JACOBS UNIVERSITY

Study Program Handbook

Medical Natural Sciences

Bachelor of Science

Subject-specific Examination Regulations for Medical Natural Sciences (Fachspezifische Prüfungsordnung)

The subject-specific examination regulations for Medical Natural Sciences are defined by this program handbook and are valid only in combination with the General Examination Regulations for Undergraduate degree programs (General Examination Regulations = Rahmenprüfungsordnung). This handbook also contains the program-specific Mandatory Module and Examination Plans (Appendix 1a / 1b).

Upon graduation, students in this program will receive a Bachelor of Science (BSc) degree with a scope of 180 ECTS (for specifics see chapter 3 of this handbook).

Version	Valid as of	Decision	Details
Fall 2018 - V1	01.09.18	Academic Senate August 29, 2018	Master Version

Contents

1 The Medical Natural Sciences (MedNat) Study Program

1.1 Concept

Medicine is the field of applied science related to diagnosis, treatment, and prevention of disease. It encompasses a variety of health care practices evolved to maintain and restore health by the prevention and treatment of illness in human beings. At German State Universities, a considerable fraction of students are chosen from Non-EU applicants. The Medical Natural Sciences (MedNat) Major program at Jacobs University prepares students from Non-EU countries to become medical students at a German Medical School. Importantly, the program starts with teaching in English while at the time of Graduation, all MedNat Students shall be prepared for continuing studies in German, preferably at a Medical School.

1.2 Specific Advantages of the MedNat Program at Jacobs University

- The MedNat program at Jacobs University combines modules in the Natural Sciences and Medicine with intensive German classes. In the Natural sciences, modules in Organic Chemistry, Physics or Cellular Biology are taught. These are accompanied by three dedicated modules Foundations in Medicine, in which MedNat students get to know essential concepts in Biology/Physiology and Anatomy, Biochemistry, Immunology or Microbiology. The MedNat program has a strong practical component, with excellent lab courses, tutorials and seminars.
- In the first year, all MedNat courses are taught in the English language. In the second year, most lectures are still taught in English, while exercises, lab courses or tutorials are instructed in German. Since MedNat students will have further advanced their German language skills by the third year, the German language will be the medium of instruction for all classes in the third year of study.
- As future Medical Doctors trained in Germany, MedNat students will get the essential background information on Germany and its region, as well as the different stake holders in the country in a dedicated lecture towards the end of the first year. Similarly, the German healthcare system and its stakeholders are going to be introduced in another dedicated lecture in the second year. To prepare MedNat students for the entrance exams at Medical Schools, an exercise is going to be offered, which will provide hands-on experience in medical tests and interviews.
- MedNat students will perform an intensive one-term internship at a Medical School or a hospital to get inside views on the real life as a Medical Doctor. There are intensive contacts established with leading Medical Schools that will foster a smooth transition from Jacobs University to the chosen Medical School in Germany.

1.3 Program-Specific Qualification Aims

By the end of this program, students will be able to:

- understand the main ideas of complex text in the German language on both concrete and abstract topics, including technical discussions in their field of specialization.
- interact in the German language with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party.

- produce clear, detailed text in the German language on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
- explain the principles, ideas and basics in the Natural Sciences, in particular Chemistry and Physics.
- describe how the structure and biochemical properties of biomolecules define their cellular function.
- explain general processes governing cellular and early developmental biology in healthy and diseased conditions.
- detail fundamentals of microbiology and parasitology and provide an overview about the human immune system.
- describe key features of anatomy and physiology, including cellular architectures, communication in multicellular organisms, organ morphology and anatomic features of the human body.
- detail how healthcare is organized in Germany and explain the different organizations and stakeholders in the medical sector in Germany
- describe basic methods and techniques in forensic medicine.
- collect, analyze and evaluate relevant literature within the field of medicine.
- present their own results, and those of others, concisely and professionally both, in writing and in front of an audience.

1.4 The Jacobs University Employability and Personal Development Concept

Jacobs University's educational concept aims at fostering employability which refers to skills, capacities, and competencies which transcend disciplinary knowledge and allow graduates to quickly adapt to professional contexts. Jacobs University defines employability as encompassing not just technical skills and understanding but also personal attributes, competencies and qualities enabling students to become responsible members of their professional and academic fields as well as of the societies they live in. Graduates of JU will be equipped with the ability to find employment and to pursue a successful professional career, which means that graduates will be able to:

- acquire knowledge rapidly, gather, evaluate and interpret relevant information and evaluate new concepts critically to derive scientifically funded judgements;
- apply their knowledge, understanding and methodological competences to their activity or profession to solve problems;
- present themselves and their ideas effectively and to negotiate successfully;
- demonstrate understanding and knowledge of business principles and processes and to manage projects efficiently and independently;
- take responsibility for their and their team's learning and development.

Graduates of JU will also be equipped with a foundation to become globally responsible citizens, which includes the following attributes and qualities:

- graduates have gained intercultural competence; they are aware of intercultural differences and possess skills to deal with intercultural challenges; they are familiar with the concept of tolerance;
- graduates can apply problem-solving skills to negotiate and mediate between different points of view and to manage conflicts;
- graduates can rely on basic civic knowledge; they are able to analyse global issues of economic, political, scientific, social or technological nature; they are able to evaluate situations and take decisions based on ethical considerations;
- graduates are able and prepared to take on responsibility for their professional community and society.

1.5 Career Options

The Bachelor of Science (BSc) in Medical Natural Sciences received after three successful years of study at Jacobs University Bremen is the key to a world of numerous possibilities in the life sciences but primarily forms the basis for a successful study of Medicine at a German University for students from Non-EU countries. Intensive contacts to renowned Medical Schools in Germany exist, who are interested in successful MedNat graduates for a future study of Medicine.

1.6 More Information and Contact

For more information please contact the study program chair:

Dr. Christian Hammann
Professor of Biochemistry
Email: c.hammann@jacobs-university.de
Telephone: +49 421 200-3247
or visit our program website: www.jacobs-university.de/MedNat

2 The Curricular Structure

2.1 General

The undergraduate education at Jacobs University equips students with the key qualifications necessary for a successful academic, as well as professional career. By combining disciplinary depth and transdisciplinary breadth, supplemented by skills education and extracurricular elements, students are prepared to be responsible and successful citizens within the societies they work and live in.

The curricular structure provides multiple elements enhancing employability, transdisciplinarity, and internationality. The unique Jacobs Track, offered across all study programs, provides a broad range of tailor-made courses designed to foster career competencies. These include courses which promote communication, technology, business, language, and management skills. The World Track, included in the third year of study, provides extended company internships or study abroad options, and for MedNat students an internship in a Medical school. Thus students gain training on the job and intercultural experiences.

All undergraduate programs at Jacobs University are based on a coherently modularized structure, which provides students with a broad and flexible choice of study plans.

The policies and procedures regulating undergraduate study programs at Jacobs University in general can be found on the website.

2.2 The MedNat Program Structure

2.2.1 YEAR 1

The first study year of MedNat lays the foundation for future studies at a Medical School in Germany. Dedicated modules are offered in Intensive German I, Foundations in Natural Sciences and Foundation in Medicine I. MedNat Students additionally are trained in a variety of topics within the Jacobs track, with skills and methods courses.

2.2.2 YEAR 2

In the second year, MedNat students continue with Modules in Intensive German II, Cellular Biology and Foundations in Medicine II. Again, courses offered in the Jacobs track (see below) allow MedNat students to gain transdisciplinary approaches and extra skills from a wide variety of different areas.

2.2.3 YEAR 3

During their third year, students must decide on their career after graduation. In order to facilitate this decision, the fifth semester introduces two separate tracks. By default students are registered for the World Track.

1. **The World Track**
   This track provides students with an extended internship and is the regular track for MedNat students. The internship program is a core element of Jacobs University's employability approach. The curriculum includes the option for a semester-long internship at the University Clinic Hamburg-Eppendorf, our premium partner. in a Medical School, which provides experiential learning as well as practical work experience.
   For more information, please contact the Career Services Center (http://www.jacobs-university.de/career-services/contact).

2. **The Campus Track**
   Alternatively, MedNat students who decide for a career in the Life Sciences may also opt to follow the Campus Track by continuing their undergraduate education at Jacobs, namely by selecting an additional Year 2 module in the Life Sciences during their third year.

In the sixth semester, MedNat students are offered the two modules Foundation of Medicine III and Intensive German III, which includes a preparation for the entry exams at Medical Schools. Additionally they will concentrate on their Bachelor thesis in the context of a Project/Thesis Module.

Students may also attend a set of career skills courses and events throughout their studies. These equip them with necessary skills for their 5th semester and their future career.

2.3 The Jacobs Track

The Jacobs Track, another stand-alone feature of Jacobs University, runs parallel to the MedNat modules across the first two study years and is an integral part of all study programs. It reflects our commitment to an in-depth methodological education, it fosters our transdisciplinary approach, it enhances employability, and equips students with extra skills desirable in your field of study. Additionally, it integrates essential language courses.

