

UNIVERSITY OF AMSTERDAM

FACULTY OF SCIENCE

**TEACHING AND EXAMINATION REGULATIONS
PART B**

Academic year 2014-2015

MASTER'S PROGRAMME EARTH SCIENCES

Chapter 1	General provisions
Article 1.1	Definitions
Article 1.2	General information Master's programme
Article 1.3	Enrolment
Chapter 2	Aim of the programme and exit qualifications
Article 2.1	Aim of the programme
Article 2.2	Exit qualifications
Chapter 3	Admission to the programme
Article 3.1	Entry requirements
Article 3.2	Pre-Master's programme
Article 3.3	Restrictions on the number of students admitted to the Master's programme
Article 3.4	Intake dates
Article 3.5	English language requirements
Article 3.6	Free curriculum
Chapter 4	Content and organisation of the programme
Article 4.1	Organisation of the programme
Article 4.2	Compulsory components
Article 4.3	Practical components
Article 4.4	Elective components
Article 4.5	Sequence of examinations
Article 4.6	Participation practical training and tutorials
Article 4.7	Exemption
Article 4.8	Validity period of examinations
Article 4.9	Degree
Article 4.10	Majors and Minors
Article 4.11	Participation in courses and rules for priority admission
Article 4.12	Determining results of examinations
Article 4.13	Minimum and maximum number of participants
Chapter 5	Transitional and final provisions
Article 5.1	Amendments
Article 5.2	Cancelled programme components
Article 5.3	Publication
Article 5.4	Effective date
Appendix A	List of courses provided by the Master's programme
Appendix B	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

- | | |
|----------------------------|---|
| a. Course | Education imparted in a series of lessons or meetings |
| b. Literature review | A component of 12 EC comprising literature research resulting in a written report |
| c. Personal Education Plan | An individual study plan for the student's Master's programme |
| d. Internship | Internship of 18-24 EC always 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).
4. In the Master track Environmental Management the student may choose one out of three majors (see Article 4.10).
 - Major Science Communication
 - Major Science in Society
 - Major Teaching
5. Students have to consult the track coordinator for the contents of their individual study programme by filling in their Personal Education Plan (PEP). A standard PEP contains courses offered by the Master's programme (see attachment 1), Master thesis and a literature review. Any change in the standard PEP has to be approved by the track coordinator. A non-standard PEP containing components that are not offered by the Master's programme has to be submitted to the track coordinator for advice and submitted to the Examinations Board for prior approval (see also Article 4.4). Students and track coordinators are advised to consider the requirements for the majors (60 EC) when filling in the PEP (see also Article 4.1). Further information on regulations and procedures about the PEP can be found at the website <http://www.student.uva.nl>.

Article 1.3 – Enrolment

The programme starts at the beginning of the first semester (September) and at the beginning of the second semester (February) of the study year. This enrolment date ensures a programme that can be expected to be completed within the official period.

Chapter 2. Aim of the programme and exit qualifications

Article 2.1 – Aim of the programme

The aim of the programme is:

- to educate 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;
- to actively stimulate interdisciplinary cooperation in the development of science, based on knowledge in the field of earth sciences;
- to educate students to develop skills, knowledge and insight into the discipline;
- to provide student-oriented education that is of a high, internationally recognised quality;

- to offer students the opportunity to gain part of their knowledge and insight in an international setting;
- to provide a heterogeneously composed student population in an inspiring academic learning environment and offer 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;
 - has specialist knowledge of one or more sub-areas of Geo-Ecological Dynamics or Environmental Management
 - has the ability to observe physical geographical systems at various scale levels and degrees of complexity; to analyse them and to answer questions;
 - has knowledge of the current developments in Earth Sciences and Physical Geography in particular;
 - is able to become acquainted with research methods in the domain of the specialisation within a short period of time and is able to apply these;
 - has practical and theoretical skills in methodologies used in studying environmental processes;
 - has the communication skills needed to operate effectively on an academic level, especially in oral presentation and written report in the English language;
 - is able to translate scientific and/or applied questions into a research proposal;
 - is able to independently set up and implement research experiments;
 - is able to realise a planned project within a given period of time;
 - is able to work independently as well as to cooperate with other people in a team;
 - is able to contribute from one's own discipline to multi or (inter) disciplinary questions;
 - is able 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;
 - is able to formulate questions on the frontline of scientific research;
 - 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.
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
 - the ability to use and apply spatial and or mechanistic models in geo-ecosystems.

