

UNIVERSITY OF AMSTERDAM

FACULTY OF SCIENCE

**TEACHING AND EXAMINATION REGULATIONS
PART B**

Academic year 2016-2017

MASTER'S PROGRAMME EARTH SCIENCES

Chapter 1	General provisions
Article 1.1	Definitions
Article 1.2	Study programme information
Article 1.3	Intake dates
Chapter 2	Programme objectives and exit qualifications
Article 2.1	Programme objective
Article 2.2	Exit qualifications
Chapter 3	Further admission requirements
Article 3.1	Admission requirements
Article 3.2	Pre-Master's programme
Article 3.3	Limited programme capacity
Article 3.4	Final deadline for registration
Article 3.5	English language requirement for English-language Master's programmes
Article 3.6	Free curriculum
Chapter 4	Curriculum Structure
Article 4.1	Composition of the programme
Article 4.2	Compulsory units of study
Article 4.3	Practical exercise
Article 4.4	Electives
Article 4.5	Sequence of examinations
Article 4.6	Participation in practical exercise and study group sessions
Article 4.7	Maximum exemption
Article 4.8	Validity period for results
Article 4.9	Degree
Article 4.10	Determining results of examinations
Chapter 5	Transitional and final provisions
Article 5.1	Amendments and periodic review
Article 5.2	Transitional provisions
Article 5.3	Publication
Article 5.4	Effective date
Appendix	Final attainment levels of the major Science in Society, the major Science Communication and Major Teaching

Chapter 1. General Provisions

Article 1.1 – Definitions

In addition to part A, the following definitions are used in part B

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|----------------------|---|
| a. Course | Education imparted in a series of lessons or meetings |
| b. Literature review | Individual component of 12 EC comprising literature resulting in a written report |
| c. Internship | Individual component of 18-24 EC resulting in a written report. |

Article 1.2 – General information master's programme

1. The Master's programme Earth Sciences, CROHO 66986, is offered on a full-time basis and the language of instruction is English.
2. The programme has a workload of 120 EC.
3. Within the programme the following tracks are offered:
 - Geo-Ecological Dynamics (research master);
 - Environmental Management (applied research master).

Article 1.3 – Intake dates

The programme is offered starting in the first semester of the academic year (1 September) and at the beginning of the second semester (1 February). The intake dates mentioned in this paragraph ensure a programme that can be expected to be completed within the time set for the programme.

Chapter 2. Programme objectives and exit qualifications

Article 2.1 – Programme objectives

The programme aims at:

- educating students to become independent scientific professionals, who are able to deal with current scientific knowledge, and apply this knowledge in new and continuously changing practical situations;
- actively stimulating interdisciplinary cooperation in the development of science, based on knowledge in the field of earth sciences;
- educating students to develop skills, knowledge and insight into the discipline;
- providing student-oriented education that is of a high, internationally recognised quality;
- offering students the opportunity to gain part of their knowledge and insight in an international setting;
- providing a heterogeneously composed student population in an inspiring academic learning environment and offering feasible study programmes.

Article 2.2 – Exit qualifications

1. The graduate of the Master's programme Earth Sciences has:
 - analysing, problem-solving and synthesising abilities, a scientific attitude and is able to function in science and society at the required academic level;
 - specialist knowledge of one or more sub-areas of Geo-Ecological Dynamics or Environmental Management
 - the ability to observe physical geographical systems at various scale levels and degrees of complexity; to analyse them and to answer questions;
 - knowledge of the current developments in Earth Sciences and Physical Geography in particular;
 - the ability to become acquainted with research methods in the domain of the specialisation within a short period of time and is able to apply these;

