Study Regulations of the Faculty of Biology and Pharmacy for the Study Programme 'Molecular Life Sciences' Seeking the Degree 'Master of Science' (M.Sc.)

English translation from the German. The translation is for information only; legally binding is only the German original published in *Verkündungsblatt* No. 09/2010, pp. 590;
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Content

§ 1
Scope and Application

Based on the corresponding Examination Regulations in their applicable version, these Study Regulations establish objectives, content, and structure of the research-oriented, consecutive study programme 'Molecular Life Sciences' leading to a Master of Science degree (abbreviation: M.Sc.).

§ 2
Admission requirements

(1) Prerequisite for the admission to the study programme 'Molecular Life Sciences' is proof of the successful completion of a first university degree qualifying the graduate to work in his/her profession (*Magister*, *Diplom*, Bachelors, etc.) from the Friedrich Schiller University Jena or another university or another institution of higher education of equivalent status in Germany or abroad in the fields of biology, molecular biology, biochemistry or a related field of study that, subject to the provisions of § 4, was finished with an overall final grade of 2.0 (according to the German grading system) or better. For degrees earned outside the area of application of the German Basic Law, the Selection Committee will assess its equivalence taking into account equivalence agreements (*Äquivalenzvereinbarungen*) and cooperation agreements. Equivalence is normally declared if the degree is equivalent to the level of education at an institution of higher education within the area of application of the German Basic Law.

(2) Admission to the study programme presumes applicants to have the necessary professional qualifications and competences. This means the applicants must have completed subject-specific courses in one of the fields of study involved, notably in the field of molecular life sciences (e. g. molecular genetics, molecular development biology, molecular cell biology, or similar studies in a related field of study), earning a total of at least 50 credit points (or equivalent achievements), and must provide proof of examinations and assessed coursework from the previous study programme for these credit points. In exceptional cases, provisional admission under the condition that certain qualifications must subsequently be acquired is possible.

(3) Proficiency in English is essential and is expected from all applicants.

(4) Applicants must explain their reasons for choosing this study programme in a letter of motivation of a maximum of 2 pages.

(5) Applicants must submit a curriculum vitae including information on past publications as well as positions and activities at academic institutions that were not part of the previous study programme or examinations in the framework of the latter.

§ 2a
Application for Admission

Applicants must submit the following documentation together with their application for admission:

a) Pursuant to § 2 (1), proof of completion of a first university degree qualifying the applicant to work in his/her profession, or proof of their achievements and performance at the time of the application (including proof to have earned at least 120 credit points in the study programme qualifying the applicant for the present Masters

programme or equivalent qualifications);
b) Pursuant to § 2 (2), proof to have successfully completed courses relevant to one of the fields of study involved (or equivalent achievements in another field of study) with a total of at least 50 credit points;
c) Pursuant to § 2 (4), letter of motivation explaining the reasons for applying to this specific study programme;
d) A detailed curriculum vitae including additional achievements relevant to the field of study;
e) Secondary school leaving certificate.

§ 2b
Admission

(1) The Selection Committee for the Masters programme selects prospective students from the submitted applications according to the following criteria: Admitted to the study programme will be applicants who fulfil the requirements specified in § 2. If a final grade is not yet available for the first university degree qualifying the applicant to work in his/her profession, the applicant may be provisionally admitted to the study programme if the documented achievements at the time of the application are as required.

(2) Applicants whose overall final grade is inferior to 2.0 (according to the German grading system), but at least 2.7 (according to the German grading system, but by international comparison), and who fulfil the requirements for admission particularly well with regard to the wide spectrum of requirements for the study programme ‘Molecular Life Sciences’ may be admitted if the letter of motivation and/or curriculum vitae show particular aptitude for the said study programme. The decision will be taken by the Masters Examinations Committee.

§ 3
Duration of Study

(1) The standard duration of study is two years, including the time for writing a Master thesis.

(2) For part-time students, the standard duration of study is four years. Admission to part-time studies requires approval by the Faculty of Biology and Pharmacy.

