	Module	CP	Semester
Foundations (Compulsary)	- Introduction to AIMS (5 CP) - Mathematics for Engineers A (8 CP) - Programming in Python and PythonLab (8 CP) - Scientific Software Engineering (5 CP)	26	1.-2.
Advanced Machine Learning and AI (Compulsary elective)	Elective Modules (15 CP), *e.g.* - *Fundamentals of Machine Learning* - *Pattern Recognition* - *Pattern Recognition – Computer Lab* - *Deep Learning Lab* - *Uncertainty Analysis and Quantification*	15	2.-3.
Fields of Specialization Chemical Synthesis and Drugs or Spectroscopy and Imaging or Date-Driven Biology	- Compulsary basic modules in the selected field of specialization (4-10 CP) - Compulsary elective modules in the selected field of specialization (10-20 CP) - Research Project (12-17 LP)	37	1.-3.
Key Qualifications	- Ethics and Epistemology (5 LP) - Elective Modules, e.g., Scientific Writing, Data Literacy, Data Privacy, Language Courses	12	1.-3.
Master Research Project and Thesis		30	4.

Study Plan (AIMS)

Specialisation: Chemical Synthesis and Drugs

Technische Universität Braunschweig

Name:_____ Year of Enrollment:_____

Matricle Number:_____ Mentor:_____

1st Semester			Module	CP	30 CP
		planned			Achieved CP
Foundations 1.-2. Semester **26 CP (total)**	Compulsory	x	Introduction to AIMS	5 (comp.)	
		x	Mathematics for Engineers A	8 (comp.)	
		x	Programming in Python and Python Lab	8 (comp.)	
Specialisation **Chemical Synthesis and Drugs** 1.-3. Semester **37 CP (total)**	Basic Module (4 CP) *one of two*		Organometallic Chemistry	4 (comp.)	
	Compulsory Elective (16-20 CP)		Advanced Aspects in Inorganic Chemistry	8 (comp. elective)	
			Organic Synthesis Planning	4 (comp. elective)	
			Enzyme Engineering	10 (comp. elective)	
			Fundamentals of protein structure analysis	10 (comp. elective)	
			Advanced Theoretical Chemistry	8 (comp. elective)	
			Artificial Molecular Intelligence	8 (comp. elective)	
			A) Sum of achieved CP for Specialisation		

2nd Semester			Module	CP	30 CP
		planned			Achieved CP
Foundations 1.-2. Semester **26 CP (total)**	Compulsory	x	Scientific Software Engineering – Lab	5 (comp.)	
Advanced Machine Learning and AI 2.-3. Semester **15 CP (total)**	Comp. Elective		Introduction to Machine Learning	5 (comp. elective)	
			Pattern Recognition	5 (comp. elective)	
			Computer Lab Pattern Recognition	5 (comp. elective)	
			Deep Learning Lab	5 (comp. elective)	
			Methods of Uncertainty Analysis and	5 (comp. elective)	
Specialisation **Chemical Synthesis and Drugs** 1.-3. Semester **37 CP (total)**	Basic Module (4 CP) *one of two*		Reaction Mechanism	4 (comp.)	
	Compulsory Elective (16-20 CP)		Catalysis	8 (comp. elective)	
			Biomolecular Modelling	8 (comp. elective)	
			B) Sum of achieved CP for Specialisation		
Key Qualifications 1.-3. Semester **12 CP (total)**	Comp. Elective		Elective Modules	7 (comp. elective)	

