

Programme-specific part of the Education and Examination Regulations 2019-2020

Master's degree programme in Environmental Sciences

Graduate School of Geosciences

The master's degree programme Environmental Sciences offers the programmes Sustainable Development and Water Science and Management.

art. 2.1 – requirements for admission to the degree programme

The following conditions for admission apply to the programmes that are subsidiary to the degree programme:

Sustainable Development

Admission to the programme Sustainable Development is given to a student holding a Dutch or foreign diploma confirming that he has gained the knowledge, insights and skills at university Bachelor's level. Furthermore, the student needs to prove that he has gained the following specific knowledge, insights and skills:

- a) knowledge in the field of Environmental Sciences, Natural Sciences or Social Sciences at the advanced level of a major in Earth Sciences, Physics, Chemistry, Biology, Economics, Public Administration and Organisation Science or Social Sciences at Utrecht University, or equivalent to that level.
- b) knowledge in the field of sustainability issues.
- c) basic knowledge of physical processes in the environment.
- d) basic knowledge of mathematics at bachelor's level.
- e) insight in Environmental Sciences, Natural Sciences or Social Sciences at the advanced level of a major in Earth Sciences, Physics, Chemistry, Biology, Economics, Public Administration and Organisation Science or Social Sciences at Utrecht University, or equivalent to that level.
- f) academic and research skills of a major in Earth Sciences, Physics, Chemistry, Biology, Economics, Public Administration and Organisation Science or Social Sciences at Utrecht University, or equivalent to that level.

Water Science and Management

Admission to the programme Water Science and Management is given to a student holding a Dutch or foreign diploma confirming that he has gained the knowledge, insights and skills at university Bachelor's level. Furthermore, the student needs to prove that he has gained the following specific knowledge, insights and skills:

- a) knowledge in the field of Earth Sciences, Environmental Sciences or Natural Sciences, at advanced level of the major Earth Sciences or Environmental Sciences at Utrecht University, or equivalent to that level.
 - b) insight in Earth Sciences, Environmental Sciences or Natural Sciences at advanced level of the major Earth Sciences or Environmental Sciences at Utrecht University, or equivalent to that level.
 - c) academic and research skills of the major Earth Sciences or Environmental Sciences at Utrecht University, or equivalent to that level.
2. Students will be selected on the basis of objective standards concerning:
- a) previous academic performance in a relevant subject area or areas;
 - b) relevant skills;
 - c) command of the language(s) used in the programme.

This information is used to consider whether the student concerned is able to complete the Master's Programme successfully within the nominal time period.

The admission requirements have been formulated clearly and transparently so that candidates are aware beforehand of the requirements they must meet in order to qualify for selection.

art. 3.1 – aim of the degree programme

The graduate of the Environmental Sciences degree programme

1. has advanced knowledge and understanding of the field of Environmental Sciences in its societal context;
2. has the ability to apply knowledge and research methods, and problem-solving abilities in broader contexts related to the field of Environmental Sciences;
3. is able to conduct research in the field of Environmental Sciences in a creative and independent way;
4. has professional and academic skills, in particular related to Environmental Sciences;
5. is able to apply knowledge and understanding in such a way that he or she demonstrates a professional approach to their work;
6. is able to communicate conclusions, as well as the knowledge, reasons and considerations underlying these conclusions, to an audience of specialists and non-specialists;

7. is able to study and work independently and in a self-reflective way while exploring new areas of interest in the field of the programme or related fields.

Sustainable Development

The programme aims

- to enable integration of knowledge which is needed to analyse, describe and explain sustainability issues (in terms of cause and effect) and place these issues in their societal context.
- to apply knowledge integration in the generation, assessment and implementation of measures that make a transition to that sustainable society possible.

The graduate is able to:

1. analyse the issue of sustainable development from both natural and social science perspectives;
2. apply knowledge, research methods and problem-solving abilities in broad contexts related to sustainable development;
3. design and carry out scientific research on the issue of sustainable development in a creative and independent way;
4. formulate fundamental critique on the scientific work of others and can engage in a
5. scientific debate on the issue of sustainable development, based on specialised and broader academic knowledge as well as ethical considerations;
6. apply knowledge and understanding in such a way that he or she demonstrates a professional approach to their work;
7. communicate conclusions, as well as the knowledge, reasons and considerations underlying these conclusions, to an audience of specialists and non-specialists.