- practical and theoretical skills in methodologies used in studying environmental processes;
 - the communication skills needed to operate effectively on an academic level, especially in oral presentation and written report in the English language;
 - the ability to translate scientific and/or applied questions into a research proposal;
 - the ability to independently set up and implement research experiments;
 - the ability to realise a planned project within a given period of time;
 - the ability to work independently as well as to cooperate with other people in a team;
 - the ability to contribute from one's own discipline to multi- or interdisciplinary questions;
 - the ability to adopt an attitude that fosters critical reflection on one's own results and behaviour, as well as from other people.
2. In addition to paragraph 1, the student finishing the track Geo-Ecological Dynamics has obtained the following track-specific qualifications:
 - is able to form a vision on the development of scientific research in the field of study;
 - has the understanding of qualitative and quantitative aspects of landscape patterns and/or biogeochemical processes at different temporal and spatial scales in geo-ecosystems;
 - is able to read up on a physical geographical field of study in a short period of time, to form his own opinion and to write a critical essay.
 - is able to formulate research questions to gain new insights and add to the body of knowledge about the functioning and/or analysis of geo-ecological systems.
 3. In addition to paragraph 1, the student finishing the track Environmental Management has obtained the following track-specific qualifications:
 - has knowledge of management and conservation strategies for landscapes.
 - has knowledge to link earth science knowledge with societal challenges and developments
 - has developed an attitude enabling the critical use of measurements and models in science and society
 - is able to adequately apply and interpret mathematical and/or computational models of geo-ecosystems.
 - is able to formulate (applied) research questions which contribute towards better understanding and/or solving environmental management problems
 -

Chapter 3. Further admission requirements

Article 3.1 – Admission requirements

1. A student, who has obtained a Bachelor's degree in Earth Sciences, Future Planet Studies with a major Earth Sciences or Beta-Gamma with a major Earth Sciences or equivalent from a Dutch university, may enter the programme.
2. Without prejudice to the provisions of paragraph 1, the Examinations Board may grant admission to the study programme when concluding, that the previous education of the candidate is equivalent to the Bachelor's degrees referred to in paragraph 1. The Examinations Board decides in such cases for every student whether the previous education of the candidate has deficiencies for admission. An interview and test may be part of the admission procedure.
3. When the programme commences, the candidate must have fully completed the Bachelor's programme allowing admission to this Master's programme.

Article 3.2 – Pre-master's programme

Not applicable.

Article 3.3 – Limited programme capacity

Not applicable.

Article 3.4 – Final deadline for registration

A candidate must submit a request to be admitted to the programme through Studielink before 1 May in the case of Dutch students, before 1 April in the case of EU students and before 1 February in the case of non-EU students. Under exceptional circumstances, the Examinations Board may consider a request submitted after this closing date.

Article 3.5 – English Language Requirement for English-language Master's programmes

1. The proficiency requirement in English as the language of instruction can be met by the successful completion of one of the following examinations or an equivalent:

The minimum scores required on the TOEFL test are:

- Internet-based test: 92
- Computer-based test: 235
- Paper-based test: 580

Please note that the TOEFL-code for the Faculty of Science of the University of Amsterdam is 8628.

The minimum score IELTS: 6.5, at least 6 on each sub-score (listening/reading/writing/speaking)

A Cambridge Examination Score with a minimum test result of CAE A or B will also be accepted. For the CPE test a minimal score of C is required.

2. Those possessing a Bachelor's degree from a Dutch university satisfy the requirement of sufficient command of the English language.
3. Exemption is granted from the examination in English referred to in the first paragraph to students who, within two years of the start of the programme:
 - met the requirements of the VU test in English language proficiency TOEFL ITP, with at least scores specified in paragraph 1, or
 - had previous education in secondary or tertiary education in an English-speaking country as listed on the UvA website, or
 - have an English-language 'international BSc' diploma.

Article 3.6 – Free curriculum

1. Subject to certain conditions, the student has the option of compiling a curriculum of his/her own choice which deviates from the curricula prescribed by the programme.
2. The concrete details of such a curriculum must be approved beforehand by the most appropriate Examinations Board.
3. The free curriculum is put together by the student from the units of study offered by the University of Amsterdam and must at least have the size, breadth and depth of a regular Master's programme.
4. The following conditions must at least have been met in order to be eligible for the Master's degree:
 - a. At least 60 EC must be obtained from the regular curriculum
 - b. The level of the free curriculum must match the objectives and exit qualifications that apply for the programme for which the student is enrolled.

Chapter 4. Curriculum structure

Article 4.1 – Organisation of the programme

1. The curriculum consists of the following components:
 - a. General compulsory components amounting to 18-24 EC.
 - b. Specialisation-specific compulsory components amounting to 60-69 EC
 - c. Practical components
 - d. Elective components amounting to 0-36 EC.

