	Module	СР	Semester
<b>Foundations</b> (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	12.
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	23.
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	13.
Key Qualifications	<ul> <li>Ethics and Epistemology (5 LP)</li> <li>Elective Modules, e.g., Scientific Writing,</li> <li>Data Literacy, Data Privacy, Language Courses</li> </ul>	12	13.
Master Research Project and Thesis		30	4.

## Study Plan (AIMS)





Name:	Year of Enrollment:
Matricle Number:	Mentor:

			1 <sup>st</sup> Semester		30 CP
			Module	СР	
ک در این	лу	planned		_	Achieved CP
Foundations 12. Semester	Compulsory	х	Introduction to AIMS	5 (comp.)	
26 CP (total)	шb	х	Mathematics for Engineers A	8 (comp.)	
20 CF (total)	ပိ	Х	Programming in Python and Python Lab	8 (comp.)	
» ( »			•		
Specialisation	Basic Module (4 CP)		Organometallic Chemistry	4 (comp.)	
Chemical	Basic Module (4 CP)				
Synthesis			Advanced Aspects in Inorganic Chemistry	8 (comp. elective)	
and Drugs	ory e :P)		Organic Synthesis Planning	4 (comp. elective)	
	13. Semester		Enzyme Engineering	10 (comp. elective)	
37 CP (total)			Fundamentals of protein structure analysis	10 (comp. elective)	
37 CF (total)	O (1)		Advanced Theoretical Chemistry	8 (comp. elective)	
			Artificial Molecular Intelligence	8 (comp. elective)	
			A) Sum of achieved CP for	or Specialisation	

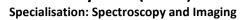
			2 <sup>nd</sup> Semester		30 CP
			Module	СР	
	Γ	planned			Achieved CF
Foundations	Ilso	Х	Scientific Software Engineering – Lab	5 (comp.)	
12. Semester 26 CP (total)	Compulsory				
Advanced	ø		Introduction to Machine Learning	5 (comp. elective)	
Machine Learning	ctiv		Pattern Recognition	5 (comp. elective)	
and AI	Comp. Elective		Computer Lab Pattern Recognition	5 (comp. elective)	
	p. 1		Deep Learning Lab	5 (comp. elective)	
23. Semester 15 CP (total)	mo		Methods of Uncertainty Analysis and	5 (comp. elective)	
Specialisation  Chemical	Basic Module (4 CP)		Reaction Mechanism	4 (comp.)	
Synthesis and Drugs					
	ulsc tive O C		Catalysis	8 (comp. elective)	
13. Semester	Compulsory Elective (16-20 CP)		Biomolecular Modelling	8 (comp. elective)	
37 CP (total)	Cor E (16		B) Sum of achieved C	P for Specialisation	
Key Qualifications	ıp. ive		Elective Modules	7 (comp. elective)	
13. Semester 12 CP (total)	Comp. Elective				-

			3 <sup>rd</sup> Semester		30 CP
			Module	СР	
Advanced	/e	planned			Achieved C
Machine Learning	cti		Pattern Recognition		
and Al	<u>ë</u>		(offered in German in winter term)	5 (comp. elective)	
	o L		Computer Lab Pattern Recognition	5 (comp. elective)	
23. Semester 15 CP (total)	Comp. Elective				
			Advanced Aspects in Inorganic Chemistry	8 (elective)	
			Organic Synthesis Planning	4 (elective)	
	ο		Enzyme Engineering	10 (elective)	
Specialisation	Specialisation Chemical		Fundamentals of protein structure analysis	10 (elective)	
Chemical			Advanced Theoretical Chemistry	8 (elective)	
Synthesis	0 C		Artificial Molecular Intelligence	8 (elective)	
Specialisation Chemical Synthesis and Drugs 13. Semester 37 CP (total)	Compulso (16-2		C) Sum of achieved CP for a chieved CP for a chieve for a chieved CP for a chieve for a	or Specialisation  CP Research Lab (12-1	L7 CP)
		х	Research Lab	12-17 (elective)	
/ov Ovalifications	4)	x	Ethics and Epistemology	5 (comp.)	<u> </u>
Key Qualifications	np. tive		Elective Modules	7 (comp. elective)	
13. Semester 12 CP (total)	Comp. Elective				
			4 <sup>th</sup> Semester		30 CP
		- -	Module	СР	]
Master Thesis	oulsory		DA anton Theorie in AINAC	20 (	ı
4. Semester	IIS	Х	Master Thesis in AIMS	30 (comp.)	

