

## Announcements of the Justus Liebig University Giessen

Issue from  
**11.07.2025**

**7.36.07 No. 1**

Special regulations for the Master's degree programme 'Advanced Materials'

### Special Regulations for the Master's Programme "Advanced Materials" of Faculty 07 – Mathematics and Computer Science, Physics, Geography – and Faculty 08 – Biology and Chemistry – at Justus Liebig University Giessen From 19 February 2025

*These regulations shall come into effect on the day following their announcement and shall apply to all students commencing their studies from the winter semester 2025/2026 onwards.*

*Previous versions:*

	Faculty Council	Senate	Presidium	Announcement
original version	FB 07: 30.04.2025 FB 08: 23.04.2025	30.04.2025	14.05.2025	11.07.2025

Pursuant to Section 50 (1) No. 1 of the Hessian Higher Education Act of 14 December 2021 (HessHG), the Faculty Council of Faculty 07 – Mathematics and Computer Science, Physics, Geography – adopted the following regulations on 30 April 2025, and the Faculty Council of Faculty 08 – Biology and Chemistry – adopted them on 23 April 2025:

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## **§ 1 Scope of application (regarding § 1 AIIb)**

In addition to the General Regulations for Bachelor's and Master's Programmes (AIIb) of Justus Liebig University Giessen dated 20 February 2019, as amended, these regulations govern the studies and examinations in the Master's programme "Advanced Materials."

## **§ 2 Academic degree (regarding § 3 AIIb)**

- (1) The Faculty of Mathematics and Computer Science, Physics, Geography (Faculty 07) and the Faculty of Biology and Chemistry (Faculty 08) at Justus Liebig University Giessen award, upon successful completion of the programme, the academic degree "Master of Science" (abbreviated: "M. Sc."), Advanced Materials.
- (2) The Faculties 07 – Mathematics and Computer Science, Physics, Geography – and 08 – Biology and Chemistry – at Justus Liebig University Giessen (JLU) and Osaka University (OU), Japan, each award separate diplomas conferring the "Master of Science Advanced Materials" (JLU) and the "Master of Engineering" (OU) within the framework of a double master's programme based on agreements between both universities (Annex 4a).
- (3) The Faculties 07 – Mathematics and Computer Science, Physics, Geography – and 08 – Biology and Chemistry – at Justus Liebig University Giessen (JLU) and Kansai University (KU), Japan, each award separate diplomas conferring the "Master of Science Advanced Materials" (JLU) and the "Master of Engineering" (KU) within the framework of a double master's programme based on agreements between both universities (Annex 4b).
- (4) The Faculties 07 – Mathematics and Computer Science, Physics, Geography – and 08 – Biology and Chemistry – at Justus Liebig University Giessen (JLU) and the University of Padova (UNIPD), Italy, each award separate diplomas conferring the "Master of Science Advanced Materials" (JLU) and the "Master of Materials Science" (UNIPD) within the framework of a double master's programme based on agreements between both universities (Annex 4c).

## **§ 3 Admission to the Master's programme (regarding § 5 AIIb)**

- (1) The degree programme can only be started in the winter semester.
- (2) Admission to the Master's programme "Advanced Materials" requires the completion of a Bachelor's degree in Materials Science (Advanced Materials) with at least 180 ECTS credits, including a scientific final thesis (Bachelor's thesis). The Examination Board may also recognise, on a case-by-case basis, other relevant, professionally qualifying university degrees (e.g. Materials Science, Materials Technology, Biomaterials, Energy Materials, Materials Engineering).
- (3) Admission may be subject to additional coursework requirements of up to 18 CP, which must be completed within the first two semesters. These do not count towards the total credits of the Master's programme Advanced Materials.
- (4) The Examination Board may require applicants under paragraph 2 to pass an entrance examination as a prerequisite for admission to the Master's programme. This examination assesses the skills and knowledge necessary for the programme based on the specified requirements for the required university degree. The Examination Board organises the entrance examination.
- (5) The entrance examination is conducted by an Examination Committee appointed by the Examination Board. This committee consists of two professors. The examination questions are set and assessed by the Examination Committee.

