

M. Sc. AIMS (120 CP)

		semester 1 (winter semester)		semester 2 (summer semester)		semester 3 (winter semester)		semester 4 (summer semester)	
		module	CP	module	CP	module	CP	module	CP
Foundations 1.-2. semester 26 CP	Compulsory	AM-P-1 Introduction to AIMS	5	AM-P-4 Scientific Software Engineering – Lab	5				
		AM-P-2 Mathematics for Engineers A	8						
		AM-P-3 Programming in Python and Python Lab	8						
Advanced Machine Learning and AI 2.-3. semester 15 CP	Elective			AM-V-1 Machine Learning for Data Science	5				
		AM-V-2 Pattern Recognition [German]	5	AM-V-2 Pattern Recognition	5	AM-V-2 Pattern Recognition [German]	5		
		AM-V-3 Computer Lab Pattern Recognition	5	AM-V-3 Computer Lab Pattern Recognition	5	AM-V-3 Computer Lab Pattern Recognition	5		
				AM-V-4 Deep Learning Lab	5				
				AM-V-5 Methods of Uncertainty Analysis and Quantification	5				
Specialization Chemical Synthesis and Drug Design 1.-3. semester 37 CP	Compulsory Basic Module 4 CP (choose 1 of 2!)	AM-A-2 Organometallic Chemistry	4	AM-A-1 Reaction Mechanism	4	AM-A-2 Organometallic Chemistry	4		
	Elective 16 - 20 CP	AM-A-4 Advanced Inorganic Chemistry	8	AM-A-3 Catalysis	8	AM-A-4 Advanced Inorganic Chemistry	8		
		AM-A-5 Organic Synthesis Planning	4	AM-A-8 Biomolecular Modeling	8	AM-A-5 Organic Synthesis Planning	4		
		AM-A-6 Enzyme Engineering	10			AM-A-6 Enzyme Engineering	10		
		AM-A-6 Enzyme Engineering (light)	5			AM-A-6 Enzyme Engineering (light)	5		
		AM-A-7 Fundamentals of Protein Structure Analysis	10			AM-A-7 Fundamentals of Protein Structure Analysis	10		
		AM-A-9 Advanced Theoretical Chemistry	8			AM-A-9 Advanced Theoretical Chemistry	8		
		AM-A-10 Machine Learning in Computational Chemistry	8			AM-A-10 Machine Learning in Computational Chemistry	8		
	Compulsory Research Lab 13 - 17 CP					AM-A-RP Research Lab	13-17		
OR									
Specialization Spectroscopy and Imaging 1.-3. semester 37 CP	Compulsory Basic Module 5 CP			AM-B-1 Molecular Spectroscopy	5				
	Elective 15 - 20 CP	AM-B-5 Physical Biology of the Cell	10	AM-B-4 Solar and Chemical Energy Conversion	8	AM-B-5 Physical Biology of the Cell	10		
		AM-B-7 Chemometrics	5	AM-B-6 Sophisticated Imaging	10	AM-B-7 Chemometrics	5		
		AM-B-8 Theoretical Spectroscopy	8	AM-B-6 Sophisticated Imaging (light)	5	AM-B-8 Theoretical Spectroscopy	8		
		AM-B-9 Biophysical Chemistry - Applied Optical Methods and Imaging	8	AM-B-10 Biophysical Chemistry - Nanoscale Structure and Spectroscopy	8	AM-B-9 Biophysical Chemistry - Applied Optical Methods and Imaging	8		
		AM-A-10 Machine Learning in Computational Chemistry	8			AM-A-10 Machine Learning in Computational Chemistry	8		
	Compulsory Research Lab 12 - 17 CP					AM-B-RP Research Lab	12-17		
OR									
Specialization Data-Driven Biology 1.-3. semester 37 CP	Compulsory Basic Module 10 CP	AM-C-5 Systemsbiology: Modeling of Biochemical Networks	10	AM-C-1 Molecular Microbial Evolution and Diversity	10	AM-C-5 Systemsbiology: Modeling of Biochemical Networks	10		
	Elective 10 - 15 CP	AM-C-3 Applied Bioinformatics: Biomarkers for Diagnosis	10	AM-C-2 Immunometabolism	10	AM-C-3 Applied Bioinformatics: Biomarkers for Diagnosis	10		
		AM-C-10 Introduction to the Theoretical Physics of Life	10	AM-C-4 Network Biology	5	AM-C-10 Introduction to the Theoretical Physics of Life	10		
				AM-C-6 Biotechnological Aspects of Actinobacteria	5				
				AM-C-8 Functional Genomics in Infection Biology	10				
				AM-C-8 Functional Genomics in Infection Biology (light)	5				
				AM-C-9 Microbial Proteomics	10				
				AM-C-9 Microbial Proteomics (light)	5				
	Compulsory Research Lab 12 - 17 CP					AM-C-RP Research Lab	12-17		
Key Qualifications 1.-3. semester 12 CP	Compulsory 5 CP	AM-KQ-1 Ethics and Epistemology	5			AM-KQ-1 Ethics and Epistemology	5		
	Elective 7 CP	AM-KQ-2 Professionalization	7	AM-KQ-2 Professionalization	7	AM-KQ-2 Professionalization	7		
Master Thesis 4. semester 30 CP	Compulsory							AM-M Master's Thesis and Presentation	30