (6 CP), communication skills (6 CP)</td></tr>
</table>

Skills Modules – Master Biology



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Skills Modules

Research Skills (6 CP)	
Research Skills course, 3 weeks in a block (after the lecture period of the winter semester; March) Course contents: - Introduction to philosophy and history of science, the scientific method - Finding a good research question - Literature research and organization - Design of experiments and reproducibility - Data analysis in R - Visualization - Introduction to LaTeX - Scientific writing - Logic and clarity - Scientific presentations - Good scientific practice	flexnow

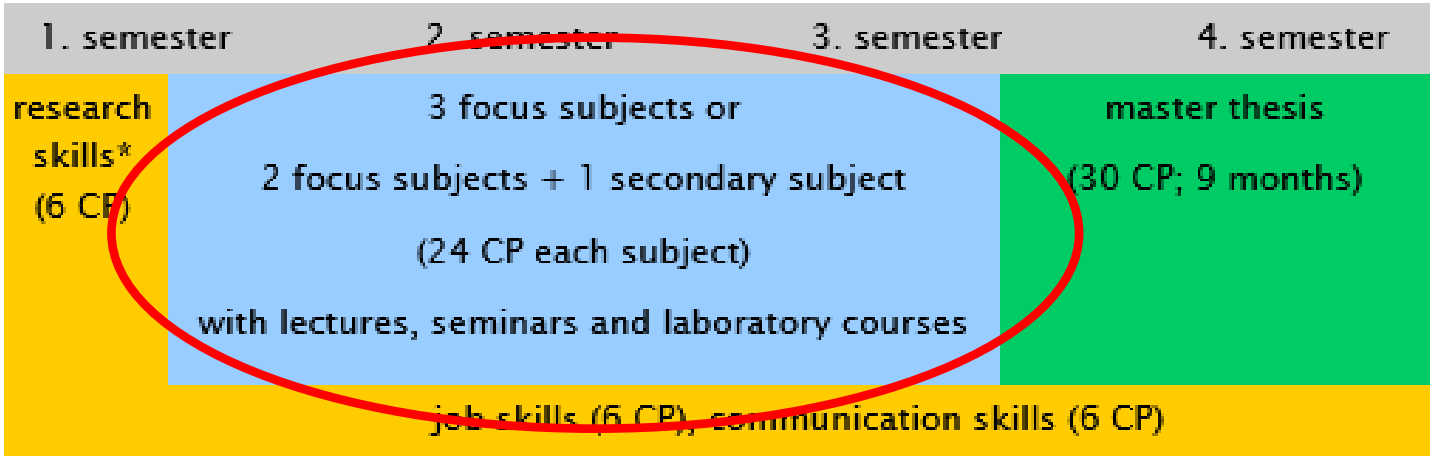
Skills Modules

Communication Skills (6 CP)		
Essay (2 CP)	Under supervision, you must write a scientific essay. This can be accompanying to a seminar or a lecture. Just ask the person in charge of the course. (max. 10 pages)	flexnow
Preparation and presentation of a poster (2 CP)	Under supervision, you must prepare a scientific poster and present it at a scientific meeting or at the faculty hour. The poster can be prepared accompanying to a seminar or a lab course. Just ask the person in charge of a seminar or ask your supervisor of the lab course.	flexnow
Outline of the master thesis project (2 CP)	Before you begin your Master's thesis, you should draw up an outline of your thesis project. The outline should be around two pages long and should cover, for example, the background, the objectives, possible methods and the implementation of the project. The outline will be corrected by your supervisor and discussed with you.	flexnow

Skills Modules

Job Skills (6 CP)		
Excursions *and/or* **job qualifying course** *and/or* **internship**	In this module you can choose from different courses. • botanical / zoological excursions • industrial excursion • job qualifiying course (e.g. language courses, IT-courses, courses for applications skills, career day for biologists) • internship "Berufspraktikum" (in companies with roles for biologists)	Excursions: flexnow All other: certificate of participation

Subjects



Focus / Secondary Subject:
Within each subject, you must choose one theoretical and one practical module.