3rd Semester					30 CP
			Module	CP	
Advanced Machine Learning and AI 2.-3. Semester **15 CP (total)**	Comp. Elective	planned			Achieved CP
			Pattern Recognition (offered in German in winter term)	5 (comp. elective)	
			Computer Lab Pattern Recognition	5 (comp. elective)	
Specialisation **Chemical Synthesis and Drugs** 1.-3. Semester **37 CP (total)**	Compulsory Elective (16-20 CP)		Advanced Aspects in Inorganic Chemistry	8 (elective)	
			Organic Synthesis Planning	4 (elective)	
			Enzyme Engineering	10 (elective)	
			Fundamentals of protein structure analysis	10 (elective)	
			Advanced Theoretical Chemistry	8 (elective)	
			Artificial Molecular Intelligence	8 (elective)	
				C) Sum of achieved CP for Specialisation	
				37 CP - (A + B + C) = CP Research Lab (12-17 CP)	
		x	Research Lab	12-17 (elective)	
Key Qualifications 1.-3. Semester **12 CP (total)**	Comp. Elective	x	Ethics and Epistemology	5 (comp.)	
			Elective Modules	7 (comp. elective)	

4th Semester				30 CP
		Module	CP	
Master Thesis 4. Semester **30 CP**	Compulsory	x	Master Thesis in AIMS	30 (comp.)	

Date:_____ Signature Student:_____

Signature Mentor:_____

Study Plan (AIMS)

Specialisation: Spectroscopy and Imaging

Technische Universität Braunschweig

Name:_____ Year of Enrollment:_____

Matricle Number:_____ Mentor:_____

1st Semester					30 CP
			Module	CP	
		planned			Achieved CP
Foundations 1.-2. Semester **26 CP (total)**	Compulsory	x	Introduction to AIMS	5 (comp.)	
		x	Mathematics for Engineers A	8 (comp.)	
		x	Programming in Python and Python Lab	8 (comp.)	
Specialisation **Spectroscopy and Imaging** 1.-3. Semester **37 CP (total)**	Compulsory Elective (16-20 CP)		Biophysical Chemistry	8 (comp. elective)	
			Modern Optical Methods and Imaging	8 (comp. elective)	
			*Solar and Chemical Energy Conversion**	8 (comp. elective)	
			Physical Biology of the Cell	10 (comp. elective)	
			Chemometrics	6 (comp. elective)	
			Theoretical Spectroscopy	8 (comp. elective)	
			Artificial Molecular Intelligence	8 (comp. elective)	
			A) Sum of achieved CP for Specialisation		

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

2nd Semester					30 CP
			Module	CP	
		planned			Achieved CP
Foundations 1.-2. Semester **26 CP (total)**	Compulsory	x	Scientific Software Engineering – Lab	5 (comp.)	
Advanced Machine Learning and AI 2.-3. Semester **15 CP (total)**	Comp. Elective		Introduction to Machine Learning	5 (comp. elective)	
			Pattern Recognition	5 (comp. elective)	
			Computer Lab Pattern Recognition	5 (comp. elective)	
			Deep Learning Lab	5 (comp. elective)	
			Methods of Uncertainty Analysis and	5 (comp. elective)	
Specialisation **Spectroscopy and Imaging** 1.-3. Semester **37 CP (total)**	Basic Module (5 CP)	x	Molecular Spectroscopy	5 (comp.)	
	Compulsory Elective (16-20 CP)		*Solar and Chemical Energy Conversion**	8 (comp. elective)	
			Sophisticated Imaging	10 (comp. elective)	
			B) Sum of achieved CP for Specialisation		
Key Qualifications 1.-3. Semester **12 CP (total)**	Comp. Elective		Elective Modules	7 (comp. elective)	

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

3rd Semester			Module	CP	30 CP
		planned			Achieved CP
Advanced Machine Learning and AI 2.-3. Semester **15 CP (total)**	Comp. Elective		*Pattern Recognition* *(offered in German in winter term)*	5 (comp. elective)	
			Computer Lab Pattern Recognition	5 (comp. elective)	
Specialisation **Spectroscopy and Imaging** 1.-3. Semester **37 CP (total)**	Compulsory Elective (16-20 CP)		Biophysical Chemistry	8 (comp. elective)	
			Modern Optical Methods and Imaging	8 (comp. elective)	
			*Solar and Chemical Energy Conversion**	8 (comp. elective)	
			Physical Biology of the Cell	10 (comp. elective)	
			Chemometrics	6 (comp. elective)	
			Theoretical Spectroscopy	8 (comp. elective)	
			Artificial Molecular Intelligence	8 (comp. elective)	
			C) Sum of achieved CP for Specialisation		
			37 CP - (A + B + C) = CP Research Lab (12-16 CP)		
		x	Research Lab		
Key Qualifications 1.-3. Semester **12 CP (total)**	Comp. Elective	x	Ethics and Epistemology	5 (comp.)	
			Elective Modules	7 (comp. elective)	

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

4th Semester			Module	CP	30 CP
Master Thesis 4. Semester **30 CP**	Compulsory	x	Master Thesis in AIMS	30 (comp.)	

