CURRICULUM 2026-2030

Master's Degree Programme in Environmental Change and Global Sustainability

Ympäristömuutoksen ja globaalin kestävyyden maisteriohjelma
Magisterprogrammet i miljöförändringar och global hållbarhet

Accepted in ECGS-board 8.9.2025, decided in the Faculty Council (Biological and Environmental Sciences) 28.10.2025.

BASIC INFORMATION

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	120 cr
Languages	English, Finnish, Swedish
Grading scale	Pass-Fail
Content approval required	no
University	University of Helsinki
Responsible organisation	Faculty of Biological and Environmental Sciences 100%
Coordinating organisations	Faculty of Biological and Environmental Sciences 40% Faculty of Agriculture and Forestry 20% Faculty of Social Sciences 40%
Responsible persons	David Thomas, Degree Programme Director
Degree programme type	Master's Degree
Degree titles	Master of Science Master of Social Sciences Master of Science (Agriculture and Forestry)
Study field	Fields of education (Ministry of Education and Culture), Natural sciences Fields of education (Ministry of Education and Culture), Social sciences Fields of education (Ministry of Education and Culture), Agriculture and forestry
Education classification	762203 Master of Science (Agriculture and Forestry), Environmental Science 733110 Master of Social Sciences, Regional and Environmental Studies 742703 Master of Science, Environmental Science

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DEGREE PROGRAMME DETAILS

Learning Outcomes

Sustainability is at the center of the ECGS Programme. Global socio-ecological problems, such as climate change and biodiversity loss, call for multidisciplinary solutions that transcend the usual boundaries of science and policy decision-making.

The key Learning Outcomes are:

- critical thinking and reasoning between conflicting views
- dialogue, communication and argumentation skills
- solution seeking and problem-solving abilities
- co-operational capacities, group working skills
- abilities to work in multidisciplinary contexts

Candidates can apply for one of three study tracks in the ECGS Master's programme: the Environmental Change (EC) study track, the Global Sustainability (GS) study track or the Biology subject teacher's study track.

Biology teacher's study line provides Biology teacher's competence (teacher's study rights granted during previous bachelor's degree).

ECGS students graduate with a Master's degree in Science (M.Sc.), a Master's degree in Science (Agriculture and Forestry) or a Master's degree in Social Sciences (M.Soc.Sc.). The degree title is determined by the student's choice of disciplinary study module when applying to the program. More information on the degree titles in ECGS can be found under Additional Information.

Content description

The Environmental Change and Global Sustainability (ECGS) Master's degree programme will train you in wide-ranging interdisciplinary thinking skills and provide you with the ability to:

- Analyse environmental and sustainability issues in your respective fields of expertise, and
- Tackle problems of socio-ecological sustainability in cooperation with various social actors.

The ECGS Master's degree programme is taught in English and will train you to tackle environmental challenges which transcend national borders. All teachers have international research activities, and several are recruited from outside of Finland. The Faculties encourage international interaction and the programme promotes a vibrant multicultural atmosphere. You can also include student exchange as part of your Master's level studies.

Further information about the studies on the ECGS Master's programme website.

Structure of studies

Applicants can apply for one of the three study tracks in the ECGS Master's programme:

- the Environmental Change (EC) study track
- the Global Sustainability (GS) study track.
- the Biology subject teacher's study track with the study rights to pedagogic studies

Transfer from one study track to another in ECGS is possible through an utterly well-argued application to the board.

The ECGS Master's degree (120 credits) will consist of the following studies in the EC and GS study tracks:

- Core module studies, 30 credits
- Master's thesis, 30 credits
- Study-track module, 45 credits
- Elective studies, 15 credits, from either ECGS modules or other relevant Master's programmes.

Studies in Biology subject teacher track in the ECGS Master's degree (120 cr) will consist of the following:

- 60 credits of EC-study track specific studies and 60 credits of pedagogic studies.

A diverse range of assessment procedures are used throughout the programme. These range from formal examinations to continuous assessment exercises. In some instances, these include working within groups and submitting group work.

Many of the courses (e.g. field courses, seminars) demand in-person attendance for activities and so full distance learning is not possible. It may be possible to complete some "lecture only" courses independently.

Part-time study may be possible through discussions with the Programme Director and University Administration. Unless otherwise stated it is expected that all students attend all course activities as listed on the relevant course Moodle pages.

Specialization

Students deepen their expertise in their chosen study track by choosing a 45 credit subject study module from interdisciplinary, phenomenon-based modules.

Environmental Change modules are offered in the following themes:

- ECGS-110 Aquatic Sciences
- ECGS-510 Changing Arctic and Northern Environments
- ECGS-620 Sustainability of Agriculture and Food Systems
- ECGS-920 Urban socio-ecological interactions & governance

Global Sustainability modules combine themes such as environmental and natural resource economics, environmental policy, public and social policy, consumer research, forest policy and economics. GS subject study modules are:

- ECGS-210 Policy, politics and everyday practices in local environments
- ECGS-810 International Environmental Governance
- ECGS-410 Just and sustainable forest and land governance
- ECGS-310 Diversity and Justice for Sustainability

In ECGS, the following courses include career orientation, expert identity studies and career planning:

- VIIKB-005 Demanding participation in administrative bodies and student organizations, 2-5 ects
- VIIKB-002 Tutoring BY, 5 ects
- ECGS-153 Internship period, 5-10 ects
- ECGS-154 Research group training, 5 ects
- ECGS-028 Portfolio for the future, 1-5 ects

Feedback and support

Course feedback from students is collected via the University Norppa system and reviewed by the Steering Board of the Programme. HowULearn surveys are conducted once a year and feedback is reviewed by the programme steering Board and Faculty Teaching committees.

There are student Representatives on the Programme Steering Board and they collect and convey this valuable feedback. Student representatives also lead the compilation of feedback on specific issues.

Each ECGS student is allocated a PSP (personal study plan) teacher. They are meant to work together on the study plan and continue to work together once studies have started.

A thesis project is conducted under the supervision of one or more supervisors. The plan and results of the thesis work are both presented to a group of peers and guiding teachers as part of the master's thesis seminar series. There is also a formal agreement document agreed between the master's thesis student and their supervisor(s).

As part of courses and modules there are course guiding teachers and module organizers who are available to supervise the progress of students.

Additional information

Cross-institutional studies

ECGS takes part in networks for cross-institutional studies. Find more information at the Studies Service pages.

Student admission

Information of Student admission to ECGS is available in Studyinfo.