		4 <sup>m</sup> Semester		30 CP
		Module	СР	
ľγ				
lso	Х	Master Thesis in AIMS	30 (comp.)	
nd				
шс				
ŭ				
	Compulsory	Compulsory	Module >	>

Date:	Signature Student:
	Signature Mentor:

## **Study Plan (AIMS)**





Name:	Year of Enrollment:
Matricle Number:	Mentor:

			1 <sup>st</sup> Semester		30 CP
			Module	СР	
Farmdations	ıry	planned			Achieved CP
Foundations	oslı	Х	Introduction to AIMS	5 (comp.)	
12. Semester	Jdr	Х	Mathematics for Engineers A	8 (comp.)	
26 CP (total)	Foundations 12. Semester 26 CP (total)	Х	Programming in Python and Python Lab	8 (comp.)	
υ					
Specialisation	Elective 3P)		Biophysical Chemistry	8 (comp. elective)	
Spectroscopy and	Elec CP)		Modern Optical Methods and Imaging	8 (comp. elective)	
			Solar and Chemical Energy Conversion*	8 (comp. elective)	
0 0	Imaging 13. Semester 37 CP (total)		Physical Biology of the Cell	10 (comp. elective)	
13. Semester		Chemometrics	6 (comp. elective)		
37 CP (total)	37 CP (total)		Theoretical Spectroscopy	8 (comp. elective)	
	Ċ		Artificial Molecular Intelligence	8 (comp. elective)	
	-		A) Sum of achieved CP	for Specialisation	

<sup>\*</sup>Frequency of courses: lectures: irregularly; practical course: every semester

			2 <sup>nd</sup> Semester		30 CP
			Module	СР	
	rγ	planned			Achieved CF
Foundations	IIso	Х	Scientific Software Engineering – Lab	5 (comp.)	
12. Semester	Compulsory				
26 CP (total)	Cor				
Advanced Machine	ive		Internal cation to Manhing Louring	[ / samp alactiva)	
	ect		Introduction to Machine Learning	5 (comp. elective)	1
Learning and Al	ä		Pattern Recognition	5 (comp. elective)	_
Advanced Machine  Learning and Al  23. Semester  15 CP (total)		Computer Lab Pattern Recognition	5 (comp. elective)		
		Deep Learning Lab	5 (comp. elective)		
	0		Methods of Uncertainty Analysis and	5 (comp. elective)	
Specialisation	Basic Module (5 CP)	Х	Molecular Spectroscopy	5 (comp.)	
Spectroscopy and Imaging	ات ا (ط		Solar and Chemical Energy Conversion*	8 (comp. elective)	
13. Semester	ilso tive O Cl		Sophisticated Imaging	10 (comp. elective)	
Toombulson, Elective Elective (16-20 CP)		B) Sum of achieved CP for Specialisation			
	3				
<b>Key Qualifications</b>	o. Ve		Elective Modules	7 (comp. elective)	
13. Semester 12 CP (total)	Comp. Elective			•	•

<sup>\*</sup>Frequency of courses: lectures: irregularly; practical course: every semester

			3 <sup>rd</sup> Semester		30 CP
			Module	СР	
	,e	planned			Achieved CP
Advanced Machine	cti		Pattern Recognition		
Learning and AI	ΕĪΘ		(offered in German in winter term)	5 (comp. elective)	
23. Semester	o.		Computer Lab Pattern Recognition	5 (comp. elective)	
15 CP (total)	Comp. Elective				
			Biophysical Chemistry	8 (comp. elective)	
			Modern Optical Methods and Imaging	8 (comp. elective)	
			Solar and Chemical Energy Conversion*	8 (comp. elective)	
	ive		Physical Biology of the Cell	10 (comp. elective)	
Specialisation	ect		Chemometrics	6 (comp. elective)	
Spectroscopy and	/EI CP		Theoretical Spectroscopy	8 (comp. elective)	
Imaging	oulsory Ele (16-20 CP)		Artificial Molecular Intelligence	8 (comp. elective)	
13. Semester	uls 16		C) Sum of achieved CP for	or Specialisation	
37 CP (total)	Compulsory Elective (16-20 CP)		37 CP - (A + B + C) = (	CP Research Lab (12-1	16 CP)
		Х	Research Lab		
			•		
<b>Key Qualifications</b>	Comp. Elective	Х	Ethics and Epistemology	5 (comp.)	
13. Semester	Comp. Elective		Elective Modules	7 (comp. elective)	
12 CP (total)	C			-	

