Assessment plan for the curriculum of the **Bachelor's** degree programme in Life Science & Technology, 2026-2027

Programme director: Dirk-Jan Scheffers

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1. Vision on assessment

- The goal of the bachelor programme Life Science & Technology is to provide students with a broad, multidisciplinary base which lets them specialize in their chosen field in year 3. To prepare LST students for all possible specializations, it is essential the LST students follow practical courses in different STEM disciplines and are exposed to laboratory practices and methods of assessment in the different STEM disciplines.
- Mathematical knowledge is necessary in each of the STEM disciplines LST students can specialize in. To ensure that students retain and build their knowledge in mathematical skills a learning line throughout the programme with physics/mathematics courses, and regular assessment of these skills, is required.
- Assessment in the LST programme should use different forms – written exams, oral presentations and writing assignments – to prepare students to communicate in an academic manner both orally and in writing.
- In order to give LST students feedback on their performance during the course, midterms and homework assignments (formative assessment) should form an important part of assessment within LST.

2. Assessment guidelines

Please explain the general assessment procedures that are used in the programmes. For example, 4-eyes principle in test design, use of AI, standardised grading forms, rubrics.

Given the multidisciplinary nature of LST, and the fact that all teachers in LST teach in other BSc programmes (often more than one), we do not want to draft a very detailed set of assessment guidelines for LST – this would create confusion for teachers who would need to check for every specific course to which specific set of guidelines they need to adhere – something we think will not be done in practice. Some general guidelines are formulated below, which can be monitored at the level of the Programme team (director/coordinator):

As LST is a multidisciplinary programme that prepares students for various master programmes, it is important that students get familiar with different ways of having their skills and knowledge assessed.

- Exams *can* have a multiple choice component.
- At least one course in each period should have an assessment form with a formative function.
- Courses that run in the same period and have deadlines or midterms during the course should make sure these deadlines/midterms are not on the same day but spread out if possible.
- Courses that run in the same period should not be examined all in precisely the same way (for example three written exams).

3. Learning outcomes of the degree programme

Learning outcomes for the degree programme, further specified learning outcomes (where relevant) and/or specified for tracks within the degree programme. Please add extra rows if necessary.

	Learning Outcome *At the end of the programme, the graduate …*
1	The graduate has demonstrated basic knowledge and understanding of biology, chemistry and physics enabling them to understand and describe concepts in life sciences, chemical biology and biophysics.
2	The graduate has knowledge and understanding of the main methods by which biological processes can be investigated using concepts and techniques from physics, chemistry, mathematics and computer science.
3	The graduate can work safely (under supervision) in various laboratory settings, specifically chemical synthesis laboratories, and can work according to Safe Microbiological Techniques (SMT) guidelines.
4	The graduate is able to (under supervision), formulate a research hypothesis or propose a research design, and possesses sufficient practical skills to (under supervision) conduct the experiment and interpret the results.
5	The graduate has the ability to interpret the results of scientific research and relate the interpretation to other results and interpretations described in the scientific literature.
6	The graduate has understanding of both the societal relevance and impact of the life sciences in different cultural and/or geographical contexts, and is aware of the ethical aspects involved with life sciences research and applications (such as genetic modification, animal testing).
7	The graduate can collaborate and communicate effectively with peers in a multidisciplinary context and in a multicultural team, taking multiple perspectives into account.
8	The graduate can report and discuss, both orally and in writing, on life sciences related subjects, both with specialists as well as non-specialists.
9	The graduate is capable of recognizing and acquiring novel techniques and skills in the broader life sciences, such as the use of artificial intelligence.
10	The graduate is capable of making an autonomous, argued decision on further learning trajectories, such as the choice of a fitting MSc programme, and is aware of the importance of life-long learning.

Through the mentorate, the degree programme also offers the graduate the ability to explore career opportunities and opportunities for follow-on degree programmes

4. Overview of assessment methods, test moments for course units, and examiners

This table shows all the course units for each year of the programme and assessment methods. Please add extra rows if necessary.