Mathematics, statistics, and other methods courses are offered to all students within a comprehensive Methods Module. This module provides students with general foundations and transferable techniques which are invaluable to follow the study content not only in the study program itself but also in related fields.

The Skills Module equips students with general academic skills which are indispensable for their chosen area of study. These could be, for example, programming, data handling, presentation skills, and academic writing, scientific and experimental skills.

The transdisciplinary Triangle Module offers courses with a focus on at least one of the areas of business, technology and innovation, and societal context. The offerings comprise essential knowledge of these fields for students from other majors as well as problem-based courses that tackle global challenges from different disciplinary backgrounds. Working together with students from different disciplines and cultural backgrounds in these courses broadens the students' horizon by crossing the boundaries of traditional disciplines.

Foreign languages are integrated within the Language Module. Communicative skills and foreign language competence foster students' intercultural awareness and enhance their employability in a globalized and interconnected world. Jacobs University supports its students in acquiring and improving these skills by offering a variety of language courses at all proficiency levels.

2.4 Modularization of the Medical Natural Sciences Program

Year 1
There are three mandatory modules in the MedNat program as listed below.

Intensive German I (CH17-IntGermI)
Intensive German courses are offered according to the language competency of the individual student. The first of these courses is already offered a month before the official start of the term. MedNat students who are not yet in Germany in August have the chance to take this course in the intersession between the first and the second semester. These two courses will be complemented by a lecture series on Germany and its regions which will introduce the new home country away from home. Students will not only get a introduction to Germany's geography, but also historic perspective, and an introduction to the different stakeholders and organizations in Germany. Many aspects of everyday life in Germany will also be discussed.

Principles of Chemistry and Physics (CH05-PrincChemPhys)
The bi-functional module Principles of Chemistry and Physics provides an introduction to basic concepts of Inorganic/General Chemistry and selected topics of Physics. Two introductory lecture courses (General Chemistry (focus on atomic structure, stoichiometry, reactions, periodic table, gases, bonding, liquids, solids) and Thermodynamics and Optics (focus on thermodynamics from physics perspective and on basic optical phenomena and instruments) are complemented by laboratory courses (General Chemistry Lab and Thermodynamics and Optics Lab) to develop fundamental practical and experimental skills.
Foundation in Natural Sciences (CH18-FoundNat)
In this module, an introduction is provided to the principles, ideas and basics in the Natural Sciences, with emphasis on Organic Chemistry and Physics. For each of these topics, a 5 ECTS lecture will be held in the first and second semester, respectively which will feature tutorials as integral parts of the lectures. These courses are complemented by 2.5 ECTS lab courses offering practical training in key techniques applied in Organic Chemistry and Physics, respectively.

Foundation in Medicine I (CH19-FoundMedI)
Two lectures will introduce students to Biology/Physiology and Anatomy by giving a comprehensive overview about these topics. Topics will include the design and built in Medicine, covering cellular architectures, communication in multicellular organisms, organ morphology and anatomic features of the human body. Two 2.5 ECTS lab courses will complement these lectures by training students in key techniques in Molecular and Cellular Biology, and Anatomy, featuring amongst others dissection principles and techniques.

Year 2
Three mandatory modules are offered within the MedNat program.

Intensive German II (CO43-IntGermII)
As a continuation of Intensive German I, the language courses are offered according to the language competency of the individual student. These courses will be complemented by a 5 ECTS lecture series introducing the German Healthcare System (Das deutsche Gesundheitssystem). This will be a course completely taught in the German language. The different organizations and stakeholders in the medical sector in Germany will be introduced by experts from the relevant fields. This seminar will thus provide a concise overview of how healthcare is organized in Germany and provide MedNat students with all the required information to later work as medical doctors.

Cellular Biology (CO44-CelluBio)
Cell Biology is an introductory module giving a comprehensive overview about cellular structure and physiology. It will explain cellular architecture and organization and how cells need to interact and communicate in multicellular organisms. This module will thus provide insight into both, the organismal organization and specialization of cells as well as the underlying molecular processes, e.g., gene expression and intracellular transport. Two lectures are complemented by a 5 ECTS combined seminar and lab course in Histology (Histologie), offering practical training in key techniques applied in modern Histology. This German language based lab course is planned for the intersession between the 3rd and 4th semester.

Foundations in Medicine II (CO45-FoundMedII)
This addresses in two lectures Microbes and Infection, and Immunology respectively. It combines the fundamentals of microbiology with an overview about the human immune system. Students will learn how microbes act in the environment and on human health, and how scientists investigate and control microbial pathogens. The immune system will be explained and how it identifies and eliminates cancer cells, viruses, bacteria, and parasites. Immune evasion mechanisms of pathogens will be elucidated as well as therapeutic approaches. In a 2.5 ECTS lab course, students will learn to isolate, handle, characterize, and taxonomically identify microorganisms using classical and state-of-the-art technologies. This lab course in Microbiology (*Mikrobiologie*) will be taught in German, as will be the seminar Immunology (*Immunologie*), in which students train to address and solve immunological problems.

Year 3
There are two different options:

1. **World Track**
   In the 3rd year students follow the World Track by default.
   5th Semester
   - Internship at a modern health care provider.

   6th Semester
   - Intensive German III
   - Foundations in Medicine III
   - Bachelor thesis

2. **Campus Track**
   Students who do not enter the World Track follow the Campus Track.
   5th Semester
   - Biomedicine
   - Choose courses (5 ECTS) from the Jacobs Track

   6th Semester
   - Intensive German III
   - Foundations in Medicine III
   - Bachelor thesis

1. **World Track Internship in a Medical School**

   This module will provide MedNat students with an in-depth insight into everyday work in a hospital. Students will be introduced to all aspects of the practical aspects of medicine and shadow medical doctors. This module takes place during the entire semester (September to December), with no additional courses during the normal class times in the MedNat curriculum.

   Intensive German III
   As in the modules Intensive German I and II, the language courses are offered according to the language competency of the individual student. These courses will be complemented by a 5 ECTS seminar in which MedNat students are introduced to and trained in all aspects concerning the entry tests at German Medical Schools (Übergang ins Medizinstudium). As all third year MedNat courses, also this seminar is taught in the German language. The internship in the 5th semester requires that the first German language course takes place before the 5th semester, and the seminar is planned for the intersession between the 5th and 6th semester.

   Foundation in Medicine III
   This module focuses on Biochemistry (*Biochemie*) and will address in the German language, how the structure of biological molecules (proteins, sugars, lipids, nucleic acids) defines their biochemical properties and function. Students will learn the basics of metabolism, and how small drug molecules can influence them, for example in gene

expression or in infectious diseases and their treatment. A lecture is complemented by a 2.5 ECTS lab course offering practical training in key techniques applied in biochemistry and molecular biology and a seminar addressing methods and techniques in forensic medicine (*Forensik*).

2. **Campus Track Biomedicine**

   Biomedicine is an advanced module that builds on the 2nd year module Cellular Biology. Biomedicine first expands knowledge on key cellular processes often affected in diseases, e.g. gene expression, cell proliferation, intracellular trafficking, signal transduction and general turnover of cellular compounds. The module will address how these processes become altered in different diseases, e.g., cancer and neurodegenerative diseases, and how diagnostic tools and therapies (ranging from chemical to cell-based approaches) can be developed according to a disease's molecular origin. Two lectures are complemented by a 5 ECTS lab course that introduces students to modern methodology in cell biological research and biomedicine.

   Additionally, choose courses (5 ECTS) from the Jacobs Track.
   See World Track for:

   - **Intensive German III**
   - **Foundation in Medicine III**
   - **Bachelor Thesis / Project**

2.5 The Bachelor Thesis / Project

This module is a mandatory graduation requirement for all undergraduate students. It consists of two components in the major study program guided by a Jacobs Faculty member:

1. **A Research Project** (5 ECTS)
   and
2. **The Bachelor Thesis** (10 ECTS)

The workload for the project component is about 125 hours and for the thesis component about 250 hours.The title of the thesis will be shown on the transcript.

2.5.1 Aims

Within this module, students apply knowledge they have acquired about their major discipline, skills, and methods to become acquainted with actual research topics, ranging from the identification of suitable (short-term) research projects, preparatory literature searches, the realization of discipline-specific research, and the documentation, discussion, and interpretation of the results. Research results obtained from the Research Project can be embedded in the Bachelor Thesis.

2.5.2 Intended Learning Outcomes

1. Research Project
   This module component consists of a guided research project in the major study program. The well-defined research task must be completed and documented according to the scientific standards in the respective discipline. It involves a high degree of independence, supported by individualized instructor feedback and guidance.
2. Bachelor Thesis
   With their Bachelor Thesis students should demonstrate mastery of the contents and methods of the major specific research field. Furthermore, students should show the ability to analyze and solve a well-defined problem with scientific approaches, a critical reflection of the status quo in scientific literature, and an original development of their own ideas.

