

**Appendix:  
Programme Specifics  
BSc Programme Nanobiology**

**2021-2022**

As referred to in Article 7.4 of the Teaching and Examination Regulation  
(TER)

Faculty of Medicine (Erasmus MC)  
Erasmus University Rotterdam

and

Faculty of Applied Sciences  
Delft University of Technology

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## Paragraph 1 Appendix to the TER

### TER Article 3 Admission to Bachelor's degree programme Nanobiology Specific

The requirements for admission to the BSc programme Nanobiology are described in Article 3 of the Teaching and Examination Regulation Nanobiology (TER 2020-2021). Applicants complete their application in studielink, then complete a supplemental questionnaire and a selection examination. Each step must be completed on time in order to proceed to the next step.

## Paragraph 2 Structure Overview

### Article 1 Division of the Academic Year

The academic year of the programme is divided in two semesters. Each semester consists of 2 periods (quarters). Each quarter consists of two octals.

### Article 2 Programme Divisions

The BSc programme Nanobiology is a three year BSc programme, the study load is described in TER Article 7.1. The minor is scheduled in the first semester of the third year (see article 5b).

## Paragraph 3 Composition of the Programme

The courses and learning goals are described below. Information about contact hours, education period and exam format can be found in the study guide.

### Article 3. First Year

Course	Code	EC	Attainments (see Art 5 TER)						
			1	2	3	4	5	6	7
Analysis 1	NB1200	5	X						
Analysis 2	NB1205	5	X						
Analysis 3	NB1210	3	X						
Biochemistry	NB1012	3	X	X					
Biomolecular Programming	NB1120	3	X	X		X			
Biophysics	NB1132	3	X	X		X			
Chemistry 1	NB1102	3	X	X					
Chemistry 2	NB1110	3	X	X					
Genetics	NB1022	4	X	X	X		X		
Introduction to Studying Nanobiology	NB1031	3	X	X			X	X	X
Journal Club 1	NB1052	3	X	X	X		X	X	X
Labcourse Nanobiology A1*	NB1150	3	X			X	X	X	
Labcourse Nanobiology A2*	NB1151	3	X			X	X	X	
Labcourse Nanobiology B1*	NB1163	3	X			X	X	X	
Labcourse Nanobiology B2*	NB1164	3	X			X	X	X	
Linear Algebra	NB1230	3	X						
Molecular Biology	NB1016	3	X	X					
Physical Biology of the Cell 1	NB1072	3	X	X					X
Physics 1a	NB1140	4	X	X					
Physics 1b	NB1143	3	X	X					

\*Students take either labcourse series A part 1 and 2 or Labcourse series B part 1 and 2. They are assigned into a particular series by the programme. Students will be informed of how distribution between the two tracts will be done before the start of the course.

There is a compensation rule for Analysis in the Nanobiology programme. If the grades for Analysis 1, 2, and 3 are all at least 5, and the weighted (by EC) average of these grades equals at least 5.8 after rounding to decimals, then the student gets the EC for all three courses.

All courses are required unless alternatives are approved by the Board of Examiners.

#### Article 4 Second Year

Course	Code	EC	Attainments (see Art 5 TER)						
			1	2	3	4	5	6	7
Bioinformatics	NB2161	4.5	X	X		X	X	X	X
Computational Science	NB2181	3	X			X	X		
Differential equations	NB2061	3	X						
Electronic Instrumentation	NB2211-14	6	X			X			X
Evolution	NB2111	3	X	X					X
Evolutionary & Developmental Biology	NB2032	6	X	X		X			X
Image Analysis	NB2121	3	X	X					
Journal Club 2	NB2151	1	X	X	X		X	X	X
Microscopy/Nanoscopy practice	NB2046	1.5	X			X			
Nanotechnology	NB2081	2		X	X		X		X
Optics & Microscopy	NB2041	3	X	X		X			X
Philosophy and Ethics	NB2022	3	X		X		X	X	X
Physical Biology of the Cell 2	NB2072	3	X	X					X
Physics 2	NB2141	3	X	X					
Signals and Systems	TN2545	6	X	X					
Statistical Physics	NB2220	3	X						
Statistics	NB2171	3	X						
Thermodynamics and Transport	NB2011	3	X						

All courses are required unless alternatives are approved by the Board of Examiners.

