Appendices for the Master's degree programme in Science Education and Communication (2025-2026)

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Appendix I. Learning outcomes of the degree programme (art. 3.1)

The degree programme is designed to:

a. prepare students for professional practice in the field of science communication in The Netherlands or abroad, or as teachers of mathematics, physics, chemistry, biology or computer science qualified to teach in upper-level secondary education
b. impart specialized knowledge, skills and understanding in the field of science communication and science education

Shared learning outcomes
Graduates should be able to:

- EC-1. Demonstrate advanced knowledge and understanding of the key concepts and research methods in a science, mathematics, SEC or engineering field, and are able to apply these to set up and conduct a Master's level research project in a science, mathematics, science education and communications or engineering field, by critically synthesising sources, approaches and methodologies, to develop an evidence based approach to addressing a scientific problem, and substantiating and discussing conclusions, and are able to communicate about this to specialist and non-specialist audiences
- EC-2. Demonstrate knowledge, understanding and skills for utilising communication and education resources and strategies and apply these to design communication strategies or products for use in science communication or science education, taking into account the target group and design context.
- EC-3. Work in a professional environment in the field of science communication or science education
- EC-4. Continue their professional development in a manner that is largely self-directed or autonomous.

Differentiated learning outcomes for the Science Communication track
Graduates should be able to:

- EC-C1. Acquire and communicate key concepts, knowledge and understanding of science disciplines other than their own.
- EC-C2. Acquire and demonstrate knowledge on historical and philosophical developments in the sciences and apply this in the contextualisation and communication of scientific developments
- EC-C3. Demonstrate awareness of the relations between science and society, including societal implications of scientific research and public engagement and participation in scientific research, and form an informed and critical opinion about current developments in science, technology and science communication.
- EC-C4. Apply relevant perspectives and theories in the critical analysis of science education or communication issues, using the appropriate research methods.
- EC-C5. Act consciously, ethically, and critically as intermediaries between science and society.

Differentiated learning outcomes for the Science Education track
The teacher training programme is designated to realize the acquisition of competencies laid down in the Teaching and Examination Regulations for teacher training at the University of Groningen.

Appendix II. Tracks/specializations (art. 3.6)

The degree programme comprises a joint programme plus a choice of one of the following tracks:

- Science Education (E-track)*: this track prepares students for a career as a teacher of mathematics, physics, chemistry, biology or computer science qualified to teach in upper-level secondary education.
- Science Communication (C-track): this track prepares students for a career in the field of science communication.

Within the tracks, students can choose between a 'Research in Science Education' (E-track) / 'Research in Science Communication' (C-track) variant and a 'Research in Scientific Discipline' variant.

* Formally, the degree programme comprises five different Science Education tracks (Biology, Chemistry, Computing Science, Mathematics and Physics). These tracks are identical, apart from the courses from the Teaching Training programme. Therefore, wherever the Education track is mentioned, this refers to all five education tracks.

Appendix III. Content of the degree programme (art. 3.8)
Appendix IV. Electives (art. 3.9.1)
Appendix V. Entry requirements and compulsory order (art. 4.4)

The tracks consist of the following course units with their related student workloads, entry requirements and assessments:

1. Joint programme

Course unit [course code]	*ECTS*	*Entry requirements*	*Practical*
Skills in Science Communication [WMEC006-05]	5	-	x
Design for Science Education and Communication [WMEC008-10]	10	-	x
Research Methods in SEC [WMEC005-05]	5	-	x

2-1. Science Education track

The courses of the Science Education track, their entry requirements, and their mandatory order can be found in the TER of the Department of Teacher Education.

2-1a Research in Science Education variant

Course unit [course code]	*ECTS*	*Entry requirements*	*Practical*
Research Project in Science Education [WMEC905-30]	30	Research Methods in SEC**	x
Subsidiary	10	*	*

2-1b Research in Scientific Discipline variant

Course unit [course code]	*ECTS*	*Entry requirements*	*Practical*
Research Project: [discipline] [WMEC901-30]	30	-	x
Subsidiary	10	*	*

* Depends on the course units chosen
** Exception is possible after consultation with the academic advisor, for students who have already completed the educational minor or for whom this severely limits the studyability of the programme.

2-2. Science Communication track

Course unit [course code]	*ECTS*	*Entry requirements*	*Practical*
Science and the Public [WMEC009-05]	5	-	x
Science Communication and Journalism [WMEC011-05]	5	-	x
Science, Communication and Society [WMEC007-10]	10	-	x

History and Philosophy of Science [WMEC01-05]	5	-	x
Nature of Scientific Disciplines [WMEC004-05]	5	-	x
Citizen Science: introduction, state of the art and applications [WMEC012-05]	5	-	x
External Science Communication Project [WMEC901-19]	19	Design for Science Education and Communication; Skills in Science Communication*	x
Portfolio Science Communication [WMEC002-01]	1	All other C-track courses	x
Subsidiary	5	**	**

2-2a Research in Science Communication variant

Course unit [course code]	*ECTS*	*Entry requirements*	*Practical*
Research Project in Science Communication [WMEC904-30]	30	Research Methods in SEC	x
Subsidiary	10	**	**

