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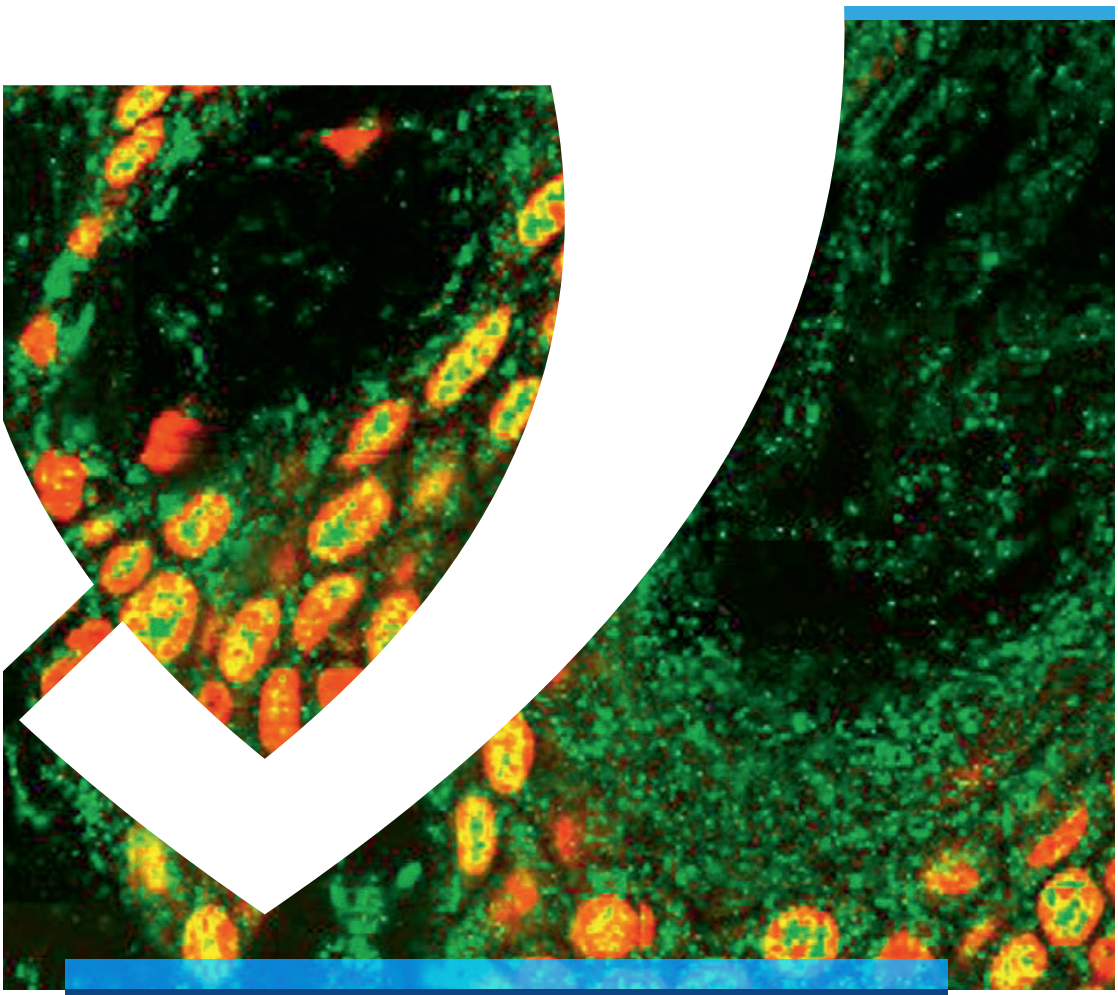


Study Program Handbook

Biochemistry and Cell Biology

Bachelor of Science

Contents

1 The Biochemistry and Cell Biology (BCCB) Study Program

1.1 Concept

Biochemistry is the study of molecules and chemical processes in living organisms, while in Cell Biology you learn about the structure and physiology of cells, their components and interactions with the environment. The two fields are combined in one comprehensive degree program, which will give you a broad understanding of the molecular and cellular mechanisms that form the basis of life. You will not only get the theoretical background of these core areas but also be involved in hands-on research right from the start of your studies.