#### Article 5 Third Year

Course	Code	Required	EC	Attainments (see Art 5 TER)						
				1	2	3	4	5	6	7
Bachelor's thesis project	NB3000	Yes	20	X	X	X	X	X	X	X
Nanomedicine	NB3011		2.5	X	X	X		X		X
Protein structure, theory & tools	NB3012		2.5	X	X	X				X
Computational Neuroscience	NB3014		2.5	X	X	X				
A Primer in Neuroscience	NB3015		2.5	X	X			X		
A primer on High-Speed Scientific Simulations	NB3016		2.5	X	X					
Quantum mechanics in Nanobiology 1	NB3017		2.5	X	X					
Quantum mechanics in Nanobiology 2	NB3018		2.5	X	X					
Molecular Motors	NB3019		2.5	X	X	X				
Genomics Technology in Breast Cancer Research	NB3020		2.5	X	X	X		X		X
Optics and its application in Nanobiology	NB3021		2.5	X	X					
Epigenetics	NB3022		2.5	X		X		X		X
Independent Research*	NB3030		Var	X	X			X		X
Laboratory Practicum Development**	NB3031		5	X	X			X		X

\*Starting an independent project must be discussed with the program director and approved prior to beginning the project. The programme may begin a project and open enrollment to any students at any time.

\*\*Laboratory Practicum Development will be offered once, only in fall 2021. There will be one resit opportunity.

#### **Article 5.a Bachelor's End Project**

Admission requirements for a student to register for the Bachelor's end project (BEP): first year completed (= 60 EC) plus at least 60 EC from 2<sup>nd</sup> and 3<sup>rd</sup> year combined.

Students are responsible for finding a supervisor for their project. Supervisors must be an approved Nanobiology programme supervisor, the list of approved supervisors is called the "Green List" This list also contains those who are approved as second examiners. Information and forms on the Bachelor's end project, and the Green List be found in Brightspace: "Eindprojecten Administratie TNW / Thesis Office Applied Sciences".

#### **Article 5.b Minor and Minors Abroad**

Nanobiology students may choose any available minor offered by TU Delft, Erasmus MC, or Leiden University of 30 EC. Students may also choose a minor at a different university, or a free minor, this will need approval from the Board of Examiners.

Students wishing to do an exchange minor need to have completed all first year courses (=60 EC) and all courses from first semester of year 2 no later than April 9 before their minor. If students are still missing one course of Q3 or Q4 from year 1, this must be discussed with the study advisor and permission may be given. If students are missing more than one course from year 1, they are not eligible to do a minor abroad as an exchange student.

## **Paragraph 4 Honours Programme**

#### **Article 6 Admission to the Honours programme**

Requirements: weighted average grade  $\geq 8.0$ , first year completed (= 60 EC). All Nanobiology students who meet these requirements at the end of their first year are welcome to apply to the Nanobiology Honours programme. Students will be selected by the Honours Programme coordinator and Nanobiology programme director on the basis of academic record, study plan and a motivation statement from the student

#### **Article 6.a Composition of the Honours Programme**

Students complete 20 EC of Honours Programme specific coursework. This includes 13-15 EC within the Nanobiology Honours programme and 5-7 EC in the institution wide component of the Bachelor's Honours programme for a total of 20EC. Detailed description of programme options are available in the study guide.

<b>Course</b>	<b>Code</b>	<b>EC</b>
Honours programme Seminars	NB2901HPB	2
Honours programme Journal Club	NB2902HPB	4
Honours programme Project	NB2903HPB	5-7
Honours programme Broaden-your-experience-project	NB2904HPB	2

## Paragraph 5 Exams

### Article 9 Required Attendance at Practical Work

Many courses have a strong practical component. Students may be required to complete the practical work in order to participate in the examination. Attendance requirements are specified in the studyguide.

Some courses have mandatory safety tests which students must pass before they can begin the practicals.

### Article 10 Form of the Exam and the Assessment Strategy

The form of the exams and the assessment strategy is described for each course in the studyguide: <https://www.studiegids.tudelft.nl/>

Examinors may specify different exam formats for the resits.

Attendance requirements are specified for each course in the studyguide.

Rules on the composition of the final course grade can be found in the programme specific the "Rules and Regulations of the Board of Examiners"

### Article 11 Schedule for Resits

Timing for resits is included in each courses's information in the study guide. Precise details of date and time is available in the TU Delft TimeTable. In general, resits are scheduled 5-8 weeks after the exam.

## Paragraph 5 Degree Audit

### Article 12 Transition Regulations

The following transition regulations apply depending on when a student began their programme.

#### Article 12.a Transition Regulation Academic Year 2014-2015

NB2022: Philosophy and Ethics is a merger of NB2021 and NB2051 from the academic year 2013-2014. Students that need to retake both can follow the course NB2022.

