

List of courses Bachelor Study Bioinformatics USB České Budějovice - JKU Linz

Version WS2019

B = in Budweis /

	Typ	Year 1		Year 2		Year 3		ECTS
		Sem1 / B	Sem2 / B	Sem3 / L	Sem4 / L	Sem5 / B	Sem6 / L	
		ECTS	ECTS	ECTS	ECTS	ECTS	ECTS	
FACH: Computer Science								
MODUL: Python Basics	(3h)	4						
MODUL: Algorithms and Data Structures	(3h)	4						
MODUL: Applied Programming	(2h)		3					
FACH: Information Systems								
Informationssysteme 1	2UE			3				
Informationssysteme 1	2VL			3				
Information Systems for Bioinformatics	4KV						6	
FACH: Artificial Intelligence in Life Sciences								
Artificial Intelligence in Life Sciences	2KV				3			
MODUL: Parallel Programming						4		ECTS
		8	3	6	3	4	6	30
FACH: Mathematics								
MODUL: Calculus I	(4h)	6						
MODUL: Linear Algebra	(2h)	3						
MODUL: Calculus II	(5h)		5					
MODUL: Probability and mathematical statistics I	(2h)		3					
MODUL: Biostatistics	(4h)					5		ECTS
		9	8	0	0	5	0	22
FACH: Bioinformatics								
MODUL: Introduction to Bioinformatics	(4h)		6					
FACH: Genome Analysis & Transcriptomics and Structural Bioinformatics								
Genome Analysis & Transcriptomics	2KV				3			
Structural Bioinformatics	2KV				3			
Topics in Genetics & Evolution	2KV			3				
Sequence analysis and phylogenetics	2VL			3				
Sequence analysis and phylogenetics	2UE			3				
FACH: Machine Learning								
Artificial Intelligence	2VL			3				
MODUL: Bioinformatics Project	(8h)					8		ECTS
		0	6	12	6	8	0	32
FACH: Chemistry								
MODUL: General Chemistry	(2h)		3					
FACH: Bioanalytics								
Bioanalytics I	2VL			3				
Bioanalytics I	1UE			1,5				
FACH: Organic Chemistry								
Chemie für Physiker II	2VL			3				
Biochemistry	2VL				3			
MODUL: Computational Chemistry and Mol. Modelling of Biomolecules	(3h)					4		ECTS
		0	3	7,5	3	4	0	17,5
FACH: Biology								
MODUL: Biology of microorganisms	(3h)	4						

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<i>MODUL: Introduction to Cell Biology</i>	(1h)	1						
<i>MODUL: Molecular Biology and Genetics</i>	(2h)	3						
<i>MODUL: Diversity of life</i>	(3h)		5					
<i>MODUL: Introduction to Genomics</i>	(2h)		3					
<i>MODUL: Molecular Phylogenetics</i>	(4h)					6		ECTS
		8	8	0	0	6	0	22
FACH: Soft Skills	Typ							
<i>MODUL: Academic Writing for Cross Border Studies</i>	(2h)		3					
<i>MODUL: Ethics</i>	(2h)	3						
<i>FACH: Gender Studies</i>								
Introduction into Gender Studies in Science and Engineering <i>or</i> Gender Studies und Soziale Kompetenz <i>or</i> Ethik und Gender Studies <i>or</i> Einführung in IKT, Gesellschaft, Gender und Diversity	2KV 2KV 2KV 2KS			3				
<i>FACH: English for Scientists</i>								
Scientific Writing and Presenting	2KV			3				
		3	3	6	0	0	0	12

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		Year 1		Year 2		Year 3	
		1. Sem / B	2. Sem / B	3. Sem / L	4. Sem / L	5. Sem / B	6. Sem / L
		ECTS	ECTS	ECTS	ECTS	ECTS	ECTS
FACH: Area of Specialisation	Typ						
<i>MODUL: Advanced Database Systems</i>							
<i>MODUL: Epigenetics</i>							
<i>MODUL: Introduction to Immunology</i>							
<i>MODUL: Methods in Molecular Biology</i>							
<i>MODUL: Molecular Ecology</i>							
<i>MODUL: Project Management and its Economy</i>							
<i>MODUL: Basic Methods of Molecular Biology</i>							
<i>MODUL: Evolutionary Genomics</i>							
<i>MODUL: Vertebratological Excursion</i>							
<i>MODUL: Polar Ecology</i>							
<i>MODUL: Polar Ecology (Life Science)</i>							
Offer at JKU in winter term:							
Chemical Calculations	2KV/3ECTS						
Biologische Signalisierung I	3VO/3ECTS						
Charakterisierung von Bio-Nanostrukturen	2VL/3ECTS						
Stochastische Prozesse	2VL/3ECTS						
Software Engineering	1UE/1,5ECTS						
Software Engineering	2VL/3ECTS						
Biometrische Identifikation	2VL/3ECTS						
Computer Forensics and IT Law	2VL/3ECTS						
Human/Computer Interaction	2VL/3ECTS						
Biophysik I für Molekulare Biowissenschaften	3VL/4,5ECTS						
Physik für Molekulare Biowissenschaften	2VL/3ECTS						
Advanced NMR 1	1VL/1,3ECTS						
Computer Algebra	1UE/1,5ECTS						
Computer Algebra	2VL/3ECTS						
Markov-Ketten	1UE/1,5ECTS						
Markov-Ketten	2VL/3ECTS						
Stochastische Prozesse	1UE/1,5ECTS						
Biophysik I	2VL3ECTS						
Stochastic Processes	2KV/4ECTS						
Offer at JKU in summer term:							
Advanced NMR 2	1KV/1,6ECTS						
Biologische Signalisierung II	1,5VL						
Biophysik II	1VO/1,5ECTS						
Advanced Topics of Molecular Biotechnologies	2VU/3ECTS						
Mikroskopie an Biomolekülen	2VL/3ECTS						
Stochastische Simulation	1UE/1,5ECTS						
Stochastische Simulation	2VL/3ECTS						
Inverse Probleme	2VL/3ECTS						
Application Oriented Knowledge Processing	2KV/3ECTS						
Parallel Computing	3KV/4,5ECTS						

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Software Architectures	3KV/4,5ECTS							
Software Testing	2KV/3ECTS							
Theoretical Concepts of Machine Learning	1UE/1,5ECTS							
Theoretical Concepts of Machine Learning	2VL/3ECTS							
Web Search and Mining	2KV/3ECTS							
Statistische Signalverarbeitung	2VL/3ECTS							
Genomische Datenanalyse	4VU/6ECTS							
Inverse Probleme	1UE/1,5ECTS							
Logik als Arbeitssprache	2KV/3ECTS							
Optimierung	3VL/4,5ECTS							
Optimierung	1UE/1,5ECTS							
Computer Algebra for Concrete Mathematics	2VL/3ECTS							
Machine Learning and Pattern Classification	3KV/4,5ECTS							
						13	3	9,5
		0	0	0	13	3	9,5	25,5
FACH: Bachelor's Thesis	Typ							
Bachelor's Seminar	1SE							6
		0	0	0	0	0	0	6
FACH: Free Electives	Typ							
						3	3	3
		0	0	0	3	3	3	9
		28	31	31,5	28	33	24,5	176
Bachelor's Examination (USB)								4
								180

Stand 13.5.2019