Chapter 3. Admission to the programme

Article 3.1 – Entry requirements

1. A student, who has successfully completed the following degrees may enter the programme.
 - the Bachelor's degree in Earth Sciences awarded by a Dutch University;
 - the Bachelors' degree in Future Planet Studies with a major Earth Sciences awarded by the University of Amsterdam;
 - the Bachelor's degree in Beta-Gamma with a major Earth Sciences, awarded by the University of Amsterdam;
 - the Bachelor's degree in Beta-Gamma, with the track Future Planet Studies (FPS) and a major Earth Sciences, awarded by the University of Amsterdam.
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 student must have fully completed the Bachelor's programme allowing admission to this programme

Article 3.2 – Premaster's programme

Not applicable.

Article 3.3 – Restrictions on the number of students admitted to the Master's programme

Not applicable.

Article 3.4 – Intake dates

A request for admission to the programme in September must be submitted to the Faculty and the Master's programme 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. A request for admission to the programme in February must be submitted to the Faculty and Master's programme before 1 February in the case of Dutch students, before 1 October in the case of EU students and before 1 December in the case of non-EU students. Under exceptional circumstances, the Examinations Board may consider a request submitted after these closing dates.

Article 3.5 – English Language Requirements

1. The proficiency requirement in English as the language of instruction can be met by the successful completion of the following examinations or an equivalent:
 - IELTS: 6.5 at least 6 on each sub-score (listening/reading/writing/speaking)
 - TOELF paper based test: 580
 - TOEFL internet based test: 90
 - TOEFL computer based test: 235
 - Cambridge Advanced English: A, B or CPlease note that the TOEFL-code for the Faculty is 8628.
2. Students 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,

- 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, a student has the option of compiling a curriculum of his/her own choice which deviates from the curricula mentioned in article 4.1 of these Regulations.
2. The concrete details of such a curriculum require permission of the relevant Examinations Board.
3. The free curriculum programme must satisfy the requirements of a Master’s degree programme and lead to a final degree assessment. This programme must equal or surpass the scope, range and depth of a standard Master’s programme.
4. In order to be considered for a diploma of this programme, the following conditions must be met:
 - a. At least 60 EC of the programme consist of components from the regular study programme.
 - b. The level of the free curriculum programme complies with the aims and exit qualifications of the regular Master’s programme.

Chapter 4. Content and organisation of the programme

Article 4.1 – Organisation of the programme

1. The curriculum comprises the following:

Track Geo-Ecological Dynamics	Regular Curriculum
Compulsory Courses	12-18 EC
<i>Vulnerability Assessment of Geo-Ecosystems¹</i>	12 EC
<i>Assessment of Chemical and Natural Hazards²</i>	6 EC
<i>Research Workshop</i>	6 EC
Constrained List Courses	6-12 EC
<i>Applications in GIS and Remote Sensing</i>	6 EC
<i>GIS/RS Science in Ecosystem Dynamics</i>	6 EC
<i>Biogeochemical Cycles</i>	6 EC
<i>Assessment of Chemical and Natural Hazards²</i>	6 EC
<i>Vulnerability Assessment of Geo-Ecosystems¹</i>	12 EC
Elective Courses (see attachment 1)	0-36 EC
Literature Review	12 EC
Research Proposal	6 EC
Master Thesis	42 EC
Internship (optional)	18-24 EC
Writing a Scientific Article (optional)	12 EC
Total Study Load	120 EC

Track Environmental Management	Regular Curriculum	Major
Compulsory Courses	27-33 EC	15 EC
<i>Vulnerability Assessment of Geo-Ecosystems¹</i>	12 EC	12 EC
<i>Assessment of Chemical and Natural Hazards²</i>	6 EC	
<i>Research Workshop Environmental Management</i>	3 EC	3 EC
<i>Building Bridges between Science and Society</i>	6 EC	
<i>System Innovation and Transition Management I</i>	6 EC	
Constrained List Courses	6 EC	6 EC
<i>Applications in GIS and Remote Sensing</i>		6 EC