1.2 Specific Advantages of the BCCB Program at Jacobs University

- The BCCB program at Jacobs University combines biochemistry, cell biology, and genetics from the first day of study such that the connections between them become clear. In the first year, students rapidly obtain an overview of the entire field of molecular life science; this helps them to identify their own area of interest.

- The BCCB program covers human and animal biochemistry, cell biology, and genetics, but is also strong in plant and microbial life science. The wide experience of Jacobs life sciences faculty, and the courses they offer, allow students to also explore related subjects such as biotechnology, biophysics, bioinformatics, organic chemistry, drug design, and others.

- The BCCB program has a very strong practical component, with excellent laboratory courses. This helps students to gain hands-on experience that they need to apply for high-level internships and graduate school positions. The Bachelor theses consist of research work in the research groups of life sciences faculty.

- In the first ten years of its existence, the BCCB program has been spectacularly successful with many students going on to graduate school at high-level institutions worldwide.

1.3 Program-Specific Qualification Aims

- Throughout their studies BCCB students acquire profound theoretical knowledge in the fields of biochemistry, molecular biology and cell biology, thereby gaining thorough understanding of principal concepts in these research areas. Furthermore, students learn how to abstract and transfer their knowledge onto new research areas, an essential skill in modern life sciences.

- Presentation skills will be developed through scientific poster preparation and oral presentations. In this context, students will be exposed to primary scientific literature and are eventually guided towards the development of research strategies, e.g. for a PhD project.

- The theoretical education is complemented by rigorous practical training in comprehensive laboratory courses (already starting in the first semester) in the fields of biochemistry, cell biology, molecular biology and microbiology. In these courses students will not only acquire excellent technical skills and employ state-of-the-art methods, but also learn how to accurately document and analyze scientific data through the writing of lab reports and the bachelor's thesis, all following publication-style rules.

- Through further involvement in life science research conducted at Jacobs University Bremen will experience an authentic research environment and acquire an early perspective on prospective job careers.

1.4 Career Options

Since 2004, on average 20 BCCB students per year have graduated. Most of our graduates continue their studies to pursue a master's or PhD degree. The students have, however, specialized in very different fields within BCCB, including neuroscience, developmental biology, molecular biology and genetics, biomedicine, medical microbiology, marine microbiology, biotechnology. In all of these areas, BCCB graduates have been admitted to excellent universities world-wide for graduate studies (MSc or PhD). Universities that have admitted BCCB students from Jacobs University include the Universities of Oxford and Cambridge, Harvard University, ETH Zurich, European Molecular Laboratories (EMBL) and International Max-Planck Research Schools (IMPRS). After graduation from MSc or PhD programs, students then either continue with postdoctoral positions in academia or acquire junior / senior positions in companies affiliated with life science, biomedical topics or biotechnology.

1.5 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 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 possess the ability to acquire knowledge rapidly, to assess information and to evaluate new concepts critically;

- graduates have communicative competences which allow them to present themselves and their ideas and to negotiate successfully;

- graduates are familiar with business-related processes and management skills and are able to manage projects efficiently and independently.

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 in negotiating and mediating between different points of view;

- graduates can rely on basic civic knowledge and have an understanding for ethical reasoning; students are familiar with the requirements for taking on responsibility.

1.6 More Information and Contact

For more information please contact the study program coordinator:

Dr. Susanne Illenberger
University Lecturer in Biochemistry
Email: s.illenberger@jacobs-university.de
Telephone: +49 421 200-3206

or visit our program website: www.jacobs-university.de/bccb-program

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, (German) language, and management skills. The World Track, included in the third year of study, provides extended company internships or study abroad options. 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 to meet their major as well as minor study interests.