Bachelor's students at the University of Helsinki can move on via registration procedure to ECGS master's programme to Environmental change (EC) study line and Global sustainability (GS) study line from Bachelor's programmes in:

- Biology, (EC) Faculty of Biological end Environmental Sciences
- Environmental Sciences, (EC, GS), Faculty of Biological end Environmental Sciences
- Agricultural Sciences, (EC, GS), Faculty of Agriculture and Forestry
- Economics of the Environment and Agriculture (GS), Faculty of Agriculture and Forestry
- Food economy and consumption (GS), Faculty of Agriculture and Forestry
- Forest Sciences, (EC, GS) Faculty of Agriculture and Forestry
- Geography, (EC, GS), Faculty of Sciences
- Geosciences, (EC), Faculty of Sciences
- Physics, (EC), Faculty of Sciences
- Economics, (GS), Faculty of Social Sciences
- Politics, media and communication, (GS), Faculty of Social Sciences
- Social Research, (GS,) Faculty of Social Sciences
- Society and Change, (GS), Faculty of Social Sciences
- Education (General and adult education study line), (GS), Faculty of Educational Sciences
- Science (BSC), (EC), Faculty of Science
- Social Sciences at Svenska Social och Kommunalhögskolan, (GS)

Degree titles in ECGS

ECGS students graduate with a Master's degree in Science (M.Sc.), a Master's degree in Science (Agriculture and Forestry) or a Master's degree in Social Sciences (M.Soc.Sc.). When applying to the program, candidates submit a study plan, a potential thesis topic area and indicate their target degree title. The degree title is determined by the student's choice of disciplinary study module in their study plan.

If the chosen module has two possible degree titles, the suitability of the chosen degree title is evaluated in relation to the study plan's content and may also be assessed based on the potential thesis topic area.

The corresponding degree titles for each study module are:

Environmental Change:

- Urban socio-ecological interactions & governance, Master's degree in Science (M.Sc.)
- Changing Arctic and Northern Environments, Master's degree in Science (M.Sc.)
- Aquatic Sciences, Master's degree in Science (M.Sc.)
- Sustainability of Agriculture and Food Systems, Master's degree in Science (Agriculture and Forestry)

Global Sustainability:

- Policy, politics and everyday practices in local environments, Master's degree in Social Sciences (M.Soc.Sc.)
- International environmental governance, Master's degree in Science (M.Sc.) or a Master's degree in Science (Agriculture and Forestry)
- Just and sustainable forest and land governance, Master's degree in Science (Agriculture and Forestry)
- Diversity and Justice for Sustainability, Master's degree in Social Sciences (M.Soc.Sc.) or a Master's degree in Science (Agriculture and Forestry)

Career opportunities

Information on Graduation practices and criteria are found in The Instructions for Students website: Graduation.

The interdisciplinary ECGS Master's programme provides a unique education, which is widely applicable for future career prospects. Upon graduating from ECGS you will have sufficient expertise in environmental sciences, sustainability sciences, agricultural and forest sciences and environmental policy to act as a specialist in the public, private and third sectors. The Master's programme will also prepare you for doctoral level studies and thereafter environment and sustainability related research.

ECGS has a multidisciplinary learning community from a wide range of sciences, accommodating students in an international network with excellent career prospects. Potential careers include:

- Sustainability and responsibility coordinator at an educational institute
- Disaster risk management in an NGO
- Environmental expert at a business lobbying organization
- Climate and energy specialist for a municipality or a region
- Environmental freelance consultancy
- Political advisors at regional, national and European Parliaments.
- Academic research and teaching and other research tasks in universities, research institutes and centers
- Teaching in secondary schools and gymnasia, and other institutes of higher education

In addition, a MSc degree makes the student eligible to apply for doctoral studies in different areas of environmental sciences at the University of Helsinki or other universities in Finland and abroad. Examples of suitable doctoral programmes at the University of Helsinki include:

- The Doctoral Programme in Interdisciplinary Environmental Sciences (DENVI)
- The Doctoral Programme in Sustainable Use of Renewable Natural Resources (AGFOREE)
- The Doctoral Programme in Social Sciences
- The Doctoral Programme in Political, Societal and Regional Change (PSRC)
- The Doctoral Programme in Wildlife Biology Research (LUOVA)
- The Doctoral Programme in Atmospheric Sciences (ATM-DP)

DEGREE PROGRAMME STRUCTURE 2026-2030

ECGS programme structure, EC and GS study tracks, 2026-2030

ECGS-450 Core studies EC and GS study track, 30 cr

- ECGS-4000 Sustainability Science, 15 cr (compulsory ECGS-001, ECGS-002, optional ECGS-003, ATM380 or ATM373
- ECGS-004 Master's thesis seminar, 5 cr
- Methodological studies, 10 cr (compulsory ECGS-050, 5 cr and optional 5 cr according to students needs)

Discipline specific studies in EC or GS study tracks, 75 cr

ECGS-005 Master's thesis in EC, 30 cr
VIIKB-001 Master's maturity test, 0 cr

ECGS-005 Master's thesis in GS, 30 cr
VIIKB-001 Master's maturity test, 0 cr

ECGS-1000 Environmental Change Study Track, 45 cr

Disciplinary modules, 45 cr

- ECGS-110 Aquatic Sciences
- ECGS-510 Changing Arctic and Northern Environments
- ECGS-620 Sustainability of Agriculture and Food Systems
- ECGS-920 Urban socio-ecological interactions & governance

ECGS-2000 Global Sustainability, Study Track, 45 cr

Disciplinary modules, 45 cr

- ECGS-210 Policy, politics and everyday practices in local environments
- ECGS-810 International Environmental Governance
- ECGS-410 Just and sustainable forest and land governance
- ECGS-310 Diversity and Justice for Sustainability

Elective studies, 15 cr

- Elective studies according to students' interests, to deepen specialization or broaden experience
- ECGS-153 Internship, ECGS-154 Research group training, ECGS-026 Portfolio for future, VIIKB-002, VIIKB-005 Participation in administrative bodies

ECGS programme structure, Biology subject teacher study track, 2026-2030

EC-3000 Biology subject teacher

Compulsory advanced studies, 40 cr

- ECGS-001 Introduction to Sustainability Science, 5 cr, ECGS-004 Master's thesis seminar, 5 cr
- ECGS-008 Master's thesis for Subject teacher, 30 cr, VIIKB-001 Master's maturity test, 0 cr

Optional advanced studies, 15 cr

- ECGS-111 Aquatic Sciences, Subject Teacher module, 15 cr
- ECGS-511 Changing Arctic and northern environments, Subject Teacher module, 15 cr
- ECGS-921 Urban socio-ecological interactions & governance, Subject Teacher module, 15 cr

Methodology, 5 cr

- 5 cr of methodological studies according to students needs
- For example ECGS-050, ECGS-024, ECGS-154, ECGS-091 or other

PED100 Pedagogical studies for teachers, basic and intermediate studies in education 60 cr

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ECGS-450 ECGS Core Studies, 30 cr

ECGS-4000 Sustainability Science, 15 ects

Compulsory

- ECGS-001 Introduction to Sustainability Science, 5 ects
- ECGS-002 Philosophical and Methodological Foundations of Sustainability Science, 5 ects