<i>Assessment of Chemical and Natural Hazard</i> ²		6 EC
<i>Biochemical Cycles</i>		6 EC
<i>Ecosystem Management</i> ³	6 EC	
<i>GIS/RS Science in Ecosystem Dynamics</i>		6 EC
<i>Integrated Coastal Dune Management</i> ³	6 EC	
<i>Vulnerability Assessment of Geo-Ecosystems</i> ¹		12 EC
Elective Courses (see attachment 1) ⁵	18-24 EC	3 EC
Research Proposal	6 EC	6 EC
Master Thesis including colloquium	30 EC	30 EC
Internship	21 EC	-
Major ⁴	-	60 EC
Minor	-	-
Total Study Load	120 EC	120 EC

¹Mandatory when starting in September and constrained when starting in February. ²Mandatory when starting in Feb and constrained when starting in September. ³One of these two courses is obligatory depending in which academic year the courses are offered; ⁴Starting 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. ⁵Specialisation Science for Sustainability: Energy and Climate Change, Science, Policy and Economics, Current Sustainable Energy Technologies, System Innovation Management.

Article 4.2 – Compulsory components

In the UvA Course Catalogue the content, format and examination requirements of each compulsory component of the study programme are described, indicating the required preconditions, in order to be able to follow the course successfully.

A so-called constrained list of courses is part of the study programme. The student has to choose from this constrained list of courses. In the UvA Course Catalogue the content, format and examination requirements of each constrained list course of the study programme are described.

Article 4.3 – Practical components

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. 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. For the Master Thesis and for the Internship a contract form has to be handed in, signed by supervisors and the student.
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 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.
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.

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. A list of courses provided by the Master's programme can be found in Attachment 1.
2. Courses that have been successfully completed elsewhere or that are not included in Attachment 1 during the programme may supplement the student's examination programme and are subject to prior permission from the Examinations Board.
 - a. The courses have to be followed at an accredited university or institute
 - b. The courses have to be relevant to the master chosen
3. In terms of content, elective components must not show too much similarity to the components of the student's standard curriculum. The acceptable degree of similarity will be decided by the Examinations Board.
4. An elective component 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

1. The student may only participate in interim or other examinations or practical exercises of the course components mentioned below if he/she has passed the interim or other examination components: The student has to successfully complete 18 EC of compulsory courses prior to approval and starting of the research project.
2. In cases in which the result of a component has not been determined within the time periods mentioned in Article 4.4 of part A of these Regulations, this component may not be required as prior knowledge for the subsequent component.

Article 4.6 – Participation practical training and tutorials Not applicable

Article 4.7 – Exemption

1. 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.
2. This exemption does not apply to the Master's thesis.
3. Exemptions from examinations (or parts thereof), if granted, will be valid for the same period these examinations.
4. A maximum of 30 EC in the programme in case of one-year programmes and 60 EC in the programme in the case of two-year programmes may be accumulated through granted exemptions.

Article 4.8 – Validity period of examinations

1. If programmes are taken on a full-time basis, the validity period of passed examinations is three years in case of a two-year programme.

2. In individual cases, the Examinations Board is authorised to extend the validity period of successfully completed examinations for a period that it determines or to decide that an additional or replacement examination must take place.
3. The validity period of passed interim examinations is until the end of the academic year (31 Aug).

Article 4.9 – Degree

A student who passes the final examination of a programme is awarded a Master of Science degree. This can also be a joint degree. The degree awarded is stated on the diploma.

Article 4.10 – Majors/Minor

1. The student can choose between one of the three majors, provided that they are offered within the specific programme. The majors and minor are:
 - a. Major Science in Society;
 - b. Major Science Communication;
 - c. Major Teaching;
2. Regarding the Major Science in Society:
The Major in Science in Society consists of 60 EC. It has to be combined with a research programme, comprising at least 60 EC (courses, Master Thesis and literature review), and with the general compulsory components in order to meet the general requirements of the programme. The exit qualifications of this major can be found as an appendix to Part B of these Regulations. Further information on this major can be found on the website of VU University Amsterdam.
3. Regarding the Major Science Communication:
The Major in Science Communication consists of 60 EC. It has to be combined with a research programme, comprising at least 60 EC (courses, Master Thesis and literature review), and with the general compulsory components in order to meet the general requirements of the programme. The exit qualifications of this major can be found as an appendix to Part B of these Regulations. Further information on this major can be found on the website of the VU University Amsterdam.
4. Regarding the Major Teaching:
The Major Teaching consists of 60 EC. It has to be combined with a research programme, comprising at least 60 EC (courses, Master Thesis 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. The exit qualifications of this major can be found as an appendix to Part B of these Regulations. Further information on this major can be found on the website of the ‘Interfacultaire Lerarenopleidingen (ILO)’ of the University of Amsterdam.
5. Students have to go through a separate intake procedure for admission to the Major in Science in Society, Major in Science Communication and Major Teaching.
6. Students first have to finish the obligatory research part of the programme (60 EC) before starting one of the majors.
7. It is not permitted to take the obligatory research part of the programme and the major or minor simultaneously.

