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Appendices for the Master's degree programme(s) in Science Education and Communication 2026-2027

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Appendix I. Learning outcomes of the Master's 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. 3.7.1)
Appendix IV. Electives (Art. 3.8.1)
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
Skills in Science Communication	WMEC006-05	5	-
Design for Science Education and Communication	WMEC008-10	10	-
Research Methods in SEC	WMEC005-05	5	-

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.

To be admitted to the second part of the Teacher Trainer Progamme students must have completed the "Research Project in Science Education" or the "Research Project: [Discipline]"

2-1a Research in Science Education variant

Course unit	Course code	ECTS	Entry requirements
Research Project in Science Education	WMEC905-30	30	Research methods in SEC*
Subsidiary		10	**

* Exception is possible after consultation with the academic advisor, for students who have already completed the educational minor and want to start with Master SEC in September or for whom this entry requirement severely limits the studyability of the programme.
** Depends on the course units chosen

2-1b Research in Science Discipline variant

Course unit	Course code	ECTS	Entry requirements
Research Project: [Discipline]	WMEC902-30	30	-
Subsidiary		10	*

* Depends on the course units chosen

2-2. Science Communication track

Course unit	Course code	ECTS	Entry requirements
Science and the Public	WMEC009-05	5	-
Science Communication and Journalism	WMEC011-05	5	-
Science, Communication and Society	WMEC007-10	10	-
Philosophy and Science: Introduction*	FI2542RP	5	-
Philosophy and Science: The Scientific Revolution*	FI2642AS	5	-
Nature of Scientific Disciplines	WMEC004-05	5	-
Citizen Science: introduction, state of the art and applications	WMEC012-05	5	-
External Science Communication Project	WMEC901-19	19	Design for Science Education and Communication; Skills in Science Communication, Research methods in SEC**
Portfolio Science Communication	WMEC002-01	1	All other C-track courses
Subsidiary		5	***

* One of these course units is compulsory, the other is an elective
** Additional requirements may apply depending on the assignment chosen
*** Depends on the course units chosen

2-2a Research in Science Communication variant

Course unit	Course code	ECTS	Entry requirements
Research Project in Science Communication	WMEC904-30	30	Research Methods in SEC
Subsidiary		10	*

* Depends on the course units chosen

2-2b Research in Science Discipline variant

Course unit	Course code	ECTS	Entry requirements
Research Project: [Discipline]	WMEC902-30	30	-
Small Research Project in Science Communication*	WMEC903-10	10	Research Methods in SEC

* This course unit is compulsory in case students conduct the Research Project: [Discipline]

2-3 Choice of electives

Course unit*	Course code	ECTS	Entry requirements
Small Research Project in Science Education	WMEC015-05	5-10	Research Methods in SEC
Small Research Project in Science Communication**	WMEC903-10	10	Research Methods in SEC
Internship Science Communication	WMEC001-05	5-15	Design for Science Education and Communication; Skills in Science Communication***
Philosophy and Science: Introduction****	FI2542RP	5	-
Philosophy and Science: The Scientific Revolution****	FI2642AS	5	-

* These course units can be chosen as electives in the MSc SEC. All other options available from other programmes, other universities in the Netherlands or abroad must be approved by the Board of Examiners
** This course unit is compulsory in case students conduct the Research Project: [Discipline], otherwise it is an elective
*** Additional requirements may apply depending on the assignment chosen
**** For C-track students, one of these course units is compulsory, the other is an elective. For E-track students, both are an elective.

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.

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
Introduction to Science Communication*	WBEC001-05	5	-
Oriëntatie op Onderwijs in de Bètawetenschappen**	WBEC002-05	5	-
Oriëntatie op Onderwijs in de Bètawetenschappen voor Master-studenten**	WMEC013-05	5	-
Teach like a scientist: Put your scientific mindset to work to innovate and improve teaching in science and engineering	WBEC004-05	5	-

* Students can choose to hand in assignments in Dutch or English
** A bachelor and master variant of this course is offered, which is open for students who did not follow or are not following ‘Basiscursus'/ 'Masterstage 1' or 'Neem Regie' of the Teacher Training Programme."