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

2.2 The Jacobs University 3C-Model

Jacobs University offers study programs according to the regulations of the European Higher Education Area. All study programs are structured along the European Credit Transfer System (ECTS), which facilitates credit transfer between academic institutions. The three-year undergraduate program involves six semesters of study with a total of 180 ECTS credits. The curricular structure follows an innovative and student-centered modularization scheme - the 3C-Model - which groups the disciplinary content of the three study years according to overarching themes:

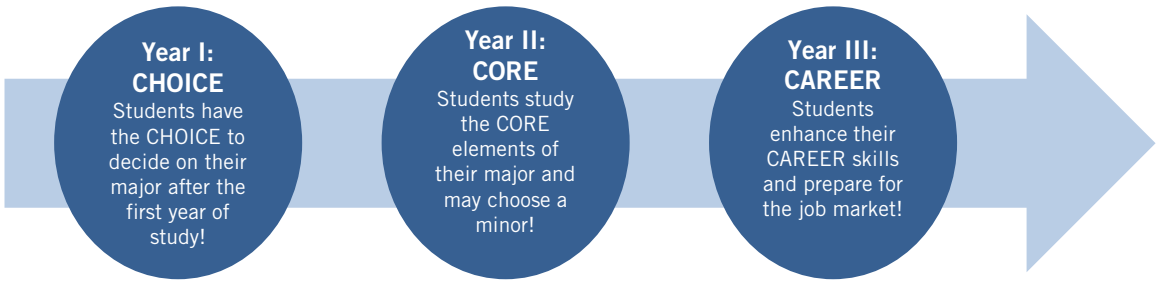


Figure 1: The Jacobs University 3C-Model

2.2.1 YEAR 1 - CHOICE

The first study year is characterized by a broad offer in disciplinary and interdisciplinary education. Students select three CHOICE modules from a variety of study programs. As a unique asset, our curricula allow students to select their study program freely from among the three selected CHOICE modules during their first year of study.

2.2.2 YEAR 2 - CORE

In the second year, students take three in-depth, discipline-specific CORE modules. One CORE module can also be taken from a second, complementary discipline, which allows students to incorporate a minor study track into their undergraduate education. Students will generally qualify for a minor if they have successfully taken at least one CHOICE module and one CORE module in a second field, and this extra qualification will be highlighted in the transcript.

2.2.3 YEAR 3 - CAREER

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**
   In this track there are two mandatory elective options:
   - **Internship**
     The internship program is a core element of Jacobs Universitys employability approach. It includes a mandatory semester-long internship off-campus (minimum 16 weeks in full-time) which provides insight into the labor market as well as practical work experience related to the respective area of study. Successful internships may initiate career opportunities for students. For more information, please contact the Career Services Center (http://www.jacobs- university.de/career-services/contact).
   - **Study Abroad**
     Students can take the opportunity to study abroad at one of our partner universities. Courses recognized as study abroad credits need to be pre-approved according to the Jacobs University study abroad procedures and carry minimum of 20 ECTS credits in total. Several exchange programs allow you to be directly enrolled at prestigious partner institutions worldwide. Jacobs University's participation in Erasmus+, the European Unions exchange program, provides an exchange semester at a number of European universities including Erasmus study abroad funding. For more information, please contact the International Office (http://intoffice.user.jacobs-university.de/outgoing/).
2. **The Campus Track**
   Alternatively, students may also opt to follow the Campus Track by continuing their undergraduate education at Jacobs, namely by selecting an additional CORE module during their third year and redistributing the remaining courses and modules across the

third year. This opportunity can be used by students to more intensively focus on their major or to fulfill the minor requirements for a second field of interest.

In the sixth semester, all students select from a range of specialization courses within their study program and concentrate on their Bachelor thesis in the context of a Project/Thesis Module.

All students attend a mandatory 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 disciplinary CHOICE, CORE, and CAREER modules across all 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 general 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. Emphasis is put on fostering German language skills, as they are an important prerequisite for students to learn about, explore, and eventually integrate into their host country. Hence, acquiring 10 ECTS credits in German is a requirement for all students. Students who meet the requirements of the German proficiency level (e.g. native speakers) are required to select courses in any other language program offered.

2.4 Modularization of the Biochemistry and Cell Biology Program

2.4.1 Content

Year 1
Take two mandatory modules listed below and select one further CHOICE module from a different study area.

Biochemistry and Molecular Biology (CH02-BioChem)
Biochemistry and Molecular Biology is a first year module that explains how the structure of biological molecules (proteins, sugars, lipids, nucleic acids) defines their biochemical properties and cellular functions. Students will be introduced to the basics of thermodynamics and molecular kinetics to understand key biomolecular concepts, e.g., protein folding, metabolism, and gene expression. Each of the two 5-ECTS-lectures is complemented by a 2.5 ECTS lab course offering practical training in key techniques applied in biochemistry and molecular biology. This module provides the foundation for the CORE modules ”Molecular Biology” and ”Chemical Biology”.

