Study Plan (AIMS)

Specialization: Chemical Synthesis and Drug Design

Technische Universität Braunschweig

Name:_____ Year of Enrollment:_____

Matricle Number:_____ Mentor:_____

Winter Semester (1st Semester)				approx. 30 CP
			CP	
Foundations 1.-2. semester **26 CP (total)**	Compulsory	Introduction to AIMS	5	x
		Mathematics for Engineers A	8	x
		Programming in Python and Python Lab	8	x
Specialization **Chemical Synthesis and Drug Design** 1.-3. Semester **37 CP (total)**	Compulsory Basic Module *choose 1 of 2* (4 CP)	Organometallic Chemistry	4	
	Elective (16-20 CP)	Advanced Inorganic Chemistry	8	
		Organic Synthesis Planning	4	
		Enzyme Engineering	10	
		Fundamentals of Protein Structure Analysis	10	
		Advanced Theoretical Chemistry	8	
		Machine Learning in Computational Chemistry	8	
		A) Sum of achieved CP for Specialization		
Key Qualifications 1.-3. Semester **12 CP (total)**	Compulsory	Ethics and Epistemology	5	x
	Elective	Elective Modules	7	

Summer Semester (2nd Semester)				approx. 30 CP
			CP	
Foundations 1.-2. Semester **26 CP (total)**	Compulsory	Scientific Software Engineering – Lab	5	x
Advanced Machine Learning and AI 2.-3. Semester **15 CP (total)**	Elective	Machine Learning for Data Science	5	
		Pattern Recognition	5	
		Computer Lab Pattern Recognition	5	
		Deep Learning Lab	5	
		Methods of Uncertainty Analysis and Quantification	5	
Specialization **Chemical Synthesis and Drug Design** 1.-3. semester **37 CP (total)**	Compulsory Basic Module *choose 1 of 2* (4 CP)	Reaction Mechanisms	4	
	Elective (16-20 CP)	Catalysis	8	
		Biomolecular Modelling	8	
		B) Sum of achieved CP for Specialization		
Key Qualifications 1.-3. Semester **12 CP (total)**	Elective	Elective Modules	7	

Winter Semester (3rd Semester)					approx. 30 CP
Advanced Machine Learning and AI 2.-3. Semester **15 CP (total)**	Elective		CP		
		Pattern Recognition *(offered in German in winter semester)*	5		
		Computer Lab Pattern Recognition	5		
Specialization **Chemical Synthesis and Drugs** 1.-3. Semester **37 CP (total)**	Elective (16-20 CP)	Advanced Inorganic Chemistry	8		
		Organic Synthesis Planning	4		
		Enzyme Engineering	10		
		Fundamentals of Protein Structure Analysis	10		
		Advanced Theoretical Chemistry	8		
		Machine Learning in Computational Chemistry	8		
		C) Sum of achieved CP for Specialization			
	Compulsory (13-17 CP)	Research Lab	13-17	x	
		37 CP - (A + B + C) = CP Research Lab			
Key Qualifications 1.-3. Semester **12 CP (total)**	Compulsory	Ethics and Epistemology	5	x	
	Elective	Elective Modules	7		

Summer Semester (4th Semester)					approx. 30 CP
Master's Thesis 4. Semester **30 CP**	Compulsory		CP		
		Master's Thesis	30	x	

120 CP in total

Date:_____ Signature Student:_____

Signature Mentor:_____