TECHNISCHE UNIVERSITÄT DRESDEN

Curriculum of the master's program Molecular Bioengineering

MSc Molecular BioEngineering CMCB

Title of module	Responsible	SWS	type of cours	Title of lectures (teacher)	Examination	ECTS
1st semester						
Biomedical modules						
Chemistry with Biomolecules	Stewart	2	lecture	Combinatorial principles (Zhang)	written exam (120 min) 75%	6
		2	lecture	Surface Chemistry (Werner)		(over 2 sem)
Genomes and Evolution	Bringmann	3	lecture	Genomes and Evolution (Bringmann)	written exam (120 min) 75%	
		5	lab course		lab protocol 25%	6
Introduction to Proteomics	Alberti	3	lecture	Introduction to Proteomics (Alberti)	oral (20 min) or written exam	
		5	lab course		lab protocol 25%	6
Technological modules						
Structural and Computational Biolo	Pisabarro	2	lecture	Structural and Computational Biology	written exam (90 min) 75%	
		2	seminar	(Pisabarro)	presentation 25%	4
Biophysics	Honigmann	2	lecture	Biophysical Methods (Schlierf)	presentation 40%	10
		2	seminar			
		1	lab course		lab protocol 20%	
		2	lecture	Principles of Biophysics (Honigmann)	written exam (90 min) 40%	
		2	exercise			
		33				
2nd semester						
Biomedical modules						
Genome and Stem Cell Engineering	Anastassiadis	2	lecture	Genome Engineering (Anastassiadis)	presentation 40%	7
		3	lab course		lab protocol 20%	(over 2 sem)
Protein Networks and Protein Engineering	Alberti	2	lecture	Dynamics of Protein Networks (Alberti)	presentation 40%	7
		3	lab course		lab protocol 20%	(over 2 sem)
Chemistry with Biomolecules	Stewart	2	lab course	Chemistry with Biomolecules (Zhang)	lab protocol 25%	6
Technological modules						(over 2 sem)
Bionanotechnology	Cuniberti	2	lecture	Introduction to Bionanotechnology	oral exam (20 min)	3
		1	lab course	(Cuniberti)		
Cellular Machines	Diez	2	lecture	Cellular Machines: From Cellular		10
		2	seminar	Function to Technological Applications (Diez)	presentation (2nd/3rd term) 30%	(over 2 sem)
		2	lab course		lab protocol 20%	
Bioinformatics	Schroeder	2	lecture	Applied Bioinformatics (Schroeder)	written exam (90 min)	8
		2	exercise			
		2	lecture	Biological Data Science with Python		
		2	exercise	(Schroeder)		
Optional modules (choose 1)						
Application in Technology	Braun,HG	2	lecture	Microsystems Technology (Cuniberti)	oral exam (20 min) 40%	7
		1	lab course			(over 2 sem)
Application in Biomedicine	Corbeil	2	lecture	Materials in Biomedicine (Hintze)	written exam (90 min) 30%	7
		2	lab course		lab protocol 10%	(over 2 sem)
		32-33				

3rd semester						
Lab Project	Anastassiadis	18	lab course		protocol/mini manuscript (2/3) presentation (1/3)	16
Biomedical modules						
Genome and Stem Cell Engineering	Anastassiadis	2	lecture	Stem Cell Engineering (Anastassiadis)	presentation 40%	7 (over 2 sem)
Protein Networks and Protein Engir	Alberti	2	lecture	Protein Engineering (Alberti)	presentation 40%	7 (over 2 sem)
Technological modules						
Cellular Machines	Diez	2 2	lecture seminar	Cellular Machines: Fundamentals and Applications of Biomolecular Mechanosystems (Diez)	oral exam (20 min) 50% presentation (2nd/3rd term)	10 (over 2 sem)
Optional modules (choose 1)						
Application in Technology	Braun,HG	2 1 1	lecture seminar seminar	Applied Bionanotechnology (Cuniberti) Public and economic aspects (Schmieder-Galfe/Sterneckert)	oral exam (20 min) 40% essay 20%	7 (over 2 sem)
Application in Biomedicine	Corbeil	2 1	lecture seminar	Biomedical Tissue Engineering (Corbeil) Public and economic aspects (Schmieder-Galfe/Sterneckert)	oral exam (20 min) 40% essay 20%	7 (over 2 sem)
		29-30				
4th semester						
Masters Thesis						30
				Total ECTS:		**120**