Article 4.2 – Compulsory components

1. In the UvA Course Catalogue the content, format and examination requirements of each compulsory component of the study programme are described, indicating the preconditions that are required in order to be able to follow the course successfully.
2. The student has to choose from a constrained list of courses. In the UvA Course Catalogue the content, format and examination requirements of these components of the study programme are described.
3. For each specialisation the compulsory components are given below:

Track Geo-Ecological Dynamics – Compulsory components (78-90)					
Component	Code	Study Load	Period	Teaching Method	Test
Assessment of chemical and natural hazards ²	5264ACNH6Y	6 EC	4	L, PT, SS & T	A, D, E, OP & WE
Literature review	5264LIT12Y	12 EC	1-6	SS & PT	WE
Master thesis research Earth Sciences	5264MTR42Y	42 EC	1-6	PT	E, OP & P
Research proposal	5264REPR6Y	6 EC	1-6	PT	E, OP
Research workshop and skills lab	5264RWSL6Y	6 EC	1-6	S & PT	AP & WE
Vulnerability assessment of geo-ecosystems ¹	5264VAG12Y	12 EC	1	L, PT, S, SS & T	E, OP & P
Constrained list courses (6-12 EC)					
Applications in GIS and remote sensing	5264AIGR6Y	6 EC	5	PT & T	A
Biogeochemical cycles	5264BICY6Y	6 EC	2	L, PT, SS & T	E, OP & WE
GIS/RS Science in ecosystem dynamics	5264GRSE6Y	6 EC	5	PT & T	A & OP

Track Environmental Management – Compulsory components (84-96)					
Component	Code	Study Load	Period	Teaching Method	Test
Assessment of chemical and natural hazards ²	5264ACNH6Y	6 EC	4	L, PT, SS & T	A, D, E, OP & WE
Integrated coastal dune management	5264ICDM6Y	6 EC	2	L & T	A, AP, D & OP
Internship	5264INT24Y	24 EC	1-6	PT	WE
Master thesis research M/C	5264MTR30Y	30 EC	1-6	PT	E, OP & P
Research workshop and skills lab	5264RWSL6Y	6 EC	1-6	S & PT	AP & WE
Research proposal	5264REPR6Y	6 EC	1-6	PT	E, OP
System innovation and transition management I	5264SIT6Y	6 EC	4	L & T	E & WE
Vulnerability assessment of geo-ecosystems ¹	5264VAG12Y	12 EC	1	L, PT, S, SS & T	E, OP & P
Constrained list courses (6 EC)					
Applications in GIS and remote sensing	5264AIGR6Y	6 EC	5	PT & T	A
Biogeochemical cycles	5264BICY6Y	6 EC	2	L, PT, SS & T	E, OP & WE
GIS/RS Science in ecosystem dynamics	5264GRSE6Y	6 EC	5	PT & T	A & OP

Abbreviations: A=Assignments; AP= Active Participation; CS=Case Study; D=Discussion; E=Essay (report, proposal, abstract etc.); L=Lectures; OE=Oral Examination; OP=Oral Presentation; P=Practical Work; PT=Practical Training; S=Seminar SS=Self Study; T=Tutorials; WE=Written Examination

¹Mandatory when starting in September and constrained when starting in February. ²Mandatory when starting in Feb and constrained when starting in September.

Article 4.3 – Practical exercise

1. In addition to, or instead of, classes in the form of lectures, the elements of the master's examination programme often include a practical component as defined in article 1.2 of part A. The UvA Course Catalogue contains information on the types of classes in each part of the programme. Attendance during practical components is mandatory.
2. When performing practical components, students must adhere to the faculty's safety regulations
3. The student has to submit an application form for the Master Thesis, the Literature Review and the Internship to the course coordinator for prior approval. For the Master Thesis and for the Internship a contract form has to be handed in, signed by supervisors and the student. If these activities take place in cooperation with an institute outside the science faculty, the application form has to be submitted to the Examinations Board for prior approval.
4. At the end of the Master Thesis and its final report, the responsible examiner checks on the basis of an assessment form if the student has sufficiently achieved the set exit qualifications of the Master Thesis. Halfway the Master Thesis research and internship a mid-term assessment will take place.
5. The Thesis examiner and a second independent reader assess the quality of the Master Thesis, Literature Review and the Writing of a Scientific Article. The final mark is determined by the examiner after consultation with the second reader. In the Master Thesis protocol, detailed information can be found on the assessment of the Thesis. This protocol can be found on the Blackboard site of the Master Earth Sciences (individual courses)
6. The Master Thesis and the Literature Review must have been completed and assessed within the period indicated on the contract form signed by the supervisors and the student. If no work has been handed in, leading to an assessment within the period agreed on in the approval form, the examiner is entitled to assess the component as a fail.
7. Further information on regulations and procedures about the Master Thesis, the Literature Review, the Internship and the Writing of a Scientific Article are described in the protocols, to be found on Blackboard Master Earth Sciences (individual courses).