Applied sustainability science (choose at least 5 ects)

- ECGS-003 Practical application of sustainability science: learning project, 5 cr
- ATM380 Solutions.now, 5 cr
- ATM373 Leadership for Sustainable Change, 5 cr

Methodological studies, 15 ects

Compulsory methodological studies, 10 cr

- ECGS-004 Master's thesis seminar, 5 cr
- ECGS-050 Effective Science Communication, 5cr

Optional methodological studies according to agreement (choose 5 cr)

- ECGS-024 Technology in ecological research and environmental monitoring, 5 cr
- ECGS-154 Research group training, Work placement, 5 cr
- FILK-222 Yhteiskuntatieteiden filosofia, 5 cr
- FILM-353 Taloustieteen filosofia, erikoistuminen, 5 op
- FILM-3005 Yhteiskuntatieteiden filosofia, syventävä, 5 cr
- FOR-108 Qualitative empirical research methods, approaches and research ethics, 5 cr
- ECH303 Statistical tools for climate and atmospheric science
- AGERE-002 Cost-Benefit Analysis, 5 cr
- ECGS-091 Knowledge co-production and transformative research, 5 cr
- AGERE-014 Experimental Methods in Food, Agricultural, Environmental, and Resource Economics, 5 cr
- GEOG-G302 Introduction to remote sensing of the environment, 5 cr
- GEOG-P302 Modelling in physical geography, 5 cr
- EEB-019 Quantitative methods in ecology and evolutionary biology, 5 cr
- EEB-003 Statistical methods in ecology, Contact teaching, 5 cr
- EEB-310 Macroecology and global change, 5 cr
- IND-511 Methodologies and research ethics in Indigenous Studies, 5 cr

Other methodological courses according to an agreement

ECGS-1000 Environmental Change, Advanced Studies, 75 cr

Compulsory advanced studies, 30 ects

- ECGS-005 Master's thesis, 30 ects
- VIIKB-001 Master's maturity test BY, 0 ects

Optional advanced studies, 45 cr (Choose one module)

ECGS-110 Aquatic Sciences, 45 cr

Compulsory studies (20 cr):

- ECGS-011 Advanced aquatic and sediment biogeochemistry, 5 cr
- ECGS-018 Food webs of aquatic ecosystems, 5 cr
- ECGS-103 Function and management of freshwater ecosystems, 5 cr
- ECGS-101 Advanced marine ecology, 5 cr

Alternative studies (20 cr):

- ECGS-102 Advanced freshwater ecosystems research, Lammi Biological Station (field course), 10 cr
- ECGS-023 Functional marine ecology, Tvärminne Zoological Station (field course), 10 cr
- ECGS-016 Fish research, 5 cr
- EEB-112 Current topics in marine biodiversity, 5 cr
- ECGS-051 Arctic climate change in aquatic ecosystems, 5 cr
- AGERE-E014 Economics and governance of marine resources, 5 cr

ECGS-620 Sustainability of Agriculture and Food Systems, 45 cr

Compulsory studies, 25 cr

- AGRI-222 Sustainable Food Systems, 5 cr
- AGRI-212 Ecological farming methods, 5 cr
- AGRI-214 Literature in Sustainable Food Systems, 5 cr
- FOR-275 Soils and Climate change, 5 cr

One of two, depending on your interests in specialising further:

- AGRI-223 Literature in Agroecology of Food Systems, 5 cr
- AGRI-412 Environmental Soil Science Readings II, 5 cr

Choose one study path, 20 cr:

Sustainability of Agriculture and Food Systems, Soil Science

Alternative studies, 20 cr

- AGRI-411 Soil Hydrology, 5 cr
- AGRI-413 Advanced Soil Science, 5 cr
- FOR-230 Forest Soil and Root Ecology, 5 cr, every second year
- AGRI-415 Advanced methods in soil research, 10 cr

Sustainability of Agriculture and Food Systems, Food Systems

Alternative studies, 20 cr

- AGRI-211 Wildlife in the Farming Environment, 5 cr
- AGRI-221 Agroecology: Working with the Complexity of Farming Systems, 5 cr
- AGRI-224 Life Cycle Assessment in the Context of Agric and Forestry, 5 cr
- EDUM504 Sustainable Culinary Culture, 5 cr, every second year OR
- FOOD-401 European Food Safety, 5 cr, every second year

ECGS-510 Changing Arctic and Northern environments, 45 cr

Compulsory studies, 30 cr:

- ECGS-051 Arctic climate change in aquatic ecosystems, 5 cr
- ECGS-052 Arctic climate change in terrestrial ecosystems, 5 cr
- ECGS-034 Seminar in northern ecosystems and environment, 5 cr
- ECGS-068A Past environmental change, lectures 5 cr
- ECGS-032 Field course on Arctic ecosystems, 10 cr

Optional studies, 15 cr:

- ECGS-068B Past environmental change, practical 5 cr
- ECGS-036 Arctic and human beings, 5 cr
- KUKA-AR212 Archaeology of Finland and Neighbouring Areas, 5 cr
- ATM-332 Terrestrial water, carbon, and nitrogen cycles, 5 cr
- FOR-228 Forest ecosystem biogeochemistry, 5 cr

ECGS-920 Urban socio-ecological interactions & governance, 45 cr

Compulsory studies, 30 cr

- ECGS-049 Nature-based Solutions, 5 cr
- ECGS-904 Urban Environmental Policy, 5 cr
- ECGS-907 Urban Biodiversity, 5 cr
- ECGS-909 Global topical issues in urban studies, 5 cr
- ECGS-901 Field Course in Urban Environmental Ecology, 10 cr

Alternative studies, 15 cr

- IND-512 Indigenous biocultural conservation and well-being, 5 cr
- FOR-275 Soils and climate change, 5 cr
- ECGS-089 Just Sustainability Transformations, 5 cr
- ECGS-205 Sustainable consumption governance, 5 cr
- ECGS-911 Urban Pollution, 5 cr
- ECGS-906 Urban Climate, 5 cr

ECGS-2000 Global Sustainability, Advanced Studies, 75 cr

Compulsory advanced studies, 30 cr

- ECGS-006 Master's thesis, 30 ects
- VIIKB-001 Master's maturity test BY 0 ects

Optional advanced studies, 45 cr (Choose one module)

ECGS-210 Policy, politics and everyday practices in local environments, 45 cr

Compulsory studies, 30 cr

- ECGS-089: Just sustainability transformations, 5 cr
- ECGS-904 Urban environmental policy, 5 cr

- ECGS-201 Perspectives on sustainable consumption systems, 5 cr
- ECGS-202 Sociotechnical reconstruction of consumer society, 5 cr
- ECGS-205 Sustainable consumption governance, 5 cr
- AGERE-E15 Climate and energy policy, 5 cr

