

BSc & MSc Nanobiology - TU Delft

Courses for Exchange Students

The course package proposals indicated here are composed taking into account the coherence of their contents. Overlap between lectures and exams of the courses within the same package is not likely, but may occur due to unforeseen circumstances leading to schedule modifications. The course package proposals are intended for MSc students and students in the process of finalizing their BSc programme.

Detailed course information about the course content, prerequisites and assessment methods can be found in the TU Delft Study Guide. <https://studiegids.tudelft.nl/>
Please read the courses' study guides carefully in order to determine whether the courses you select are a good fit for your educational background and learning goals.

MSc Nanobiology elective courses 2021-2022 (compose a package of 30 EC)						
Course code	Course Name	Credits (ECTS)	Period			
			Q1	Q2	Q3	Q4
Core Nanobiology Courses						
NB4011	Analytical Mechanics	3				
NB4012	Stochastic Processes with Applications	3				
NB4020	High-Resolution Imaging	4				
NB4030	Engineering Genetic Information	3				
NB4040	Biology of Cancer	4				
NB4050	Modeling Dynamical Systems	3				
NB4070	Soft Matter	6				
AP3162	Physics of Biological Systems: mathematical modeling in systems biology	6				
Nanobiology electives						
NB4080	Protein Quality Control Mechanisms	3				
NB4090	Stem Cells	3				
NB4100	Nuclear Architecture	3				
NB4110	Geometry of Physics	6				
NB4120	Biological Networks; a data driven approach to discovery and understanding	3				
NB4150	The Origin and Synthesis of Life	6				
NB4160	Engineering of Living Systems	3				
NB4165	Molecular Virology & Immunology	3				
Nanobiology Electives from other Programmes						
AP3021	Advanced Statistical Mechanics	6				
AP3032	Continuum Physics	6				
AP3122	Advanced Optical Imaging	6				
AP3132	Advanced Digital Image Processing	6				
AP3232	Medical Imaging Signals and Systems	6				
AP3371	Radiological Health Physics	6				
AP3582	Medical Physics of Photon and Proton Therapy	6				
BM41035	Biomaterials	4				
BM41050	Applied Experimental Methods: Medical Instruments	4				
BM41075	Regenerative Medicine	4				
BM41090	Computational Mechanics of Tissues and Cells	6				
BM41155	3D Printing	4				
CH3142	Molecular Thermodynamics	6				
CH3372A	Soft matter for Chemical products	3				
CH3681A	Reactors and Kinetics	6				
CS4220	Machine Learning 1	5				

CS4230	Machine Learning 2	5				
CS4255	Algorithms for Sequence-Based Bioinformatics	5				
CS4329	Recent Topics in Bioinformatics	5				
EE4650	Advanced Magnetic Resonance Imaging	5				
IN4089	Data Visualization	5				
LM3311	Green Chemistry and Sustainable Technology	3				
LM3442	Metabolic Reprogramming	6				
LM3561	Ethical, Legal and Social Issues in Biotechnology	3				
LM3581NB	Metabolic Systems biology	3				
LM3601	Molecular Biotechnology and Genomics	6				
LM3611	Microbial Community Engineering	6				
LM3701	Advanced Enzymology	6				
LM3741	Fermentation Technology & Environmental Biotechnology	6				
LM3751	Transport & Separation	6				
LM3771	Protein Engineering	6				
ME41035	Special Topics in Sports Engineering	3				
ME41095	Bio Inspired Design	4				
ME45025	Introduction to Multiphase Flow	6				
ME45043	Advanced Fluid Dynamics (AP)	5				
ME46000	Nonlinear Mechanics	4				
ME46072	Nonlinear Dynamics	4				
SC42030	Control for High Resolution Imaging	3				
WI4011-17	Computational fluid dynamics	6				
WI4014TU	Numerical Analysis	6				
WI4019	Non-Linear Differential Equations	6				
WI4201	Scientific computing	6				
WI4204	Advanced Modeling	6				
WI4205	Applied Finite Elements	6				
WI4212	Advanced Numerical Methods	6				
WI4430	Martingales, Brownian Motion and Stochastic Processes	6				
WM-ITAV-4010	Scientific writing (taught 2 times per year)	2				
WM-ITAV-4020	Presenting for large audiences (taught 2 times per year)	2				
WM0201TU-Eng	Technical writing (taught 4 times per year)	2				
WM0320TU	Ethics and Engineering	3				

BSc Nanobiology courses Spring semester 2022 (compose a package of 30 EC)						
Identifier	Course name	Credits (ECTS)	QuarterPeriods*			
			3A	3B	4A	4B
NB1016	Molecular Biology	3				
NB1052	Journal Club 1	3				
NB1072	Physical Biology of the Cell 1	3				
NB1120	Biomolecular Programming	3				
NB1132	Biophysics	3				
NB1143	Physics 1b	3				
NB1210	Analysis 3	3				
NB1230	Linear Algebra	3				
NB2041	Optics and Microscopy	3				
NB2111	Evolution	3				
NB2121	Image Analysis	3				
NB2151	Journal Club 2	1				

NB2161	Bioinformatics	4,5				
NB2171	Statistics	3				
NB2181	Computational Science	3				
NB2220	Statistical Physics	3				
NB3012	Protein Structure, Theory and Tools	2,5				
NB3014	A Primer in Neural Networks	2,5				
NB3015	Systems Neurobiology	2,5				
NB3016	A Primer in High Speed Simulations	2,5				
NB3017	Quantum Mechanics in Nanobiology-1	2,5				
NB3018	Quantum Mechanics in Nanobiology-2	2,5				
NB3019	Molecular Motors	2,5				
NB3020	Genomics Technology in Breast Cancer Research	2,5				
NB3021	Optics and its Application in Nanobiology	2,5				
NB3022	Epigenetics	2,5				

*Many courses are only 5 weeks long, half of a quarter. This is indicated as 3A for the first half and 3B for the second half of Quarter 3.

Please note it is not possible to do a research project in the BSc and MSc Nanobiology programme due to limited capacity in the research departments.

Please also note that the course offerings and time schedules may be subject to changes for the academic year 2021-2022.

For more information about the study programmes please see:

[BSc Nanobiology](#)

[MSc Nanobiology](#)

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