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- (6) Applicants will be notified of the entrance examination at least three weeks in advance.
- (7) For admission to the Master's programme Advanced Materials, applicants must provide proof of very good English language proficiency at CEFR level B2. This can be demonstrated by:
  - a) Abitur certificate;
  - a) TOEFL IBT (Internet-based Test) with a minimum score of 72 points or IELTS Academic Test with a minimum score of 5.5;
  - b) Local higher education entrance qualification from one of the following countries: Australia, Ireland, Canada, New Zealand, USA, United Kingdom, South Africa;
  - c) Completion of an English-language Bachelor's programme in one of the following countries: Australia, Ireland, Canada, New Zealand, USA, United Kingdom, South Africa;
  - d) "UNIcert II" certificate;
  - e) Certificates accredited according to the Common European Framework of Reference for Languages (CEFR) at a minimum level of B2.

The Examination Board decides on the recognition of other language certificates.

#### **§ 4 Workload and standard period of study (regarding § 6 AIIb)**

The Master's programme Advanced Materials has a standard study duration of 4 semesters and a workload of 120 credit points (CP).

#### **§ 5 Structure of the degree programme (regarding Sections 6, 7, and 8 AIIb)**

- (1) The Master's programme Advanced Materials can be completed in both German and English or exclusively in English.
- (2) The study plan (Annex 1) provides students with guidance on planning their studies.
- (3) The Master's degree programme consists of a compulsory area (compulsory modules (24 CP), a research module (12 CP), a subject specialisation (42 CP) and the Master's thesis (30 CP)) as well as a compulsory elective area (12 CP).
- (4) Students select their area of specialisation in a particular field at the beginning of their studies following a mandatory academic advising session from a predefined selection of specialisations. Each area of specialisation comprises modules with a total of 42 CP, which are divided into core modules and extension modules. Within a specialisation, students must complete at least 24 CP in core modules and at least 18 CP in extension modules (see Annex 3). The Examination Board may, on a case-by-case basis, approve additional areas of specialisation that are suitable for the completion of the degree.
- (5) The modules of the degree programme are described in Annex 2. The modules of possible areas of specialisation are listed in Annex 3. The modules named in Annex 3 are described in the respective regulations for the Master's degree programmes "Physics" (MUG 7.35.07 No. 2), "Applied Physics" (MUG 7.36.07 No. 2), "Chemistry" (MUG 7.35.08 No. 2), or "Sustainable Chemistry" (MUG 7.36.08 No. 2) in their respective current versions as well as Annex 2 of the present special regulation.
- (6) In the mandatory elective section, modules from the Bachelor's and Master's degree programmes of Faculties 07 and 08, as well as modules from other Bachelor's and Master's degree programmes at JLU, can be chosen to a minimum extent of 12 CP, provided that the relevant regulations of the Executive Board or the specific regulations of other Faculty Councils in their respective current versions allow their inclusion in the Master's degree programme Advanced Materials or that students are admitted to these modules by the respective lecturers or the offering faculty. Academic advising is offered and recommended.
- (7) The thesis module comprises 30 CP.

- (8) Modules that have already been attended or credited in a Bachelor's degree programme with identical content cannot be taken or recognised again as elective modules for the Master's degree programme Advanced Materials.
- (9) Students may take examinations in additional modules beyond the required ones during their studies. These so-called voluntary additional achievements are not counted towards the required credit points and do not contribute to the final grade. The successful completion of voluntary additional achievements is recorded separately.
- (10) Students enrolled in a part-time study programme must discuss an individual study plan with the chairperson of the Examination Board.

### **§ 6 Internships (regarding § 10 AIB)**

- (1) Experience in specific professional fields can be acquired upon request within the framework of the methods or laboratory module.
- (2) Proposals for professional field internships may be made by both students and professors in cooperation with external employers.

### **§ 7 Participation requirements and examination prerequisites (regarding § 8 and 17 AIB)**

- (1) The prerequisites for module and course participation are explicitly stated in the module descriptions.
- (2) Within the modules, admission to certain courses may be subject to the successful completion of partial module examinations. This applies in particular in cases where safety in a practical exercise depends on sufficient theoretical knowledge. Such requirements are specified in the module description.
- (3) If a module description requires regular attendance at a course as a prerequisite for examination eligibility, at least 80% of the course sessions must be attended.