Article 4.4 – Elective components

1. Elective courses may be part of the study programme. In the UvA Course Catalogue the content, format and examination requirements of elective courses are described. The student can choose up to 18 EC of the components below without asking prior approval of the Examinations Board.

Component	Code	Study Load	Period	Teaching Method	Test
Climate change	5264CLCH6Y	6 EC	5	L & T	AP, E & OP
Energy and Climate Change; Science, Policy and Economics	5264ECCS6Y	6 EC	2	L & SS	AP, E & OP
Environmental chemistry	5254ENCH6Y	6 EC	1	L & PT	WE
Environmental measuring techniques	5264ENMT6Y	6 EC	4	PT & SS	E & OP
Environmental Policy	AM_468021	6 EC	2	L & T	WE
Field course geoecological systems	5264FCG12Y	12 EC	5&6	L, PT & SS	E, OP & P
Fundamentals of analytical sciences	5254FUAS6Y	6 EC	4	L & T	WE
Geo-ecological data analysis*	5264GEDA6Y	6 EC	3	L & T	A
Integrated coastal dune management	5264ICDM6Y	6 EC	2	L, PT & T	A, AP, D & OP
Modelling geo-ecological systems	5264MOGS6Y	6 EC	4	L & T	A & WE
Research strategies	5264REST6Y	6 EC	4	L & T	E, OP & WE

Science in perspective	5524SCPE6Y	6 EC	4 & 5	L & T	AP, E & WE
Separation sciences	52548SES6Y	6 EC	1	L & T	WE
Soil and landscape degradation	5264SOLD6Y	6 EC	3	L, S, SS & T	D, E & OP
System innovation and transition management I	52641SIT6Y	6	4	L & T	E & WE
Writing a scientific article	5264WAS12Y	12	1-6	PT & SS	E

Abbreviations: A=Assignments; AP=Active Participation; CS=Case Study; D=Discussion; E=Essay (report, proposal, abstract etc.); L=Lectures; OE=Oral Examination; OP=Oral Presentation; P=Practical Work; PT=Practical Training; S=Seminar SS=Self Study; T=Tutorials; WE=Written Examination

**Courses are given in alternating academic years*

2. Students of the track Environmental Management have the option to choose between one of three majors or one minor:

- Major Science in Society;
 - Major Science Communication;
 - Major Teaching;
- a. The major Science in Society and the major Science Communication consist of 60 EC. A major has to be combined with a research programme, comprising at least 60 EC (courses, research project and literature review), and with the general compulsory components in order to meet the general requirements of the programme. Further information on these majors can be found on the website of VU University Amsterdam (www.vu.nl).
 - b. The Major Teaching consists of 60 EC. The major has to be combined with a research programme, comprising at least 60 EC (courses, research project and literature study), and with the general compulsory components in order to meet the general requirements of the programme. Students who have completed an “Educatieve Minor” of 30 EC during their Bachelor’s programme may submit a non-standard study programme for approval to the Examinations Board of the ‘Interfacultaire Lerarenopleidingen’, after discussing this non-standard study programme with the coordinator of the Major Teaching and the coordinator of the Master’s programme. Further information on this major can be found on the website of the ‘Interfacultaire Lerarenopleidingen (ILO)’ of the University of Amsterdam.
 - c. Students have to go through a separate intake procedure for admission to the major in Science in Society, major in Science Communication and the major Teaching.
 - d. Students first have to finish the obligatory research part of the programme (60 EC) before starting one of the majors or minor.
 - e. The student can participate in the majors without prior approval of the Examinations Board when following the programme as described below:

Track Environmental Management	Programme with major
Compulsory courses: <i>Vulnerability assessment of geo-ecosystems</i> <i>Research proposal</i> <i>Research workshop environmental management</i>	24 EC
Constrained list courses <i>Applications in GIS and remote sensing</i> <i>Biochemical cycles</i> <i>GIS/RS science in ecosystem dynamics</i> <i>Integrated coastal dune management</i> <i>Vulnerability assessment of geo-ecosystems</i>	6 EC
Master thesis research M/C	30 EC
Major	60 EC
Total study load	120 EC

Starting in February with the Master’s programme followed by the major Science Communication, the major Science in Society or the major Teaching is not possible.