Water Science and Management

The aim of this Master's programme is to combine knowledge of the physical water system and elements of classical (technical) water management with knowledge of ecological processes, innovation management and governance.

The graduate is able to:

1. analyse technical and societal issues, and the relations between them, relevant to contemporary and future water management aimed at sustainable development;
2. understand, and perform basic calculations on, natural and technical processes related to water quantity and water quality issues;
3. design, carry out and report on scientific research on the issue of water management in a creative and independent way;
4. engage in a scientific, social and administrative debate on the issue of water management;
5. communicate on the issue of water management verbally and in writing to a wide audience of water specialists and non-specialists alike.

art. 3.6 – composition of the programmes

1. The required courses of the programmes including the course load per course have been specified in appendices 1 and 2.
2. The student may choose optional courses with approval of the Board of Examiners. The optional courses are listed in appendices 1 and 2.
3. In the prospectus the contents and type of courses of the different programmes are described in detail, stating the previous education required to pass the relevant course.

art. 4.2 – entry requirements of courses

The Executive Board will decide the order in which the required components of a Master's degree programme must be completed. This will be announced in the prospectus.

art. 4.7 – evaluation of quality of the education

1. The Director of Education is responsible for monitoring the quality of education. To this end, the Director ensures that courses are evaluated as well as the curriculum. The Director takes the advice and suggestions given by the Education Committee on improving and ensuring the quality of the programme into consideration.
2. Students are informed of the outcomes of the course and curriculum evaluations.

Appendices

Appendix 1: Examprogramme Sustainable Development (cohort 2019)

1. Compulsory components (60 EC)

- Perspectives on Sustainable Development 7.5 EC
- Systems thinking, Scenarios & Indicators for SD 7.5 EC
- Research Design 7.5 EC
- Transdisciplinary Case Study 7.5 EC
- Master's thesis 30 EC

2. Obligatory optional components (22.5-30 EC)

Environmental Change & Ecosystems (30 EC)

- Environmental Change Theories 7.5 EC
- Environmental Systems Analysis 7.5 EC
- Research project ECE 15 EC

Energy & Materials (22.5 EC)

- Tools for Energy & Materials Analysis 7.5 EC
- Energy Supply Technologies 7.5 EC
- Policies for Energy and Materials Transitions 7.5 EC

Earth System Governance (30 EC)

- Foundations of ESG Research 7.5 EC
- Governance Theories 7.5 EC
- Research Strategies ESG 7.5 EC

Choice 1 out of 2:

- Analysing Governance Practices 7.5 EC
- International Governance for SD 7.5 EC

International Development (30 EC)

- Development Themes 7.5 EC
- Advanced Methods & Techniques Development Studies 7.5 EC
- Internship ID 15 EC

3. Other optional components (30-37.5 EC)

Students should select additional optional courses for 30 EC or 37.5 EC.

- Environmental Change & Ecosystems 30 EC
- Energy & Materials 37.5 EC
- Earth System Governance 30 EC
- International Development 30 EC

4. Conversion of former courses

<i>Old course</i>	<i>New course 2019-2020</i>
Sustainable Energy Supply (GEO4-2312)	Energy Supply Technologies (GEO4-2312)
Sustainability Modelling & Indicators (GEO4-2331)	Systems thinking, Scenarios & Indicators for SD (GEO4-2331)

Appendix 2: Examprogramme Water Science and Management (cohort 2019)

1. Compulsory components (67.5 EC)

- Sustainable Water Resources Management	7.5 EC
- Principles of Groundwater Flow	7.5 EC
- Quantitative Water Management	7.5 EC
- Research Design	7.5 EC
- Water Quality Management	7.5 EC
- Water, Governance and Law	7.5 EC
- Drinking Water and Sanitation	7.5 EC
- Transdisciplinary Case Study	7.5 EC
- Land Surface Hydrology	7.5 EC

2. Obligatory optional components (52.5 EC)

Choice 1 out of 2:

- Systems thinking, Scenarios & Indicators for SD	7.5 EC
- Unsaturated Zone Hydrology	7.5 EC

Choice 1 out of 2:

- Master's thesis (30 EC) + other optional courses (15 EC)	45 EC
- Extended Master's thesis	45 EC