Both, the Research Project and the Bachelor Thesis, can also have an inter- or transdisciplinary nature - with the explicit permission of the supervisor.

2.5.3 Supervision

Both module components can be performed with the same Jacobs faculty member, or different ones, the latter in order to allow a broader research experience. Students are required to choose a supervisor, at the latest, by the end of the drop-add period of the semester in which the module component is taken. **The MedNat study program coordinator must approve the Project topic and Bachelor Thesis topic before the student starts to work towards the module component.** The respective study program chairs will assist in the search for prospective supervisor(s).

2.5.4 Registration

World Track students register for both components, at the earliest, in their 6th semester.
Campus Track students register for the Project component in the 5th and for the Bachelor Thesis component, at the earliest, in their 6th semester.

The registrations must be made before the end of the respective drop/add periods.

Later enrolment is possible for those students pursuing a second major or those who graduate late for other reasons. These students perform their (second) thesis earliest in the 7th semester of their studies. They have to contact the Student Records Office for individual registration.

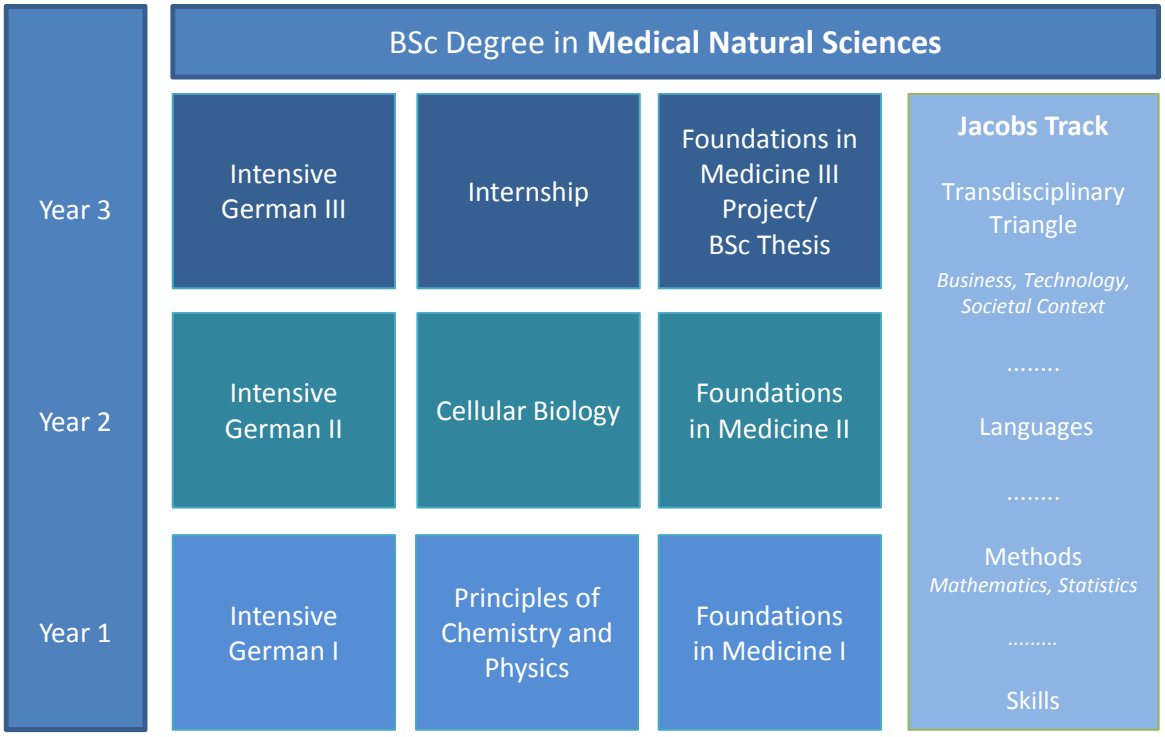
Students are allowed to extend their thesis related work into the intersession or summer break upon approval of the thesis supervisor and Student Records. Students are not allowed to register for different Bachelor Thesis courses in the same semester.

2.5.5 Formal Regulations for the Bachelor Thesis

- Timing
  The Thesis work has to be generated within the semester of registration. The semester period has 14 weeks.
- Extent
  The document must be between 15-25 pages in length, including references, but excluding appendices or supporting information. Deviations in length and format can be determined within individual study programs and should be communicated to all registered students by the study program chair.
- Cover page
  The cover page must show the title of the Bachelor Thesis, the university's name, the month and year of submission, the name of the student and the name of the supervisor.
- Statutory Declaration
  Each Bachelor Thesis must include a statutory declaration signed by the student confirming it is their own independent work and that it has not been submitted elsewhere. The respective form can be found on the Student Records Office website.
- Submission
  The Bachelor Thesis must be submitted as a hard copy (pdf-file) to the supervisor and additionally to the Student Records Office via online form on the Student Records Office website.

  Deadline for submission of the Bachelor Thesis is May 15 (unless specified otherwise by the Student Records Office).

2.6 Structure



YEAR 3 *Alternative Campus Track option: instead of the module „Internship“ the module „Biomedicine“ and addtional 5 ECTS from the Jacobs Track are required.*

Figure 1: Medical Natural Sciences Module Structure

3 Requirements for a B.Sc. in Medical Natural Sciences

3.1 General Requirements

All undergraduate study programs at Jacobs University involve six semesters of study with a total of 180 ECTS (European Credit Transfer System) credits. The Bachelor's degree is designed to be achievable in three years.

The specific requirements for a degree in Medical Natural Sciences as stated below are, where applicable, complemented by the general requirements as stated in the Jacobs University Undergraduate Policy.

3.2 Requirements of the Study Program

The study program has two components: The first component includes program-specific modules. The second component provides general education modules (Jacobs Track). Detailed information on the required modules and courses is stated in the mandatory course plan.

3.2.1 Requirements for World Track

First Component:
Program-specific Requirements (150 ECTS credits in total):

- 45 ECTS credits in program-specific 1st year modules
- 45 ECTS credits in program-specific 2nd year modules
- 25 ECTS credits in program-specific 3rd year modules
- 20 ECTS credits in the Internship Module
- 15 ECTS credits in the program-specific project/research and Bachelor thesis module

Second Component:
Jacobs Track (General Education) Requirements (30 ECTS credits in total):

- 12.5 ECTS credits in the Triangle / Language Area Module
- 15 ECTS credits in the Methods / Mathematics Module
- 2.5 ECTS credits in the Skills Module

3.2.2 Requirements for Campus Track

First Component:
Program-specific Requirements (145 ECTS credits in total):

- 45 ECTS credits in program-specific 1st year modules
- 45 ECTS credits in program-specific 2nd year modules
- 25 ECTS credits in program-specific 3rd year modules
- 15 ECTS credits in the Biomedicine Module

- 15 ECTS credits in the program-specific project/research and Bachelor thesis module

Second Component:
Jacobs Track (General Education) Requirements (35 ECTS credits in total):

- 12.5 ECTS credits in the Triangle / Language Area Module
- 15 ECTS credits in the Methods / Mathematics Module
- 2.5 ECTS credits in the Skills Module
- 5 ECTS credits in any of the Jacobs Track areas (Triangle, Languages, Methods)

4 Appendix 1a/1b: Mandatory Module and Examination Plans for World Track and Campus Track

Jacobs University Bremen reserves the right to substitute courses by replacements and/or reduce the number of mandatory/mandatory elective courses offered.

5 Appendix 2: Course Data for Program-Specific CHOICE and CORE Courses

All course data stated in the appendix is based on the previous study year and subject to change.