2-2b Research in Scientific Discipline variant

Course unit [course code]	*ECTS*	*Entry requirements*	*Practical*
Research Project: [discipline] [WMEC901-30]	30	-	x
Small Research Project in Science Communication [WMEC903-10]	10	Research Methods in SEC	x

* Additional requirements may apply depending on the assignment chosen.
** Depends on the course units chosen

2-3 Choice of electives

*Course unit [course code]***	*ECTS*	*Entry requirements*	*Practical*
Small Research Project in Science Education [WMEC015-05]	5-10	Research Methods in SEC	x
Internship Science Communication [WMEC001-05]	5-15	Design for Science Education and Communication; Skills in Science Communication*	x

* Additional requirements may apply depending on the assignment chosen.
** Each student's choice of electives in the subsidiary must be approved by the Board of Examiners.
Students following the Communication track may take course units from 2-1 as electives, and students following the Education track may take course units from 2-2 as electives (on condition that they satisfy the entry requirements for these course units) without permission of the Board of Examiners.
Above courses are listed that can be chosen as electives in the MSc SEC. After approval of the Board of Examiners, students may also choose from options available from other programmes, other universities in the Netherlands or even abroad.
Students can expand the following projects for the elective space: Research Project: [Discipline], from 30 to 35 or 40 ECTs; Research project in Science Education/Communication, from 30 to 35 or 40 ECTs; Small Research

Project in Science Communication, from 10 to 15 ECTs; External Science Communication Project, from 19 ECTs to 24 ECTs without permission of the Board of Examiners.

Course units offered by the degree programme for students from outside the degree programme:

Course unit [course code]	*ECTS*	*Entry requirements*	*Practical*
Introduction to Science Communication* [WBEC001-05]	5	-	x
Oriëntatie op Onderwijs in de Bètawetenschappen** [WBEC002-05]	5	-	x
Oriëntatie op Onderwijs in de Bètawetenschappen voor Master-studenten** [WMEC015-05]	5	-	x

* Students can choose to hand-in assignments in Dutch or English
** A bachelor and master variant of this course is offered. Students are only allowed to follow either the bachelor or the master variant, not both. Students cannot take these courses in combination with or after completion of 'Basiscursus'/ 'Masterstage 1' or 'Neem Regie' of the Teacher Training Programme.

Appendix VI. Admission to the degree programme (art. 2.1A.1 + 2.1B.1)

Admission requirements for the Master's degree in 'Science Education and Communication' – both tracks

A. Degree requirements:
Bachelor's degree in mathematics, computing science, physics, astronomy, chemistry, biology, pharmacy, engineering, or related disciplines.

B. In all cases the Admissions Board decides on admissions.

Aanvullende toelatingscriteria voor master 'Educatie en Communicatie in de Bètawetenschappen' (Nederlandstalig): Track Educatie

C. Voor niet-moedertaalsprekers van het Nederlands geldt er aanvullend de eis van een staatsexamen Nederlands als tweede taal, programma II (NT2-II).

D. Voor het volgen van de lerarenopleidingsvariant (Track Educatie) kunnen aanvullende eisen worden gesteld, te bepalen door de toelatingscommissie.

Additional admission requirements for the Master's degree in 'Science Education and Communication' (English): Science Communication track

Language requirements for the C-track:
C1. All students for whom English is not their native language must satisfy the following requirements:

- Speaking, writing: IELTS 7.0 (TOEFL subscores 25 (speaking) and 27 (writing); equivalent to CEFR C1, Cambrigde English CAP>180)
- Reading, listening: IELTS 6.5 (TOEFL subscores 25 (reading, listening); equivalent to CEFR B2/C1 (prefarably C1), Cambrigde English CAE>160)
- Students that have obtained a bachelor's degree from a fully English-taught programme are exempted from this requirement.
- Dutch students with VWO-level English are exempted from the language requirement.

C2. Language requirements for those wanting to hand-in assignments in Dutch: Voor niet-moedertaalsprekers van het Nederlands geldt er aanvullend de eis van een staatsexamen Nederlands als tweede taal, programma II (NT2-II).

Appendix VII. Pre-master programmes

a. FSE offers individually determined Pre-Master's programmes for access to the MSc Science Education and Communication.
b. The Board of Admissions decides on the content and the student workload of a tailor-made Pre-Master's programme.
c. Starting date: 1 September

Appendix VIII. Transitional provisions (art. 7.1)

Transitional arrangement for the Master's in Science Education and Communication:

Discontinued course units				**Substitute course units**				
Course unit code	Course unit name	ECTS	Final exam period	Course unit code	Course unit name	ECTS	Explanation	Equivalent*

* It is also possible to substitute equivalent course units in the other direction. This can apply to students with a large backlog who want to fall under the new OER.

Discontinued course units from the Teacher Education Department and their substitutes can be found in the respective TER of the Teacher Education Department.

Appendix IX. Additional Requirements Open degree Programmes (art. 3.10)