

CMS-CLS-IBC Introduction to Biochemistry			Responsible Lecturer:		Prof. Dr. Francis Stewart			M1100-CMS221
Compulsory Module for Track CLS								PO 2020
Course Title	Faculty	Lecturer	SWS Effort	Language	Semester	Examiner	Examination performance	Course number Selma
Introduction to Biochemistry	CMCB	Francis Stewart	2V/2P	english	Winter	Francis Stewart	1. Laboratory Protocol 2. Test 45 min/Oral Assessment <=15 participants	K1112-5NB13
CMS-CLS-IBC Introduction to Biochemistry			Responsible Lecturer:		Prof. Dr. Francis Stewart			M1100-CMS22
Compulsory Module for Track CLS								PO 2018
Course Title	Faculty	Lecturer	SWS Effort	Language	Semester	Examiner	Examination performance	Course number Selma
Introduction to Biochemistry	CMCB	Francis Stewart	2V/2P	english	Winter	Francis Stewart	Test 45 min	K1112-5NB13

CMS-COR-SED Statistical Principles and Experimental Design				Responsible Lecturer:			Prof. Dr. med. Ingo Röder	M1100-CMS116
Compulsory elective module in the basic studies and compulsory module in the CLS track								PO 2020
Course Title	Faculty	Lecturer	SWS Effort	Language	Semester	Examiner	Examination performance	Course number Selma
Statistical Principles and Experimental Design	MED	Ingo Röder Anna Klimova Matthias Kuhn	2V/2Ü	english	Winter	Ingo Röder Anna Klimova	preliminary examination: 9 practice tests Written Examination 90 min/ Oral Assessment 30 min < 10 participants	K9601-11001
CMS-COR-SED Statistical Principles and Experimental Design				Responsible Lecturer:			Prof. Dr. med. Ingo Röder	M1100-CMS16
Compulsory elective module in the basic studies and compulsory module in the CLS track								PO 2018
Course Title	Faculty	Lecturer	SWS Effort	Language	Semester	Examiner	Examination performance	Course number Selma
Statistical Principles and Experimental Design	MED	Ingo Röder Anna Klimova Matthias Kuhn	2V/2Ü	english	Winter	Ingo Röder Anna Klimova	Written Examination 90 min/Oral Assessment 30 min <= 10 participants	K9601-11001

	CMS-CLS-ELG Computational Life Science Basics			Responsible Lecturer:				Prof. Dr. Ivo F. Sbalzarini			M1107-CMS21	
	Compulsory Module with Electives Catalogue (Setpoint: 8 SWS)											
	Eine Lehrveranstaltung des Katalogs CMS-CLS-ELG kann nicht gewählt werden, wenn diese bereits in einem anderen Pflichtmodul mit wahlpflichtigem Inhalt bzw. in einem Wahlpflichtmodul der Grundlagenausbildung im Masterstudiengang Computational Modeling and Simulation gewählt wurde.											
	Please note that any course of the catalogue CMS-CLS-ELG cannot be selected if it has been already selected for another CMS-module.											
	Die Modulnote ergibt sich aus dem nach Semesterwochenstunden (SWS) gewichteten Durchschnitt der Noten der Prüfungsleistungen. The module grade is the average of the grades of the individual examinations, weighted by course effort (SWS, lecture hours per week).											