Focus / Secondary Subject

Theoretical Module (12 CP)			
Lectures (2 or more)	no enrolment	Portfolio; not graded (collection of exercises and reflective tasks completed alongside the lectures). Please ask the module coordinator about the requirements.	flexnow
Seminar	enrolment (see SPUR)	seminar presentation	flexnow
Module examination	registration with examiner	oral examination; graded	flexnow

Focus / Secondary Subject

Practical Module (12 CP)			
Laboratory course with seminar	registration with supervisor	Portfolio; graded (project execution; protocol; seminar presentation) The supervisor of the laboratory course can use a template for the evaluation. The completed evaluation should then be given to the student as feedback.	flexnow

Universität Regensburg

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List of Focus Subjects

- Biochemistry
- Bioinformatics
- Biophysics
- Microbiology
- Genetics
- Epigenetics (new from WS 26/27)
- Molecular Human Biology
- Neurobiology
- Cell and Developmental Biology
- Cellular Plant Biochemistry and Genetics
- Ecology and Nature Conservation
- Evolutionary and Systematic Botany
- Theoretical Ecology
- Molecular Ecology and Evolutionary Biology of Biotic Interactions (new from WS 26/27)
- Conservation Biology and Biodiversity (new from WS 26/27)
- Molecular Ecology and Evolutionary Biology
- Biodiversity
- Zoology

List of Minor Subjects

- Human Genetics
- Immunology
- Medical Microbiology
- Cognitive and Translational Neuroscience

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Biochemistry

Organising working groups:

Prof. Dr. Reinhard Sterner

Prof. Dr. Gunter Meister

Prof. Dr. Neva Caliskan

Prof. Dr. Gernot Längst

Prof. Dr. Christoph Engel

Choose one Theory Module:

Theory Module - Protein Biochemistry and Enzymology

Theory Module - RNA Biochemistry

Theory Module - RNA–Protein Interactions in Time and Space

Choose one Practical Module:

Practical Module - Protein Biochemistry and Enzymology

Practical Module - RNA Biology

Practical Module - Single molecule analysis of RNA-protein complexes

Practical Module - Chromatin Dynamics and Nuclear Architecture

Practical Module - Ribosome Biogenesis

Practical Module - Structural Biochemistry

Theory Module - Protein Biochemistry and Enzymology

BIO-M-TM-PBE

Module coordinator: Prof. Dr Reinhard Sterner

It is recommended to simultaneously attend the practical module BIO-M-PM-PBE Protein Biochemistry and Enzymology.

Module contents

Lectures:

- Methods of physical biochemistry: e.g. optical spectroscopy, hydrodynamics, chromatography, electrophoresis
- Structure and stability of biomolecules: e.g. protein folding, protein stability, nucleic acid-protein interactions

Seminar:

- Presentation and discussion of a research-based topic in the field of protein biochemistry and enzymology

No.	Module component	CP	registration / proof of academic achievement
1.	at least two lectures in the field of protein biochemistry and enzymology (for a selection see SPUR)*	6	Students starting **before** the winter semester 26/27: Registration is not required for the lectures. There is no exam to sit. However, the content of the lectures may form part of the oral exam. Students starting **in** the winter semester 26/27 **or later**: Portfolio (collection of exercises and reflective tasks completed alongside the lectures). Please ask the module coordinator about the requirements. Once it has been finalised, the portfolio must be registered in FlexNow. The portfolio is not graded.
2.	one seminar in the field of protein biochemistry and enzymology (for a selection see SPUR)*	2	seminar presentation, regular participation You must register for the seminars. Information on how to register see in SPUR. Once you have attended a seminar, it must be registered in FlexNow. The seminar is not graded.
3.	30 min oral examination covering the entire module (graded)	4	Examiners: Prof. Dr Reinhard Sterner PD Dr. Patrick Babinger Prof. Dr. Christine Ziegler The student can choose one of the examiner. Please get in contact with the examiner of your choice to arrange a date of the oral examination, than register the examination in FlexNow. The oral examination is graded (= module grade).

***Note!** If you are unsure which lectures and seminars to choose, please contact the module coordinator for advice. Your choice may depend on which examiner you select for the module examination.

