

CMS-VC-ELG		Visual Computing Basics		Responsible Lecturer:		Prof. Dr. Stefan Gumhold		M1104-CMS41				
Compulsory Module with Electives Catalogue (Setpoint: 8 SWS)												
Eine Lehrveranstaltung des Katalogs CMS-VC-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-VC-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	Advanced Problem Solving and Search	INF	Dr. Lucía Gómez Álvarez Sarah Alice Gaggl	2V/2Ü	english	Winter	Sebastian Rudolph	Written Examination 90 min/ Oral Assessment 30 min <= 10 participants		4	K1107-MA0056	
2	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	
3	Computer- and Robot-Assisted Surgery	MED	Stefanie Speidel	2V/2Ü	german/ english	Winter	Stefanie Speidel	Oral Assessment	20 min	4	K9601-110713	
4	Computer Vision 1	INF	Björn Andres	2V/2Ü	english	Winter	Björn Andres	Oral Assessment	30 min	4	K1107-MA0009	
5	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	
6	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	
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	Foundations of Virtual Reality	INF	Matthew McGinity	2V/2Ü	english	Winter	Matthew McGinity	Written Examination 90 min/ Oral Assessment 20 min <= 10 participants		4	K1104-MA0036	
9	High Performance Computers and their Programming	INF	Wolfgang Nagel Robert Schöne	2V/2Ü	english	Winter	Wolfgang Nagel Robert Schöne	Written Examination 90 min/ Oral Assessment 30 min <= 10 participants		4	K1102-MA0002	
10	Introduction to Mathematical Biology 1	INF	Andreas Deutsch Lutz Bruschi	2V/1Ü	english	Winter 20/21	Andreas Deutsch Lutz Bruschi	Oral Assessment	30 Minuten	3	K1102-ZIH001	
11	Introduction to Mathematical Biology 2	INF	Andreas Deutsch Lutz Bruschi	2V/1Ü	english	Winter 21/22	Andreas Deutsch Lutz Bruschi	Oral Assessment	30 Minuten	3	K1102-ZIH002	
12	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	
13	Machine Learning 1	INF	Björn Andres	2V/2Ü	englisch	Winter	Björn Andres	Written Examination 90 min/ Oral Assessment 30 min <= 10 participants		4	K1107-MA0060	
14	Scientific Programming – Advanced Aspects	MATH	Wolfgang Walter Simon Praetorius	3V/1Ü	german/ english	Winter	Wolfgang Walter Simon Praetorius	Oral Assessment (Group) 20 min		4	K0108-40643x	only remaining places
15	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	Maximum 5 participants

CMS-VC-ELV1		Visual Computing Advanced			Responsible Lecturer:		Prof. Dr. Stefan Gumhold			M1104-CMS42		
Compulsory Module with Electives Catalogue (Setpoint: 12 SWS)												
Eine Lehrveranstaltung des Katalogs CMS-VC-ELV1 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-VC-ELV1 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	Applied Bioinformatics	CMCB	Michael Schroeder	2V/2Ü	english	Summer	Michael Schroeder	Test	45 min	4	K3012-5MB14a	
2	Advanced Problem Solving and Search	INF	Dr. Lucía Gómez Álvarez Sarah Alice Gaggl	2V/2Ü	english	every	Sebastian Rudolph	Written Examination 90 min/ Oral Assessment 30 min <= 10 participants		4	K1107-MA0056	
3	Advanced User Interfaces	INF	Raimund Dachselt Anke Lehmann	2V/2Ü	german/ english	Summer	Raimund Dachselt Anke Lehmann	Written Examination	90 min	4	K1104-MA0001	Maximum 5 participants
4	Computer Vision 1	INF	Björn Andres	2V/2Ü	english	Winter	Björn Andres	Oral Assessment	30 min	4	K1107-MA0009	