Cell Biology (CH01-CellBio)
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. Both 5-ECTS-lectures are complemented by a 2.5-ECTS lab course each, offering practical training in key techniques applied in modern molecular cell biology. This module provides the foundation from which you may progress to the higher level modules ”Biomedicine” and ”Infection and Immunity”.

Year 2
Take all three modules or replace one with a CORE module from a different study program.

Biomedicine (CO01-Biomed)
Biomedicine is an advanced model that builds on the CHOICE module Cell 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.

Infection and Immunity (CO02-InflImm)
Infection and Immunity is an advanced module that builds on both BCCB CHOICE modules (”Cell Biology” and ”Biochemistry and Molecular Biology”). 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 identifies and eliminates

cancer cells, viruses, bacteria, and parasites. Immune evasion mechanisms of pathogens will be elucidated as well as therapeutic approaches. In the 5 ECTS lab course, students will learn to isolate, handle, characterize, and taxonomically identify microorganisms using classical and state-of-the-art technologies.

Molecular Biology (CO03-MolBio)
Molecular Biology is an advanced module that builds on the CHOICE module Biochemistry and Molecular Biology. This module introduces the molecular basis of the flow of genetic information with special emphasis on regulatory mechanisms. Students will also learn about principles governing molecular evolution, i.e. types of mutations, causes and consequences of mutations, and how mutations of genes shape a populations adaptation to environmental changes. The 5 ECTS lab course provides an integrated view on the molecular analysis of biomolecules involved in molecular information pathways.

Some CORE Modules require students to have taken a specific CHOICE Module. Please see the Module Handbook for details regarding pre-requisites.

Year 3
In the 3rd year students follow the World Track by default:

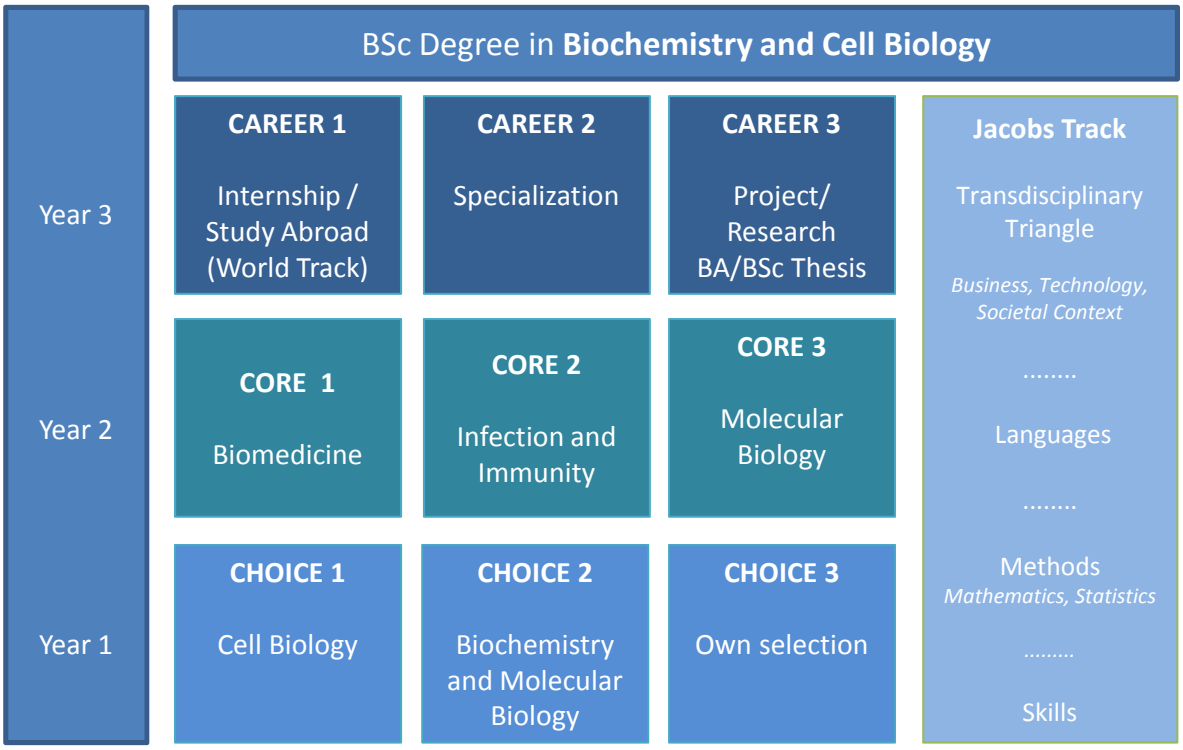
1. **World Track**
   5th Semester
   - Internship / study abroad