- Theoretical Modules (TM) - Biochemistry
  - BIO-M-TM-PBE gültig ab SS 2018 Theoretisches Modul / Theoretical module: Protein Biochemistry and Enzymology
    - BIO-M-TM-PBE.2 gültig ab SS 2018 Seminar aus dem Bereich der Proteinbiochemie und Enzymologie / seminar in the field of protein biochemistry and e
    - BIO-M-TM-PBE.MP gültig ab SS 2018 Modulprüfung: Proteinbiochemie und Enzymologie / Protein Biochemistry and Enzymology
    - BIO-M-TM-PBE.1 gültig ab SS 2018 mind. zwei Vorlesungen aus dem Bereich der Proteinbiochemie und Enzymologie/ at least two lectures in the field of p biochemistry and enzymology
      - 54204 Spezialvorlesung: Physikalische Biochemie I (Methoden) - Spezialvorlesung
      - 54205 Spezialvorlesung: Physikalische Biochemie II (Biomoleküle) - Spezialvorlesung
      - 54254 Introduction to structural biology of macromolecular machines: From cryo-EM to molecular dynamics simulation - Blockveranstaltung
    - BIO-M-TM-PBE.2 gültig ab SS 2018 Seminar aus dem Bereich der Proteinbiochemie und Enzymologie / seminar in the field of protein biochemistry and e
      - 54190 Literaturseminar: Proteindesign / Funktionsaufklärung von Enzymen - Seminar
      - 54206 Literaturseminar: Physikalische Biochemie II - Seminar
      - 54212 Lehrstuhlseminar: Laufende wissenschaftliche Arbeiten der Biochemie (Enzymforschung) - Lehrstuhlseminar
      - 54217 Literaturseminar: Physikalische Biochemie I - Seminar
      - 54234 Literaturseminar: Funktion, Design und Evolution von Proteinen - Seminar
      - 54254 Introduction to structural biology of macromolecular machines: From cryo-EM to molecular dynamics simulation - Blockveranstaltung

Practical Module - Protein Biochemistry and Enzymology

BIO-M-PM-PBE

Module coordinator: Prof. Dr. Reinhard Sterner

It is recommended to simultaneously attend the theoretical module BIO-M-TM-PBE Protein Biochemistry and Enzymology.

Module contents

- Participation in a current research project of protein biochemistry
- Training in planning, conducting and evaluating experiments
- Training in search of relevant literature
- Getting to know and using modern methods of protein biochemistry and enzymology
- Presentation and discussion of own experimentally gained data

Module component	CP	proof of academic achievement
Laboratory course (6 weeks): Protein Biochemistry and Enzymology (54191; link SPUR) Contact the module coordinator to find a supervisor for the laboratory course. The date of the laboratory course will then be arranged with the supervisor.	12	Portfolio (graded)*

*The portfolio examination contains following:

- Internship report of 4.000–10.000 words, including a bibliography,
- scientific presentation (15-30 min),
- practical scientific work,
- data, protocols, and records -including electronic data- from scientific work, prepared in accordance with the principles of good scientific practice.

The grade of the portfolio is based on the evaluation of the report, the presentation, and the practical work in the lab. The supervisor of the laboratory course can use a template for the evaluation - Evaluation of a practical module - PDF.
The completed evaluation should then be given to the student as feedback.

Practical Modules (PM) - Biochemistry
BIO-M-PM-CD gültig ab SS 2018 Praktisches Modul / Practical module: Chromatin Dynamics and Nuclear Architecture
BIO-M-PM-PBE gültig ab SS 2018 Praktisches Modul / Practical module: Protein Biochemistry and Enzymology
BIO-M-PM-PBE.1 gültig ab SS 2018 Proteinbiochemie und Enzymologie / Protein Biochemistry and Enzymology
BIO-M-PM-PBE.1 (12 LP) gültig ab SS 2018 Proteinbiochemie und Enzymologie / Protein Biochemistry and Enzymology
54191 Laborpraktikum: Protein biochemistry and enzymology - Laborpraktikum

Arrange the laboratory course with the leader of the research group.

If you do not get an answer or you have problems finding a laboratory course please contact me!

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Master´s Thesis

The Master´s Thesis is an examination concluding the scientific education, showing that the student is able to treat a problem within the biological scientific field with scientific methods presenting the results in an appropriate, immaculate and understandable manner.

Module Master´s Thesis - pdf!

Topics

Supervision and assessment

External Master's Thesis

Admission

Admission requires a minimum of 70 credit points, with three practical modules and at least two theoretical modules to be completed. At the start of the Master's Thesis, one theoretical module and credit points from the Skills Modules may therefore still be missing.

Topics

Supervision and assessment

External Master's Thesis

Admission

Duration of the Master's Thesis

Examination deadlines (Examination Regulations § 22)

Registration

Form

Marking scheme

For students starting **before** the winter semester 26/27: Only the Master's Thesis will be marked.