Appendix 1a - Mandatory Module and Examination Plan

Medical Natural Sciences – World Track

Matriculation Fall 2018

	Program-Specific Modules	Type	Status[1]	Semester	Credits		Jacobs Track Modules (General Education)	Type	Status[1]	Semester	Credits
Year 1					**45**						**15**
CH17-IntGermI	**Module: Intensive German I**		**m**		**15**		**JT-ME-MethodsMath**	**Module: Methods / Mathematics**		**m**		**7,5**
CH17-010101	German I	Seminar	m	1	5		JTME-120106	Applied Calculus I	Lecture	m	1	2,5
CH17-010102	German II	Seminar	m	2	5		JTME-120107	Applied Calculus II	Lecture	m	1	2,5
CH17-010103	Germany and its regions	Lecture	m	2	5		JTME-120101	Mathematical Concepts in the Sciences	Lecture	m	2	2,5
CH05-PrincChemPhy	**Module: Principles of Chemistry and Physics**		**m**		**15**		**JT-SK-SkillsMN**	**Module: Skills MEDNAT**		**m**		**2,5**
CH05-400101	General Chemistry	Lecture	m	1	5		JT-SK-990103	Scientific and Experimental Skills	Lecture	m	1	2,5
CH05-400111	General Chemistry Lab	Lab	m	1	2,5							
CH05-200102	Thermodynamics and Optics	Lecture	m	2	5							
CH05-200112	Thermodynamics and Optics Lab	Lab	m	2	2,5							
CH19-FoundMedI	**Module: Foundations in Medicine I**		**m**		**15**		**JT-TA-TriLangArea**	**Module: Triangle / Language Area**		**m**		**5**
CH19-540103	Biology/Physiology	Lecture	m	1	5			Take two courses from the triangle (BUSINESS, TECHNOLOGY and		me	1/2	5
CH19-540113	MedNat Lab	Lab	m	1	2,5			INNOVATION, SOCIETAL CONTEXT) or language area.				
CH19-540123	Anatomy	Lecture	m	2	5			Each counts 2,5 ECTS				
CH19-540133	Anatomy/Physiology Lab	Lab	m	2	2,5							
Year 2					**45**						**15**
CO43-IntGermII	**Module: Intensive German II**		**m**		**15**		**JT-ME-MethodsMath**	**Module: Methods / Mathematics**		**m**		**7,5**
CO43-010104	German III	Seminar	m	3	5			Take three methods (mandatory) elective courses.		me	3/4	7,5
CO43-010105	German IV	Seminar	m	4	5			Each counts 2,5 ECTS.				
CO43-010106	Das deutsche Gesundheitssystem	Lecture	m	4	5							
CO44-CelluBio	**Module: Cellular Biology**		**m**		**15**		**JT-TA-TriLangArea**	**Module: Triangle / Language Area**		**m**		**7,5**
CH01-520122	From cells to tissue and body functions	Lecture	m	3	5			Take three courses from the triangle (BUSINESS, TECHNOLOGY and		me	3/4	7,5
CO44-540201	Histologie Labor (Intersession)	Lab	m	3	5			INNOVATION, SOCIETAL CONTEXT) or language area.				
CH01-520102	General Molecular Cell Biology	Lecture	m	4	5			Each counts 2,5 ECTS.				
CO45-FoundMedII	**Module: Foundations in Medicine II**		**m**		**15**							
CO02-520221	Microbiology Lab	Lecture	m	3	5							
CO45-540211	Mikrobiologie Labor	Lab	m	3	2,5							
CO02-520322	Immunology	Lecture	m	4	5							
CO45-540202	Immunologie	Seminar	m	4	2,5							
Year 3					**60**							
CA19-IntGermIII	**Module: Intensive German III**		**m**		**15**							
CA19-010107	German V (between 4th and 5th Semester)	Seminar	m	5	5							
CA19-010108	Übergang ins Medizinstudium (Intersession)	Seminar	m	5	5							
CA19-010109	German VI	Seminar	m	6	5							
CA02-Internship	**Module: Internship**		**m**		**20**							
	Internship at Medical School	Internship	m	5	20							
CA20-FoundMedIII	**Module: Foundations in Medicine III**		**m**		**10**							
CA20-540301	Biochemie	Lecture	m	6	5							
CA20-540311	Biochemie Labor	Lab	m	6	2,5							
CA20-540302	Forensik	Seminar	m	6	2,5							
CA21-MedNat	**Module: Project/Thesis MEDNAT**		**m**		**15**							
CA21-540303	Project MEDNAT	Project	m	6	5							
CA21-540304	Thesis MEDNAT	Thesis	m	6	10							
Total ECTS												**180**

[1] Status (m = mandatory, e = elective, me = mandatory elective)

Appendix 1b - Mandatory Module and Examination Plan

Medical Natural Sciences – Campus Track

Matriculation Fall 2018

	Program-Specific Modules	Type	Status[1]	Semester	Credits		Jacobs Track Modules (General Education)	Type	Status[1]	Semester	Credits
Year 1					**45**						**15**
CH17-IntGermI	**Module: Intensive German I**		**m**		**15**	**JT-ME-MethodsMath**	**Module: Methods / Mathematics**		**m**		**7,5**
CH17-010101	German I	Seminar	m	1	5	JTME-120106	Applied Calculus I	Lecture	m	1	2,5
CH17-010102	German II	Seminar	m	2	5	JTME-120107	Applied Calculus II	Lecture	m	1	2,5
CH17-010103	Germany and its regions	Lecture	m	2	5	JTME-120101	Mathematical Concepts in the Sciences	Lecture	m	2	2,5
CH05-PrincChemPhy	**Module: Principles of Chemistry and Physics**		**m**		**15**	**JT-SK-SkillsMN**	**Module: Skills MEDNAT**		**m**		**2,5**
CH05-400101	General Chemistry	Lecture	m	1	5	JT-SK-990103	Scientific and Experimental Skills	Lecture	m	1	2,5
CH05-400111	General Chemistry Lab	Lab	m	1	2,5						
CH05-200102	Thermodynamics and Optics	Lecture	m	2	5						
CH05-200112	Thermodynamics and Optics Lab	Lab	m	2	2,5						
CH19-FoundMedI	**Module: Foundations in Medicine I**		**m**		**15**	**JT-TA-TriLangArea**	**Module: Triangle / Language Area**		**m**		**5**
CH19-540103	Biology/Physiology	Lecture	m	1	5		Take two courses from the triangle (BUSINESS, TECHNOLOGY and		me	1/2	5
CH19-540113	MedNat Lab	Lab	m	1	2,5		INNOVATION, SOCIETAL CONTEXT) or language area.				
CH19-540123	Anatomy	Lecture	m	2	5		Each counts 2,5 ECTS				
CH19-540133	Anatomy/Physiology Lab	Lab	m	2	2,5						
Year 2					**45**						**15**
CO43-IntGermII	**Module: Intensive German II**		**m**		**15**	**JT-ME-MethodsMath**	**Module: Methods / Mathematics**		**m**		**7,5**
CO43-010104	German III	Seminar	m	3	5		Take three methods (mandatory) elective courses.		me	3/4	7,5
CO43-010105	German IV	Seminar	m	4	5		Each counts 2,5 ECTS.				
CO43-010106	Das deutsche Gesundheitssystem	Lecture	m	4	5						
CO44-CelluBio	**Module: Cellular Biology**		**m**		**15**	**JT-TA-TriLangArea**	**Module: Triangle / Language Area**		**m**		**7,5**
CH01-520122	From cells to tissue and body functions	Lecture	m	3	5		Take three courses from the triangle (BUSINESS, TECHNOLOGY and		me	3/4	7,5
CO44-540201	Histologie Labor (Intersession)	Lab	m	3	5		INNOVATION, SOCIETAL CONTEXT) or language area.				
CH01-520102	General Molecular Cell Biology	Lecture	m	4	5		Each counts 2,5 ECTS.				
CO45-FoundMedII	**Module: Foundations in Medicine II**		**m**		**15**						
CO02-520221	Microbiology Lab	Lecture	m	3	5						
CO45-540211	Mikrobiologie Labor	Lab	m	3	2,5						
CO02-520322	Immunology	Lecture	m	4	5						
CO45-540202	Immunologie	Seminar	m	4	2,5						
Year 3					**55**						**5**
CA19-IntGermIII	**Module: Intensive German III**		**m**		**15**	**JT-MedNatCT**	**Module: Jacobs Track (MedNat CT)**		**m**		**5**
CA19-010107	German V (between 4th and 5th Semester)	Seminar	m	5	5		Take any two courses from the triangle (BUSINESS, TECHNOLOGY and		me	3/4	5
CA19-010108	Übergang ins Medizinstudium (Intersession)	Seminar	m	5	5		INNOVATION, SOCIETAL CONTEXT) or language area or				
CA19-010109	German VI	Seminar	m	6	5		methods area.				
CO01-Biomed	**Module: Biomedicine**		**me**		**15**		Each counts 2,5 ECTS.				
CO01-520234	Advanced Molecular Cell Biology	Lecture	m	5	5						
CO01-520241	Advanced Molecular Cell Biology Lab (Intersession)	Lab	m	5	5						
CO01-520235	Molecular Mechanisms of Disease, Diagnostics and Therapy	Lecture	m	6	5						
CA20-FoundMedIII	**Module: Foundations in Medicine III**		**m**		**10**						
CA20-540301	Biochemie	Lecture	m	6	5						
CA20-540311	Biochemie Labor	Lab	m	6	2,5						
CA20-540302	Forensik	Seminar	m	6	2,5						
CA21-MedNat	**Module: Project/Thesis MEDNAT**		**m**		**15**						
CA21-540303	Project MEDNAT	Project	m	5	5						
CA21-540304	Thesis MEDNAT	Thesis	m	6	10						
Total ECTS											**180**

[1] Status (m = mandatory, e = elective, me = mandatory elective)

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German A1.1	010001	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	Contact Time: 35,00 Private Study: 27,50	CHOICE

Course Description / Content / Aims

Official Course Description:
• This course is designed for students with no prior knowledge of German.
• The teaching language is German.

You will learn to understand and use familiar everyday expressions and basic phrases about your immediate surroundings. With a focus on speaking and listening, you will learn how to interact in a simple way.