§ 4
Beginning of Study Programme

The Masters programme ‘Molecular Life Sciences’ begins in the winter semester.

§ 5
Objectives of the Study Programme

(1) The Masters programme ‘Molecular Life Sciences’ builds on a first degree earned as stipulated in § 2 and leads to the second degree ‘Master of Science’ qualifying graduates to work in their profession. Building on a solid basic education in the natural sciences acquired in a Bachelors programme (generally in the fields of biology, biochemistry/molecular biology, or bioinformatics for example), the Masters programme teaches students the ability to undertake scientific work independently in a modern, interdisciplinary scientific environment. In doing so, it aims particularly at integrating and improving skills and knowledge in molecular

life sciences. It explores critical issues of particular current interest in the fields of genetics, cellular and development biology, and compares molecular processes in flora and fauna. Molecular network analyses on different levels (genome, proteome, metabolome) will be paramount in theory as well as practically. In order to put the vast amount of data on individual cell components and functions that are collected at the different levels of development in the life of flora and fauna in a meaningful overall context, the interdisciplinary approach of biologists and bioinformaticians including some modelling (so called systems biology) becomes more and more important. The modelling of life processes promises to provide great potential for practical application in agriculture, pharmacy, and medicine.

(2) The Masters programme features a large proportion of practical work and independent projects. Amongst the key skills taught are the independent conceptualization and execution of scientific studies as well as the written and oral presentation and documentation of scientific findings (notably in English).

(3) The experimental approach of the study programme is designed to be consecutive, to qualify graduates to work in their profession and to be research-oriented. In addition to technical and subject-specific skills, graduates will be equipped with communication skills to present science and scientific findings in public. The opportunity to study abroad for one semester offers them the opportunity to gain international qualifications expected in today's world. Graduates are therefore well equipped for a scientific career (pursuing doctoral degrees) as well as a career in the industry (particularly in the field of biotechnologies). The successful completion of the Masters programme qualifies graduates to continue their academic career in a doctoral programme in the natural sciences, particularly in the fields of bioinformatics, biochemistry, development biology, evolutionary biology, genetics, microbiology, molecular medicine, molecular biology, systems biology, and cellular biology, all of which can be studied at the Friedrich Schiller University as well as other universities inside and outside of Germany.

§ 6
Structure of the Study Programme

(1) The study programme is composed of modules. Each module may be comprised of various combinations of lectures, seminars, practical courses, internships, projects, tutorials, labs, colloquia, independent study times, and examinations. Each module is a learning and examination unit. One single module normally takes one semester or one full year of study.

(2) To successfully complete the study programme, students must acquire a total of 120 credit points according to the European Credit Transfer and Accumulation System (ECTS). Per year of study, a total of 60 ECTS has to be earned.

(4) The study programme concludes with writing a Master thesis. By independently writing this scientific paper, the candidate proves that he/she is able to independently work on a problem or question from his/her field of specialization within the molecular life sciences using scientific methods and within a given time frame.

§ 7
Scope and Content of the Study Programme

(1) The modules of the first year of study bring together previously acquired skills and knowledge, prepare students for independent work on projects, and teach them to present scientific findings. In the first year of study, students therefore take three basic modules

(compulsory) and three advanced modules (required elective modules) earning 10 ECTS each. Additional modules may be accepted and credited after review by the Examinations Committee.

- Basic module 'Molecular Development Biology'
- Basic module 'Molecular Genetics'
- Basic module 'Molecular Cell Biology'

The advanced modules are to be chosen from the fields of development biology, cell biology, molecular genetics, systems biology, and biophysics.

(2) In the second year of study, students broaden their knowledge in a chosen area of specialization (participation in a specialization module including a practical course on methodologies, 10 ECTS), work under supervision in a practical research project (20 ECTS), and write a Master thesis (30 ECTS).
(3) Information on the structure of the individual modules and the ECTS for each module can be found in the module descriptions and the study plan in the module catalogue. Module descriptions also include information on the person responsible for the respective module, the requirements for participation, the workload to be expected, information about content and methods for teaching, learning and working, as well as the type of examination and examination requirements.