- f. The master's programme Earth Sciences offers the minor Science for Sustainability of 30 EC. The minor consists of three compulsory courses with a total of 18 EC
 - Current sustainable energy technologies;
 - Energy & climate change; science, policy & economics;
 - System innovation and transition management;
 Furthermore, the student can choose an elective course (6 EC) on energy, climate change, environment, water and food issues. The minor is ended with a final project of 6 EC. Further information on this minor can be found on the website of the Graduate School of Sciences. The exit qualification of this minor can be found in Appendix I.
3. If the student wishes to take a different subject than the units of study listed (see paragraph 4.4.1), advance permission must be obtained in writing from the Examinations Board. These units:
 - a. have to be followed at an accredited university or institute
 - b. have to be relevant to the master chosen
4. In terms of content, elective components, as referred to in paragraph 3, must not show too much similarity to the components of the student's standard curriculum. The Examinations Board will decide on the acceptable degree of similarity.
5. An elective component, as referred to in paragraph 3, will only be seen as part of the programme when the Examinations Board has given its prior approval.

Article 4.5 – Sequence and admission requirements

Students may participate in examinations (and/or practical exercises) of the units below only if they have passed the examination or examinations for the units mentioned hereinafter:

The student has to successfully complete 18 EC of compulsory courses prior to approval and starting of the master thesis.

Article 4.6 – Participation practical training and tutorials

Not applicable

Article 4.7 – Exemption

1. A maximum of 60 EC of the curriculum can be accumulated through granted exemptions
2. At the written request of the student, the Examinations Board may exempt the student from taking one or more examination components, if the student:
 - a. Has passed a component of an academic or higher professional education programme that is equivalent in both content and level;
 - b. Has demonstrated through his/her work and/or professional experience that he/she has sufficient knowledge and skills with regard to the relevant component.
3. This exemption does not apply to the master thesis research Earth Sciences or master thesis research M/C.
4. Exemptions from examinations (or parts thereof), if granted, will be valid for the same period of these examinations.

Article 4.8 – Validity period for results

The validity period of passed interim examinations and exemptions from interim examinations is until the end of the academic year (31 Aug).

Article 4.9 – Degree

Students who have successfully completed their Master's examination are awarded a Master of Science degree. The degree awarded is stated on the diploma. If it is a joint degree, this will also be stated on the diploma.

Article 4.10 – Determining results of examinations

In addition to Article 4.6 of Part A, in case the examination of a component consists of two or more parts, each part has to be graded with a 5.0 or higher to pass the examination.

Chapter 5. Transitional and final provisions

Article 5.1 – Amendments and periodic review

1. Any amendment to the Teaching and Examination Regulations will be adopted by the dean after taking advice from the relevant Board of Studies. A copy of the advice will be sent to the authorised representative advisory body.
2. Any amendment to the Teaching and Examination Regulations requires the approval of the authorised representative advisory body if it concerns components not related to the subject of Section 7.13, paragraph 2 sub a to g and v, and paragraph 4 of the WHW and the requirements for admission to the Master's programme.
3. An amendment to the Teaching and Examination Regulations is only permitted to concern an academic year already in progress if this does not demonstrably damage the interests of students.

Article 5.2 – Cancelled programme components

The following courses will be cancelled as of academic year 15/16

- a. Building Bridges between Science and Society (5264BBBS6Y)
- b. Ecosystem Management (5264ECMA6Y)

For students of the Environmental Management track started before academic year 15/16 these courses are part of the regular programme as described in the Teaching and Examination Regulations of 14/15. When students have not passed the courses, alternatives will be offered in consultation with the programme director and Examinations Board.

Article 5.3 - Publication

1. The dean will ensure the appropriate publication of these Regulations and any amendments to them.
2. The teaching and Examination Regulations will be posted in the faculty website and deemed to be included in the course catalogue.

