

# **Study Regulations governing the Single-Subject Master's Degree Programme in Biophysics**

**14 March 2013**

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Please note: This translation is provided for information purposes only. In the event of any discrepancies between the translation and the original German version, the latter shall take precedence.

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Pursuant to Section 54 of Law No. 1556 relating to Saarland University (Saarland University Act) of 23 June 2004 (Official Gazette of Saarland, p. 1782) and with the consent of the University Senate, Faculty 7 (Natural Science and Technology II – Physics and Mechatronics) at Saarland University hereby issues the following study regulations based on the examination regulations of 14 March 2013 for the single-subject Master's degree programme in Biophysics.

## **Section 1 Scope**

These study regulations, which govern the content and structure of the Master's degree programme in Biophysics, are based on the Examination Regulations of the Faculty of Natural Science and Technology II at Saarland University for the Master's degree programme in Biophysics of 14 March 2013. The organization of the curriculum, teaching and examinations in this programme is the responsibility of the Faculty of Natural Science and Technology II at Saarland University.

## **Section 2 Objectives of the degree programme and career relevance**

(1) The aim of the Master's degree programme in Biophysics is to provide students with a deeper understanding of the subject and to teach them the skills and methods needed to undertake scientific work, to critically appraise research findings, and to act responsibly. In addition to expanding and consolidating their understanding of the fundamentals of biophysics, students on the Master's programme develop their expertise in a specialist area through the Master's thesis project and the introductory modules associated with it. Graduates from the programme are ideally positioned for independent scientific work, such as studying for a subsequent doctoral research degree in the natural sciences.

(2) The Master's degree programme in Biophysics also aims to prepare graduates to work as biophysicists in industry, research institutes and public bodies. Students therefore require not only a solid education in biophysics, but also insight into the content and methodology of neighbouring scientific disciplines. The mandatory elective modules in a non-biophysics subject enable students to establish a connection to a neighbouring scientific discipline or to see how biophysics is applied in the engineering and life sciences or in the field of medicine.

(3) The curriculum also includes interdisciplinary content, such as introducing students to the planning and coordination of scientific projects, or training the skills needed to communicate specialist scientific findings effectively. Students are also encouraged to make use of other academic modules offered at Saarland University in order to become acquainted with the academic content and methodological concepts in other scientific fields.

(4) The broad education offered by the Master's degree programme enables graduates to access a diverse range of career paths in research and development as well as other fields. Biophysicists are increasingly employed in the field of biotechnology.

### **Section 3 Start of programme**

Students can begin the Master's programme in Biophysics at the beginning of the winter or summer semester of each year.

### **Section 4 Types of academic instruction**

(1) Lectures (L) introduce students to a particular subject area and enable them to acquire a deeper understanding of the subject through supplementary self-directed study. A lecture course in the field of experimental physics is usually supplemented by demonstrations and practical experimentation.

(2) Exercise and problem-solving classes (EP) are typically small-group sessions used to supplement and reinforce what was learned in lectures. By working on representative problems students have the opportunity to apply and deepen the knowledge they acquired in the lectures, to assess their personal understanding of a specific area and to clarify any questions that they may have. Students may be required to successfully complete the assigned exercises and problems in order to take the exam. Students may be required to successfully complete the assigned exercises and problems in order to register for an end-of-module assessment or examination.

(3) Seminars (S) are a type of academic instruction with a limited number of participants in which students actively collaborate to generate results or share their results by participating in discussions or by giving presentations. Seminars aim to deepen student understanding of an academic field, help students acquire the skills needed for the effective presentation of scientific and academic content, and encourage students to engage in critical analysis and discussion of research results.

(4) Practical skills classes (P) are a type of academic instruction in which students undertake experiments that introduce them to the specific approaches and methods used in a particular discipline or field of study. Students acquire the theoretical knowledge that underlies the experiments by attending lectures and by studying the relevant scientific literature. The experiments are undertaken in a supervised environment and provide students, working either alone or in small groups, with the opportunity to gain practical experience with the typical instruments, laboratory equipment and systems used in this field of study. Students learn about the relationships between theory and practice not only through independent study and practice, but also through teamwork. An additional goal of the practical skills classes is to enable students to gain practical experience with computer-aided methods. Some of the specialist skills acquired in these practical classes can help prepare students for subsequent experimental research work. Participation in a particular practical skills class may depend on a student having first successfully completed a required course of lectures and exercise and problem-solving classes.

(5) Projects (PR) are a type of academic instruction in which students work under supervision to study and develop approaches to complex issues. Projects enable students to gain the advanced methodologies required to conduct independent research activities. By encouraging a comprehensive review of the scientific literature, projects also enable students to acquire an overview of the current research being conducted in a specific area of biophysics.

## **Section 5**

### **Structure and content of the programme**

(1) The Master's degree programme in Biophysics has a more research-oriented profile and aims to complete the student's theoretical and experimental training in the fundamentals of biophysics. It has been designed to provide students with a broad general education in biophysics and neighbouring scientific disciplines. It also aims to provide students with a deeper understanding in selected specialist areas. The Master's degree programme is structured so that students acquire the skills necessary for scientific enquiry. The supervised scientific project, which forms part of the Master's thesis module, plays an important role in this regard.

(2) Detailed information regarding the content of modules and module elements are described in the module catalogue that will be made available in suitable form. Any changes or amendments to the information in the module catalogue not covered in these regulations shall be reported to the Dean of Studies and documented appropriately.