§ 8
International Mobility of Students

(1) To complement studies at the Friedrich Schiller University, a study-related stay abroad may make sense. Academic achievements completed during a study-related stay abroad are recognized and credited if equivalence can be ascertained. This also applies if leave of absence was granted to the student concerned for the stay abroad. The recommended time frame for the study-related stay abroad (mobility window) are notably the modules of the second and third semester. By signing an agreement on the courses to be taken (*Learning Agreement*), binding agreements may be concluded in advance regarding the subsequent recognition of achievements. Professors and/or academic staff of the Faculty of Biology and Pharmacy responsible for the respective study programme and the Study and Examinations Office can advise on the possibilities for a stay abroad.

(2) Different starting and ending dates of semesters at universities abroad may lead to overlaps with examination dates at the home university. Upon formal request, the Examinations Committee in these cases facilitates individual arrangements for taking affected module examinations at an appropriate time.

§ 9
Assessed and Non-Assessed Coursework and Examinations

(1) The type and scope of assessed and non-assessed coursework and examinations as well as the respective requirements are defined in the module descriptions and are announced by the respective teaching staff at the beginning of the module at the latest.

(2) Basic and advanced modules are graded pursuant to § 9 (11) of the Examination Regulations, and, pursuant to § 14 (5) of the Examination Regulations and through the earned credit points, become part of the weighted final grade.

§ 10
Admission to the Stages of Study and to Individual Modules

(1) Prerequisites for admission to individual modules are specified in the module descriptions. Admission to an advanced module normally requires the successful completion of one basic module of the first year of study; admission to the specialization module or the project module normally requires the successful completion of two basic and two advanced modules of the first year of study. Admission to write the Master thesis is possible once the specialization and the project modules have successfully been completed. Exceptions are decided upon by the Examinations Committee.

(2) For individual advanced modules, the number of participants may be limited for factual reasons, particularly for reasons of available space or equipment.

§ 11
Subject-Specific Academic Advisory Service

(1) Subject-specific Academic Advisory Services are offered by members of the academic staff of the respective study programme or by representatives appointed by them, and provide individual assistance in the planning of the studies. The Examinations Committee decides on the appointment the representatives.

(2) Non subject-specific questions and concerns should be addressed to the Study and Examinations Office at the Faculty of Biology and Pharmacy or the Central Academic Advisory Service of the Friedrich Schiller University Jena.

§ 12
Evaluation of Courses Offered and Quality Control

(1) The Faculty of Biology and Pharmacy is committed to constantly modernizing and improving the courses offered. The Examinations Committee regularly evaluates the recommended study plan and the range of modules offered in due consideration of the developments in the specific field, of professional requirements, of the performance of students in examinations and actual times of study. The study plan and the module catalogue are updated and published electronically in sufficient time before the beginning of every academic year. Amendments to the module catalogue or the Study and Examination Regulations require a decision by the Faculty Council and approval by the Rector.

(2) In addition, course evaluations are conducted in cooperation with the Biochemistry student representative committee (*Fachschaft*). The results are discussed with concerned academic staff and analysed by the Examinations Committee. The goal of these evaluations is to optimize courses and to improve the study conditions in the Masters programme, particularly regarding acceptance from the students, the content of the study programme and the shortening of study times.

§ 13
Equal Opportunity Clause

All titles and functions in (the German version of) these Regulations equally refer to men and women.

Article 2
Coming into Effect

Modifications to the Study Regulations pursuant to Article 1 of these Modification Regulations come into effect the day after their announcement in the journal of legal notices of the Friedrich Schiller University (*Verkündungsblatt der Friedrich-Schiller-Universität*).

Jena, 18 February 2016

Prof. Dr Walter Rosenthal
President of the Friedrich Schiller University