   6th Semester
   - Biochemistry and Cell Biology Project / Thesis Module

   - Program-specific Specialization Module
     Exemplary course offering:
     - Methods and Research Strategies in BCCB part I (Methods)/II (Strategies)
     - Structure and Function of Proteases
       - Implications for Pharmacological Interventions in Translational Approaches
     - Microbial Pathogenicity I/II
     - Current Topics in the Molecular Life Sciences I/II
     - Cellular Biochemistry
     - Ribogenetics
2. **Campus Track**
   Students who do not enter the World Track follow the Campus Track.
   5th and 6th Semester

   - Program-specific Project / Thesis Module
   - Program-specific Specialization Module
     (please see World Track for exemplary course offering)
   - Additional CORE Module

2.4.2 Structure



YEAR 1 *Take three CHOICE modules, one free selection*
YEAR 2 *Take three CORE modules, one CORE module can be substituted by a CORE module from a second study program to pursue a minor*
YEAR 3 *Alternatively Campus Track with a 4th CORE module instead of internship/study abroad module*

Figure 2: Biochemistry and Cell Biology Module Structure

3 Appendix 1a/1b: Mandatory Course 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

Appendix 1a - Mandatory Course Plan for World Track

Biochemistry and Cell Biology – World Track

Matriculation Fall 2015

	Program-Specific Modules	Type	Status[1]	Semester	Credits			Jacobs Track Modules (General Education)	Type	Status[1]	Semester	Credits
Year 1 - CHOICE					**45**							**20**
Take the two mandatory CHOICE modules listed below, these are a requirement for the BCCB program.												
CH02-BioChem	**Module: Biochemistry and Molecular Biology**		**m**		**15**			**JT-ME-MethodsMath**	**Module: Methods / Mathematics**		**m**		**7,5**
CH02-520101	General Biochemistry and Molecular Biology I	Lecture	m	1	5			JT-ME-120106	Applied Calculus I	Lecture	m	1	2,5
CH02-520111	General Biochemistry and Molecular Biology I Lab	Lab	m	1	2,5			JT-ME-120107	Applied Calculus II	Lecture	m	1	2,5
CH02-520201	General Biochemistry and Molecular Biology II	Lecture	m	2	5			JT-ME-120101	Mathematical Concepts in the Sciences	Lecture	m	2	2,5
CH02-520121	General Biochemistry and Molecular Biology II Lab	Lab	m	2	2,5			**JT-SK-Skills**	**Module: Skills**		**m**		**2,5**
CH01-CellBio	**Module: Cell Biology**		**m**		**15**			JT-SK-990103	Scientific and Experimental Skills	Lecture	m	1	2,5
CH01-520122	From Cells to Tissues and Body Functions	Lecture	m	1	5								
CH01-520123	General (Cell) Biology Lab	Lab	m	1	2,5			**JT-TA-TriArea**	**Module: Triangle Area**		**m**		**5**
CH01-520102	General Molecular Cell Biology	Lecture	m	2	5				Take two courses from the triangle (BUSINESS, TECHNOLOGY & INNOVATION, SOCIETAL CONTEXT) area. Each counts 2,5 ECTS [3]		me	1/2	5
CH01-520112	General Molecular Cell Biology Lab	Lab	m	2	2,5								