5	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	
6	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	
7	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	
8	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	
9	Digitization and Data Analytics: Architectures, Methods and Consequences	INF	Wolfgang Nagel Sunna Torge	2V/2Ü	german/ english	Summer	Wolfgang Nagel Sunna Torge	Written Examination 90 min/ Oral Assessment 20 min <= 10 participants		4	K1102-ZIH03	
10	Empirical Research Methods in Human-Computer Interaction	INF	Matthew McGinity	4 SWS Praktikum	english	Summer	Matthew McGinity	Project Report		4	K1104-MA0008P	
11	Foundations of Virtual Reality	INF	Matthew McGinity	2V/2Ü	english	Winter	Matthew McGinity	Written Examination 90 min/ Oral Assessment 20 min <= 10 participants		4	K1104-MA0036	
12	Frontiers in Immersive Media	INF	Matthew McGinity	2 SWS Seminar + 2 SWS Praktikum	english	Summer	Matthew McGinity	Seminar Paper		4	K1104-MA0027	
13	High Performance Computers and their Programming	INF	Wolfgang Nagel Robert Schöne	2V/2Ü	english	Winter	Wolfgang Nagel Robert Schöne	Written Examination 90 min/ Oral Assessment 30 min <= 10 participants		4	K1102-MA0002	
14	Highly Parallel Programming of GPU	INF	Wolfgang Nagel Robert Schöne Guido Juckeland (HZDR)	2V/2Ü	german/ english	Winter	Wolfgang Nagel Robert Schöne	Written Examination	90 min	4	K1102-MA0005	

15	Interactive Information Visualization	INF	Raimund Dachsel Anke Lehmann Tom Horak	2V/2Ü	german/ english	Summer	Raimund Dachsel Anke Lehmann	Written Examination	90 min	4	K1104-MA0004	Maximum 5 participants
16	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	Maximum 5 participants
17	Knowledge Graphs	INF	Markus Krötzsch Maximilian Marx	2V/2Ü	english	Winter	Markus Krötzsch	Written Examination 90 min/ Oral Assessment 20 min <= 10 participants		4	K1101-MA0024	
18	Advanced Practical Course Applied Immersive Media	INF	Matthew McGinity	4 SWS Praktikum	english	Winter	Matthew McGinity	Project Report		4	K1104-MA0021P	
19	Komplexpraktikum Experiments in Immersive Media	INF	Matthew McGinity	4 SWS Praktikum	english	Summer	Matthew McGinity	Project Report		4	K1104-MA0006P	
20	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	
21	Particle Methods	INF	Ivo Sbalzarini	2V/2Ü	english	Summer	Ivo Sbalzarini	Written Examination 90 min/ Oral Assessment 30 min <= 10 participants		4	K1107-MA0006	
22	Scientific Visualization	INF	Stefan Gumhold	2V/2Ü	english	Summer	Stefan Gumhold	Written Examination 90 min/ Oral Assessment 20 min <= 15 participants		4	K1104-MA0032	
23	Seminar Computer Vision 2	INF	Björn Andres	2 Seminar	english	Summer	Björn Andres	Oral Presentation	30 min	2	K1107-MA0016S	Maximum 30 participants
24	Seminar Machine Learning 2	INF	Björn Andres	2 Seminar	english	Summer	Björn Andres	Oral Presentation	30 min	2	K1107-MA0062S	Maximum 25 participants
25	Spatiotemporal Modeling and Simulation of Biological Systems	INF	Ivo Sbalzarini Aryaman Gupta (MPI)	2V/2Ü	english	Summer	Ivo Sbalzarini	Written Examination 120 min/ Oral Assessment 30 min <= 10 participants		4	K1107-MA0015	
26	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	