<sup>\*</sup>Frequency of courses: lectures: irregularly; practical course: every semester

4 <sup>th</sup> Semester				30 CP	
			Module	СР	
Master Thesis	Isory	х	Master Thesis in AIMS	30 (comp.)	
4. Semester	ompulsor			30 (dep.)	
30 CP	Con				

Date:	Signature Student:
	Signature Mentor:

## Study Plan (AIMS)





Name:	Year of Enrollment:
Matricle Number:	Mentor:

1 <sup>st</sup> Semester			30 CP		
			Module	СР	
Foundations 12. Semester 26 CP (total)	٥ry	planned			Achieved CP
	ulsc	х	Introduction to AIMS	5 (comp.)	
	dω	Х	Mathematics for Engineers A	8 (comp.)	
	Col	Х	Programming in Python and Python Lab	8 (comp.)	
Specialisation				-	-
Data-Driven Biology 13. Semester 37 CP (total)		Metabolomic Biomarker Signatures	7 (comp. elective)		
		Applied Plant Transcriptomics	10 (comp. elective)		
		A) Sum of achieved CP for	A) Sum of achieved CP for Specialisation		

2 <sup>nd</sup> Semester					30 CP
			Module	СР	
		planned			Achieved CP
Foundations	00)	Х	Scientific Software Engineering – Lab	5 (comp.)	
Foundations  12. Semester  26 CP (total)					
	e		Introduction to Machine Learning	5 (comp. elective)	
Advanced Machine	ţi		Pattern Recognition	5 (comp. elective)	
Learning and AI	ilec		Computer Lab Pattern Recognition	5 (comp. elective)	
23. Semester	Comp. Elective		Deep Learning Lab	5 (comp. elective)	
15 CP (total)	шс		Methods of Uncertainty Analysis and	5 (comp. elective)	
Specialisation	Basic Module (10 CP)	Х	Molecular Microbial Evolution and Diversity	10 (comp.)	
Data-Driven	(I)		Immunometabolism	10 (comp. elective)	
Biology	P) (F		Network Biology	5 (comp. elective)	
13. Semester	ımp. Electi (10-15 CP)		Molecular Phylogenetics and Taxonomy	10 (comp. elective)	
37 CP (total)	p. E		Data Literacy and Genome Research	10 (comp. elective)	
Comp. Elective (10-15 CP)	om (1(		Functional Genomics in Infection Biology	10 (comp. elective)	
	Ö	ŭ	Microbial Proteomics	10 (comp. elective)	
		B) Sum of achieved CP for	or Specialisation		
Key Qualifications 13. Semester 12 CP (total)	np. cive		Elective Modules	7 (comp. elective)	
	Comp. Elective				

3 <sup>rd</sup> Semester 30 CP					
			Module	СР	
	/e	planned			Achieved CP
Advanced Machine	Œ		Pattern Recognition		
Learning and Al	Ele		(offered in German in winter term)	5 (comp. elective)	
23. Semester	<u>ڄ</u>		Computer Lab Pattern Recognition	5 (comp. elective)	
15 CP (total)	Comp. Elective				
	ve		Metabolomic Biomarker Signatures	7 (comp. Elective)	
Specialisation	cti)		Applied Plant Transcriptomics	10 (comp. elective)	
Data-Driven	⊞ P		C) Sum of achieved CP for	Specialisation	
Biology	ory :15				
13. Semester	Compulsory Elective (10-15 CP)		37 CP - (A + B + C) = CP Research Lab (12-17 CP)		
37 CP (total)	du			T	
රි	S	Х	Research Lab		
<b>Key Qualifications</b>	J. Ve		Ethics and Epistemology	5 (comp.)	
13. Semester	Comp. Elective		Elective Modules	7 (comp. elective)	
12 CP (total)	CC				
4 <sup>th</sup> Semester 30 CP					30 CP
_			Module	СР	
	>				
Master Thesis	Compulsory	Х	Master Thesis in AIMS	30 (comp.)	
4. Semester	nd				
30 CP	Wo .				
	O				
Date:			Signature Student:		
			Signature Mentor:		
			Signature Mentor.		