Nr.	Course Title	Faculty	Lecturer	SWS Effort	Language	Semester	Examiner	Examination performance	Duration	Weighting according to SWS	Course number Selma	Notes
1	Biophysical Chemistry	CMCB	Elisabeth Fischer-Friedrich	2V	english	Winter	Fischer-Friedrich	Written Examination	90 min	2	K1112-5NB11aV	
2	Biophysical Methods	CMCB	Michael Schlierf	2V/2S	english	Winter	Michael Schlierf	Oral Presentation		4	K1112-5NB23	
3	Dynamics of Protein Networks	CMCB	Simon Alberti	2V	english	Summer	Simon Alberti	Oral Presentation	30 min	2	K1112-5MB22V K3012-5MB22aV	
4	Genome Engineering	CMCB	Francis Stewart Michael Hiller	2V	english	Summer	Francis Stewart	Oral Presentation	30 min	2	K1112-5NBE2bV K3012-5MB21aV	
5	Introduction to Proteomics	CMCB	Simon Alberti	3V	english	Winter	Simon Alberti	Written Examination /Oral Assessment <= 15 participants		3	K1112-5MB23V	
6	Principles of Biophysics	CMCB	Michael Schlierf	2V/2Ü	english	Winter	Michael Schlierf	Written Examination	90 min	4	K1112-5MB15b	
7	Theoretical Biophysics	CMCB	Frank Jülicher Christoph Weber	2V/2Ü	english	Summer	Frank Jülicher	Oral Assessment	20 min	4	K1112-5NB24	
8	Advanced User Interfaces	INF	Raimund Dachzelt Anke Lehmann	2V/2Ü	german/ english	Summer	Raimund Dachzelt Anke Lehmann	Written Examination	90 min	4	K1104-MA0001	Exercise is a prerequisite
9	Basic Numerical Methods	INF	Ivo Sbalzarini	2V/2Ü	english	Winter	Ivo Sbalzarini	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1107-MA0017	
10	Computer Vision 1	INF	Björn Andres	2V/2Ü	english	Winter	Björn Andres	Oral Assessment	30 min	4	K1107-MA0009	
11	Seminar Computer Vision 2	INF	Björn Andres	2 Seminar	english	Summer	Björn Andres	Oral Presentation	30 min	2	K1107-MA0016S	Maximum 30 participants
12	Computer Graphics 1	INF	Stefan Gumhold	2V/2Ü	german/ english	Winter	Stefan Gumhold	Written Examination 90 min/Oral Assessment 20 min <= 15 participants		4	K1104-MA0025	
13	Computer Graphics 2	INF	Stefan Gumhold	2V/2Ü	english	Summer	Stefan Gumhold	Written Examination 90 min/Oral Assessment 20 min <= 15 participants		4	K1104-MA0005	
14	Data Visualization	INF	Raimund Dachzelt Stefan Gumhold	2V/2Ü	english	Winter	Raimund Dachzelt Stefan Gumhold	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1104-CMS03	
15	Design Patterns and Frameworks	INF	Uwe Aßmann Sebastian Götz	2V/2Ü	english	Winter	Uwe Aßmann Sebastian Götz	Written Examination 90 min/Oral Assessment 15 min <= 20 participants		4	K1104-MA0020	
16	Digitization and Data Analytics: Architectures, Methods and Consequences	INF	Wolfgang Nagel Robert Schöne Sunna Torge	2V/2Ü	english	Summer	Wolfgang Nagel Sunna Torge	Written Examination 90 min/Oral Assessment 20 min <= 10 participants		4	K1102-ZIH03	
17	Machine Learning 1	INF	Björn Andres	2V/2Ü	english	Winter	Björn Andres	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1107-MA0060	

18	Machine Learning 2	INF	Björn Andres	2 Seminar	english	Summer	Björn Andres	Oral Assessment	30 min	2	K1107-MA0062S	Maximum 25 participants