Date:_____ Signature Student:_____

Signature Mentor:_____

Study Plan (AIMS)

Specialisation: Data-Driven Biology

Technische Universität Braunschweig

Name:_____ Year of Enrollment:_____

Matricle Number:_____ Mentor:_____

1st Semester					30 CP
		planned	Module	CP	Achieved CP
Foundations 1.-2. Semester **26 CP (total)**	Compulsory	x	Introduction to AIMS	5 (comp.)	
		x	Mathematics for Engineers A	8 (comp.)	
		x	Programming in Python and Python Lab	8 (comp.)	
Specialisation **Data-Driven Biology** 1.-3. Semester **37 CP (total)**	Compulsory Elective (10-15 CP)		Metabolomic Biomarker Signatures	7 (comp. elective)	
			Applied Plant Transcriptomics	10 (comp. elective)	
			A) Sum of achieved CP for Specialisation		

2nd Semester					30 CP
		planned	Module	CP	Achieved CP
Foundations 1.-2. Semester **26 CP (total)**	Compulsory	x	Scientific Software Engineering – Lab	5 (comp.)	
Advanced Machine Learning and AI 2.-3. Semester **15 CP (total)**	Comp. Elective		Introduction to Machine Learning	5 (comp. elective)	
			Pattern Recognition	5 (comp. elective)	
			Computer Lab Pattern Recognition	5 (comp. elective)	
			Deep Learning Lab	5 (comp. elective)	
			Methods of Uncertainty Analysis and	5 (comp. elective)	
Specialisation **Data-Driven Biology** 1.-3. Semester **37 CP (total)**	Basic Module (10 CP)	x	Molecular Microbial Evolution and Diversity	10 (comp.)	
	Comp. Elective (10-15 CP)		Immunometabolism	10 (comp. elective)	
			Network Biology	5 (comp. elective)	
			Molecular Phylogenetics and Taxonomy	10 (comp. elective)	
			Data Literacy and Genome Research	10 (comp. elective)	
			Functional Genomics in Infection Biology	10 (comp. elective)	
			Microbial Proteomics	10 (comp. elective)	
			B) Sum of achieved CP for Specialisation		
Key Qualifications 1.-3. Semester **12 CP (total)**	Comp. Elective		Elective Modules	7 (comp. elective)	

3rd Semester					30 CP
		planned	Module	CP	Achieved CP
Advanced Machine Learning and AI 2.-3. Semester **15 CP (total)**	Comp. Elective		*Pattern Recognition (offered in German in winter term)*	5 (comp. elective)	
			Computer Lab Pattern Recognition	5 (comp. elective)	
Specialisation **Data-Driven Biology** 1.-3. Semester **37 CP (total)**	Compulsory Elective (10-15 CP)		Metabolomic Biomarker Signatures	7 (comp. Elective)	
			Applied Plant Transcriptomics	10 (comp. elective)	
			C) Sum of achieved CP for Specialisation		
			37 CP - (A + B + C) = CP Research Lab (12-17 CP)		
		x	Research Lab		
Key Qualifications 1.-3. Semester **12 CP (total)**	Comp. Elective		Ethics and Epistemology	5 (comp.)	
			Elective Modules	7 (comp. elective)	

4th Semester					30 CP
			Module	CP	
Master Thesis 4. Semester **30 CP**	Compulsory	x	Master Thesis in AIMS	30 (comp.)	

Date:_____

Signature Student:_____

Signature Mentor:_____