27	User Interface Engineering	INF	Raimund Dachsel Anke Lehmann	2V/2Ü	german/ english	Winter	Raimund Dachsel Anke Lehmann	Written Examination 90 min/ Oral Assessment 20 min <= 10 participants		4	K1104-MA0024	Maximum 5 participants
28	Virtual Worlds	INF	Matthew McGinity	4 SWS Praktikum	english	Summer	Matthew McGinity	Project Report		4	K1104-MA0026P	
29	Computer- and Robot-Assisted Surgery	MED	Stefanie Speidel	2V/2Ü	german/ english	Winter	Stefanie Speidel	Oral Assessment	20 min	4	K9601-110713	
30	Introduction to Mathematical Biology 1	INF	Andreas Deutsch Lutz Brusch	2V/1Ü	english	Winter 20/21	Andreas Deutsch Lutz Brusch	Oral Assessment	30 Minuten	3	K1102-ZIH001	
31	Introduction to Mathematical Biology 2	INF	Andreas Deutsch Lutz Brusch	2V/1Ü	english	Winter 21/22	Andreas Deutsch Lutz Brusch	Oral Assessment	30 Minuten	3	K1102-ZIH002	

CMS-VC-ELV2		Visual Computing Applications		Responsible Lecturer:		Prof. Dr. Stefan Gumhold				M1104-CMS43		
Compulsory Module with Electives Catalogue (Setpoint: 12 SWS)												
Eine Lehrveranstaltung des Katalogs CMS-VC-ELV2 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-VC-ELV2 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	Applied Bioinformatics	CMCB	Michael Schroeder	2V/2Ü	english	Summer	Michael Schroeder	Test	45 min	4	K3012-5MB14a	
2	Advanced Problem Solving and Search	INF	Dr. Lucía Gómez Álvarez Sarah Alice Gaggl	2V/2Ü	english	every	Sebastian Rudolph	Written Examination 90 min/ Oral Assessment 30 min ≤ 10 participants		4	K1107-MA0056	
3	Advanced User Interfaces	INF	Raimund Dachzelt Anke Lehmann	2V/2Ü	german/ english	Summer	Raimund Dachzelt Anke Lehmann	Written Examination	90 min	4	K1104-MA0001	Maximum 5 participants
4	Automotive Software Engineering	INF	Mirko Conrad (extern)	2V	german/ english	Summer	Mirko Conrad	Oral Assessment		2	K1104-BA0503V	
5	Computer Vision 1	INF	Björn Andres	2V/2Ü	english	Winter	Björn Andres	Oral Assessment	30 min	4	K1107-MA0009	
6	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	
7	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	
8	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	
9	Design Patterns and Frameworks	INF	Uwe Aßmann Sebastian Götz	2V/2Ü	english	Winter	Uwe Aßmann Sebastian Götz	Written Examination 90 min/ Oral Assessment 20 min ≤ 15 participants		4	K1104-MA0020	
10	Digitization and Data Analytics: Architectures, Methods and Consequences	INF	Wolfgang Nagel Sunna Torge	2V/2Ü	german/ english	Summer	Wolfgang Nagel Sunna Torge	Written Examination 90 min/ Oral Assessment 20 min ≤ 10 participants		4	K1102-ZIH03	
11	Empirical Research Methods in Human-Computer Interaction	INF	Matthew McGinity	4 SWS Praktikum	english	Summer	Matthew McGinity	Project Report		4	K1104-MA0008P	
12	Foundations of Virtual Reality	INF	Matthew McGinity	2V/2Ü	english	Winter	Matthew McGinity	Written Examination 90 min/ Oral Assessment 20 min ≤ 10 participants		4	K1104-MA0036	
13	Frontiers in Immersive Media	INF	Matthew McGinity	2 SWS Seminar + 2 SWS Praktikum	english	Summer	Matthew McGinity	Seminar Paper		4	K1104-MA0027	
14	High Performance Computers and their Programming	INF	Wolfgang Nagel Robert Schöne	2V/2Ü	english	Winter	Wolfgang Nagel Robert Schöne	Written Examination 90 min/ Oral Assessment 30 min ≤ 10 participants		4	K1102-MA0002	