Topics to be covered will include: introducing yourself and others; talking about family, friends and hobbies; numbers, time and dates; work and professions; getting around in the city; leisure activities; food and restaurant.

You will learn the most basic forms and structures, such as statements and questions, conjugation of the present tense, past tense of “haben” and “sein”, separable verbs, modal verbs, articles in the nominative and accusative case, pronouns and basic prepositions.

You can reach language level A1 within two semesters taking course A1.1 and the continuation A1.2 during the following semester.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German A1.1	010001	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	Contact Time: 35,00 Private Study: 27,50	CHOICE

Appendix 2 - Course Data

Course Description / Content / Aims

Official Course Description:
• This course is designed for students with no prior knowledge of German.
• The teaching language is German.

You will learn to understand and use familiar everyday expressions and basic phrases about your immediate surroundings. With a focus on speaking and listening, you will learn how to interact in a simple way.

Topics to be covered will include: introducing yourself and others; talking about family, friends and hobbies; numbers, time and dates; work and professions; getting around in the city; leisure activities; food and restaurant.

You will learn the most basic forms and structures, such as statements and questions, conjugation of the present tense, past tense of “haben” and “sein”, separable verbs, modal verbs, articles in the nominative and accusative case, pronouns and basic prepositions.

You can reach language level A1 within two semesters taking course A1.1 and the continuation A1.2 during the following semester.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German A1.2	010002	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

• This course is designed for students with very basic knowledge of German (a course A1.1 or equivalent).
• The teaching language is German.

You will improve your interaction skills by speaking and listening exercises. You will be able to read and understand simple descriptive texts and dialogues, and you will learn how to write short texts.

Topics to be covered will include: interacting with people; life at work; living in the city; fashion and clothes; health and fitness; holidays and weather.

You will learn more basic forms and structures, such as the perfect tense, imperative forms, more modal verbs, articles and personal pronouns in the dative case, possessive articles in the accusative case, demonstrative pronouns, more temporal and local prepositions, adverbials of time, sentence connectors.

Attending this course you can reach language level A1.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German A1+	010003	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

This course is designed for students who want to consolidate and improve their German skills on A1 level. A1 grammar will be reviewed, complemented (+) and automatized by qualified training. The A1 vocabulary will be used in context and broadened (+). Especially speaking and listening will be practiced in basic conversations during classroom and some off-classroom activities.
The course will also prepare for taking a German A1 certificate.
For a detailed description of all language levels according to the Common European Framework of Reference for Languages https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German A2.1	010004	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

• This course is designed for students with basic knowledge of German (a course A1.2 or equivalent).
• The teaching language is German.

You will learn to use frequent expressions in everyday situations and during routine tasks, and to talk about familiar persons and objects in your immediate surroundings. You will also become acquainted with communicative patterns such as asking for information, expressing opinions and feelings, and giving advice. You will be able to read and understand basic descriptive texts and dialogues, and you will learn how to compose basic texts.

Topics to be covered will include: food and restaurant; school and school system; communication media; celebrations and festivities; work and career; travel and mobility.

You will learn new forms and structures, such as reflexive verbs, modal verbs (past tense), possessive articles in the dative case, declension of adjectives, comparative and superlative forms, (local) prepositions with dative and accusative, subordinate clauses with “weil”, “dass”, “wenn”, indirect questions.

You can reach language level A2 within two semesters taking course A2.1 and the continuation A2.2 during the following semester.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German A2.1	010004	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Appendix 2 - Course Data

Course Description / Content / Aims

• This course is designed for students with basic knowledge of German (a course A1.2 or equivalent).
• The teaching language is German.

You will learn to use frequent expressions in everyday situations and during routine tasks, and to talk about familiar persons and objects in your immediate surroundings. You will also become acquainted with communicative patterns such as asking for information, expressing opinions and feelings, and giving advice. You will be able to read and understand basic descriptive texts and dialogues, and you will learn how to compose basic texts.

Topics to be covered will include: food and restaurant; school and school system; communication media; celebrations and festivities; work and career; travel and mobility.

You will learn new forms and structures, such as reflexive verbs, modal verbs (past tense), possessive articles in the dative case, declension of adjectives, comparative and superlative forms, (local) prepositions with dative and accusative, subordinate clauses with “weil”, “dass”, “wenn”, indirect questions.

You can reach language level A2 within two semesters taking course A2.1 and the continuation A2.2 during the following semester.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German A2.2	010005	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

• This course is designed for students with basic knowledge of German (a course A2.1 or equivalent).
• The teaching language is German.

This course will help you gain more confidence in using familiar and new structures and patterns in everyday situations. You will deepen your communicative skills with respect to describing things and persons, planning activities, making suggestions and complaints, expressing intentions, wishes and feelings, and giving advice. You will learn to understand the most relevant facts in conversations and with regard to a variety of descriptive texts, and you will be able to compose pre-intermediate descriptive texts and dialogues.

Topics to be covered will include: learning situations, sports and activities, living in the neighborhood and pets, cultural activities and preferences, stages of our life, cultural differences and stereotypes.

You will learn new forms and structures on a pre-intermediate level, such as verbs with accusative and dative, verbs with prepositions, subjunctive II (to express wishes, requests and advice), genitive –s, temporal prepositions, subordinate clauses with “als/wenn” and “damit/um … zu”, sentence connectors (“denn”, “trotzdem”, deshalb”), relative clauses (nominative and accusative).

Attending this course you can reach language level A2.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German A2+	010006	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

This course is designed for students who want to consolidate and improve their German skills on A2 level. A2 grammar will be reviewed, complemented (+) and further consolidated by qualified training. The A2 vocabulary will be used in context and broadened (+). Especially speaking and listening will be practiced in conversations on a pre-intermediate level during classroom and some off-classroom activities.

The course will also prepare for taking a German A2 certificate.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions

Methods of Assessment

Appendix 2 - Course Data

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German - Contemporary Germany	010007	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 17,50 Private Study: 45,00	***Level*** CHOICE

Course Description / Content / Aims

This course will provide you with basic insights into modern German culture, society and politics. You will be acquainted with the major cultural, social and political coordinates of modern Germany. We will engage with a variety of texts and media formats on diverse topics such as German geography and history, education and work, science and technology, the political system, and German cultural life with respect to literature, music, cinema and the media.

This course is taught in English.

Assessment:

Group Project and Presentation (50%): As part of a small group, you will either give a class presentation or a poster presentation. You will choose, research and report on one aspect of German culture, society or politics. You need to find your own topic. The presentation will last 25 minutes, including around 5 minutes of question time. The poster presentation will be held in the penultimate session of the course.

Final Exam (50%): The final exam will last 75 minutes. It will test your knowledge on various aspects discussed during the course.

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German B1.1	010008	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

This course is designed for students with a good basic knowledge of German. Vocabulary and grammar acquisition will provide a broader set of tools for conversational situations of everyday life, utilizing listening, reading, and structured writing practice as well.

You can reach language level B1 within two semesters taking course B1.1 and the continuation B1.2 during the following semester.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%

Appendix 2 - Course Data

Name	Weighting
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German B1.1	010008	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	Contact Time: 35,00 Private Study: 27,50	CHOICE

Course Description / Content / Aims

This course is designed for students with a good basic knowledge of German. Vocabulary and grammar acquisition will provide a broader set of tools for conversational situations of everyday life, utilizing listening, reading, and structured writing practice as well.

You can reach language level B1 within two semesters taking course B1.1 and the continuation B1.2 during the following semester.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German B1.2	010009	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	Contact Time: 35,00 Private Study: 27,50	CHOICE

Course Description / Content / Aims

This course is designed for students with a good basic knowledge of German. Vocabulary and grammar acquisition will provide a broader set of tools for conversational situations of everyday life, utilizing listening, reading, and structured writing practice as well.

After successfully attending B1.2 you have completed the B1 level.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German B1+	010010	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	Contact Time: 35,00 Private Study: 27,50	CHOICE

Course Description / Content / Aims

This course is designed for students with intermediate knowledge of German who want to consolidate and improve their German skills on B1 level. B1 grammar will be reviewed, complemented (+) and further consolidated by qualified training. The B1 vocabulary will be used in context and broadened. Especially speaking and listening will be practiced in conversations on an intermediate level during classroom and some off-classroom activities.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German B2.1 (1)	010011	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	Contact Time: 35,00 Private Study: 27,50	CHOICE

Course Description / Content / Aims

This course is designed for students with intermediate knowledge of German. Vocabulary and grammar acquisition will play a major role to further increase your proficiency in the four skills (speaking, reading, listening, writing). Review, broadening, and practice of grammar concepts provided in contexts. A broad range of topics will be covered. Skills practice to prepare for higher level language exams.

