

# Assessment plan for the curriculum of the Master's degree programme in Science Education and Communication, 2026-2027

Programme director: Lemke Kraan

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Submission date Faculty Board:

## Introduction

This assessment plan is a systematic description of the testing and assessment modes for the study components in the curriculum of the Master's degree programmes in Science Education and Communication.

It comprises only the courses that are mandatory for both tracks (education and communication) and the mandatory and elective courses for the communication track. The other courses for the education track are part of the assessment plan of the teacher education master degree programme.

The plan is based on the assessment policy of the Faculty of Science and Engineering, as set out in the 2013 version of the FSE Quality Assurance Manual (Chapter 4: Assessment) and the protocol setting out the duties and powers of the Faculty's Board of Examiners (April 2013).

The assessment plan for the curriculum consists of the following parts:

1. Objectives of the degree programme
2. Vision on assessment
3. Assessment guidelines
4. Learning outcomes of the degree programme
5. Overview of assessment methods, test moments for course units, and examiners
6. Relationship between course units and details of the learning outcomes

Descriptions of the content of each study component can be found in Ocasys, the [online](#) course catalogue.

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Text added after advice of BoE

## 1. Objectives of the degree programme

The degree programme aims to prepare students for a professional career in science communication in The Netherlands or abroad, or as teachers in mathematics, physics, chemistry, biology or computer science qualified to teach in upper-level secondary education.

The degree programme aims to support students in developing knowledge, skills, and understanding in the field of science communication and science education.

The degree programme aims to prepare students to work in a professional environment in the field of science communication or science education and continue their professional development in a manner that is largely self-directed or autonomous.

## 2. Vision on assessment

1. The programme aims to prepare the next generation of teachers and science communicators for the professional field of science communication. In line with this vision of being a professional academic master programme, we assess through authentic assignments in various formats instead of assessing by exams.
2. Assessment stimulates the student's independent ability to design communication strategies or products for science communication or science education, taking into account the target group and goals.
3. Assessment stimulates the student's reflection on their product, their own knowledge, skills, vision and role as a science communicator and the relationship between science, society and science communication or education, to enable students to continue their professional development after receiving their master's degree.

## 3. Assessment guidelines

1. We use clear criteria that have been established by at least two examiners in advance, most often in the form of rubrics or assessment forms, which are accessible for students during the course.
2. We use the four-eyes principle, where two lecturers are grading the same final works and when needed also for formative assessment. Rubrics are designed by more than one lecturer.
3. We use formative feedback during the assessments. Thus, where possible, students get formative feedback on first versions of an assignment. The use of feedback and a student's reflection on feedback is in several courses assessed.
4. If a student does not pass a course unit, remedial work can be done, according to the rules in the CUAO for the course unit., ~~which is to be handed in at a date given in the Teaching and Examination Rules (TER).~~
5. In group work, students are assessed on their individual contribution as well, based on personal reflection or peer review (under final responsibility of the examiner).
6. Students are expected to read and comply with the 'UG policy on AI in teaching'. Any doubts should be discussed and clarified with the course coordinator in advance. Suspected non-compliance with the UG basic rules for the use of AI will be reported to the Board of Examiners on suspicion of fraud. In addition to these rules, when a student uses AI in a course unit, they must: submit a file including all communication with the AI Tool (prompts, uploaded texts, its replies), reflect on what they learned from the use of the AI Tool (did the use of AI had an added benefit) and indicate why their use of AI was ethical (why they consider the result still to be their work, and declare they did not upload confidential texts).

#### 4. Learning outcomes of the degree programme

|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | <b>Shared learning outcome</b><br><i>At the end of the programme, the graduate should be able to:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 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 communication 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|       | <b>Differentiated learning outcomes for the Science Communication track</b><br><i>At the end of the programme, the graduate should be able to:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|       | <b>Differentiated learning outcomes for the Science Education track(s)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|       | The teacher training programme is designed to realize the aims laid down in the Teaching and Examination Regulations for teacher training at the University of Groningen.                                                                                                                                                                                                                                                                                                                                                                                                                             |

In the table below the NLQF learning outcomes, the previously used Dublin descriptors and the matching SEC learning outcomes are listed. As shown, the learning outcomes of Science Education and Communication cover all NLQF learning outcomes and therefore meet the level 7 requirement.