Alternative studies, 15 cr

- ATM-379 Systems change now, 5 cr
- FOR-111 Behaviour change and sustainability, 5 cr
- ECGS-302: Sustainability in a diverse society, 5 cr
- SOSM-SL323 Co-creation and citizen participation in urban development, 5 cr
- IND-510 Indigenous peoples, epistemic and linguistic diversity, 5 cr
- COS-CM306: Sustainable welfare, 5 cr

ECGS-810 International Environmental Governance, 45 cr

Compulsory studies, 30 cr

1. ECGS-089 Just sustainability transformations, 5 cr
2. AGERE-E15 Climate and energy policy, 5 cr
3. FOR-104 International forest policy, politics and power, 5 cr
4. ECGS-088 Social study of global environmental risks, 5 cr
5. a) ECGS-204 Business in the natural environment, 5 cr OR
   b) IND-512 Indigenous biocultural conservation and well-being, 5 cr
6. a) AGERE-E14 Economics and governance of marine resources, 5 cr OR
   b) OTM-314 Sustainability in International law, 5 cr

Alternative studies, 15 cr

1. ATM-378 Sustainability Now, 5 cr
2. ECGS-904 Urban Environmental Policy, 5 cr
3. IND-511 Methodologies and research ethics in Indigenous Studies, 5 cr
4. ATM-404 Environmental and Climate Regulation in the EU, 5 cr
5. GPC-0319 Global Climate Governance: Organizations, Networks and Knowledge, 5 cr

ECGS-410 Just and sustainable forest and land governance, 45 cr

Compulsory studies, 30 cr

1. ECGS-089: Just sustainability transformations, 5 cr
2. FOR-104 International forest policy, politics and power, 5 cr
3. ECGS-302: Sustainability in a diverse society, 5 cr
4. AGRI-222 Sustainable Food Systems 3–5 cr (ECGS needs to select 5cr)
5. a) FOR-101 Responsible business management in circular bioeconomy, 5 cr
   b) AGRI-224 Life Cycle Assessment in the Context of Agriculture and Forestry, 5 cr
6. a) FOR-281 Tropical landscape change, 5 cr (odd years)
   b) FOR-276 Sustainable forestry and agroforestry in the tropics, 5 cr (even years)

Alternative studies (15 cr) (select one of each theme):

CLIMATE AND SUSTAINABILITY:

- FOR 285-Climate change mitigation and adaptation in forestry, 5 cr
- ATM379 Climate University – SYSTEMSCHANGENOW, 5 cr
- FOR-111 Behaviour change and sustainability, 5 cr

INDIGENOUS STUDIES AND RISK:

- IND-512 Indigenous biocultural conservation and well-being, 5 cr
- IND-513 Indigenous Peoples and International Law, 5 cr
- ECGS-088 Social Study of Global Environmental Risks, 5 cr

POLITICS, BUSINESS AND DEVELOPMENT

- YMK-3303 Political ecology and resource politics, 5 cr
- YMK-3305 Classics in Global Development Studies, 5 cr
- ECGS-204 Business in the natural environment, 5 cr

ECGS-310 Diversity and Justice for Sustainability, 45 cr

Compulsory studies, 30 cr:

- IND-510 Indigenous Peoples, Epistemic and Linguistic Diversity, 5 cr
- IND-512 Indigenous biocultural conservation and well-being, 5 cr
- ECGS-089: Just sustainability transformations, 5 cr
- IND-513 Indigenous Peoples and International Law, 5 cr
- ECGS-091 Knowledge co-production and transformative research, 5 cr
- ECGS-302 Sustainability in a diverse society, 5 cr

Alternative studies, 15 cr:

- IND-511 Methodologies and research ethics in Indigenous Studies, 5 cr
- YMK-3303 Political ecology and resource politics, 5 cr
- SOSM-SL322 Feminist STS, 5 cr
- ECGS-049 Nature-based Solutions, 5 cr
- ECGS-904 Urban Environmental Policy, 5 cr
- FILM-3005 Philosophy of the Social Sciences, 5 cr
- IND-514 Indigenous arts and media, 5 cr

ECGS-MUUT Elective studies, 15 cr

Examples included, but any University courses eligible

- VIIKB-005 Demanding participation in administrative bodies and student organizations, 2-5 cr
- VIIKB-002 Tutoring BY, 5 cr
- ECGS-153 Internship period, 5-10 cr
- ECGS-154 Research group training, 5 cr
- ECGS-026 Portfolio for the future, 1-5 cr

International competence, min. 0 cr

ECGS specific instructions in SISU:
In ECGS, exchange studies of up to 30 credits can be included in the degree as follows:

- Three courses (15 cr) can be included as optional studies. Add these here as individual study drafts.
- One methodological course (5 cr) can be included in the Optional methodological studies (ECGS-450 Core studies). This requires approval by the module's responsible person.
- Two courses can be included in your module, replacing optional module courses. These courses need to be agreed upon with the module leader. The courses need to be master's level courses.

Courses offered by LUT (cross-institutional studies), min. 0 cr

- BH60A5800 Sustainable System Transition, 6 cr
- BH60A4402 Sustainability in Socio-Technological context, 6 cr
- BH60A5401 Introduction to Circular Economy, 5 cr
- BH60L3000 Biological Cycle in Circular Economy, 6 cr
- BH60L4000 Technical Cycle in Circular Economy, 6 cr
- BH60L5001 Sustainable Traffic Systems, 6 cr
- BH60A0252 Solid Waste Management Technology, 7 cr

DEGREE PROGRAMME STRUCTURE, BIOLOGY SUBJECT TEACHER

ECGS-3000 Environmental Change and Global Sustainability, Advanced studies, Biology Subject Teacher Study Track, 60 cr

ECGS-3000 Ympäristömuutos ja globaali kestävyys, syventävät opinnot, aineenopettajakoulutus

ECGS-3000 Miljöförändring och global hållbarhet, fördjupade studier, ämneslärarutbildningen

Compulsory advanced studies, 40 cr

- ECGS-001 Introduction to Sustainability Science, 5 cr
- ECGS-004 Master's thesis seminar, 5 cr
- ECGS-008 Master's thesis for Subject teacher, 30 cr
- VIIKB-001 Master's maturity test BY, 0 cr

Optional advanced studies (Choose at least one study module, 15 ects in total)

ECGS-111 Aquatic Sciences, Subject Teacher module, 15 cr

Alternative studies, select 15 cr:

- ECGS-011 Advanced aquatic and sediment biogeochemistry, 5 cr
- ECGS-018 Food webs of aquatic ecosystems, 5 cr
- ECGS-103 Function and management of freshwater ecosystems, 5 cr
- ECGS-101 Advanced marine ecology, 5 cr

Possible to choose one:

- ECGS-023 Functional Marine Ecology, 10 cr
- ECGS-102 Advanced freshwater ecosystems, 10 cr

ECGS-511 Changing Arctic and Northern Environments, Subject Teacher module, 15 cr