15	Highly Parallel Programming of GPU	INF	Wolfgang Nagel Robert Schöne Guido Juckeland (HZDR)	2V/2Ü	german/ english	Winter	Wolfgang Nagel Robert Schöne	Written Examination	90 min	4	K1102-MA0005	
16	Interactive Information Visualization	INF	Raimund Dachzelt Anke Lehmann Tom Horak	2V/2Ü	german/ english	Summer	Raimund Dachzelt Anke Lehmann	Written Examination	90 min	4	K1104-MA0004	Maximum 5 participants
17	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	Maximum 5 participants

18	Internet and Web Applications	INF	Alexander Schill Marius Feldmann	2V/2Ü	english	Summer	Alexander Schill Marius Feldmann	Written Examination	60 min	4	K1106-MA0003	
19	Knowledge Graphs	INF	Markus Kröttsch Maximilian Marx	2V/2Ü	english	Winter	Markus Kröttsch	Written Examination 90 min/ Oral Assessment 20 min <= 10 participants		4	K1101-MA0024	
20	Advanced Practical Course Applied Immersive Media	INF	Matthew McGinity	4 SWS Praktikum	english	Winter	Matthew McGinity	Project Report		4	K1104-MA0021P	
21	Komplexpraktikum Experiments in Immersive Media	INF	Matthew McGinity	4 SWS Praktikum	english	Summer	Matthew McGinity	Project Report		4	K1104-MA0006P	
22	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	
23	Machine Learning Seminar 2	INF	Björn Andres	2 Seminar	english	Summer	Björn Andres	Oral Presentation	30 min	2	K1107-MA0062S	Maximum 25 participants
24	Particle Methods	INF	Ivo Sbalzarini	2V/2Ü	english	Summer	Ivo Sbalzarini	Written Examination 90 min/ Oral Assessment 30 min <= 10 participants		4	K1107-MA0006	
25	Scientific Visualization	INF	Stefan Gumhold	2V/2Ü	english	Summer	Stefan Gumhold	Written Examination 90 min/ Oral Assessment 20 min <= 15 participants		4	K1104-MA0032	
26	Seminar Computer Vision 2	INF	Björn Andres	2 Seminar	english	Summer	Björn Andres	Oral Presentation	30 min	2	K1107-MA0016S	Maximum 30 participants
27	Spatiotemporal Modeling and Simulation of Biological Systems	INF	Ivo Sbalzarini	2V/2Ü	english	Summer	Ivo Sbalzarini	Written Examination 120 min/ Oral Assessment 30 min <= 10 participants		4	K1107-MA0015	
28	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	
29	User Interface Engineering	INF	Raimund Dachsel Anke Lehmann	2V/2Ü	german/ english	Winter	Raimund Dachsel Anke Lehmann	Written Examination 90 min/ Oral Assessment 20 min <= 10 participants		4	K1104-MA0024	Maximum 5 participants
30	Virtual Worlds	INF	Matthew McGinity	4 SWS Praktikum	english	Summer	Matthew McGinity	Project Report		4	K1104-MA0026P	
31	Computer- and Robot-Assisted Surgery	MED	Stefanie Speidel	2V/2Ü	german/ english	Winter	Stefanie Speidel	Oral Assessment	20 min	4	K9601-110713	
32	Computational Fluid Dynamics	MW	Jochen Fröhlich Jordi Ventosa Molina	2V/2Ü	english	Winter	Fröhlich	Written Examination 120 min/ Oral Assessment 20 min <= 10 participants		4	K1302-EX3040	
33	Introduction to Mathematical Biology 1	INF	Andreas Deutsch Lutz Brusch	2V/1Ü	english	Winter 20/21	Andreas Deutsch Lutz Brusch	Oral Assessment	30 Minuten	3	K1102-ZIH001	
34	Introduction to Mathematical Biology 2	INF	Andreas Deutsch Lutz Brusch	2V/1Ü	english	Winter 21/22	Andreas Deutsch Lutz Brusch	Oral Assessment	30 Minuten	3	K1102-ZIH002	