Study Plan (AIMS)

Specialization: Spectroscopy and Imaging

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 **Spectroscopy and Imaging** 1.-3. Semester **37 CP (total)**	Elective (16-20 CP)	Biophysical Chemistry	8	
		Modern Optical Methods and Imaging	8	
		*Solar and Chemical Energy Conversion**	8	
		Physical Biology of the Cell	10	
		Chemometrics	5	
		Theoretical Spectroscopy	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	

*Frequency of courses: lectures: irregularly; practical course: every semester

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 **Spectroscopy and Imaging** 1.-3. Semester **37 CP (total)**	Compulsory Basic Module (5 CP)	Molecular Spectroscopy	5	x
	Elective (16-20 CP)	*Solar and Chemical Energy Conversion**	8	
		Sophisticated Imaging	10	
		B) Sum of achieved CP for Specialization		
Key Qualifications 1.-3. Semester **12 CP (total)**	Elective	Elective Modules	7	

*Frequency of courses: lectures: irregularly; practical course: every semester

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 **Spectroscopy and Imaging** 1.-3. Semester **37 CP (total)**	Elective (16-20 CP)	Biophysical Chemistry	8		
		Modern Optical Methods and Imaging	8		
		*Solar and Chemical Energy Conversion**	8		
		Physical Biology of the Cell	10		
		Chemometrics	6		
		Theoretical Spectroscopy	8		
		Machine Learning in Computational Chemistry	8		
		C) Sum of achieved CP for Specialization			
	Compulsory (12-16 CP)	Research Lab	12-16	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		

*Frequency of courses: lectures: irregularly; practical course: every semester

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:_____