Article 4.11 – Participation in courses and rules for priority admission

1. Every student must enrol for every course component. To participate in courses, the student must enrol within the period indicated in the UvA Course Catalogue and according to

procedures mentioned there. The student may be refused the opportunity to participate if he/she does not enrol, or fails to enrol in time.

2. Admission to courses with limited capacity takes place based on previously established and published admission criteria in the UvA Course Catalogue and rules for priority admission, on the understanding that students enrolled in the programme are given priority over others when enrolling for courses in the compulsory part of their programme.
3. Persons who are not enrolled at the University, have no right to participate in teaching and examinations.

Article 4.12 – 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. In addition, in case of the Master thesis each component has to be graded with 6.0 or higher to pass the examination.

Article 4.13 – Minimum and maximum number of participants

1. In case there is a maximum capacity for courses, this is indicated in the UvA Course Catalogue.
2. When less than eight participants have registered for a course, the programme director may cancel the course. This has to be announced to the participant at least two weeks prior to the start of this course. When courses are cancelled, registration of the student for another course will be enabled.

Chapter 5. Transitional and final provisions

Article 5.1 – Amendments

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

Not applicable.

Article 5.3 - Publication

1. The dean will ensure a fitting publication of these Regulations and any amendments to them.
2. These regulations can be accessed at the website of the Faculty and the UvA Course Catalogue.

Article 4.2 – Effective date

Part B of these Regulations shall come into force as of September 1st, 2014

Adopted by the dean on 30 September 2014

Appendix 1
List of courses provided by the study programme.

Course	Code	Study load (EC)	Period	Teaching Method	Type of Test
Applications in GIS and Remote Sensing	5264AIGR6Y	6	5	PT & T	W
Assessment of Chemical and Natural Hazards	5264ACNH6Y	6	4	L, PT & T	W & O
Biogeochemical Cycles	5264BICY6Y	6	5	L, PT & T	W & O
Building Bridges between Science and Society	5264BBBS6Y	6	2	L & T	W & O
Climate Change	5264CLCH6Y	6	6	L & T	W & O
Ecosystem Management	5264ECMA6Y	6	3	L & T	W & O
Ecotoxicology and Environmental Quality	5264ECCS6Y	6	2		W & O
Environmental Chemistry	5254ENCH6Y	6	1	L & PT	W
Environmental Measuring Techniques	5264ENMT6Y	6	2	L & PT	
Field Course Geocological Systems	5264FCG12Y	12	6	L & PT	W & O
Fundamentals of Analytical Sciences	5254FUAS6Y	6	4	L & T	W
Geo-Ecological Data Analysis	5264GEDA6Y	6	3	L & T	W
GIS/RS Science in Ecosystem Dynamics	5264GRSE6Y	6	5	T & PT	W
Integrated Coastal Dune Management	5264ICDM6Y	6	6	L & T	W & O
Modelling Geo-Ecological Systems	5264MOGS6Y	6	4	L & T	W & O
Research Proposal	5264REPR6Y	6	1-6	PT	W
Research Strategies	5264REST6Y	6	4	L & T	W & O
Research Workshop	5264REWO6Y	6	1-6	L & T	O
Research Workshop Environmental Management	5264REWE3Y	3	1-6	L & T	O
Science in Perspective	5524SCPE6Y	6	4 & 5	L & PT	W
Separation Sciences	52548SES6Y	6	1	L & T	W
Soil and Landscape Degradation	5264SOLD6Y	6	3	L & T	W & O
System Innovation and Transition Management I	52641SIT6Y	6	4	L & T	W & O
System Innovation and Transition Management II	52642SIT6Y	6	5		W & O
Vulnerability Assessment of Geo-Ecosystems	5264VAG12Y	12	1	L, PT & T	W & O
Writing a Scientific Article	5264WAS12Y	12	1-6	PT	W

Lectures = L; Practical Training = PT; Tutorials = T; Written Examination = W and Oral Examination = O

Appendix B **Final attainment levels of the major Science in Society, the major Science Communication and Major Teaching.**

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 behavioural 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 judgements

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 bevorder 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.