| NLQF learning outcome              | Previous Dublin descriptor                                 | The graduate                                                                                                                                                                                                                           | SEC outcome                                    |
|------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| 1. Knowledge                       | Knowledge and understanding                                | Possesses particular specialised and advanced knowledge of an occupation, knowledge domain and or field of science and at the interface between the different occupations, knowledge domains and or fields of science.                 | EC-1, EC-2                                     |
|                                    |                                                            | Possesses a critical understanding of a range of theories, principles and concepts, including the most important ones of an occupation, knowledge domain and or field of science.                                                      | EC-1, EC-2                                     |
|                                    |                                                            | Possesses extensive, detailed knowledge and critical understanding of some important current issues, topics and specialties related to an occupation, knowledge domain and or field of science.                                        | EC-1, EC-2<br>EC-C4                            |
| 2. Applying knowledge              | Applying knowledge and understanding/<br>Making judgements | Reproduces, analyses, integrates and applies professional and scientific knowledge in a range of contexts, and uses it to handle complex matters. This knowledge is the basis of original ideas and research.                          | EC-1,<br>EC-2,<br>EC-C1, EC-C2<br>EC-C3, EC-C4 |
|                                    |                                                            | Uses the acquired knowledge at a higher level of abstraction. Thinks conceptually. Develops and deepens arguments.                                                                                                                     | EC-1,<br>EC-2,<br>EC-C1, EC-C2<br>EC-C3, EC-C4 |
|                                    |                                                            | Successfully completes, independently, fundamental research based on methodological knowledge.                                                                                                                                         | EC-1, EC-2, EC-C4                              |
|                                    |                                                            | Provides an original contribution to the development and application of ideas, often in the context of research.                                                                                                                       | EC-1,<br>EC-C1,<br>EC-C3, EC-C4                |
|                                    |                                                            | Recognises the limitations of own knowledge and or of existing knowledge in professional practice, in the knowledge domain and or at the interface of different professions and or knowledge domains and takes action to address this. | EC-4, EC-C3,<br>EC-C4,<br>EC-C5                |
|                                    |                                                            | Evaluates and carries out complex professional or scientific tasks.                                                                                                                                                                    | EC-1, EC-2, EC-3,<br>EC-C4                     |
| 3. Problem-solving skills          | Applying knowledge and understanding/<br>Making judgements | Identifies and analyses unpredictable complex problems in professional practice and or in the knowledge domain and solves these problems in a tactical, strategic and creative way.                                                    | EC-2, EC-3,<br>EC-C3, EC-C4                    |
|                                    |                                                            | Contributes to a (scientific) solution of complex problems in professional practice and or in the knowledge domain by identifying and using data.                                                                                      | EC-3,<br>EC-C4                                 |
| 4. Learning and development skills | Learning skills                                            | Realises personal development, mostly autonomous and based on intrinsic motivation.                                                                                                                                                    | EC-4                                           |

| <b>NLQF learning outcome</b>       | <b>Previous Dublin descriptor</b> | <b>The graduate</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>SEC outcomes</b>                                  |
|------------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 5. Information skills              | Communication skills              | Critically collects and analyses in responsible way broad, in-depth and detailed scientific information on a range of theories, principles and concepts of and related to a professional and or knowledge domain as well as information on some important current subjects and specialties related to an occupation and or knowledge domain and presents this information in a scientific way. | EC-1,<br>EC-2,<br>EC-C1<br>EC-C2,<br>EC-C3,<br>EC-C4 |
| 6. Communication skills            | Communication skills              | Communicates in a targeted way with peers, colleagues, supervisors and or relevant other, specialists and nonspecialists, supervisors and clients, appropriately to the scientific and professional community, using conventions which are relevant.                                                                                                                                           | EC-1,<br>EC-2,<br>EC-C2,<br>EC-C3,<br>EC-C5          |
|                                    |                                   | Adjusts communication to the objective and the target group.                                                                                                                                                                                                                                                                                                                                   | EC-1,<br>EC-2,<br>EC-C5                              |
| 7. Responsibility and independence | Making judgements                 | Works with peers, colleagues, specialists and non-specialists, supervisors and or relevant other, in an unknown but changeable living and or working environment with a high degree of uncertainty, also international.                                                                                                                                                                        | EC-3,<br>EC-C5                                       |
|                                    |                                   | Carries responsibility for the results of own activities, work and or study and for the work results of others.                                                                                                                                                                                                                                                                                | EC-3,<br>EC-C3,<br>EC-C5                             |
|                                    |                                   | Carries responsibility for the management of unpredictable processes and professional development of people and groups.                                                                                                                                                                                                                                                                        | EC-1,<br>EC-2,<br>EC-3,<br>EC-C3                     |
|                                    |                                   | Formulates opinions based on incomplete and or limited information, taking into account social, scientific and ethical responsibilities related to the application of own knowledge and opinions.                                                                                                                                                                                              | EC-C3,<br>EC-C5                                      |