Year 1

Year	Period	Course	EC	Assessment methods	Does (part of the) assessment have a formative function?	Test moment(s) (e.g. mid-term, continuous assessment, exam week, etc)	First examiner	Second examiner
1	Ia	Optics	5	WE, Midterm	Yes	Halfway, End	R. Vlijm	M.H. Diniz Guimaraes
1	Ia	Mammalian Cell biology	5	MC, WE	No	End	G. van den Bogaart	F. Bianchi
1	Ia	Practical Course Optics and Cell Biology	5	PR, Ast, R	Yes	Start, Halfway, End	A.U. Zielinska	M. Fontana
1	Ib	Organic chemistry in life sciences 1	5	WE, OR, Ast	Yes	Halfway, End	A.J. Minnaard	S. Harutyunyan
1	Ib	Biochemistry for LST	5	WE, Ast, MC	Yes	Halfway, End	A. Kortholt	D.J. Scheffers
1	Ib	Calculus	5	WE	Yes	End	W.R. Browne	A.H. de Vries
1	IIa	Principles of Physiology	5	MC, PR, R, P	No	Halfway, End	G. van Dijk	C.M. Drion
1	IIa	Thermodynamics	5	WE	No	End	A.H. de Vries	S.J. Marrink
1	IIa	Programming for Life Sciences	5	PR, R, Ast	Yes	Start, Halfway, End	R. van Raaphorst	S.J. Marrink
1	IIb	Pharmaceutical Analysis	5	WE, R, PR	Yes	Halfway, End	P.H.C. Åberg	E.M.J. Verpoorte
1	IIb	Scientific reading and communication skills	5	P, Ast	No	Halfway, End	A.M.W.H. Thunnissen	A. Guskov
1	IIb	Biophysics	5	WE, Ast	Yes	Halfway, End	W.H. Roos	R. Vlijm

Year 2

Year	Period	Course	EC	Assessment methods	Does (part of the) assessment have a formative function?	Test moment(s) (e.g. mid-term, continuous assessment, exam week, etc)	First examiner	Second examiner
2	Ia	Applied Microbiology	5	WE, Midterm, Ast	Yes	Halfway, End	A. Belyy	D.J. Scheffers
2	Ia	Linear Algebra for LST	5	WE, Midterm, Ast	No	Halfway, End	P. Kilicer	E. Ozman
2	Ia	Practical Course Microbiology	5	PR, P, R, MC	Yes	Halfway, End	J.L. Kamenz	A. Belyy
2	Ib	Bioinorganic chemistry	5	WE	No	End	J.E.M.N. Klein	J.G. Roelfes
2	Ib	Quantum and Classical Mechanics for LST	5	WE	No	End	C.H. van der Wal	J.L. Slawinska
2	Ib	Spectroscopic Tools for Life Sciences	5	WE, Midterm, Ast	Yes	Start, Halfway, End	R.M. Hildner	P.C.A. van der Wel
2	IIa	Organic Chemistry for Life Science 2	5	WE, Ast	No	End	M.T.C. Walvoort	A.J. Minnaard
2	IIa	Practical Skills in Organic Chemistry for LST	5	PR, R	Yes	Halfway, End	N.N.H.M. Eisink	M.D. Witte
2	IIa	Imaging	5	WE, R	No	End	P.C.A. van der Wel	W.H. Roos
2	IIb	Applied Biotechnology	5	WE, P	Yes	End	S. Schmidt	K. Haslinger
2	IIb	LST and Society: Ethical and Professional Aspects	5	WE, P, Ast	Yes	End	P.C. Vogelaar	J. Zevenberg
2	IIb	Genetics and Evolution	5	MC, P	Yes	Halfway, End	K.J. Tiedge	S.J.J. Lequime

The abbreviations for the relevant teaching methods are explained in the legend of the table.
Examples of assessment methods include:

- *Written Exam (WE)*
- *Multiple Choice (MC)*
- *Oral Exam (OR)*
- *Report (R)*
- *Presentation (P)*
- *Practical Work (PR)*
- *Assignment (AST)*

Year 3

Due to the set-up of the LST-programme, the third year is when LST-students have to follow courses they need in order to gain access to the Master degree programme they wish to continue with.

The TER-appendix of LST contains several packages of courses that can be used for access to the following master programmes within FSE:

- Biology
- Biomedical Engineering
- Biomedical Sciences
- Biomolecular Sciences
- Chemistry
- Energy and Environmental Sciences
- Medical Pharmaceutical Sciences
- Physics
- Science Education and Communication

The admission requirements for each master programme are listed in the TER-appendix of those master programmes. Examiners and assessment methods of those courses are listed in the assessment plans of those programmes.