19	Particle Methods	INF	Ivo Sbalzarini	2V/2Ü	english	Summer	Ivo Sbalzarini	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1107-MA0006	
20	Scientific Visualization	INF	Stefan Gumhold	2V/2Ü	english	Summer	Stefan Gumhold	Written Examination 90 min/Oral Assessment 20 min <= 15 participants		4	K1104-MA0032	
21	Stochastic Modeling and Simulation	INF	Ivo Sbalzarini Christoph Zechner	2V/2Ü	english	Winter	Ivo Sbalzarini	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1107-MA0002	
22	Scalable Data Engineering	INF	Wolfgang Lehner Claudio Hartmann	2V/2Ü	english	Winter	Wolfgang Lehner Dirk Habich	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1106-MA0023	
23	User Interface Engineering	INF	Raimund Dachzelt Anke Lehmann	2V/2Ü	german/ english	Winter	Raimund Dachzelt Anke Lehmann	Written Examination 90 min/Oral Assessment 20 min <= 10 participants		4	K1104-MA0024	Exercise is a prerequisite
24	Introduction to Mathematical Biology 1	INF	Andreas Deutsch Lutz Brusch	2V/1Ü	english	Winter 22/23 Winter 20/21	Andreas Deutsch Lutz Brusch	Oral Assessment	30 min	3	K1102-ZIH001	
25	Introduction to Mathematical Biology 2	INF	Andreas Deutsch Lutz Brusch	2V/1Ü	english	Winter 19/20 Winter 21/22	Andreas Deutsch Lutz Brusch	Oral Assessment	30 min	3	K1102-ZIH002	
26	Finite Element Method - Theory, Implementation and Applications	MATH	Axel Voigt	3V/1Ü	german/ english	Winter	Axel Voigt	Written Examination 120 min/Oral Assessment 20 min <= 10 participants		4	K0108-40641x	
27	Numerical Mathematics of Partial Differential Equations	MATH	Oliver Sander Patrick Jaap	3V/1Ü	german/ english	Winter	Oliver Sander	Oral Assessment (Group) 20 min		4	K0108-40543x	
28	Scientific Arithmetic - Advanced Aspects	MATH	Axel Voigt Marco Salvalaglio	3V/1Ü	english	Summer	Axel Voigt Marco Salvalaglio	Oral Assessment (Group) 20 min		4	K0108-40642x	only remaining places
29	Computational Fluid Dynamics	MW	Jochen Fröhlich Jordi Ventosa Molina	2V/2Ü	english	Winter	Jochen Fröhlich Jordi Ventosa Molina	Written Examination 120 min/Oral Assessment 20 min <= 10 participants		4	K1302-EX3040	
30	Concepts of Molecular Modelling	MW	Rafael Gutierrez	2V/2Ü/2P	english	Winter	Rafael Gutierrez	Written Examination	90 min	6	K1314-EX3006	
31	Kinematics and Kinetics of Multibody Systems	MW	Michael Beiteltschmidt David Bernstein	2V/2Ü	german/ english	Summer	Beiteltschmidt	Written Examination Multibody Dynamics	90 min	4	K1301-1H1305	
32	Cognitive Neuroscience Methods (CAN5)	PSY	Stefan Kiebel	2V	german/ english	Winter	Stefan Kiebel	Written Examination 90 min/Oral Assessment		2	K0401-4CAN5xV	

CMS-CLS-ELV Computational Life Science Advanced		Responsible Lecturer:		Prof. Dr. Ivo F. Sbalzarini		M1107-CMS24						
Compulsory Module with Electives Catalogue (Setpoint: 8 SWS)												
Eine Lehrveranstaltung des Katalogs CMS-CLS-ELV kann nicht gewählt werden, wenn diese bereits in einem anderen Pflichtmodul mit wahlpflichtigem Inhalt bzw. in einem Wahlpflichtmodul der Grundlagenausbildung im Masterstudiengang Computational Modeling and Simulation gewählt wurde.												
