



Appendices to the Teaching and Examination Regulations: Master's degree programme in Science Education and Communication (2024-2025)

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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

<i>Course unit [course code]</i>	<i>ECTS</i>	<i>Entry requirements</i>	<i>Practical</i>
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 and their entry requirements can be found in the TER of the Department of Teacher Education.

In addition, to be admitted to the 2nd year of the Education-track, students need to have completed the Research Project: [discipline] [WMEC901-30] or the Research Project in Science Education [WMEC905-30].

2-1a Research in Science Education variant

<i>Course unit [course code]</i>	<i>ECTS</i>	<i>Entry requirements</i>	<i>Practical</i>
Research Project in Science Education [WMEC905-30]	30	Research Methods in SEC, Neem Regie (Lerarenopleiding)	x
Subsidiary	10	*	*

2-1b Research in Scientific Discipline variant

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

* Depends on the course units chosen

2-2. Science Communication track

<i>Course unit [course code]</i>	<i>ECTS</i>	<i>Entry requirements</i>	<i>Practical</i>
Science and the Public [WMEC009-05]	5	-	x



Science Communication and Journalism [WMECo11-05]	5	Skills in Science Communication	x
Science, Communication and Society [WMECo07-10]	10	Skills in Science Communication	x
History and Philosophy of Science [WMECo1-05]	5	-	x
Nature of Scientific Disciplines [WMECo04-05]	5	Skills in Science Communication; Research Methods in SEC	x
Citizen Science: introduction, state of the art and applications [WMECo12-05]	5	-	x
External Science Communication Project [WMEC901-19]	19	Design for Science Education and Communication; Skills in Science Communication; Research Methods in SEC*	x
Portfolio Science Communication [WMECo02-01]	1	All other C-track courses	x
Subsidiary	5	**	**

2-2a Research in Science Communication variant

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

2-2b Research in Scientific Discipline variant

<i>Course unit [course code]</i>	<i>ECTS</i>	<i>Entry requirements</i>	<i>Practical</i>
Research Project: [discipline] [WMEC901-30]	30	-	x
Small Research Project in Science Communication [WMEC903-10]	10	Skills in Science Communication; 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

<i>Course unit [course code]**</i>	<i>ECTS</i>	<i>Entry requirements</i>	<i>Practical</i>
Small Research Project in Science Education [WMECo15-05]	5-10	Research Methods in SEC	x
Internship Science Communication [WMECo01-05]	5-15	Design for Science Education and Communication; Skills in Science Communication*	x



* Additional requirements may apply depending on the assignment chosen.

** 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). Each student's choice of electives in the subsidiary must be approved by 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.

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

<i>Course unit [course code]</i>	<i>ECTS</i>	<i>Entry requirements</i>	<i>Practical</i>
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



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, Cambridge English CAP>180)
- Reading, listening: IELTS 6.5 (TOEFL subscores 25 (reading, listening); equivalent to CEFR B2/C1 (preferably C1), Cambridge 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 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* Yes/No

* 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.

Changes that take effect in the Master in Science Education and Communication programme as per 2024/2025 are listed below.

Variants within Tracks:

Within the C-track two variants will be offered in year 2:

- Research in Science Communication variant:
 - o Research Project in Science Communication [WMEC904-30]
 - o 10 ECTS electives
- Research in Scientific Discipline variant:
 - o Research Project in [discipline] [WMEC901-30]
 - o Small Research Project in Science Communication [WMEC903-10] (mandatory)

Within the E-track two variants will be offered in year 1:

- Research in Science Education variant:
 - o Research Project in Science Education [WMEC905-30]
 - o 10 ECTS electives
- Research in Scientific Discipline variant:
 - o Research Project in [discipline] [WMEC901-30]
 - o 10 ECTS electives

Schedule

Joint programme

- Research Methods in SEC [WMEC005-05]: Moves from year 2 to year 1.

C-track

- Science, Communication and Society [WMEC007-10]: Moves from year 2 to year 1
- History and Philosophy of Science [WMEC01-05]: Moves from year 2 to year 1
- Nature of Scientific Disciplines [WMEC004-05]: Moves from year 2 (block 1a) to year 1 (block 1b). This course is in 24-25 only offered in block 1b.
- Research Project: [discipline] [WMEC901-30]: Moves from year 1 to year 2 and is substituted by two variants (see projects).



E-track

- *Changes in course units from the Teacher Education Department can be found in the respective TER of the Teacher Education.*

Projects:

C-track

- Instead of the Research Project: [discipline] [WMEC901-30]), students can choose between:
 - o Research Project in Science Communication [WMEC904-30] (Research in Science Communication variant)
 - o Research Project: [discipline] [WMEC901-30] (Research in Scientific Discipline variant).
 - The Research Project: [discipline] [WMEC901-30] must be combined with a Small Research Project in Science Communication [WMEC903-10]*
- Research Project in Science Communication [WMEC903-09] discontinues with introduction of the Small Research Project in Science Communication [WMEC903-10].
- External Science Communication Project [WMEC901-15] is extended from 15 to 19 ECTs [WMEC901- 19 ECTs]

E-track

- Research Projects
 - o Instead of the Research Project: [discipline] [WMEC901-30]), students can choose between:
 - Research Project in Science Education [WMEC905-30] (Research in Science Education variant)
 - Research Project: [discipline] [WMEC901-30] (Research in Scientific Discipline variant)

** C-track only, due to differences in learning outcomes between the C- and E-track.*



Appendix VIII Additional Requirements Open degree Programmes (art 3.10)