### **§ 8 Examination management system (regarding §§ 16, 19 AIB)**

- (1) Students may use resit examination dates for their first examination attempt.
- (2) Resit examinations do not have to be taken at the next possible date. It is left up to the students at which date they register for the resit examination.

### **§ 9 Examination performance (regarding §§ 17, 18, 19, 22, 23 and 24 AIB)**

- (1) The examination requirements, procedures, and grading for first and resit examinations are regulated by the respective module description (Annex 2). If the module description does not specify an examination duration, the following applies: oral examination: 20–40 minutes, written examination: 90–120 minutes.
- (2) In addition to the examination formats listed in the General Regulations—thesis (with colloquium), written examination, oral examination, and term paper—the following additional examination formats apply:
  - Presentation: Oral explanation of a researched topic, possibly including a visual presentation.
  - Report: A written document comprehensively addressing a given task or question; the module description may require an oral explanation or presentation of the report.
  - Project with report: Work on a specified task, such as programming a software application or routine, accompanied by a written report.

The examination formats of modules from other degree programmes are listed in the respective special regulations (see Section 5, paragraphs 5 and 6).

- (3) The examination may be conducted as a group examination with up to five candidates at the discretion of the module coordinator, provided that each candidate's individual contribution is clearly identifiable and assessable.

### **§ 10 Thesis module (regarding § 21 AIB)**

- (1) The thesis module consists of a written component (thesis) and an oral component (colloquium). The thesis should demonstrate that students are capable of independently addressing a narrowly defined research question within a given timeframe using scientific methods.
- (2) The master's thesis can generally only be started after successfully completing the modules of the first three semesters; in individual cases, one additional module may be completed in parallel with the thesis module. Exceptions are decided by the Examination Board.
- (3) The master's thesis can only be conducted in the specialisation field in which core modules have been completed. Exceptions may be granted by the Examination Board based on a written request from the student.
- (4) The thesis topic is assigned by the Examination Board. Candidates must be given the opportunity to propose a topic. Upon request, the chairperson ensures that the candidate receives a topic no later than one month after submission of the request.
- (5) When assigning the topic, the Examination Board determines who, from the group of examiners authorised under Section 26 (1) AIB, will supervise and assess the thesis and who will act as the second examiner. At least one of the examiners must be a professor. Exceptions, for example, to consider junior research groups, are regulated by the Examination Board.
- (6) The processing time is six months. The topic must be defined in such a way that the master's thesis can be completed with a total workload of 900 hours. The Examination Board sets the latest submission deadline for the thesis.
- (7) The main results of the thesis must be presented in a colloquium, which should take place no later than six weeks after submission of the written thesis.
- (8) The examiners determine the date of the colloquium.
- (9) Members and affiliates of the university are permitted to attend the colloquium as listeners; Section 14 (6) AIB remains unaffected. In justified cases, the examiners may exclude listeners; Section 22 (7) HessHG remains unaffected.
- (10) The final grade of the thesis module is calculated as the average of the grades for the thesis and the colloquium, with the thesis accounting for 70% and the colloquium for 30%. The thesis module is considered passed if both the thesis and the colloquium are graded at least "sufficient."

### **§ 11 Master's examination, calculation of overall grade and final documents (regarding § 20 and § 34 f. AIB)**

- (1) The master's degree programme is considered successfully completed when all compulsory modules specified in the study plan, as well as the chosen elective modules, have been passed, amounting to a total of 120 CP.
- (2) The final grade is determined by the average of all graded compulsory modules and graded elective modules. To calculate the final grade, the grade points are multiplied by the respective CP of the module, and the sum is divided by the total number of graded CP considered.
- (3) Upon request, the chosen area of specialisation will be included in the examination certificate and the master's diploma. Students must submit this request together with their master's thesis registration.

### **§ 12 Entry into force**

These regulations shall come into effect on the day following their announcement and shall apply to all students commencing their studies from the winter semester 2025/26 onwards.

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**Annex**

Annex 1: Curriculum

Annex 2: Module Descriptions

Annex 3: Specialisations