3. Conversion of former courses

<i>Old course</i>	<i>New course 2019-2020</i>
Sustainability Modelling & Indicators (GEO4-2331)	Systems thinking, Scenarios & Indicators for SD (GEO4-2331)

Appendix 3 : Conversion table Joint Programme

GRAZ

Definition (EN)	Equivalent Graz	Equivalent Utrecht
outstanding performance with only minor errors	(1) Sehr gut	9.3
above the average standard but with some errors	(2) Gut	8.0
generally sound work with a number of notable errors	(3) Befriedigend	7.0
fair but with significant shortcomings	(4) Genügend	6.2
performance meets the minimum criteria	(4) Genügend	
considerable further work is required, failed	(5) Nicht genügend	5.0

LEIPZIG

Definition (EN)	Equivalent Leipzig	Equivalent Utrecht
outstanding performance with only minor errors	1.0	10.0
	1.1	9.8
	1.2	9.5
	1.3	9.3
	1.4	9.0
	1.5	8.7
above the average standard but with some errors	1.6	8.4
	1.7	8.3
	1.8	8.2
	1.9	8.1
	2.0	8.0
	2.1	7.9
	2.2	7.8
	2.3	7.7
	2.4	7.6
	2.5	7.5
generally sound work with a number of notable errors	2.6	7.4
	2.7	7.3
	2.8	7.2
	2.9	7.1
	3.0	7.0
	3.1	6.9
	3.2	6.8
	3.3	6.7
	3.4	6.6
	3.5	6.5
fair but with significant shortcomings	3.6	6.4
	3.7	6.2
	3.8	6.0
	3.9	5.8
performance meets the minimum criteria	4.0	5.5
considerable further work is required, failed	>4.0	5.0

VENICE

Definition (EN)	Equivalent Venice	Equivalent Utrecht
outstanding performance with only minor errors	30	10.0
	29	9.3
	28	8.5
above the average standard but with some errors	27	8.1
	26	7.7

generally sound work with a number of notable errors	25	7.4
	24	7.1
fair but with significant shortcomings	23	6.9
	22	6.7
	21	6.3
performance meets the minimum criteria	20	6.0
	19	5.8
	18	5.5
considerable further work is required, failed	<18	5.0

BASEL

Definition (EN)	Equivalent Basel	Equivalent Utrecht
outstanding performance with only minor errors	6.0	10.0
	5.9	9.3
	5.8	8.5
above the average standard but with some errors	5.7	8.3
	5.6	8.0
	5.5	7.8
	5.4	7.5
generally sound work with a number of notable errors	5.3	7.3
	5.2	7.1
	5.1	6.9
	5.0	6.7
	4.9	6.5
fair but with significant shortcomings	4.8	6.4
	4.7	6.3
	4.6	6.2
	4.5	6.1
	4.4	6.1
performance meets the minimum criteria	4.3	6.0
	4.2	5.8
	4.1	5.6
	4.0	5.5
considerable further work is required, failed	<4.0	5.0

HIROSHIMA

Definition (EN)	Equivalent Hiroshima	Equivalent Utrecht
outstanding performance with only minor errors	S	9.3
above the average standard but with some errors	A	8.0
generally sound work with a number of notable errors	B	7.0
fair but with significant shortcomings	C	6.3
performance meets the minimum criteria	No equivalent	5.5
considerable further work is required, failed	D	5.0

STELLENBOSCH

Definition (EN)	Equivalent Stellenbosch	Equivalent Utrecht
outstanding performance with only minor errors	Excellent (>=80%)	9.3
above the average standard but with some errors	Very good (>=75%)	8.2
	Good (>=70%)	7.7
generally sound work with a number of notable errors	Quite good (>=65%)	7.2
		6.7

	Competent ($\geq 60\%$)	
fair but with significant shortcomings	Weak ($\geq 55\%$)	6.3
performance meets the minimum criteria	Weak ($\geq 50\%$)	5.5
considerable further work is required, failed	Fail ($< 50\%$)	5.0
	Outright fail ($< 40\%$)	4.0

TERI

Definition (EN)	Equivalent TERI	Equivalent Utrecht
outstanding performance with only minor errors	A+	9.3
	A	8.8
above the average standard but with some errors	B+	8.2
	B	7.7
generally sound work with a number of notable errors	C+	7.0
fair but with significant shortcomings	C	6.3
performance meets the minimum criteria	D	5.5
considerable further work is required, failed	F	5.0