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Nr.	Course Title	Faculty	Lecturer	SWS Effort	Language	Semester	Examiner	Examination performance	Duration	Weighting according to SWS	Course number Selma	Notes
1	Biological Hydrodynamics	CMCB	Stephan Grill Benjamin Friedrich Jan Brugues (kein ZIH-Login)	2V/2Ü	english	Winter	Benjamin Friedrich	Oral Assessment	20 min	4	K1112-5NB23	
2	Principles of Biophysics	CMCB	Michael Schlierf	2V/2Ü	english	Winter	Michael Schlierf	Written Examination	90 min	4	K1112-5MB15b	
3	Advanced Problem Solving and Search	INF	Dr. Lucía Gómez Álvarez Sarah Alice Gaggli	2V/2Ü	english	Winter	Sebastian Rudolph	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1107-MA0056	
4	Computer Graphics 1	INF	Stefan Gumhold	2V/2Ü	german /english	Winter	Stefan Gumhold	Written Examination 90 min/Oral Assessment 20 min <= 15 participants		4	K1104-MA0025	
5	Computer Graphics 3	INF	Stefan Gumhold	2V/2Ü	german /english	Winter	Stefan Gumhold	Written Examination 90 min/Oral Assessment 20 min <= 15 participants		4	K1104-MA0045	
6	Data Visualization	INF	Raimund Dachzelt Stefan Gumhold	2V/2Ü	german /english	Winter	Dachzelt Gumhold	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1104-CMS03	
7	Design Patterns and Frameworks	INF	Uwe Aßmann Sebastian Götz	2V/2Ü	english	Winter	Uwe Aßmann Sebastian Götz	Written Examination 90 min/Oral Assessment 15 min <= 20 participants		4	K1104-MA0020	
8	High Performance Computers and their Programming	INF	Wolfgang Nagel Robert Schöne	2V/2Ü	english	Winter	Nagel	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1102-MA0002	
9	Interactive Multimedia Information Retrieval	INF	Annett Mitschick	2V/2Ü	german /english	Winter	Annett Mitschick	Written Examination 90 min/Oral Assessment 20 min <= 10 participants		4	K1104-MA0034	Exercise is a prerequisite
10	Knowledge Graphs	INF	Markus Krötzsch Maximilian Marx	2V/2Ü	english	Winter	Markus Krötzsch	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1101-MA0024	
11	Machine Learning 1	INF	Björn Andres	2V/2Ü	english	Winter	Björn Andres	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1107-MA0060	
12	User Interface Engineering	INF	Raimund Dachzelt Anke Lehmann	2V/2Ü	german /english	Winter	Dachzelt	Written Examination 90 min/Oral Assessment 20 min <= 10 participants		4	K1104-MA0024	Exercise is a prerequisite
13	Stochastic Modeling and Simulation	INF	Ivo Sbalzarini Christoph Zechner	2V/2Ü	english	Winter	Sbalzarini	Written Examination 90 min/Oral Assessment 30 min <= 10 participants		4	K1107-MA0002	
14	Introduction to Mathematical Biology 1	INF	Andreas Deutsch Lutz Bruschi	2V/1Ü	english	Winter 20/21	Andreas Deutsch Lutz Bruschi	Oral Assessment	30 min	3	K1102-ZIH001	
15	Introduction to Mathematical Biology 2	INF	Andreas Deutsch Lutz Bruschi	2V/1Ü	english	Winter 21/22	Andreas Deutsch Lutz Bruschi	Oral Assessment	30 min	3	K1102-ZIH002	

16	Numerical Mathematics of Partial Differential Equations	MATH	Oliver Sander Patrick Jaap	3V/1Ü	german /english	Winter	Oliver Sander	Oral Assessment (Group) 20 min		4	K0108-40543x	
17	Computational Cell Biology	MED	Ingmar Glauche	2V/2Ü	english	Winter	Ingmar Glauche	Oral Presentation	30 min	4	K9603-11073	Maximum 25 participants
18	Computer- and Robot-Assisted Surgery	MED	Stefanie Speidel	2V/2Ü	german /english	Winter	Stefanie Speidel	Oral Assessment	20 min	4	K9601-110713	
19	Computational Fluid Dynamics	MW	Jochen Fröhlich Jordi Ventosa Molina	2V/2Ü	english	Winter	Jochen Fröhlich Jordi Ventosa Molina	Written Examination 120 min/Oral Assessment 20 min <= 10 participants		4	K1302-EX3040	
20	Concepts of Molecular Modelling	MW	Rafael Gutierrez	2V/2Ü/2P	english	Winter	Rafael Gutierrez	Written Examination	90 min	6	K1314-EX3006	
21	Cognitive Neuroscience (CAN1)	PSY	Thomas Goschke Franziska Korb-King	2V	english	Winter	Thomas Goschke Franziska Korb-King	Written Examination	90 min	2	K0401-4CAN1xV	
22	Lifespan Developmental Neuroscience (CAN3)	PSY	Shu-Chen Li	2V	english	Winter	Shu-Chen Li	Written Examination	90 min	2	K0404-4CAN3xV	