Alternative studies, 15 cr:

- ECGS-051 Arctic climate change in aquatic ecosystems, 5 cr
- ECGS-052 Arctic climate change in terrestrial ecosystems, 5 cr
- ECGS-034 Seminar in northern ecosystems and environment, 5 cr
- ECGS-068A Past environmental change, lectures 5 cr
- ECGS-032 Field course on Arctic ecosystems, 10 cr

ECGS-921 Urban socio-ecological interactions & governance, Subject Teacher module, 15 cr

Alternative studies, select 15 cr

- ECGS-049 Nature-based Solutions, 5 cr
- ECGS-904 Urban Environmental Policy, 5 cr
- ECGS-907 Urban Biodiversity, 5 cr
- ECGS-909 Global topical issues in urban studies, 5 cr
- ECGS-901 Field Course in Urban Environmental Ecology, 5 cr

Methodology (choose at least 5 ects)

- ECGS-024 Technology in ecological research and environmental monitoring, 5 cr
- ECGS-154 Research group training, Work placement, 5 cr
- FILK-222 Yhteiskuntatieteiden filosofia, 5 cr
- FILM-353 Taloustieteen filosofia, erikoistuminen, 5 op
- FILM-3005 Yhteiskuntatieteiden filosofia, syventävä, 5 cr
- FOR-108 Qualitative empirical research methods, approaches and research ethics, 5 cr
- ECH303 Statistical tools for climate and atmospheric science
- AGERE-002 Cost-Benefit Analysis, 5 cr
- ECGS-091 Knowledge co-production and transformative research, 5 cr New course
- AGERE-014 Experimental Methods in Food, Agricultural, Environmental, and Resource Economics, 5 cr
- GEOG-G302 Introduction to remote sensing of the environment, 5 cr
- GEOG-P302 Modelling in physical geography, 5 cr
- EEB-019 Quantitative methods in ecology and evolutionary biology, 5 cr
- EEB-003 Statistical methods in ecology, Contact teaching, 5 cr
- EEB-310 Macroecology and global change, 5 cr
- IND-511 Methodologies and research ethics in Indigenous Studies, 5 cr

Other methodological courses according to an agreement

PED100 Aineenopettajan pedagogiset opinnot (PKL), 60 cr

ECGS-450 ECGS Core Studies, 30 cr

ECGS-450 ECGS-ydinopinnot

ECGS-450 ECGS-kärnstudier

Abbreviation: ECGS-ydinopinno

Content description

ECGS-4000 Sustainability Science, 15 ects

Methodological studies according to students's needs, 15 ects

Compulsory methodological studies, 10 cr

- ECGS-004 Master's thesis seminar, 5 cr
- ECGS-050 Effective Science Communicatio, 5 cr

Examples of Optional methodological studies according to agreement (choose 5 cr)

- ECGS-024 Technology in ecological research and environmental monitoring, 5 cr
- ECGS-154 Research group training, Work placement, 5 cr
- ECGS-091 Knowledge co-production and transformative research, 5 cr
- FILK-222 Yhteiskuntatieteiden filosofia, 5 cr
- FILM-353 Taloustieteen filosofia, erikoistuminen, 5 op
- FILM-3005 Yhteiskuntatieteiden filosofia, syventävä, 5 cr
- FOR-108 Qualitative empirical research methods, approaches and research ethics, 5 cr
- ECH303 Statistical tools for climate and atmospheric science
- AGERE-002 Cost-Benefit Analysis, 5 cr
- YMTA-406 Experimental Methods in Food, Agricultural, Environmental, and Resource Economics, 5 cr
- GEOG-G302 Introduction to remote sensing of the environment, 5 cr
- GEOG-P302 Modelling in physical geography, 5 cr
- EEB-019 Quantitative methods in ecology and evolutionary biology, 5 cr
- EEB-003 Statistical methods in ecology, Contact teaching, 5 cr
- EEB-310 Macroecology and global change, 5 cr
- IND-511 Methodologies and research ethics in Indigenous Studies, 5 cr

Learning outcomes

FI: The student will have a basic understanding of both natural and social scientific disciplines that make up sustainability science, and of key notions that the latter addresses, such as sustainability, resilience, complexity, planetary boundaries, socio-ecological systems, systems thinking, and interdisciplinarity. The student will have a case-based understanding of conceptual and methodological challenges in sustainabi-lity science, such as the integration of models, data, evidence and values, science-policy interface, and behavioral change and institutional transformation. The student will learn how to put this knowledge into action to solve real-world problems in multidisciplinary teams.

Additional information

FI:

Target groups

A compulsory module in the ECGS Master's Programme in study lines EC and GS

Assessment practices and criteria

weighted average of course grades

Responsible person

David Thomas

Study module structure

ECGS-4000 Sustainability Science, 15 ects

Compulsory

- ECGS-001 Introduction to Sustainability Science, 5 ects
- ECGS-002 Philosophical and Methodological Foundations of Sustainability Science, 5 ec

Applied sustainability science (choose at least 5 ects) ts

- ECGS-003 Practical application of sustainability science: learning project, 5 cr
- ATM380 Solutions.now, 5 cr
- ATM373 Leadership for Sustainable Change, 5 cr

Methodological studies, 15 ects

Compulsory methodological studies, 10 cr

- ECGS-004 Master's thesis seminar, 5 cr
- ECGS-050 Effective Science Communication, 5cr

Optional methodological studies according to agreement (choose 5 cr)

- ECGS-024 Technology in ecological research and environmental monitoring, 5 cr
- ECGS-154 Research group training, Work placement, 5 cr
- ECGS-091 Knowledge co-production and transformative research, 5 cr
- FILK-222 Yhteiskuntatieteiden filosofia, 5 cr
- FILM-353 Taloustieteen filosofia, erikoistuminen, 5 op
- FILM-3005 Yhteiskuntatieteiden filosofia, syventävä, 5 cr
- FOR-108 Qualitative empirical research methods, approaches and research ethics, 5 cr
- ECH303 Statistical tools for climate and atmospheric science
- AGERE-002 Cost-Benefit Analysis, 5 cr
- YMTA-406 Experimental Methods in Food, Agricultural, Environmental, and Resource Economics, 5 cr
- GEOG-G302 Introduction to remote sensing of the environment, 5 cr
- GEOG-P302 Modelling in physical geography, 5 cr
- EEB-019 Quantitative methods in ecology and evolutionary biology, 5 cr
- EEB-003 Statistical methods in ecology, Contact teaching, 5 cr
- EEB-310 Macroecology and global change, 5 cr
- IND-511 Methodologies and research ethics in Indigenous Studies, 5 cr

ECGS-4000 Sustainability Science, Study Module, 15 cr

ECGS-4000 Kestävyystieteet, opintokokonaisuus

ECGS-4000 Hållbarhetsvetenskap, studiehelhet

Abbreviation: Kestävyystietee

Learning outcomes

FI: The student has basic understanding of what sustainability science is and how human and natural systems interact. The student can describe social-ecological systems and knows the fundamental principles of systems thinking and conditions of sustainability problems and their solutions. The student knows key concepts of sustainability science, is able to describe scientific questions in sustainability science terms and to use this description to point to the multidisciplinary solutions necessary and to put the knowledge into action when seeking solutions to real-world problems in multidisciplinary teams.