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

| Year | Period    | Course (course code)                                        | EC | Assessment methods<br><i>Multiple answers may apply</i> | Does (part of the) assessment have a formative function? | Test moment(s) <i>Multiple answers may apply</i><br><br>(e.g. mid-term, continuous assessment, exam week, etc)                                                                                                                                                                  | First examiner*<br>Second examiner**                                                |
|------|-----------|-------------------------------------------------------------|----|---------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1    | 1A and 2A | Skills in Science Communication<br>(WMEC006-05)             | 5  | AST, P, R, PRev                                         | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of writing assignments and reports during course</li> <li>- assessment final presentation end of course</li> <li>- assessment report(s)/writing assignments at the end of the course</li> </ul> | Lemke Kraan*<br>Renée Lutke**                                                       |
| 1    | 1a        | Nature of Scientific Disciplines<br>(WMEC004-05)            | 5  | AST                                                     | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of assignments during course</li> <li>- assessment final assignment at the end of course (partly group work, partly individual)</li> </ul>                                                      | Mohammad Gharesifard*<br>Henk Mulder**                                              |
| 1    | 1a        | History and Philosophy of Science<br>(WMEC005-05)           | 5  | AST                                                     | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of assignment during course</li> <li>- assessment final assignment at the end of course</li> </ul>                                                                                              | Erik Ducker*<br>Henk Mulder**                                                       |
| 1    | 1a        | Philosophy and Science: Introduction<br>(FI2542RP)          | 5  | AST                                                     | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of assignment during course</li> <li>- assessment final assignment at the end of course</li> </ul>                                                                                              | C.F. Romero*<br>M. Pauly**                                                          |
| 1    | 1a        | Philosophy and Science: Scientific Revolution<br>(FI2642AS) | 5  | AST                                                     | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of assignment during course</li> <li>- assessment final assignment at the end of course</li> </ul>                                                                                              | Andrea Sangiacomo*<br>TBD                                                           |
| 1    | 1b        | Science and the Public (WMEC009-05)                         | 5  | AST                                                     | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of assignments during course</li> <li>- assessment final assignments at the end of course (partly group work, partly individual)</li> </ul>                                                     | Lucy Avraamidou*<br>Henk Mulder**<br>Lemke Kraan**                                  |
| 1    | 1b        | Science, Communication and Society<br>(WMEC007-10)          | 10 | AST, R, P                                               | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of assignments during course</li> <li>- assessment final assignments at the end of course (partly group work, partly individual), assessment presentation at the end of the course</li> </ul>   | Henk Mulder*<br>Lemke Kraan**<br>Mohammad Gharesifard**<br>Niels Alberts-Visscher** |