For students starting **in** the winter semester 26/27 or later: the Master's Thesis accounts for 70 % and the seminar presentation at the end of the Master's Thesis accounts for 30 % of the final mark for the Master's Thesis.

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For first-year students from the 2018 summer semester onwards

- **Module catalogue (pdf)**
- **Examination Regulations for the Master's Degree Programme in Biology, as amended on 2 June 2022 (pdf) (** in German)
- **Examination and Course Regulations for the Master's Degree Programme in Biology (pdf)** (in English)
- **Master's Programme – Overview (pdf)**
- **Sample study plan (pdf)**
- **Specialisations – Overview (pdf)**

for first-year students from the winter semester 26/27 onwards

- **Module catalogue (pdf)**
- **Examination Regulations for the Master's in Biology, as amended on 26 August 2026 (pdf)** (in German)
- **Master's programme – overview (pdf)**
- **Sample study plan (pdf)**
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- **Specialisations – Overview (pdf)**

Master Biology / possible course of study

Module		CP
1. Semester		**30**
Research Skills	Course "Resarch Skills" (3 weeks)	6
Focus Subject I / Theoretical Module	Lecture 1	
Focus Subject I / Theoretical Module	Lecture 2	
Focus Subject I / Theoretical Module	Seminar	2
Focus Subject I / Practical Module	Laboratory course (6 weeks) with seminar	12
Focus Subject I / Theoretical Module	Module examination	10
2. Semester		**30**
Job Skills	Exkursion *and/or* Job qualifying course *and/or* Internship	6
Focus Subject II / Theoretical Module	Lecture 1	
Focus Subject II / Theoretical Module	Lecture 2	
Focus Subject II / Theoretical Module	Seminar	2
Focus Subject II / Practical Module	Laboratory course (6 weeks) with seminar	12
Focus Subject II / Theoretical Module	Module examination	10
3. Semester		**30**
Focus Subject III / Theoretical Module	Lecture 1	
Focus Subject III / Theoretical Module	Lecture 2	
Focus Subject III / Theoretical Module	Seminar	2
Focus Subject III / Practical Module	Laboratory course (6 weeks) with seminar	12
Focus Subject III / Theoretical Module	Module examination	10
Communication Skills	Outline of the master thesis project	2
Master Thesis		4
4. Semester		**30**
Communication Skills	Essay	2
Communication Skills	Preparation and presentation of a poster	2
Master Thesis		26

Specialisation

→ **Specialisation in "Experimental and Clinical Neuroscience"**

1. Focus subject: Neurobiology

2. Secondary subject: Cognitive and Translational Neuroscience

3. Focus subject: Biochemistry, Bioinformatics, Biophysics, Molecular Ecology and Evolutionary Biology, Zoology, Genetics, Microbiology, Molecular Human Biology, Cell and Developmental Biology.

The master's thesis is to be written on a topic from neurobiology.

(When the conditions are met, the specialization "Experimental and Clinical Neuroscience" can be written on the certificate underneath the academic degree "Master of Science" (M.Sc.).

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Master Biology → PhD Program

RIGeL Regensburg International Graduate School of Life Sciences

Fakultät für Biologie und Vorklinische Medizin

Medizinische Fakultät

Cellular Biochemistry & Biophysics	**Molecular Ecology & Evolution**	**Neurobiology**	**Biomedicine**

Universität Regensburg

RIGeL Regensburg International Graduate School of Life Sciences

PhD-Program (180 CP ≈ 3 years)

Mentoring Team	supervisor and two mentors
Method Courses	up-to-date methods
Summer Academy	annual summer schools
Meetings	national and international scientific meetings
Soft Skills	presentation skills, project management, scientific writing and more
Didactic Skills	supervision of undergraduate students

Fast Track

Applicants holding a Bachelor's degree in one of the subjects mentioned above can gain admission to the graduate school ahead of schedule under the two following prerequisites:

- Are among the best 10 percent of graduates within their peer group of their bachelor study in biology, or among the best 20 percent of graduates within their peer group of their study in an elite-program (e.g. BSc of Biochemistry at the University of Regensburg).
- Have completed two semesters (min. 60 CP) of a respective MSc program at the University of Regensburg with top grades (in the case of MSc Biology, have completed two Focus Modules [Schwerpunktmodule], or one Focus Module and one Elect Module[Wahlmodul]).