Article 5.4 – Effective date

These Regulations enter into force with effect from 1 September, 2016.

Thus drawn up by the Dean of the Faculty of Science on 18 July 2016.

- Appendix -

Final attainment levels of the major Science in Society, the major Science Communication and Major Teaching, and learning objectives minor TESLA

A. Final attainment levels of the major Science in Society

Dublin descriptor 1: Knowledge and understanding

The graduate has theoretical and practical knowledge of management, policy analysis and entrepreneurship. The graduate:

1. has insight into the various relevant disciplines in the social and behavioral sciences. More specifically the student acquires insight into:
 - a. important concepts and theories in the field of policy science, management studies, and entrepreneurship;
 - b. the relation of these gamma sciences to the beta sciences;
2. has insight into concepts and the latest theories, research methodologies, analytical models and important research questions related to interdisciplinary research for addressing societal problems;
3. has knowledge of, and insight into, relevant concepts and theories for effective communication and collaboration.

Dublin descriptor 2: Applying knowledge and understanding

The graduate is experienced in carrying out interdisciplinary research, in applying techniques specific to the subject area and in applying scientific knowledge to societal problems. The graduate:

1. has the ability to integrate knowledge from the beta and gamma sciences, as well as from science and practice;
2. can apply scientific knowledge to formulate solutions to societal problems and assess them for appropriateness and societal relevance;
3. adopts an appropriate attitude towards the correct and unbiased use and presentation of data.

Dublin descriptor 3: Making judgments

The graduate is able to independently and critically judge information. The graduate is able to:

1. independently acquire information in relevant scientific areas through a literature review and by conducting empirical research, as well as evaluate such information critically;
2. select and order information, distinguish essentials from trivialities, and recognize connections;
3. formulate personal learning objectives and critically evaluate own performance, both introspectively and in discussion with others.

Dublin descriptor 4: Communication

The graduate is able to transfer knowledge and skills related to his/her subject area to other people and to adequately reply to questions and problems posed within society. The graduate:

1. has acquired skills to report orally and in writing on research results in English;
2. has the ability to communicate research conclusions, and the knowledge and rationale underpinning them, to specialist audiences and non-specialist audiences clearly and unambiguously;
3. can collaborate with researchers from various scientific disciplines;
4. can make essential contributions to scientific discussions about plans, results and consequences of research.

Dublin descriptor 5: Learning skills

The graduate has developed learning skills that enable him/her to continue with self-education and development within the subject area. The graduate:

1. has acquired skills to develop a research plan, giving details of the problem statement, objectives, research questions, research approach, research methods, and planning;
2. is familiar with the general scientific journals, such as Nature and Science, and with journals in the specialisation, such as Research Policy, Health Policy, Science, Technology & Human Values, Social Science & Medicine, and International Journal on Technology Management;
3. has the learning skills to allow him/her to continue to study in a manner that may be largely self-directed or autonomous (life-long learning).

B. Final attainment levels of the major Science Communication

The MSc graduate possesses an academic attitude, skills and competences to operate at the interface of science and society aiming to contribute to a fruitful science-society dialogue. This means that Master's graduates have the following focus:

- Understanding the dynamic relationship between science and society;
- Translating information from the natural sciences to society and vice versa;
- Shaping the dialogue between science and society.

Knowledge

1. Knowledge of and insight into the relevant concepts and theories in the field of science communication, sociology, communication science, philosophy and science & technology studies in relation to the natural sciences;
2. Familiarity with scientific journals in the field of science communication and science & technology studies, as well as familiarity with a variety of popular-scientific media;
3. Insight into the nature and course of interpersonal and group communication processes relevant to the formal and informal dialogue between science and society;
4. Insight into relevant concepts and theories for effective communication and collaboration in relation to diverse science-society interactions;
5. Insight into the popularization of the natural sciences in various media;
6. Insight into the roles and responsibilities of museums in science communication.