| Year | Period | Course (course code)                                                 | EC | Assessment methods<br><i>Multiple answers may apply</i> | Does (part of the) assessment have a formative function? | Test moment(s) <i>Multiple answers may apply</i><br><br>(e.g. mid-term, continuous assessment, exam week, etc)                                                                                                                                | First examiner*<br>Second examiner**                                                                                                   |
|------|--------|----------------------------------------------------------------------|----|---------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|      |        |                                                                      |    |                                                         |                                                          | -                                                                                                                                                                                                                                             |                                                                                                                                        |
| 1    | 2      | Design for Science Education and Communication (WMEC008-10)          | 10 | AST, R                                                  | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of assignments and report during course</li> <li>- assessment final product and report at the end of course (part group work part individual work)</li> </ul> | Ferdinand van der Graaf*<br>Miquel Pérez Torres**<br>E.H.D. (Edith) Koh**<br>Lemke Kraan**                                             |
| 1    | 2a     | Research Methods in Science Education and Communication (WMEC005-05) | 5  | AST                                                     | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of assignments during course</li> <li>- assessment final assignment at the end of course</li> </ul>                                                           | Lucy Avraamidou*<br>Francisco Castillo Hernandez*<br>Francisco Castillo Hernandez**<br>Mohammad Gharesifard**<br>Miquel Pérez Torres** |
| 1    | 2b     | Science Communication and Journalism (WMEC011-05)                    | 5  | AST, PRev, R                                            | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of assignments during course</li> <li>- assessment final assignments at the end of course</li> </ul>                                                          | Lemke Kraan*<br>Henk Mulder**                                                                                                          |
| 1    | 2b     | Citizen Science (WMEC012-05)                                         | 5  | P, R, AST                                               | Yes                                                      | <ul style="list-style-type: none"> <li>- formative assessment on first versions of report during course</li> <li>- assessment final report and presentation at the end of course (partly group work, partly individual)</li> </ul>            | Mohammad Gharesifard*<br>Henk Mulder**                                                                                                 |
| 2    | 1      | Science Research Project: [Discipline] (WMEC902-30)                  | 30 | P, AST, R                                               | Yes                                                      | <ul style="list-style-type: none"> <li>- mid-term halfway project</li> <li>- continuous formative assessment during project</li> <li>- assessment final report and presentation at the end of project</li> </ul>                              | Examiners from all Master programmes of our faculty                                                                                    |
| 2    | 1      | Research Project in Science Education (WMEC905-30)                   | 30 | P, PR, AST, R                                           | Yes                                                      | <ul style="list-style-type: none"> <li>- mid-term halfway project</li> <li>- continuous formative assessment during project</li> <li>- assessment final report and presentation at the end of project</li> </ul>                              | See section below                                                                                                                      |
| 2    | 1      | Research Project in Science Communication (WMEC904-30)               | 30 | P, PR, AST, R                                           | Yes                                                      | <ul style="list-style-type: none"> <li>- mid-term halfway project</li> <li>- continuous formative assessment during project</li> <li>- assessment final report and presentation at the end of project</li> </ul>                              | See section below                                                                                                                      |

| Year | Period     | Course (course code)                                         | EC    | Assessment methods<br>Multiple answers may apply | Does (part of the) assessment have a formative function? | Test moment(s) Multiple answers may apply<br>(e.g. mid-term, continuous assessment, exam week, etc)                                                                                                                                                                                         | First examiner*<br>Second examiner**                                                                                                                       |
|------|------------|--------------------------------------------------------------|-------|--------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |            |                                                              |       |                                                  |                                                          | -                                                                                                                                                                                                                                                                                           |                                                                                                                                                            |
| 2    | 2a         | Small Research Project in Science Communication (WMEC903-10) | 10-15 | P, <b>AST</b> , <b>PR</b> , R                    | Yes                                                      | - continuous formative assessment during project<br>- assessment final report and presentation at the end of project                                                                                                                                                                        | See section below                                                                                                                                          |
| 2    | 2          | External Science Communication Project (WMEC901-19)          | 19-24 | <b>AST</b> , R                                   | Yes                                                      | - formative assessment on first versions of assignments during project<br>- formative assessment during midterm<br>- assessment final assignment at the end of course<br>- assessment final report during final conversation<br>- mid term halfway project (for 15 > 15 ECTS projects)<br>- | Henk Mulder*<br>Lemke Kraan**<br><b>Lucy Avraamidou**</b><br><b>Mohammad Gharesifard**</b><br><b>Renee Lutke**</b><br><b>N. (Niels) Alberts-Visscher**</b> |
| 2    | Whole year | Portfolio Science Communication (WMEC002-01)                 | 1     | <b>AST</b> , R                                   | No                                                       | - assessment assignment during final conversation                                                                                                                                                                                                                                           | Henk Mulder*<br><b>Lucy Avraamidou**</b><br>Lemke Kraan**                                                                                                  |
| 2    | 2          | Internship Science Communication (WMEC001-05)                | 5-15  | <b>AST</b> , <b>PR</b> , R                       | Yes                                                      | - assessment final report during final conversation                                                                                                                                                                                                                                         | Henk Mulder*<br>Lemke Kraan**<br><b>Lucy Avraamidou**</b><br><b>Mohammad Gharesifard**</b><br><b>Renee Lutke**</b><br><b>N. (Niels) Alberts-Visscher**</b> |
| 1&2  | 2          | Small Research Project in Science Education (WMEC015-05)     | 5-10  | P, R, <b>AST</b> , <b>PR</b>                     | Yes                                                      | - continuous formative assessment during project<br>- assessment final report and presentation at the end of project                                                                                                                                                                        | See section below                                                                                                                                          |
|      |            |                                                              |       |                                                  |                                                          |                                                                                                                                                                                                                                                                                             |                                                                                                                                                            |
|      |            |                                                              |       |                                                  |                                                          |                                                                                                                                                                                                                                                                                             |                                                                                                                                                            |