Prerequisites

FI: Relevant Bachelors' degree or equivalent studies

Additional information

FI: Target group
Compulsory to students in the ECGS-programme

Timing

The study module is started in the first term of Master's studies with two first courses. Applied Sustainability Science may be completed at any time.

Contents

Compulsory

- ECGS-001 Introduction to Sustainability Science, 5 ects
- ECGS-002 Philosophical and Methodological Foundations of Sustainability Science, 5 ects

Optional studies in Applied sustainability science (choose at least 5 ects)

- ECGS-003 Practical application of sustainability science: learning project, 5 cr
- ATM380 Solutions.now, 5 cr
- ATM373 Leadership for Sustainable Change, 5 cr

Grading

Weighed average of course grades

Responsible person

David Thomas

Study module structure

Compulsory

- ECGS-001 Introduction to Sustainability Science, 5 ects
- ECGS-002 Philosophical and Methodological Foundations of Sustainability Science, 5 ects

Applied sustainability science (choose at least 5 ects)

- ECGS-003 Practical application of sustainability science: learning project, 5 cr
- ATM380 Solutions.now, 5 cr
- ATM373 Leadership for Sustainable Change, 5 cr

ECGS-1000 Environmental Change, Advanced Studies, 75 cr

ECGS-1000 Ympäristömuutos, syventävät opinnot

ECGS-1000 Miljöförändringen, fördjupade studier

Abbreviation: Ympäristömuutos

Content description

FI:

Contents

Compulsory advanced studies, 30 ects

- ECGS-005 Master's thesis, 30 ects
- VIIKB-001 Master's maturity test BY, 0 ects

Optional advanced studies, 45 cr (Choose one module)

- ECGS-110 Aquatic Sciences, 45 cr
- ECGS-620 Sustainability of Agriculture and Food Systems, 45 cr
- ECGS-510 Changing Arctic and Northern environments, 45 cr
- ECGS-920 Urban socio-ecological interactions & governance, 45 cr

Learning outcomes

FI: After completing the advanced studies the student is able to plan and perform research work and work as an expert within the selected discipline of the Environmental Change study module and has acquired the generic abilities:

- critical thinking and reasoning between conflicting views
- dialogue, communication and argumentation skills
- solution seeking and problem solving abilities
- co-operational capacities, group working skills
- abilities to work in multidisciplinary contexts

Prerequisites

FI: Bachelor's degree in relevant field

Additional information

FI:

Target group

Compulsory to students of Master's Programme in Environmental Change and Global Sustainability. The module forms the basis for advanced studies of the Environmental Change and Global Sustainability Master's Programme.

Recommended time or stage of studies for completion

During first and second year

Grading

Weighed average

Responsible person

David Thomas

ECGS-2000 Global Sustainability, Advanced Studies, 75 cr

ECGS-2000 Globaali kestävyys, syventävät opinnot

ECGS-2000 Global hållbarhet, fördjupade studier

Content description

FI:

Contents

Compulsory advanced studies, 30 cr

- ECGS-006 Master's thesis, 30 ects
- VIIKB-001 Master's maturity test BY 0 ects

Optional advanced studies, 45 cr (Choose one module)

- ECGS-210 Policy, politics and everyday practices in local environments, 45 cr
- ECGS-810 International Environmental Governance, 45 cr
- ECGS-410 Just and sustainable forest and land governance, 45 cr
- ECGS-310 Diversity and Justice for Sustainability, 45 cr

Learning outcomes

FI: After completing the advanced studies the student is able to plan and perform research work and work as an expert within the selected discipline of the Global Sustainability study module and has acquired the generic abilities:

- critical thinking and reasoning between conflicting views
- dialogue, communication and argumentation skills
- solution seeking and problem solving abilities
- co-operational capacities, group working skills

Prerequisites

FI: Bachelor's degree in relevant field

Additional information

Target groups

Compulsory in Master's Programme in Environmental Change and Global Sustainability to the students of the Global Sustainability Study Line

Recommended time or stage of studies for completion

During first and second year

Grading

Weighed average

Responsible person

David Thomas

ECGS-MUUT Elective studies, 15 cr

ECGS-MUUT Muut opinnot

ECGS-MUUT Övriga studier

Study module structure

Examples included, but any University courses eligible

- VIIKB-005 Demanding participation in administrative bodies and student organizations, 2-5 cr
- VIIKB-002 Tutoring BY, 5 cr
- ECGS-153 Internship period, 5-10 cr
- ECGS-154 Research group training, 5 cr
- ECGS-026 Portfolio for the future, 1-5 cr

International competence

ECGS specific info:

In ECGS, exchange studies of up to 30 credits can be included in the degree as follows:

- Three courses (15 cr) can be included as optional studies. Add these here as individual study drafts.
- One methodological course (5 cr) can be included in the Optional methodological studies (ECGS-450 Core studies). This requires approval by the module's responsible person.
- Two courses can be included in your module, replacing optional module courses. These courses need to be agreed upon with the module leader. The courses need to be master's level courses.

Courses offered by LUT (cross-institutional studies)

- BH60A5800 Sustainable System Transition, 6 cr
- BH60A4402 Sustainability in Socio-Technological context, 6 cr
- BH60A5401 Introduction to Circular Economy, 5 cr
- BH60L3000 Biological Cycle in Circular Economy, 6 cr
- BH60L4000 Technical Cycle in Circular Economy, 6 cr
- BH60L5001 Sustainable Traffic Systems, 6 cr
- BH60A0252 Solid Waste Management Technology, 7 cr

ECGS-3000 Environmental Change and Global Sustainability, Advanced studies, Biology Subject Teacher Study Track, 60 cr

ECGS-3000 Ympäristömuutos ja globaali kestävyys, syventävät opinnot, aineenopettajakoulutus

ECGS-3000 Miljöförändring och global hållbarhet, fördjupade studier, ämneslärarutbildningen

Abbreviation: Ympäristömuutos

Content description

FI: Contents
Compulsory advanced studies, 40 cr

- ECGS-001 Introduction to Sustainability Science, 5 cr
- ECGS-004 Master's thesis seminar, 5 cr
- ECGS-008 Master's thesis for Subject teacher, 30 cr
- VIIKB-001 Master's maturity test BY, 0 cr

Optional advanced studies (Choose at least one study module, 15 ects in total)

- ECGS-111 Aquatic Sciences, Subject Teacher module, 15 cr
- ECGS-511 Changing Arctic and Northern Environments, Subject Teacher module, 15 cr
- ECGS-921 Urban socio-ecological interactions & governance, Subject Teacher module, 15 cr