You can reach language level B2 within four semesters taking course B2.1(1) and the continuations B2.1(2), B2.2(1) and B2.2(2) during the following semesters.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Methods of Assessment

Name	Weighting
Active Participation and (if required) a short presentation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German B2.1 (2)	010012	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

This course is designed for students with intermediate knowledge of German. Vocabulary and grammar acquisition will play a major role to further increase your proficiency in the four skills (speaking, reading, listening, writing). Review, broadening, and practice of grammar concepts provided in contexts. A broad range of topics will be covered. Skills practice to prepare for higher level language exams.

You can reach language level B2 within four semesters taking course B2.1(1) and the continuations B2.1(2), B2.2(1) and B2.2(2) during the following semesters.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Methods of Assessment

Name	Weighting
Active Participation and (if required) a short presentation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German B2.2 (1)	010013	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

This course is designed for students with upper-intermediate knowledge of German. Vocabulary and grammar acquisition will play a major role to further increase your proficiency in the four skills (speaking, reading, listening, writing). Review, broadening, and practice of grammar concepts provided in contexts. A broad range of topics will be covered. Skills practice to prepare for higher level language exams.

You can reach language level B2 taking course B2.2(1) and the continuation B2.2(2) next semester.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Methods of Assessment

Name	Weighting
Active Participation and (if required) a short presentation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German B2.2 (2)	010014	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

This course is designed for students with upper-intermediate knowledge of German. Vocabulary and grammar acquisition will play a major role to further increase your proficiency in the four skills (speaking, reading, listening, writing). Review, broadening, and practice of grammar concepts provided in contexts. A broad range of topics will be covered. Skills practice to prepare for higher level language exams.

You have reached language level B2 after successfully completing this B2.2(2) course.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages: https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Methods of Assessment

Name	Weighting
Active Participation and (if required) a short presentation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German C1.2	010018	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

This course is designed for students with advanced knowledge of German. You will consolidate and broaden your vocabulary, review and practice advanced linguistic patterns, and work with text genres typical for academic contexts.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions

Methods of Assessment

Name	Weighting
Active Participation and (if required) a short presentation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German C1.2 (2) - CEFR C1 proficiency	010020	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

This course is designed for students with an advanced knowledge of German (courses of level C1.2 (1), or equivalent).

The objective of this course is to further develop your ability in speaking, reading, writing, and listening, dealing with detailed complex texts in unexpected situations outside your own field or areas of interest even when idiomatic expressions are used.

You will learn to express yourself almost effortlessly, spontaneously and fluently, giving clear and detailed descriptions, to precisely express your thoughts and opinions thanks to a good command of a broad range of language, making few mistakes in word usage.

Listening: You will learn to follow extended speech, group discussions and debates even when the unfamiliar topic is abstract and complex.

Reading: You will learn to understand in detail a wide range of lengthy complex texts likely to be encountered in social, professional or academic life.

Writing: You will learn to write clear, well-structured texts on complex subjects with considerable accuracy where errors are rare and difficult to spot.

Topics will include: psychology, gender specific behavior, art, film, creativity, reading habits, e-books, workings of the memory, perception and recognition.

In courses of the C1 level, idioms and semantics play an increasing role in relation to grammar. Concerning forms and structures the main focus will be on extension and expansion, e.g. modal verbs with objective and subjective meaning, separable and non separable verbs, connectors, attributive and appositive use of participle I/II, future I/II (to express assumptions).

Students attending this course can reach language level C1 (according to the Common European Framework of Reference for Languages).

Methods of Assessment

Name	Weighting
Active Participation and (if required) a short presentation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German C2.1 (2)	010022	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Appendix 2 - Course Data

JACOBS UNIVERSITY

Course Description / Content / Aims

Methods of Assessment

Name	Weighting
Active Participation and (if required) a short presentation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German C1: TestDaF	010024	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims

This course is designed for students with advanced knowledge of German (completed B2.2 (1)) who wish to prepare for the TestDaF examination. The TestDaF examination is a standardized German language test required for admission at a public university in Germany. It is also useful for assessing and certifying your level of German.

In this course you will get familiar with the four parts of the TestDaF (Reading Comprehension, Listening Comprehension, Written Production, Oral Production). Specific exercises and model tests will help you improve your reading, listening, writing and speaking skills in an academic context, as well as broaden your vocabulary.

For upcoming test dates and list of test centers, please check the TestDaF website:
www.testdaf.de

For a detailed description of all language levels according to the Common European Framework of Reference for Languages https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions

Methods of Assessment

Name	Weighting
Active Participation	25%
Semester Final Test	25%
Three tests (reading, listening, speaking) and Home Work	50%

Course Name	***Course No***	***ECTS***
German C1 - German Culture and Society in the 21st Century	010028	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Appendix 2 - Course Data

Course Description / Content / Aims

This course is designed for students with an advanced knowledge of German (courses of B2 level, “Goethe-Zertifikat B2” or equivalent).

The objective of this course is to further develop your ability in speaking, reading, writing, and listening, dealing with detailed complex texts in unexpected situations outside your own field or areas of interest even when idiomatic expressions are used.

Speaking: You will learn to express yourself almost effortlessly, spontaneously and fluently, giving clear and detailed descriptions, to precisely express your thoughts and opinions thanks to a good command of a broad range of language, making few mistakes in word usage.

Presentation: You will be asked to prepare a short presentation.

Listening: You will learn to follow extended speech, group discussions and debates even when the unfamiliar topic is abstract and complex.

Reading: You will learn to understand in detail a wide range of lengthy complex texts likely to be encountered in social, professional or academic life.

Writing: You will learn to write clear, well-structured texts on complex subjects with considerable accuracy where errors are rare and difficult to spot.

In courses of the C1 level, idioms and semantics play an increasing role in relation to grammar. Concerning forms and structures the main focus will be on extension and expansion.

Topics will be chosen according to current issues in German society. Extracts from literature or important texts relating to German history or politics will also be used, as the focus will be on German culture as a whole, past and present.

For example, we will discuss issues of social life. We will also study the protection of environment by use of regenerative energy sources.

In literature, we will work with the play of Max Frisch´s “Andorra”, alluding to issues concerning life of human beings being part of society.

We will also analyse language as used in journals or in newspapers´texts, for example “Konjunktiv I and II , “Infinitivsätze” and “Satzverbindungen und Konnektoren”.

Materials: articles from newspapers or similar, radio features, short pieces of literature, film, music etc.

Textbook: No textbook

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German C1 - German Culture reflected in Texts and Films I	010029	2,5
Module Affiliation JTLA-Language Language (for Class of 2021) CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 27,50	***Level*** CHOICE

Course Description / Content / Aims
This course is designed for students with an advanced knowledge of German (courses of B2 level, “Goethe-Zertifikat B2” or equivalent).

The objective of this course is to further develop your ability in (a) speaking, (b) reading, (c) writing, and (d) listening. At the same time you will get more familiar with (e) German culture by reading/watching quite various text and film genres. You will also review and learn (f) (grammatical) forms and structures.

(a) Speaking: You will learn how to express yourself flexibly, spontaneously and fluently, giving clear and detailed descriptions, to precisely express your thoughts and opinions thanks to a good command of a wide range of verbal modes of expression. You will practice your speaking in class and during (panel) discussions and by giving short presentations.

(b) Listening: You will learn how to follow extended speech, group discussions and debates on various, also non-familiar topics. The listening assignments will exclusively be based on authentic German texts and films.

(c) Reading: You will learn how to understand longer and demanding texts, including journalistic, academic and literary texts.

(d) Writing: You will learn how to write clear, well-structured texts on complex subjects with considerable accuracy. You will practice coherent writing using organizational patterns such as cohesive devices. To intensify the writing process we will establish a course blog.

(e) Culture: The course will have a focus on film, i.e. you will watch short films, news shows, documentaries, commercials and a feature film (literary adaptation) that will especially exercise your listening abilities. At the same time you will learn about German culture or topics that are currently discussed in Germany.

(f) Grammatical structures will be brushed up if necessary, but you will also learn new and more subtle structures such as modal particles, different phrasing (e.g. nominal style), and various and complex forms of attribution.

Textbook: No general textbook, material will be provided

Course Name	***Course No***	***ECTS***
German I	CH17-010101	5
Module Affiliation CH17-IntGermI Intensive German I	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 90,00	***Level*** Bachelor 1st Year CHOICE

Course Description / Content / Aims
This course is designed specifically for students of the Medical Natural Sciences program with basic knowledge of German to enable fast progress in acquiring German language skills on the A2.1 level.

Topics will be: food and restaurant, school and school system, communication media, celebrations and festivities; work and career; travel and mobility.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions

The teaching language is German – right from the very first lesson..

Methods of Assessment

Appendix 2 - Course Data

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German II	CH17-010102	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH17-IntGermI Intensive German I	Contact Time: 35,00 Private Study: 90,00	Bachelor 1st Year CHOICE

Course Description / Content / Aims

This course is designed specifically for students of the Medical Natural Sciences program with basic knowledge of German to enable fast progress in acquiring German language skills on the A2.2 level.

