TECHNISCHE UNIVERSITÄT DRESDEN

Curriculum master's program Physics of Life
Study course Biological Physics

MSc Physics of Life CMCB

Title of module	responsible	SWS	type of course	title of lecture (lecturer)	Examination	ECTS points
1st semester (winter term)						
Core modules - obligatory						
Introductory Biological Physics POL1	Schießel	2 1 2 1	lecture exercise lecture exercise	Physics for Biology (Friedrich) Polymer Physics (Sommer/Schießel)	written exam (90 min) or oral exam (20 min) *preevaluation: exercises*	8
Physical Chemistry and Experimental Methods POL2	Schlierf	2 2 1 2 1	lecture seminar lab classes lecture exercise	Experimental Biophysical Methods (Schlierf) Physical Chemistry of Biomolecules (Fischer-Friedrich)	complex assessment (10h) 1/2 written exam (90 min) 1/2	10
Statistical Principles and Experimental Design POL3	Röder	2 2	lecture seminar	Statistical Principles and Experimental Desig (Röder)	written exam (90 min) *preevaluation: exercises*	5
Molecular Biology and Biochemistry of Cells and Tissues POL4	Alberti	2 2	lecture lab classes	Molecular Biology and Biochemistry of Life (Alberti)	written exam (90 min) 2/6 complex assessment (30h) 1/6	14 (over 2 semesters
Elements of Nanobiotechnology POL5	Cuniberti	2 1	lecture lab classes	Introduction to Nanobiotechnology (Cuniberti, Opitz)	oral exam (20 min) 1/2	7 (over 2 semesters
		25				
2nd semester (summer term)						
Core modules - obligatory						
Advanced Biological Physics POL6	Friedrich	2 2 2 2	lecture exercise lecture exercise	Stochastic Processes (Friedrich/Schießel) Advanced biological Physics (Friedrich/N.N.)	written exam (90 min) or oral exam (30 min) 2/3 complex assessment (20h) 1/3	10
Molecular Biology and Biochemistry of Cells and Tissues POL4	Alberti	2 2 2 2	lecture seminar lecture seminar	Cell- & Mechanobiology (Doyle/Dye/Mateus/Taubenberger) Tissue Dynamics (Doyle/Dye/Mateus/Taubenberger)	written exam (90 min) 2/6 complex assessment (30h) 1/6	14 (over 2 semesters
Elements of Nanobiotechnology POL5	Cuniberti	2 2	lecture seminar	Cellular Machines (Diez)	complex assessment (10h) 1/2	7 (over 2 semesters
Specialization - choose one module						
Experimental Biological Physics: module Applied Biophysics POL9 Theoretical Biological Physics: module Computational Biophysics POL11 Nanobiotechnology: module Applied Nanotechnology POL13		2 2		courses to be chosen from our catalogue of elective courses	oral exam (20 min) 1/2 complex assessment (10h) 1/2	6
		24				

3rd semester (winter term)						
Core modules - obligatory						
Pattern Formation and Active Matter Hydrodynamics POL7	Grill	2 2 2 2	lecture exercise lecture exercise	Pattern formation in Biology (Ricard/Modes/Campàs) Active Matter and Hydrodynamics (Grill/Jülicher)	written exam (90 min) or oral exam (30 min) 2/3 complex assessment (20h) 1/3 *preevaluation: exercises*	10
Research Lab Project POL8	Schlierf	14	lab classes		oral exam (30 min)	14
Specialization - choose one module						
Experimental Biological Physics: module Advanced Biophysics POL10		2		courses to be chosen from our catalogue of elective courses	oral exam (20 min) 1/2	
Theoretical Biological Physics: module Advanced Theoretical Biophysics POL12		2			complex assessment (10h) 1/2	6
Nanobiotechnology: module Advanced Nanotechnology POL14						
		26				
4th semester (summer term)						
Masters Thesis					written report and defense	29+1
				Total ECTS:		**120**