	Module: CHOICE (own selection)		**e**	**1/2**	**15**			**JT-LA-Language**	**Module: Language**		**m**		**5**
Students take one further CHOICE module from those offered for all other study programs. [2]									Take two German courses (2,5 ECTS each). Native German speakers take courses in another offered language	Seminar	me	1/2	5
Year 2 - CORE					**45**							**20**
Take all three modules or replace one with a CORE module from a different study program. [2]												
CO03-MolBio	**Module: Molecular Biology**		**me**		**15**			**JT-ME-MethodsMath**	**Module: Methods / Mathematics**		**m**		**7,5**
CO03-520224	Molecular Information Pathways	Lecture	m	3	5				Take three Methods (mandatory) elective courses (2,5 ECTS each). [2]	Lecture	me	3/4	7,5
CO03-530661	Molecular Evolution	Lecture	m	4	5								
CO03-520225	Molecular Biology Lab	Lab	m	3	5								
CO02-InflImm	**Module: Infection and Immunity**		**me**		**15**			**JT-TA-TriArea**	**Module: Triangle Area**		**m**		**7,5**
CO02-520233	Microbes and Infection	Lecture	m	3	5				Take three courses from the triangle (BUSINESS, TECHNOLOGY & INNOVATION, SOCIETAL CONTEXT) area. Each counts 2,5 ECTS [3]		me	3/4	7,5
CO02-520322	Immunology	Lecture	m	4	5								
CO02-520221	Microbiology Lab	Lab	m	4	5			**JT-LA-Language**	**Module: Language**		**m**		**5**
CO01-Biomed	**Module: Biomedicine**		**me**		**15**				Take two German courses (2,5 ECTS each). Native German speakers take courses in another offered language	Seminar	me	3/4	5
CO01-520234	Advanced Molecular Cell Biology	Lecture	m	3	5								
CO01-520235	Molecular Mechanisms of Disease, Diagnostics and Therapy	Lecture	m	4	5								
CO01-520241	Advanced Molecular Cell Biology Lab (Intersession)	Lab	m	3	5								
Year 3 - CAREER					**45**							**5**
CA02 / CA03	**Module: Internship / Study Abroad**		**m**	**5**	**20**			**JT-TA-TriArea**	**Module: Triangle Area**		**m**		**2,5**
CA01-CarSkills	**Module: Career Skills**		**m**						Take one course from the triangle (BUSINESS, TECHNOLOGY & INNOVATION, SOCIETAL CONTEXT) area. Each counts 2,5 ECTS [3]		me	6	2,5
CA05-BCCB	**Module: Project/Thesis BCCB**		**m**		**15**								
CA05-520305	Project BCCB		m	6	5			**JT-SK-Skills**	**Module: Skills**		**m**		**2,5**
CA05-520306	Thesis BCCB		m	6	10			JT-SK-990104	Advanced Scientific and Experimental Skills	Lecture	m	6	2,5
CA-S-BCCB	**Module: Specialization Area BCCB**		**m**		**10**								
	Take four specialization courses (2.5 ECTS each) [2]		me	5/6	10								
Total ECTS													**180**

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

[2] For a full listing of all CHOICE / CORE / CAREER / Jacobs Track modules please consult the **CampusNet online catalogue** and / or the module handbook (on our website).

[3] You are required to take six Triangle Area courses in total. Select two from each of the three triangle areas (BUSINESS, TECHNOLOGY & INNOVATION, SOCIETAL CONTEXT).