Topics will be: learning situations, sports and activities, living together and neighborhoods, pets, cultural activities and preferences (music, film, literature), phases of your life, weekend plans, cultural differences and clichés. Additionally to the textbook's coursework an adapted piece of literature will be read.

For a detailed description of all language levels according to the Common European Framework of Reference for Languages https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions

The teaching language is German – right from the very first lesson.courses holds: The teaching language is German – right from the very first lesson.

Course Name	***Course No***	***ECTS***
Germany and its regions	CH17-010103	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH17-IntGermI Intensive German I	Contact Time: 35,00 Private Study: 90,00	Bachelor 1st Year CHOICE

Course Description / Content / Aims

This course aims at familiarizing first-year MedNat students with the German political system, society and culture. It starts with a look into history highlighting developments that have been crucial for today's Germany. This is followed by a more thorough overview of contemporary society and politics. Aspects of culture will be discussed in the third part of the course. Excursions are planned to embed the course topics into a local context.
Aims and Objectives:
Getting familiar with the contemporary German political system, society and culture.
Learning how to analyze and interpret societal developments in Germany and put them into a broader context.

Methods of Assessment

Name	Weighting
3 Presentation	30%
Active Participation	40%
Home Work	30%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
Thermodynamics and Optics	CH05-200102	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH05-PrincChemPhys Principles of Chemistry and Physics	Contact Time: 35,00 Private Study: 90,00	Bachelor 1st Year CHOICE

Course Description / Content / Aims

Optics and thermodynamics are topics of interest for any student enrolled in a natural science major such as physics or chemistry. This course introduces the basic physical principles and concepts of optics and thermodynamics. Emphasis is laid on general principles and phenomena necessary to describe natural phenomena and basic scientific instruments. Experiments and demonstrations are included in the lecture, and a tutorial is offered to discuss homework and topics of interest in more details.
The course is divided into two section: one is thermodynamics starting with the description of temperature, heat, ideal gases and kinetic gas theory; it includes the 1st law and heat engines together with the 2nd law and entropy and other thermodynamic potentials. The other section starts with an introduction to the nature of light and waves, and the basic phenomena of reflection and refraction. It then focuses on lenses and optical instruments before it turns to interference and diffraction and ends with advanced topics such as spectroscopy and lasers.

Methods of Assessment

Name	Weighting
First Exam	40%
Home Work	20%
Second Exam	40%

Course Name	***Course No***	***ECTS***
Thermodynamics and Optics Lab	CH05-200112	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH05-PrincChemPhys Principles of Chemistry and Physics	Contact Time: 25,50 Private Study: 37,00	Bachelor 1st Year CHOICE

Course Description / Content / Aims

Physics is an experimental science and the ultimate test of any theory or description of nature is the experiment. This lab course complements the Thermodynamics and Optics lecture with experiments in those fields and is supplemented by experiments covering physics topics from the other lecture of the module, inorganic chemistry. It deepens the understanding and extends the topics covered in the lecture, which is a co-requisite for this course. Prior to the course, students need to attend the relevant safety instructions and will get an introduction to error analysis. The lab offers six different experiments and runs over six afternoons.
The aim of the lab sessions is hands-on experience on how to investigate physical phenomena and topics presented in the lecture; to plan, carry out, and analyze experiments in physics; to describe, summarize and present experimental results adequately. Examples of experiments include Coulomb force, ideal gas and diffraction.

Methods of Assessment

Name	Weighting
Final Exam	34%
Reports	66%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
General Chemistry	CH05-400101	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH05-PrincChemPhys Principles of Chemistry and Physics	Contact Time: 35,00 Private Study: 90,00	Bachelor 1st Year CHOICE

Course Description / Content / Aims

An introduction to inorganic and general chemistry covering the following areas: (1) Chemical Foundations, (2) Atoms, Molecules, and Ions, (3) Stoichiometry, (4) Types of Chemical Reactions and Solution Stoichiometry, (5) Gases, (6) Atomic Structure and Periodicity, (7) Bonding: General Concepts, (8) Covalent Bonding: Orbitals, (9) Liquids and Solids, (10) Properties of Solutions

Methods of Assessment

Name	Weighting
Attendance	10%
Final Exam	45%
Midterm Exam	45%

Course Name	***Course No***	***ECTS***
General Chemistry Lab	CH05-400111	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH05-PrincChemPhys Principles of Chemistry and Physics	Contact Time: 25,50 Private Study: 37,00	Bachelor 1st Year CHOICE

Course Description / Content / Aims

Foundation principles of chemistry, including basic laboratory techniques, qualitative analysis of anions and cations, strong/weak acids and bases, titrations, solubility of salts, crystallization, redox reactions, gravimetric analysis, volumetric analysis, complex formation, synthesis of nanoparticles.

Methods of Assessment

Name	Weighting
Performance	50%
Quizz(es)	10%
Reports	40%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
Biology/Physiology	CH19-540103	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH19-FoundMedI Foundations in Medicine I	Contact Time: 35,00 Private Study: 90,00	Bachelor 1st Year CHOICE

Course Description / Content / Aims

This lecture provides an overview of fundamental concepts of biology, e.g. evolution, taxonomy, speciation, anatomy, physiology, behavior, and reproduction, to name a few. Biology is, on one hand, very complex and also a bit confusing when looking at the enormous diversity of life forms on Earth, on the other hand it is fascinating when looking at the mechanisms behind the apparent heterogeneity. Still, many areas are terra incognita, for example the astonishing flexibility of neuronal networks or cooperative actions of individuals in populations of insects, fish, or mammas, known as swarm intelligence.

Methods of Assessment

Name	Weighting
Final Exam	50%
Midterm Exam	50%

Course Name	***Course No***	***ECTS***
MedNat Lab	CH19-540113	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH19-FoundMedI Foundations in Medicine I	Contact Time: 25,50 Private Study: 37,00	Bachelor 1st Year CHOICE

Course Description / Content / Aims

This laboratory course accompanies the lecture "Biology/Physiology". It aims at introducing students to the basic techniques (e.g., pipetting, spectrophotometry, microscopy) in experimental life sciences. Students will learn how to prepare buffers and determine concentrations spectrophotometrically. They will analyze different classes of biomolecules and investigate the importance of pH on molecular function and cellular behavior. In-lab seminars will discuss the theory behind the experiments and the expected outcomes. The students will document and discuss their experimental data in publication-style reports. Theoretical preparation will be tested for by quizzes and the preparation of material safety data sheets (MSDS).

Methods of Assessment

Name	Weighting
6 Quizz(es)	20%
Lab Report	70%
MSDS	10%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
Anatomy	CH19-540123	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH19-FoundMedI Foundations in Medicine I	Contact Time: 35,00 Private Study: 90,00	Bachelor 1st Year CHOICE

Course Description / Content / Aims

This course provides students with a general introduction to selected topics of human anatomy that are relevant to medicine and the life sciences. Assuming little prior knowledge of the subject, the lecture describes and explains the terminology, different concepts and phenomena in the fields of human anatomy as well as basics of histology and embryology. The lecture includes also some information concerning the physiology linked directly to the anatomy. Where possible, some topics will be presented by the students themselves in order to understand better how to study the complexity of human anatomy.

Methods of Assessment

Name	Weighting
4 Quizz(es)	50%
Final Exam	50%

Course Name	***Course No***	***ECTS***
Anatomy/Physiology Lab	CH19-540133	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH19-FoundMedI Foundations in Medicine I	Contact Time: 25,50 Private Study: 37,00	Bachelor 1st Year CHOICE

Course Description / Content / Aims

This laboratory course accompanies the lecture "Anatomy", and builds on the lecture “Biology/ Physiology”. It aims at introducing students to basic concepts of anatomy and physiology, with an emphasis on humans. Using anatomic models or skeletons, different aspects of anatomy will be studied. Next to these systemic approaches, we will use dissection to investigate the regional anatomy of various body parts. Experiments with different equipment will be done to study physiological parameters like electrocardiogram, EEG, EOG, and EMG. In-lab seminars will discuss the theory behind the investigations and the expected outcomes. The students will document and discuss their observations in publication-style reports. Theoretical preparation will be tested for by quizzes and the preparation of material safety data sheets (MSDS; where appropriate).

Methods of Assessment

Name	Weighting
Attendance	50%
Protocols	50%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
German III	CO43-010104	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CO43-IntGermII Intensive German II	Contact Time: 35,00 Private Study: 90,00	Bachelor 2nd Year CORE

Course Description / Content / Aims

This course is designed specifically for students of the Medical Natural Sciences program with good basic knowledge of German to enable fast progress in acquiring German language skills on the B1.2 (1) level.
Topics will be: travel, purchase decisions, smartphones and other technical devices, advertisements, turning points, past events, German history, learning work, job advertisements and job application; environment and environment protection; plans and intentions for the future, forecasts, family, personal relationships and conflicts; health; art (theater, film).
For a detailed description of all language levels according to the Common European Framework of Reference for Languages https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions
The teaching language is German – right from the very first lesson.