The bachelor research project is an essential part of fulfilling the entry requirements for a Master degree programme. An LST-student who wishes to gain access to a Master degree programme has to do a bachelor research project in the field of that master.

In practice, this means doing a bachelor research project within the Bachelor degree programme that Master degree programme is linked with.

Course unit name	ECTS	Examiner(s) / course coordinator	Mode of assessment
Bachelor Research Project	15	Examiners from the relevant/corresponding bachelor programmes of our faculty	R, P, PR (in accordance with the assessment plan of the respective Bachelor programmes)

5. Relationship between course units and details of the learning outcomes

Please note in the table below the course units per block in the programme. Indicate which learning outcomes are assessed in which courses by adding an X in the relevant cell. Please add extra rows if necessary.
An X means that the learning outcome is explicitly assessed (not merely addressed) in the course.

		Learning outcomes of the degree programme									
		1	2	3	4	5	6	7	8	9	10
Period	**Course**	**Year 1 –compulsory courses**									
1A	Mammalian Cell Biology	x	x							x	x
1A	Optics	x	x							x	x
1A	Practical Course Optics and Cell Biology	x	x	x	x	x		x	x		x
1B	Biochemistry for LST	x	x							x	x
1B	Calculus for LST		x							x	x
1B	Organic Chemistry for Life Science 1	x	x							x	x
2A	Biophysics	x	x					x	x	x	x
2A	Principles of Physiology	x	x	x	x	x	x			x	x
2A	Thermodynamics	x	x							x	x
2B	Pharmaceutical Analysis A	x	x	x	x	x		x	x	x	x
2B	Programming for Life Sciences		x					x		x	x
2B	Scientific Reading and Communication Skills	x	x			x	x	x	x	x	x

		Learning outcomes of the degree programme									
Period	**Course**	**Year 2 compulsory courses**									
1A	Applied Microbiology	x	x				x		x	x	x
1A	Bioinorganic Chemistry	x	x					x	x	x	x
1A	Practical Microbiology		x	x	x	x		x	x	x	x
1B	Linear Algebra		x							x	x
1B	Quantum and Classical Mechanics	x	x							x	x
1B	Spectroscopic Tools for Life Sciences	x	x							x	x
2A	Organic Chemistry for Life Science 2	x	x							x	x
2A	Practical Skills in Organic Chemistry	x	-	x	x	x			x	-	-
2A	Imaging	x	x		x	x			x	x	-
2B	Applied Biotechnology	x	x				x	x	x	x	x
2B	LST and Society: Ethical and Professional Aspects	x	-				x	x	x	x	x
2B	Genetics and Evolution	x	x					x	x	x	x
Period	**Course**	**Year 3 compulsory courses**									
	Bachelor project	x	x	x	x	x	x	x	x	x	x

Appendix I - Examiners for Life Science & Technology

This alphabetical overview of all LST examiners is mainly for administrative purposes and to show changes per academic year.

- P.H.C. Åberg
- A.K. Biegun
- A. Belyy
- F. Bianchi
- K. van der Bij
- G. van den Bogaart
- W.R. Browne
- G. van Dijk
- M.H. Diniz Guimaraes
- C. Drion
- N.N.H.M. Eisink
- M. Fontana
- M.J.L.J. Fürst
- S. Grooters
- A. Guskov
- S. Harutyunyan
- K. Haslinger
- R.M. Hildner
- J.L. Kamenz
- P. Kilicer
- J.E.M.N. Klein
- A. Kortholt
- P. Lamprou
- S.J.J. Lequime
- S.J. Marrink
- A.J. Minnaard
- E. Otten
- E. Ozman
- M.S. Pchenitchnikov
- J.G. Roelfes
- W.H. Roos
- D.J. Scheffers
- S. Schmidt
- J.L. Slawinska
- A.M.W.H. Thunnissen
- K.J. Tiedge
- E.M.J. Verpoorte
- R. Vlijm
- P.C. Vogelaar
- A.H. de Vries
- C.H. van der Wal
- M.T.C. Walvoort
- P.C.A. van der Wel
- M.D. Witte
- J. Zevenberg
- A.U. Zielinska

Request for examiner status will be requested later:

- R. van Raaphorst