Methodology (choose at least 5 ects)

- ECGS-024 Technology in ecological research and environmental monitoring, 5 cr
- ECGS-154 Research group training, Work placement, 5 cr
- ECGS-091 Knowledge co-production and transformative research, 5 cr
- FILK-222 Yhteiskuntatieteiden filosofia, 5 cr
- FILM-353 Taloustieteen filosofia, erikoistuminen, 5 op
- FILM-3005 Yhteiskuntatieteiden filosofia, syventävä, 5 cr
- FOR-108 Qualitative empirical research methods, approaches and research ethics, 5 cr
- ECH303 Statistical tools for climate and atmospheric science
- AGERE-002 Cost-Benefit Analysis, 5 cr
- YMTA-406 Experimental Methods in Food, Agricultural, Environmental, and Resource Economics, 5 cr
- GEOG-G302 Introduction to remote sensing of the environment, 5 cr
- GEOG-P302 Modelling in physical geography, 5 cr
- EEB-019 Quantitative methods in ecology and evolutionary biology, 5 cr
- EEB-003 Statistical methods in ecology, Contact teaching, 5 cr
- EEB-310 Macroecology and global change, 5 cr
- IND-511 Methodologies and research ethics in Indigenous Studies, 5 cr

Other methodological courses according to an agreement

PED100 Aineenopettajan pedagogiset opinnot (PKL), 60 cr

Learning outcomes

FI: After completing the advanced studies the student is able to plan and perform research work and work as an expert within teaching biology and has acquired the generic abilities:

- critical thinking and reasoning between conflicting views
- dialogue, communication and argumentation skills
- solution seeking and problem solving abilities
- co-operational capacities, group working skills
- abilities to work in multidisciplinary contexts

Prerequisites

FI: Bachelor's degree in relevant field.

Additional information

FI:

Target groups

Compulsory in Master's Programme in Environmental Change and Global Sustainability to the students of the Biology Teacher Study Line

Timing

During the first and the second year

Grading

Weighted average

Responsible person

David Thomas

Study module structure

Compulsory advanced studies, 40 cr

- ECGS-001 Introduction to Sustainability Science, 5 cr
- ECGS-004 Master's thesis seminar, 5 cr
- ECGS-008 Master's thesis for Subject teacher, 30 cr
- VIIKB-001 Master's maturity test BY, 0 cr

Optional advanced studies (Choose at least one study module, 15 cr in total)

- ECGS-011, Aquatic Sciences, Subject Teacher module, 15 cr
- ECGS-511, Changning Arctic and northern environments, Subject Teacher module, 15 cr
- ECGS-921, Urban socio-ecological interactions & governance, Subject Teacher module, 15 cr

Methodology (choose at least 5 cr)

- ECGS-024 Technology in ecological research and environmental monitoring, 5 cr
- ECGS-050 Effective Science Communication, 5cr
- ECGS-154 Research group training, Work placement, 5 cr
- ECGS-091 Knowledge co-production and transformative research, 5 cr
- FILK-222 Yhteiskuntatieteiden filosofia, 5 cr
- FILM-353 Taloustieteen filosofia, erikoistuminen, 5 op
- FILM-3005 Yhteiskuntatieteiden filosofia, syventävä, 5 cr
- FOR-108 Qualitative empirical research methods, approaches and research ethics, 5 cr
- ECH303 Statistical tools for climate and atmospheric science
- AGERE-002 Cost-Benefit Analysis, 5 cr
- YMTA-406 Experimental Methods in Food, Agricultural, Environmental, and Resource Economics, 5 cr
- GEOG-G302 Introduction to remote sensing of the environment, 5 cr
- GEOG-P302 Modelling in physical geography, 5 cr
- EEB-019 Quantitative methods in ecology and evolutionary biology, 5 cr
- EEB-003 Statistical methods in ecology, Contact teaching, 5 cr
- EEB-310 Macroecology and global change, 5 cr
- IND-511 Methodologies and research ethics in Indigenous Studies, 5 cr

Other methodological courses according to an agreement

PED100 Aineenopettajan pedagogiset opinnot (PKL), 60 cr

ECGS-110 Aquatic Sciences, 45 cr

ECGS-110 Akvaattiset tieteet

ECGS-110 Akvatiska vetenskaper

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	45 cr
Languages	English, Finnish, Swedish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Leena K-L Nurminen, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: The functioning and management of aquatic ecosystems, both marine and freshwater, including biological, chemical and physical regulatory mechanisms.

Learning outcomes

FI:

- Comprehensive knowledge on the functioning of aquatic ecosystems, both marine and freshwater, including their food webs, and biological, chemical and physical regulatory mechanisms
- Skills in planning and carrying out aquatic ecosystem research
- Knowledge on diagnosing the main environmental problems of aquatic ecosystems and means to apply research-based solutions in resolving them
- Comprehensive knowledge on planning and methodology of aquatic ecosystem management and restoration

In ECGS, this disciplinary study module corresponds to a Master’s degree in Science (M.Sc.).

Prerequisites

FI: Bachelor's degree.

Additional information

FI:

Target groups

Students in the EC study track of the ECGS Master’s programme.

Recommended time or stage of studies for completion

Master's studies years 1-2.

Term/teaching period when the module will be offered

Module schedules can be found at the ECGS Moodle Info Site 2026-2030 and at studies.fi.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Language of instruction

Finnish, English

Study module EQF level

7

Study module structure

Compulsory studies (20 cr):

- ECGS-011 Advanced aquatic and sediment biogeochemistry, 5 cr
- ECGS-018 Food webs of aquatic ecosystems, 5 cr
- ECGS-103 Function and management of freshwater ecosystems, 5 cr
- ECGS-101 Advanced marine ecology, 5 cr New

Alternative studies (25 cr):

- ECGS-102 Advanced freshwater ecosystems research, 10 cr, Lammi Biological Station (field course)
- ECGS-023 Functional marine ecology 10 cr, Tvärminne Zoological Station (field course)
- ECGS-016 Fish research, 5 cr
- EEB-112 Current topics in marine biodiversity, 5 cr
- ECGS-051 Arctic climate change in aquatic ecosystems, 5 cr
- AGERE-E14 Economics and governance of marine resources

ECGS-510 Changing Arctic and northern environments, 45 cr

ECGS-510 Muutokset Arktisessa ja pohjoisessa ympäristössä

ECGS-510 Föränderliga Arktiska och nordliga miljöer

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	45 cr
Languages	English, Finnish, Swedish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Tarmo Virtanen, Responsible teacher Jan Weckström, Responsible teacher
Study module level	Basic studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: In the study module of Changing Arctic and northern environments students will develop an understanding of Arctic ecosystems and specific environmental issues related to the Arctic and knowledge of long-term perspective on Arctic environmental changes and human activities. The Changing Arctic and northern environments study module deals with central theories, concepts and glossary of Arctic research, including the questions of resilience, bifurcations and critical transitions.

