

Dies ist eine Zusammenfassung des Curriculums Biomedical Engineering (gültig ab Oktober 2020), die als Orientierungshilfe dienen soll. Sie stellt keinen Anspruch an Vollständigkeit oder daran, eine Verordnung zu sein - für den tatsächlichen Studienplan, siehe hier. Für Details wie Inhalte der Advanced-Module und der Free elective and soft skills: siehe TISS

Zu absolvieren sind:

• Life Sciences	15 ECTS
• 4 von 7 Modulen aus den Fundamentals	24 ECTS
• Vertiefung:	30 ECTS
– 15 ECTS Basic	
– 9 ECTS Advanced	
– 6 ECTS Project	
• Filler Pool	12 ECTS
• Free electives and soft skills	9 ECTS
• Diplomarbeit/Master thesis	30 ECTS
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Insgesamt:	120 ECTS

Vertiefung:

Aus den Schwerpunktfächern ist eines von vier auszuwählen. Für das gewählte Schwerpunktfach sind

- das Basic Modul (15 ECTS)
- mind. 9 ECTS aus dem Advanced Modul (mind. 3 müssen UE, LU, VU, SE oder PR sein)
- das zugehörige Projekt (6 ECTS)

zu absolvieren.

Filler Pool:

12 ECTS aus beliebigen Basic-, Advanced-Modulen und dem Project-Modul (Project des Schwerpunkts ausgenommen).

Free elective and soft skills:

Mindestens 4.5 ECTS "Fachübergreifende Qualifikationen", aufzufüllen auf 9 ECTS mit freien Wahlfächern.

• Life Sciences	15 ECTS
<input type="checkbox"/> Modul Basics of Biology	6 ECTS
<input type="checkbox"/> 3 VO Biology	
<input type="checkbox"/> 1.5 VU Introduction to Microscopy in Biology	
<input type="checkbox"/> 1.5 VO Introduction to Biostatistics	
<input type="checkbox"/> Modul Basics of Physiology	9 ECTS
<input type="checkbox"/> 4.5 VO Anatomy and Histology	
<input type="checkbox"/> 4.5 VO Physiology and Basics of Pathology	
• Fundamentals Biomedical Engineering (4 von 7 Modulen zu absolvieren)	24 ECTS
<input type="checkbox"/> Modul Biophysics and Biomechanics	6 ECTS
<input type="checkbox"/> 3 VO Introduction into Biophysics	
<input type="checkbox"/> 3 VU Introduction to Biomechanics	
<input type="checkbox"/> Modul Biosignals and Bioinstrumentation	6 ECTS
<input type="checkbox"/> 3 VO Biomedical Sensors and Signals	
<input type="checkbox"/> 3 VU Biomedical Instrumentation	
<input type="checkbox"/> Modul Biochemistry	6 ECTS
<input type="checkbox"/> 3 VO Introduction to Biological Chemistry	
<input type="checkbox"/> 3 VO Instrumental Analytical Biochemistry	
<input type="checkbox"/> Modul Biomedical Signal Processing	6 ECTS
<input type="checkbox"/> 3 VU Advanced Biostatistics	
<input type="checkbox"/> 3 VO Medical Image Processing	
<input type="checkbox"/> Modul Biomaterials and Tissue Engineering	6 ECTS
<input type="checkbox"/> 3 VO Biocompatible Materials	
<input type="checkbox"/> 3 VU Introduction to Biomaterials and Tissue Engineering	
<input type="checkbox"/> Modul Cell Biology	6 ECTS
<input type="checkbox"/> 3 VO Molecular Biology of the Cell	
<input type="checkbox"/> 1.5 VO Biomembranes	
<input type="checkbox"/> 1.5 VO Mathematical Systems Biology	
<input type="checkbox"/> Scientific Computing	6 ECTS
<input type="checkbox"/> 3 VO Modeling and Simulation	
<input type="checkbox"/> 3 VU Programmieren mit MATLAB	
• Free electives and soft skills	9 ECTS
<input type="checkbox"/> Modul Fachübergreifende Qualifikationen	min. 4.5 ECTS
<input type="checkbox"/> Modul Freie Wahl	"max." 4.5 ECTS

• **Schwerpunktfächer:**

– Biomaterials & Biomechanics	30 ECTS
<input type="checkbox"/> Modul: Basics	15 ECTS
<input type="checkbox"/> 3 VO Biomaterials	
<input type="checkbox"/> 3 VO Transport phenomena in biological systems	
<input type="checkbox"/> 3 VU Computational Biomaterials and Biomechanics	
<input type="checkbox"/> 3 VO Modelling of the Human Locomotor System	
<input type="checkbox"/> 3 VO Tissue Biomechanics	
<input type="checkbox"/> Modul: Advances in Biomaterials & Biomechanics	9 ECTS
<input type="checkbox"/> Project: Biomaterials and Biomechanics	6 ECTS
– Biomedical Signals & Instrumentation	30 ECTS
<input type="checkbox"/> Modul: Basics	15 ECTS
<input type="checkbox"/> 3 VU Biomedical Mass Spectrometry	
<input type="checkbox"/> 3 VO Biochip Technologies in (Bio)Analytical Chemistry	
<input type="checkbox"/> 3 VO Sensors and Microsystem Technology	
<input type="checkbox"/> 3 VO Laser in Physics, Chemistry, Biology and Medicine	
<input type="checkbox"/> 3 VU Microelectronic Concepts for Biomedical Interfacing	
<input type="checkbox"/> Modul: Advances in Biomedical Signals & Instrumentation	9 ECTS
<input type="checkbox"/> Project: Biomedical Signals & Instrumentation	6 ECTS
– Mathematical & Computational Biology	30 ECTS
<input type="checkbox"/> Modul: Basics	15 ECTS
<input type="checkbox"/> 3 VO Bioinformatics for Biomedical Engineers	
<input type="checkbox"/> 3 VU Computational Biomaterials and Biomechanics	
<input type="checkbox"/> 3 VU Computer Simulation in Medicine	
<input type="checkbox"/> 3 VO Control Models in Physiology	
<input type="checkbox"/> 3 VO Neuron Modeling	
<input type="checkbox"/> Modul: Advances in Mathematical & Computational Biology	9 ECTS
<input type="checkbox"/> Project: Mathematical and Computational Biology	6 ECTS
– Medical Physics & Imaging	30 ECTS
<input type="checkbox"/> Modul: Basics	15 ECTS
<input type="checkbox"/> 3 VO Biological and Medical Applications of Nuclear Physics I	
<input type="checkbox"/> 3 VO Computerassisted Imaging Concepts	
<input type="checkbox"/> 3 VO Microscopy of Biomolecules	
<input type="checkbox"/> 3 VO Medical Physics of Diagnostic Imaging	
<input type="checkbox"/> 3 VU Ultrasound in Nature, Engineering and Medicine	
<input type="checkbox"/> Modul: Advances in Medical Physics & Imaging	9 ECTS
<input type="checkbox"/> Project: Medical Physics & Imaging	6 ECTS