The following courses are assessed by examiners from the master programme:

| Year    | Period | Course (course code)                                                              | EC | Assessment methods<br><i>Multiple answers may apply</i> | Does (part of the) assessment have a formative function? | Test moment(s) <i>Multiple answers may apply</i><br><br>(e.g. mid-term, continuous assessment, exam week, etc)              | First examiner*<br>Second examiner**                                       |
|---------|--------|-----------------------------------------------------------------------------------|----|---------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
|         |        |                                                                                   |    |                                                         |                                                          |                                                                                                                             |                                                                            |
| 3 (BSc) | 1b     | Introduction to Science Communication (WBEC001-05)                                | 5  | AST                                                     | Yes                                                      | - formative assessment on first versions of assignments during course<br>- assessment final assignment at the end of course | Charlotte Vlek*<br>Lemke Kraan**                                           |
| 3 (BSc) | 1b     | Oriëntatie op Onderwijs in de Bètawetenschappen (WBEC002-05)                      | 5  | OR, R                                                   | Yes                                                      | - oral examination, assessment report at the end of course                                                                  | Enno van der Laan*<br>Gerrit Roorda**                                      |
| 1       | 1b     | Oriëntatie op Onderwijs in de Bètawetenschappen voor Masterstudenten (WMEC013-05) | 5  | OR, R                                                   | Yes                                                      | - oral examination, assessment report at the end of course                                                                  | Enno van der Laan*<br>Gerrit Roorda**                                      |
|         |        | Science Communication (UCG)                                                       | 5  | AST, PR, P                                              | Yes                                                      | - formative assessment on first versions of assignments during course<br>- assessment final assignment at the end of course | Mohammad Charesifard*<br>Lucy Avraamidou*<br>Henk Mulder*<br>Lemke Kraan** |
| 3 (BSc) | 1a     | Teach like a scientist (WBEC004-05)                                               | 5  | PR, R, AST, PRev                                        | yes                                                      | - formative assessment on first versions of assignments during course<br>- assessment final assignment at the end of course | Deniz Haydar*<br>Sofie van den Eynde**                                     |
|         |        |                                                                                   |    |                                                         |                                                          | -                                                                                                                           |                                                                            |

\* Formal First examiner, \*\* Formal Second examiner, Written Exam (WE), Multiple Choice (MC), Oral Exam (OR), Report (R), Presentation (P), Practical Work (PR), Assignment (AST), Peer Review (PRev)

# in accordance with TER of the respective Master programmes

### Examiners for Research Projects

Applicable to:

Research Project in Science Communication (WMEC904-30/35/40)

Research Project in Science Education (WMEC905-30/35/40)

Small Research Project in Science Communication (WMEC903-10/15)

Small Research Project in Science Education (WMEC015-05/10)

First examiners:

- N. (Niels) Alberts-Visscher
- L (Lucy) Avraamidou
- F. (Francisco) Castillo Hernandez
- M. (Mohammad) Gharesifard
- F.H.C.E. (Ferdinand) van der Graaf
- N. (Natasja) Grgurina (Faculty of Behavioural and Social Sciences)
- L.T.J. (Lemke) Kraan
- J.E. (Enno) van der Laan
- R. (Renée) Lutke
- H.A.J. (Henk) Mulder
- M. (Miquel) Pérez Torres
- G. (Gerrit) Roorda (Faculty of Behavioural and Social Sciences)
- C. (Charlotte) Vlek
- D. (Deniz) Haydar
- A.C. (Alex) van den Berg
- S. (Sofie) van den Eynde
- E.H.D. (Edith) Koh