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Quizz(es)	25%

Course Name	***Course No***	***ECTS***
German IV	CO43-010105	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CO43-IntGermII Intensive German II	Contact Time: 35,00 Private Study: 90,00	Bachelor 2nd Year CORE

Course Description / Content / Aims

This course is designed specifically for students of the Medical Natural Sciences program to enable fast progress in acquiring German language skills on the B-level.

Methods of Assessment

Name	Weighting
Active Participation	25%
Final Exam	25%
Home Work	25%
Midterm Exam	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
Das deutsche Gesundheitssystem	CO43-010106	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CO43-IntGermII Intensive German II	Contact Time: 35,00 Private Study: 90,00	Bachelor 2nd Year CORE

Course Description / Content / Aims

This is the first lecture in the German language for the students. In this course we will give an overview on the German Gesundheitswesen. We will start with an integrated description of the medical studies including the new bachelor and master possibilities for medical students. Further on we will discuss the different possibilities of specification in the medical field. Here we will put emphasis on the necessity of general practitioners (GP´s) in Germany and the provision of medical care in rural areas. Additionally we will cover the profession of pharmacists and the “Apothekenwesen”, since the pharmacists are important collaborators for medical doctors. Here we will provide special emphasis also on the law on prescription and the “Medizinrecht”. Next to these topics we will review the management of hospitals including the hierarchy of doctors and the economical side of running hospitals resp own practice. To run a hospital or an own doctor´s practice economical gain more and more importance in the future. From here on we come to the German Krankenversicherungssystem and talk about the structure and difference between the “gesetzliche” and “private” Krankenversicherung. The German health insurance is very unique in the international comparison and still one of the leading insurance systems concerning the patient care in the world. Because the paramedical professions are of quite some importance in establishing a well functioning structure of treating patients, we will allow an insight into the profession of “Pflegeberufe” as well. Towards the end of the course the students shall learn about the organizations for medical doctors like the “Hartmannbund” and the “Kassenärztliche Vereinigung”. Wherever suitable, external experts will be invited to report on practical aspects of the course content. The main medium of instruction is German. Only in exceptional cases will English be used.

Methods of Assessment

Name	Weighting
Final Exam	60%
Midterm Exam	40%

Course Name	***Course No***	***ECTS***
General Molecular Cell Biology	CH01-520102	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH01-CellBio Cell Biology CO44-CelluBio Cellular Biology	Contact Time: 35,00 Private Study: 90,00	Bachelor 1st Year CORE

Course Description / Content / Aims

This lecture course will focus on the molecular architecture of cells and will address more complex cell biological topics. Students will learn how genetic information is encoded and organized, how cellular compounds are synthesized, delivered and degraded within the cell and how these processes govern cellular physiology. A comprehensive overview about the field of molecular cell biology will be provided through a combination of historical outlines, information about experimental approaches in the molecular life sciences and the analysis of key cellular processes: DNA replication, protein synthesis, intracellular transport, cell division, cellular movements, signal transduction, cellular communication and the biology of neurons. Finally, students will learn how alterations in molecules, e.g. by mutation, may lead to diseases, such as cancer and neurodegenerative diseases. At the end of this lecture students will have acquired a thorough understanding of the general principles underlying cellular processes.

Methods of Assessment

Name	Weighting
Final Exam	40%
Quizz(es)	60%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
From Cells to Tissues and Body Functions	CH01-520122	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CH01-CellBio Cell Biology CO44-CelluBio Cellular Biology	Contact Time: 35,00 Private Study: 90,00	Bachelor 1st Year CORE

Course Description / Content / Aims

This lecture course will focus on explaining life from molecules through cells to tissues and organisms. The diversity of eukaryotic cell types and the complexity of cellular differentiation programs will be introduced at the molecular, structural, and functional levels. Students will learn about stem cells and how various cell types are integrated into tissues thereby building the organs of the body that enable physiologic functionality. We will discuss junctional complexes between cells in tissues and will understand how cells communicate with their environment by signal transduction processes. Based on complex differentiation programs, developmental and morphogenetic processes generate body plans that are both, typical and characteristic for each organisms. At the end of the lecture students will have acquired a thorough understanding on how the cells and tissues found in round worms, fish, flies, rodents and humans are strikingly similar although different species are coping with the diverse environments they live in. The course will emphasize the principles of cellular and developmental biology, thereby highlighting physiology and also covering pathophysiology leading to disorders and disease.

Methods of Assessment

Name	Weighting
4 Quizz(es)	20%
Final Exam	30%
Poster Preparation and Presentation	50%

Course Name	***Course No***	***ECTS***
Histologie Labor	CO44-540201	5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CO44-CelluBio Cellular Biology	Contact Time: 51,00 Private Study: 74,00	Bachelor 2nd Year CORE

Course Description / Content / Aims

This is the first lab course within the MedNat study program to be held in the German language. The focus is on biological tissues, with an emphasis on human tissues in healthy and pathological conditions. Topics will include preparation of histological specimen for investigation under a light or electron microscope. Tissue sections are prepared, fixed, processed, sectioned and stained. In-lab seminars will discuss the theory behind the experiments and the expected outcomes. Trouble-shooting sessions will solve problems on the spot. The students will document and discuss their experimental data in publication-style reports. Theoretical preparation will be tested for by quizzes and the preparation of material safety data sheets (MSDS).

Methods of Assessment

Name	Weighting
Attendance	50%
Protocols	50%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
Microbiology Lab	CO02-520221	5
Module Affiliation CO02-InfImm Infection and Immunity CO45-FoundMedII Foundations in Medicine II	***Workload (hrs / sem)*** Contact Time: 51,00 Private Study: 74,00	***Level*** Bachelor 2nd Year CORE

Course Description / Content / Aims

Microorganisms are conducting the most diverse biochemical and environmental processes and are found anywhere in our natural and man-made surrounding. In this lab course, students will learn how to sample, isolate, handle, characterize, and taxonomically identify unknown microorganisms using diverse classical and state-of-the-art technologies. Focus will be given to bacterial organisms found in aquatic habitats, their cellular characteristics, biochemical properties and capabilities, and their resistance or susceptibility towards different types of antibiotics. The course participants will learn how to biochemically characterize an unknown bacterium, how to determine its antibiotics spectrum, and how to measure the minimal inhibiting concentration of an antibiotics. Growth curve experiments will be conducted. Ultimately, the students are applying molecular techniques to amplify and visualize the taxonomic marker gene encoding for the 16S rRNA of the unknown microbe, for which the nucleotide sequence will be determined and compared with that of known bacterial organisms in order to identify the unknown isolate. Students are going to summarize their results in a manuscript-style lab report.

Methods of Assessment

Name	Weighting
Active Participation	20%
Exam	20%
Lab Report	60%

Course Name	***Course No***	***ECTS***
Immunology	CO02-520322	5
Module Affiliation CO02-InfImm Infection and Immunity CO45-FoundMedII Foundations in Medicine II	***Workload (hrs / sem)*** Contact Time: 35,00 Private Study: 90,00	***Level*** Bachelor 2nd Year CORE

Course Description / Content / Aims

This CORE course gives a thorough basic training in molecular, cellular, organismic, and clinical immunology, leading - in some aspects - up to the cutting edge of current research. We will use annotated slide files, textbooks, review articles, original literature, and presentations of original research data. Transferable skills: ?Through in-class discussions, peer instruction, and frequent quizzes, students learn to understand original research and its motivation and to discuss scientific contents.

Methods of Assessment

Name	Weighting
Exam 1	25%
Exam 2	25%
Exam 3	25%
Exam 4	25%

Appendix 2 - Course Data

Course Name	***Course No***	***ECTS***
Immunologie	CO45-540202	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CO45-FoundMedII Foundations in Medicine II	Contact Time: 17,50 Private Study: 45,00	Bachelor 2nd Year CORE

Course Description / Content / Aims

This tutorial accompanies the Lecture Immunology and is held in the German language. It will introduce the terminology of immunology in the German language. Students will study experimental data from the relevant recent literature and analyze them critically. Each student will present a Poster about at least one publication. Next to these studies, experimental approaches in Immunology will be discussed.

Methods of Assessment

Name	Weighting
Active Participation & Attendance	40%
Presentation	60%

Course Name	***Course No***	***ECTS***
Mikrobiologie Labor	CO45-540211	2,5
Module Affiliation	***Workload (hrs / sem)***	***Level***
CO45-FoundMedII Foundations in Medicine II	Contact Time: 25,50 Private Study: 37,00	Bachelor 2nd Year CORE

Course Description / Content / Aims

The laboratory course is designed to develop microbiological skills for later use in German Hospitals. This includes the sterile work with microbes, their proper handling, and taxonomic characterization including microscopy, molecular tools, and biochemical classification. The lab course is conducted in German language.

Methods of Assessment

Name	Weighting
1 Lab Report	100%