#### Article 12.b Transition Regulation Academic Year 2015-2016

Programme 2014-2015			Programme 2015-2016		
Code	Course name	EC	Code	Course name	EC
WI1411NB	Analysis 1	5	WI1415NB	Analysis 1	5
WI1422NB	Analysis 2	5	WI1423NB	Analysis 2	5
WI1413NB	Analysis 3	3	WI1416NB	Analysis 3	3
NB1142	Physics 1a	3	NB1140	Physics 1a	4
NB1062	Labcourse Nanobiology	3	NB1062	Labcourse Nanobiology part 1	3
NB1066	Labcourse Nanobiology	3	NB1066	Labcourse Nanobiology part 2	3
NB1071	Physical Biology of the cell	3	NB1072	Physical Biology of the cell	3
NB1131	Biophysics	3	NB1132	Biophysics	3
NB1042	Faculty seminar	1		Faculty seminar will not continue	
NB2211	Electronic instrumentation	6	NB2211-14	Electronic instrumentation	6
NB2031	Evolutionary Developmental Biology part 1 and 2	6	NB2032	Evolutionary Developmental Biology part 1 and 2	6
WI3104TN	Statistics	3	NB2171	Statistics	3
	New course also accessible for students from before cohort 2013		NB3020	Current topics in Nanobiology: Genomics and Proteomics Technology in Breast Cancer Research	2.5

NB1140: Physics 1a: students from cohort 2014 or before will receive 4 EC for retake of Physics 1a

**Article 12.c Transition Regulation Academic Year 2016-2017**

Programme 2015-2016			Programme 2016-2017		
Code	Course name	EC	Code	Course name	EC
NB1016	Biomolecular Dynamics	3	NB1016	Molecular Biology	3

**Article 12.d Transition Regulation Academic Year 2017-2018**

n.a.

**Article 12.e Transition Regulation Academic Year 2018-2019**

n.a.

**Article 12.f Transition Regulation Academic Year 2019-2020**

Programme 2018-2019			Programme 2019-2020		
Code	Course name	EC	Code	Course name	EC
NB1012	Biomolecular Dynamics	3	NB1012	Biochemistry	3

**Article 12.g Transition Regulation Academic Year 2020-2021**

The following courses have new names or new numbers. It has no effect on the content of the programme. The new courses fulfill the previous requirements.

Programme 2019-2020			Programme 2020-2021		
Code	Course name	EC	Code	Course name	EC
NB2151	Journal Club	1	NB2151	Journal Club 2	1
TN2624NB	Statistical Physics	3	NB2220	Statistical Physics	3
TN2513	Computation/MatLab	3	NB2181	Computational Science	3
NB2072	Physical Biology of the Cell	3	NB2072	Physical Biology of the Cell 2	3
NB3011	Current topics in Nanobiology: Nanomedicine	2.5	NB3011	Nanomedicine	2.5
NB3012	Current topics in Nanobiology: Protein structure, theory & tools	2.5	NB3012	Protein structure, theory & tools	2.5
NB3014	Current topics in Nanobiology: A primer in Neural Networks	2.5	NB3014	Computational Neuroscience	2.5
NB3015	Current topics in Nanobiology: Systems Neurobiology	2.5	NB3015	A Primer in Neuroscience	2.5
NB3016	Current topics in Nanobiology: A primer on High-Speed Scientific Simulations	2.5	NB3016	A primer on High-Speed Scientific Simulations	2.5
NB3017	Quantum mechanics in Nanobiology - 1	2.5	NB3017	Quantum mechanics in Nanobiology 1	2.5
NB3018	Quantum mechanics in Nanobiology - 2	2.5	NB3018	Quantum mechanics in Nanobiology 2	2.5
NB3019	Current topics in Nanobiology: Molecular Motors	2.5	NB3019	Molecular Motors	2.5
NB3020	Current topics in Nanobiology: Genomics and Proteomics Technology in Breast Cancer Research	2.5	NB3020	Genomics Technology in Breast Cancer Research	2.5
NB3021	Current topics in Nanobiology: Optics and its applications in Nanobiology	2.5	NB3021	Optics and its applications in Nanobiology	2.5

Programme 2019-2020			Programme 2020-2021		
NB3022	Current topics in Nanobiology: Epigenetics	2.5	NB3022	Epigenetics	2.5

#### Article 12.h Transition Regulation Academic Year 2021-2022

NB1062 and NB1066 Labcourse 1 and 2 will be replaced by Labcourse A parts 1 and 2 or Labcourse B parts 1 and 2 (course codes NB1150, NB1151, NB1163, NB1164). Students from prior cohorts who did not complete NB1062 and/or NB1066 will need to take one or two of the new courses to fulfill their requirements. They will need to discuss with the study advisor which course(s) to take

NB3031 Laboratory Practicum Development is a one time course that will only be offered in 2021-2022. One resit will be available.

Four of the math courses have received new course codes. No other changes, students from previous cohorts can take these courses to fulfil their requirements. All other rules are the same.

Old Code	Course name	EC	New Code	Course name	EC
WI1415NB	Analysis 1	5	NB1200	Analysis 1	5
WI1423NB	Analysis 2	5	NB1205	Analysis 2	5
WI1416NB	Analysis 3	3	NB1210	Analysis 3	3
WI1142NB	Linear Algebra	3	NB1230	Linear Algebra	3

## Paragraph 8 Final provisions

#### Article 13 Entry into force

These programme specifics are valid for the academic year 2021-2022 starting on

30 August 2021