## **Section 6**

### **Academic assessment and grading/marking scale**

Students on the Master's degree programme in Biophysics are required to earn the following coursework and examination credits totalling 120 ECTS credits:

<b>Mandatory section</b>	<b>Semester in which module is normally completed</b>	<b>Module elements</b>	<b>Type of course</b>	<b>credit hrs/wk</b>	<b>EC TS credits</b>	<b>Repeat cycle</b>	<b>Assessments graded / ungraded (g/u)</b>
Experimentelle Biophysik (Experimental Biophysics)	2	Advanced Concepts in Experimental Biophysics	L+EP	3+1	5	WS	Written or oral examination (g)
Theoretische Biophysik (Theoretical Biophysics) <sup>1</sup>	2	Advanced Concepts of Theoretical Biophysics or Fundamental Concepts of Theoretical Biophysics	L+EP	3+1	5	SS	Written or oral examination (g)
Biophysical Lab Course for Advanced Students	2	Advanced Lab Course	P	6	12	WS + SS	Initial and final discussion with supervisor, experimental work, record of findings, analysis and write-up, certificate of completion (u)
Biophysikalisches Seminar (Biophysical Seminar)	2	Seminar on Questions of Current Interest in Biophysics	S	2	3	SS	Presentation (g)
Research Seminar	3	Research Seminar	PR	10	15	WS + SS	Presentation or report (u)
Lab Project	3	Lab Project	PR	10	15	WS + SS	Presentation or report (u)
Master's Thesis	4	Master's Thesis	Written thesis	20	30	WS + SS	Written thesis (g)
Total				50	85		

<b>Electives</b>	<b>Semester in which module is normally completed</b>	<b>Modules</b>	<b>Type of course</b>	<b>Credit hrs/wk</b>	<b>EC TS Credits</b>	<b>Repeat cycle</b>	<b>Assessments graded / ungraded (g/u)</b>
Biophysikalische Wahlpflicht (Mandatory elective, biophysical area) <sup>2</sup>	2	Approved modules for the mandatory elective in a biophysical subject area	L / EP / P		15	WS + SS	Written or oral examination (g 10 credits / u 5 credits), preliminary assessments in some cases (see descriptions of modules)

Nicht-biophysikalische Wahlpflicht (Mandatory elective, non-biophysical area) <sup>3</sup>	2	Approved modules for the mandatory elective in a non-biophysical subject area	L / EP / P		20	WS + SS	Written or oral examination (g 9 credits / u 11 credits)
Total					35		

- 1 The module to be taken is determined by the type of Bachelor's degree that the student presented when applying for admission and this mandatory module is specified in the student's letter of admission.
- 2 Approved modules are modules from the areas cell biology, physiology, statistical physics, physics of soft materials and applied physics. The Examination Board may decide to approve modules from other areas of biophysics, biology and physics.
- 3 Approved modules are modules from the subjects chemistry, mathematics and computer science. The Examination Board may decide to approve modules from other non-biophysical subjects. Students can earn up to 2 credits for taking courses teaching key skills or for actively participating in the work of official committees at Saarland University.

### **Section 7 Module prerequisites**

Students wishing to take the modules 'Research Seminar' and 'Lab Project' must have earned at least 52 credits and must have successfully completed the modules 'Experimental Biophysics' and 'Theoretical Biophysics'.

### **Section 8 Studying abroad**

Students on the Master's degree programme in Biophysics are encouraged to spend part of the programme studying abroad. Whenever possible, the study abroad phase should be undertaken in the second semester. Students interested in studying abroad should seek advice from a relevant source and should clarify credit transfer arrangements in accordance with the examination regulations by completing a study abroad learning agreement. Course and examination credits earned during a study abroad period will be recognized provided that equivalence has been verified. Credits earned at the host institution abroad will be recognized provided that, when compared with the corresponding study programme at Saarland University, there is no significant difference in the time required for completion or in the student assessments used, nor in the content, scope and academic requirements of the modules taken. Information on study abroad opportunities, exchange programmes, scholarships and administrative formalities is available from Saarland University International Office as well as from teaching staff at Department of Life Sciences and Department of Physics and in the biophysics research groups. As foreign host universities and scholarship-awarding bodies often have early application deadlines and long application processing times, study abroad applications should normally be submitted before the student joins the Master's programme.

## **Section 9 Study plan**

The Dean of Studies shall compile a programme-specific study plan based on the study regulations. The study plan shall be appended to the study regulations as a recommendation for students on how to structure their studies effectively. The study plan will be made available in suitable form.

## **Section 10 Study counselling**

(1) The Central Student Advisory Service (*Zentrale Studienberatung*) at Saarland University provides counselling and guidance to prospective students and enrolled students concerning the content, structure and requirements of academic study at Saarland University. It can also advise and assist students with respect to their study options as well as with planning and organizing their studies.

(2) Departments 7.1 and 7.2 (Theoretical Physics / Experimental Physics) shall designate members of professorial staff or non-professorial academic staff to provide subject- and study-related advice during the specified office hours. Questions relating to individual modules can be addressed to the respective module coordinators.

## **Section 11 Commencement**

These regulations shall come into force on the day after they are announced in the Official Bulletin of the Institutions of Higher Education in Saarland (*Dienstblatt der Hochschulen des Saarlandes*).

Saarbrücken, 19 August 2013

President of Saarland University  
(Univ.-Prof. Dr. Volker Linneweber)