

**Curriculum of the Master Course
Molecular Bioengineering (from WS 2010/11)**

	Title of module	Responsible	SWS	lecture/lab course	Title of lectures (teacher)	ECTS points
1st semester	Biomedical modules					
	Chemistry with Biomolecules	Stewart	2	lecture	Combinatorial principles (Stewart/Gross)	6
			2	lecture	Surface Chemistry (Werner)	(over 2 sem)
	Genomes and Evolution	Stewart	3	lecture	Genomes and Evolution	6
			5	lab course		
	Introduction to Proteomics	Hoflack	3	lecture	Introduction to Proteomics	6
			5	lab course		
	Technological modules					
	Bioinformatics	Schroeder	2	lecture	Applied Bioinformatics	12
			2	tutorial		
	Biophysics	Schwille	2	lecture	Biophysical Methods (Weidemann)	12
			2	seminar		
			1	lab course		
			2	lecture	Principles of Biophysics (Petrasek)	
			2	exercise		
			33		total ECTS:	30
2nd semester	Biomedical modules					
	Genome and Stem Cell Engineering	Stewart	2	lecture	Genome Engineering	9
			3	lab course		
	Protein Networks and Protein Engineering	Hoflack	2	lecture	Dynamics of Protein Networks	9
			3	lab course		
	Chemistry with Biomolecules	Stewart	2	lab course	Chemistry with Biomolecules	6
	Technological modules					(over 2 sem)
	Bionanotechnology and Polymeric Materials	Werner	2	lecture	Introduction to Bionanotechnology (Gelinsky/Moresco)	6 (over 2 semester)
			1	lab course		
	Cellular Machines	Diez	2	lecture	Cellular Machines: From Cellular Function to Technological Applications	12 (over 2 sem)
			2	seminar		
			2	lab course		
	Bioinformatics	Schroeder	2	lecture	Programming for Bioinformatics	12 (over 3 sem)
			2	tutorial		

	Optional modules (choose 1)					
	Application in Technology	Braun,HG	2	lecture	Microsystems Technology (Braun, H.G.)	12 (over 2 sem)
			1	lab course		
	Application in Biomedicine	Corbeil	2	lecture	Materials in Biomedicine (Scharnweber)	12 (over 2 sem)
			2	lab course		
			32		total ECTS:	30
3rd semester	Biomedical modules					
	Genome and Stem Cell Engineering	Stewart	2	lecture	Stem Cell Engineering (Anastassiadis)	9
			3	lab course		(over 2 sem)
	Protein Networks and Protein Engineering	Hoflack	2	lecture	Protein Engineering	9
			3	lab course		(over 2 sem)
	Technological modules					
	Bionanotechnology and Polymeric Biomaterials	Werner	2	lecture	Advanced Polymeric Biomaterials (Werner)	6
			1	lab course		(over 2 sem)
	Cellular Machines	Diez	2	lecture	Cellular Machines: Fundamentals and	12
			2	seminar	Applications of Biomolecular	(over 2 sem)
	Bioinformatics	Schroeder	2	lecture	Algorithmic Bioinformatics	12
			2	tutorial		(over 3 sem)
	Optional modules (choose 1)					
	Application in Technology	Braun,HG	2	lecture	Applied Bionanotechnology (Cuniberti group)	12
			1	seminar		(over 2 sem)
			1	lab course		
			2	seminar	New Developments in Nanotechnology (Diez)	
			1	seminar	Public and economic aspects (Braun U.)	
	Application in Biomedicine	Corbeil	2	lecture	Biomedical Tissue Engineering (Corbeil)	12
			1	lab course		(over 2 sem)
			2	seminar	New Developments in Cell Biology (Simons)	
			1	seminar	Public and economic aspects (Braun U.)	
			34		total ECTS:	30
4th semester	Masters Thesis				total ECTS:	30