Second examiners:

- Examiners from all Master programmes of the faculty of Science and Engineering.
- M. (Miquel) Pérez Torres
- S. (Sofie) van den Eynde
- E.H.D. (Edith) Koh

**Examiners and modes of assessment for the Science Education track(s) are given in the Assessment Plan of the Teacher Education Programme**

## 6. Relationship between course units and details of the learning outcomes

| Learning Outcomes →                                                                                                                                 |                |                        | Shared (E and C) |      |      |      | C-track |       |       |       |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------|------------------|------|------|------|---------|-------|-------|-------|-------|
| Course Units (mandatory)                                                                                                                            | Year           | Period                 | EC-1             | EC-2 | EC-3 | EC-4 | EC-C1   | EC-C2 | EC-C3 | EC-C4 | EC-C5 |
| <b>Tracks Education and Communication</b>                                                                                                           |                |                        |                  |      |      |      |         |       |       |       |       |
| Science Research Project: [Discipline]                                                                                                              | 2 (E)<br>2 (C) | 1a-1b (E)<br>1a-1b (C) | xx               |      |      | xx   |         |       |       |       |       |
| Skills in Science Communication                                                                                                                     | 1              | 1a (C)<br>2a (E)       |                  | x    |      | x    |         |       | x     | x     | x     |
| Research Methods in SEC                                                                                                                             | 1              | 2a                     | xx               |      |      | x    |         |       |       | x     | x     |
| Design for Science Education and Communication                                                                                                      | 1              | 2a-2b                  |                  | xx   | xx   | xx   |         |       |       | xx    | xx    |
| <b>Track Education</b>                                                                                                                              |                |                        |                  |      |      |      |         |       |       |       |       |
| Research Project in Science Education                                                                                                               | 2              | 1a-1b                  | xx               |      |      | xx   |         |       |       |       |       |
| <b>Track Communication</b>                                                                                                                          |                |                        |                  |      |      |      |         |       |       |       |       |
| History and Philosophy of Science<br>Philosophy and Science: Introduction or Philosophy and Science: The Scientific Revolution (Philosophy faculty) | 1              | 1a                     | x                | x    |      | x    | x       | xx    | xx    |       | xx    |
| Science, Communication and Society                                                                                                                  | 1              | 1b                     |                  | xx   |      | x    |         |       | xx    | x     | xx    |
| Nature of Scientific Disciplines                                                                                                                    | 1              | 1a                     |                  | xx   |      | x    | xx      | x     | x     |       | xx    |
| Science and the Public                                                                                                                              | 1              | 1b                     |                  | xx   |      | x    |         |       | x     | xx    | x     |
| Citizen Science                                                                                                                                     | 1              | 2b                     |                  | xx   |      | x    |         |       | xx    | xx    | x     |
| Science Communication and Journalism                                                                                                                | 1              | 2b                     |                  | xx   |      | x    | x       |       | xx    |       | xx    |
| External Science Communication Project                                                                                                              | 2              | 2a-2b                  |                  | xx   | xx   | xx   |         |       | xx    | xx    | xx    |
| Portfolio Science Communication                                                                                                                     | 2              | 2b                     |                  |      | x    | xx   |         |       |       |       | x     |
| Research project science communication                                                                                                              | 2              | Whole year             | xx               |      | xx   | xx   |         |       |       | xx    |       |
| Small Research project science communication                                                                                                        | 2              | Whole year             | xx               |      | xx   | xx   |         |       |       | xx    |       |
| <b>Electives</b>                                                                                                                                    |                |                        |                  |      |      |      |         |       |       |       |       |
| Small Research Project in Science Education                                                                                                         | 1/2            | Whole year             | xx               |      | xx   | xx   |         |       |       | xx    |       |
| Internship Science Communication                                                                                                                    | 1/2            | Whole year             |                  | xx*  | xx*  | xx*  |         |       | xx*   | xx*   | xx*   |

Each x means that the learning outcome is explicitly assessed: x = orienting/preparing; xx = founding/compounding  
 x\* = Learning outcomes depend on the length of the internship and its position in the individual programme.

**Relationships between course units and details of the learning outcomes for the Science Education track(s) are given in the Assessment Plan of the Teacher Education Programme.**