Skills

1. Independently acquire, analyze and evaluate relevant information in a variety of scientific disciplines, by conducting literature study and empirical research;
2. Communicate and collaborate effectively with diverse professionals of scientific and nonscientific disciplines as well as lay citizens;
3. Design and facilitate interactive processes in relation to the science-society dialogue;
4. Translate information from various natural science disciplines into more generally accessible language and formats;
5. Produce popular-scientific media output concerning developments in the natural sciences, aimed at a variety of publics;
6. Contribute to the design of museum exhibitions from the perspective of scientific content management and science communication theory;
7. Make an intrinsic contribution to the societal discussion of developments in science and technology.

C. Final attainment levels of the major Teaching

Aan het eind van de opleiding moet de student beschikken over de kwaliteiten ofwel competenties op het gebied van geïntegreerde kennis, inzicht en vaardigheden behorend bij het beroep van leraar in het eerstegraads gebied van het voortgezet onderwijs. De competenties hebben betrekking op de taakgebieden waarvoor wordt opgeleid: onderwijzen, begeleiden, organiseren, ontwikkelen en onderzoeken, en professionaliseren. De competenties zijn de volgende:

Interpersoonlijk competent

Je bent interpersoonlijk competent als je in het contact met leerlingen (en ook met anderen) kunt leiden, begeleiden, bemiddelen, stimuleren en confronteren. Daarmee bereik je een klimaat met open communicatie en een sfeer van samenwerking en wederzijds vertrouwen.

Pedagogisch competent

Je bent pedagogisch competent als je benaderingen kunt ontwerpen, uitvoeren en evalueren om het welbevinden van leerlingen te bevorderen, om ontwikkelings- en gedragsproblemen te signaleren en om groepen en individuen te begeleiden. Daarmee bereik je een veilige leeromgeving waarin leerlingen zich kunnen ontwikkelen tot zelfstandige en verantwoordelijke personen.

Vakinhoudelijk en didactisch competent

Je bent vakinhoudelijk en vakdidactisch competent als je je eigen vak gedegen beheerst, op basis daarvan aantrekkelijke, effectieve en efficiënte leeractiviteiten kunt ontwerpen, uitvoeren, begeleiden en evalueren. Daarmee bereik je een krachtige leeromgeving voor leerlingen.

Organisatorisch competent

Je bent organisatorisch competent als je concrete en functionele procedures en afspraken kunt hanteren en als je de leeromgeving en het leren van leerlingen kunt organiseren en faciliteren en de planning kunt bewaken en bijstellen. Daarmee bereik je een overzichtelijke, ordelijke en taakgerichte leeromgeving.

Competent in het samenwerken met collega's

Je bent competent in het samenwerken met collega's als je informatie deelt, actief bijdraagt aan overleg en samenwerkingsverbanden en deelneemt aan collegiale consultatie. Daarmee bevordert je een collegiale en harmonieuze werksfeer.

Competent in het samenwerken met de omgeving

Je bent competent in het samenwerken met de omgeving als je doelmatige contacten onderhoudt met ouders (verzorgers), maar ook met andere mensen en instanties die te maken hebben met de zorg voor en de opleiding van leerlingen. Daarmee bereik je dat de ontwikkeling van leerlingen op een realistische en constructieve manier wordt ondersteund en dat eventuele problemen tijdig worden onderkend en opgelost.

Competent in reflectie en onderzoek ten dienste van ontwikkeling

Je bent competent in reflectie als je je handelen planmatig kunt bijstellen op grond van ervaringen in beroepssituaties. Daarmee bereik je professioneel leren en ontwikkeling van jezelf. Je bent competent in onderzoek als je de beroepspraktijk in het algemeen en je eigen beroepspraktijk in het bijzonder kunt analyseren met distantie en met onderzoeksmatige deskundigheid. Daarmee bereik je ontwikkeling van je school, van de didactiek van je vak en/of van jezelf.

D. Exit qualification of the minor Science for Sustainability

After conclusion of the Minor *Science for Sustainability*, students:

- Are aware of the interdependence of the global natural system, the social system and the human system as well as of the importance of the coherence that is required between them to produce effective, science-based sustainable solutions.
- Have developed a view on complex sustainability issues while maintaining a clear focus on one specific disciplinary domain, in which they develop further scientific knowledge and expertise.
- Have learned how sustainable solutions can be realized via system innovations and transition management.
- Have become acquainted with an interdisciplinary approach in developing sustainable, science-based solutions for urgent societal challenges, including the economic and policy aspects related to these issues.
- Have learnt to work collaboratively in an interdisciplinary student project.