Appendix VI. Admission to the degree programme (Art. 2.1A.1, 2.1A.2 and 2.1B.1)

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

A. Degree requirements:
All FSE Bachelor's programmes are directly admissible to the C-track.

B. In all other 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. De toelatingscommissie beslist in alle gevallen over de toelating tot de E-track. 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

C1. 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's programmes and Fast-Track programmes (Art. 2.3)

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)

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

Students from cohort 2018-2019 till 2025-2026 are subject to the transitional provisions as mentioned in this section. From 2018 till 2027, the following changes had been implemented:

1. different course codes (as of 2020-2021), substitution of the course unit “History and Philosophy of Science (as of 2026-2027), see section 1
2. introduction of the course unit “Citizen Science: introduction, state of the art and applications” (as of 2022-2023), see section 2
3. introduction of the projects “Research Project in Science Communication” and “Research Project in Science Education” (as of 2024-2025), see section 3

1. Course unit and Course code change compared to cohort 2018-2019 / 2019-2020

In academic years 2018-2019 and 2019-2020 the course units had other course codes. Therefore, the course units and course codes of this year's curriculum are listed below including the former course units and course codes.

Academic year 2026-2027		**Academic year 2018-2019 & 2019-2020**	
Course unit	**Course code**	**Course unit**	**Course code**
Skills in Science Communication	WMEC006-05	Science Communication skills	WMEC13004
Design for Science Education and Communication	WMEC008-10	Science Education and Communication Design	WMEC13005
Research Methods in SEC	WMEC005-05	Introduction to Research in SEC	WMEC13007]
Science and the Public	WMEC009-05	Science and the Public	WMEC17003
Science Communication and Journalism	WMEC011-05	Science Communication and Journalism	WNEC1WVJ5]
Science, Communication and Society	WMEC007-10	Science, Communication and Society	WNEC2WCM10
Philosophy and Science: Introduction	FI2542RP	History and Philosophy of Science	WMEC17001 WMEC001-05*
Philosophy and Science: The Scientific Revolution	FI2642AS		
Nature of Scientific Disciplines	WMEC004-05	Nature of Scientific Disciplines	WMEC17002
Citizen Science: introduction, state of the art and applications	WMEC012-05	*This course unit has been introduced in 22-23, see section 2*	-
Research Project: [Discipline]	WMEC902-30	Research Project: [Discipline]	WMEC13006
Research Project in Science Education	WMEC905-30	*This course unit has been introduced in 24-25, see section 3*	-
Research Project in Science Communication	WMEC904-30	*This course unit has been introduced in 24-25, see section 3*	-
Small RP in Science Communication	WMEC903-10	Science Communication Research Project	WMEC13000 WMEC903-09*
Portfolio Science Communication	WMEC002-01	Portfolio Science Communication	WMEC13001
External Science Communication Project	WMEC901-19	External Science Communication Project	WMEC13008
Internship Science Communication	WMEC001-05	Internship SC	WMEC13002
Small Research Project in Science Education	WMEC015-05	Science Education Research Project	WMEC13003 WMEC003-05*

*As of 2020-2021

2. Course unit Citizen Science

The course unit "Citizen Science: introduction, state of the art and applications" (WMEC012-05) has been introduced in the year 2022-2023 as an elective. As of year 2023-2024, this course unit is compulsory. Students from cohort 2022-2023 and earlier are allowed to graduate without Citizen Science on their transcript.

3. Projects

As of year 2024-2025, the curriculum had been changed leading to modifications in projects and ECTS.

Students from cohort 2023-2024 and earlier who conduct their Research Project during the academic year 2026-2027 are allowed to conduct the "Research Project in Science Education" (Education track) or "Research Project in Science Communication" (Communication track).

Academic year 2026-2027			**Academic year ≤ 2023–2024**		
Course unit	**Course code**	**ECTS**	**Course unit**	**Course code**	**ECTS**
Research Project in Science Education	WMEC905-30	30	-	-	-
Research Project in Science Communication	WMEC904-30	30	-	-	-
Small RP in Science Communication*	WMEC903-10 (15)	10 (15)	Science Communication Research Project**	WMEC903-09 (14)	9 (14)
External Science Communication Project	WMEC901-19 (24)	19 (24)	External Science Communication Project	WMEC901-15 (20)(25)	15 (20)(25)
Small Research Project in Science Education	WMEC015-05 (10)	5 (10)	Science Education Research Project	WMEC003-05 (10)	5 (10)

* Only compulsory in case the "Research Project: [Discipline]" is chosen. Otherwise, it is an elective

** Compulsory for students from cohort ≤ 2023-2024

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Appendix IX. Additional requirements Open Degree programmes (Art. 3.9.2)