Appendix 1b - Mandatory Course Plan for Campus Track

Biochemistry and Cell Biology – Campus Track

Matriculation Fall 2015

	Program-Specific Modules	Type	Status[1]	Semester	Credits		Jacobs Track Modules (General Education)	Type	Status[1]	Semester	Credits
Year 1 - CHOICE					**45**						**20**
Take the two mandatory CHOICE modules listed below, these are a requirement for the BCCB program.											
CH02-BioChem	**Module: Biochemistry and Molecular Biology**		**m**		**15**		**JT-ME-MethodsMath**	**Module: Methods / Mathematics**		**m**		**7,5**
CH02-520101	General Biochemistry and Molecular Biology I	Lecture	m	1	5		JT-ME-120106	Applied Calculus I	Lecture	m	1	2,5
CH02-520111	General Biochemistry and Molecular Biology I Lab	Lab	m	1	2,5		JT-ME-120107	Applied Calculus II	Lecture	m	1	2,5
CH02-520201	General Biochemistry and Molecular Biology II	Lecture	m	2	5		JT-ME-120101	Mathematical Concepts in the Sciences	Lecture	m	2	2,5
CH02-520121	General Biochemistry and Molecular Biology II Lab	Lab	m	2	2,5		**JT-SK-Skills**	**Module: Skills**		**m**		**2,5**
CH01-CellBio	**Module: Cell Biology**		**m**		**15**		JT-SK-990103	Scientific and Experimental Skills	Lecture	m	1	2,5
CH01-520122	From Cells to Tissues and Body Functions	Lecture	m	1	5							
CH01-520123	General (Cell) Biology Lab	Lab	m	1	2,5		**JT-TA-TriArea**	**Module: Triangle Area**		**m**		**5**
CH01-520102	General Molecular Cell Biology	Lecture	m	2	5			Take two courses from the triangle (BUSINESS, TECHNOLOGY & INNOVATION, SOCIETAL CONTEXT) area. Each counts 2,5 ECTS [3]		me	1/2	5
CH01-520112	General Molecular Cell Biology Lab	Lab	m	2	2,5							
	Module: CHOICE (own selection)		**e**	**1/2**	**15**		**JT-LA-Language**	**Module: Language**		**m**		**5**
Students take one further CHOICE module from those offered for all other study programs. [2]								Take two German courses (2,5 ECTS each). Native German speakers take courses in another offered language	Seminar	me	1/2	5
Year 2 - CORE					**45**						**20**
Take all three modules or replace one with a CORE module from a different study program. [2]											
CO03-MolBio	**Module: Molecular Biology**		**me**		**15**		**JT-ME-MethodsMath**	**Module: Methods / Mathematics**		**m**		**7,5**
CO03-520224	Molecular Information Pathways	Lecture	m	3	5			Take three Methods (mandatory) elective courses (2,5 ECTS each). [2]	Lecture	me	3/4	7,5
CO03-530661	Molecular Evolution	Lecture	m	4	5							
CO03-520225	Molecular Biology Lab	Lab	m	3	5							
CO02-InflImm	**Module: Infection and Immunity**		**me**		**15**		**JT-TA-TriArea**	**Module: Triangle Area**		**m**		**7,5**
CO02-520233	Microbes and Infection	Lecture	m	3	5			Take three courses from the triangle (BUSINESS, TECHNOLOGY & INNOVATION, SOCIETAL CONTEXT) area. Each counts 2,5 ECTS [3]		me	3/4	7,5
CO02-520322	Immunology	Lecture	m	4	5							
CO02-520221	Microbiology Lab	Lab	m	4	5		**JT-LA-Language**	**Module: Language**		**m**		**5**
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CO01-520234	Advanced Molecular Cell Biology	Lecture	m	3	5							
CO01-520235	Molecular Mechanisms of Disease, Diagnostics and Therapy	Lecture	m	4	5							
CO01-520241	Advanced Molecular Cell Biology Lab (Intersession)	Lab	m	3	5							
Year 3 - CAREER					**45**						**5**
COXX	**Module: Additional (4th) CORE module**		**m**	**5/6**	**15**		**JT-SK-Skills**	**Module: Skills**		**m**		**2,5**
CA01-CarSkills	**Module: Career Skills**		**m**				JT-SK-990104	Advanced Scientific and Experimental Skills	Lecture	m	6	2,5
CA05-BCCB	**Module: Project/Thesis BCCB**		**m**		**15**							
CA05-520305	Project BCCB		m	5	5		**JT-SK-Skills**	**Module: Triangle Area**		**m**		**2,5**
CA05-520306	Thesis BCCB		m	6	10			Take one course from the triangle (BUSINESS, TECHNOLOGY & INNOVATION, SOCIETAL CONTEXT) area. Each counts 2,5 ECTS [3]		me	5	2,5
CA-S-BCCB	**Module: Specialization Area BCCB**		**m**		**15**							
	Take six specialization courses (2.5 ECTS each) [2]		me	5/6	15							
Total ECTS												**180**

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

[2] For a full listing of all CHOICE / CORE / CAREER / Jacobs Track modules please consult the **CampusNet online catalogue** and / or the module handbook (on our website).

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