Learning outcomes

FI: Students will learn basics of Arctic ecosystem properties and get to know the main environmental issues which are especially significant in the Arctic. Students get familiar with real-world problems and abilities for their management and solving. They also learn key research methods and approaches and data acquisition means and become familiar with Arctic literature and topical research reports.

In ECGS, this disciplinary study module corresponds to a Master’s degree in Science (M.Sc.).

Prerequisites

FI: Bachelor’s degree in environmental or related sciences. Joint introductory studies in sustainability sciences or other relevant Master’s programme studies.

Additional information

FI:

Target groups

Students in the ECGS Master’s programme.

Recommended time or stage of studies for completion

Master's studies years 1-2.

Term/teaching period when the module will be offered

Module schedules can be found at the ECGS Moodle Info Site 2026-2030 and at studies.fi.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Language of instruction

English, in some courses also Finnish and Swedish

Study module EQF level

7

Study module structure

Compulsory studies, 30 cr:

- ECGS-051 Arctic climate change in aquatic ecosystems, 5 cr
- ECGS-052 Arctic climate change in terrestrial ecosystems, 5 cr
- ECGS-034 Seminar in northern ecosystems and environment, 5 cr
- ECGS-068A Past environmental change, lectures 5 cr
- ECGS-032 Field course on Arctic ecosystems, 10 cr

Optional studies, 15 cr:

- ECGS-068B Past environmental change, practical 5 cr
- ECGS-036 Arctic and human beings, 5 cr
- KUKA-AR212 Archaeology of Finland and Neighbouring Areas, 5 cr
- ATM-332 Terrestrial water, carbon, and nitrogen cycles, 5 cr
- FOR-228 Forest ecosystem biogeochemistry, 5 cr

ECGS-620 Sustainability of Agriculture and Food Systems, 45 cr

ECGS-620 Maataloustuotannon ja ruokajärjestelmän kestävyys

ECGS-620 Hållbarhet inom jordbruk och livsmedelssystem

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	45 cr
Languages	English, Finnish, Swedish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Iryna Herzon, Responsible teacher Mari Pihlatie, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: The module covers a diversity of topics related to the sustainability of primary production in agriculture, environmental soil science and food system. There are several integrative courses that are compulsory to

all module students. Students are expected to choose a further focus either on environmental soil science or on food system and agroecology. The first track will allow to deepen understanding of soil functioning and the role it plays in several sustainability challenges in both agriculture and forestry. The second track will keep your learning journey at a systemic and interdisciplinary plain.

Learning outcomes

FI: Having completed the study module, the student is able to:

- have sound understanding of the key concepts and theories guiding the food system, from soils to food consumption, from the perspective of sustainability
- be able to find and interpret research literature, use appropriate methods in fields of environmental soil science, food systems and agroecology
- apply knowledge and skills in identifying practical problems and proposing solutions for conservation of soils and other natural resources in farm, landscape and food system level

In ECGS, this disciplinary study module corresponds to a Master's degree in Science (Agriculture and Forestry).

Prerequisites

FI: BSc level degree in a relevant field or other applicable previous studies

Additional information

FI:

Target groups

Students of the ECGS degree programme

Recommended time or stage of studies for completion

Master's studies years 1-2.

Term/teaching period when the module will be offered

Module schedules can be found at the ECGS Moodle Info Site 2026-2030 and at studies.fi.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Language of instruction

English

Study module EQF level

7

Study module structure

Compulsory studies, 25 cr

- AGRI-222 Sustainable Food Systems, 5 cr
- AGRI-212 Ecological farming methods, 5 cr
- AGRI-214 Literature in Sustainable Food Systems, 5 cr
- FOR-275 Soils and Climate change, 5 cr

One of two, depending on your interests in specialising further:

- AGRI-223 Literature in Agroecology of Food Systems, 5 cr
- AGRI-412 Environmental Soil Science Readings II, 5 cr

Choose one study path, 20 cr:

Sustainability of Agriculture and Food Systems, Soil Science

Alternative studies, 20 cr

- AGRI-411 Soil Hydrology, 5 cr
- AGRI-413 Advanced Soil Science, 5 cr
- FOR-230 Forest Soil and Root Ecology, 5 cr, every second year
- AGRI-415 Advanced methods in soil research, 10 cr

Sustainability of Agriculture and Food Systems, Food Systems

Alternative studies, 20 cr

- AGRI-211 Wildlife in the Farming Environment, 5 cr
- AGRI-221 Agroecology: Working with the Complexity of Farming Systems, 5 cr
- AGRI-224 Life Cycle Assessment in the Context of Agric and Forestry, 5 cr
- EDUM504 Sustainable Culinary Culture, 5 cr, every second year OR
- FOOD-401 European Food Safety, 5 cr, every second year

ECGS-920 Urban socio-ecological interactions & governance, 45 cr

ECGS-920 Kaupungin sosioekologinen vuorovaikutus ja hallinto
ECGS-920 Urban socio-ekologisk interaktion och styrning

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	45 cr
Languages	English, Finnish, Swedish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	David Kotze, Responsible teacher Ian MacGregor Fors, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: This MSc module aims to provide students with a comprehensive understanding of urban environmental challenges and sustainability solutions. Students will explore the intersection of urban biodiversity, environmental policy, and nature-based solutions to address pressing global issues. The module fosters critical thinking and interdisciplinary approaches to urban studies, emphasizing just sustainability transformations, governance, and the impacts of climate change and pollution on urban environments. Through fieldwork and applied learning, students will gain hands-on experience in assessing ecological dynamics and policy implications in urban settings.

Learning outcomes

FI: Upon successful completion of this module, students will be able to:

- Analyze and evaluate urban environmental policies and sustainability strategies.
- Apply interdisciplinary knowledge to address biodiversity conservation and climate change in urban settings.
- Assess the role of governance, consumption, and just sustainability transformations in urban ecological systems.
- Conduct field-based research and apply scientific methods to study urban environmental challenges. Develop solutions for pollution, climate change, and biodiversity loss in cities, integrating nature-based and policy-driven approaches.

In ECGS, this disciplinary study module corresponds to a Master's degree in Science (M.Sc.).

Prerequisites

FI: Bachelor's level studies in environmental issues, or equivalent studies.

Additional information

FI:

Target groups

Students in the Environmental Change track of the ECGS MSc programme. Disciplinary module for ECGS students interested in urban environmental issues, from ecology, the environment, climate, biodiversity, sustainability, nature-based solutions, policy and planning.

Certain courses have a limited capacity for student intake (consult the course descriptions).

Recommended time or stage of studies for completion

Master's studies years 1-2.

Term/teaching period when the module will be offered

Module schedules can be found at the ECGS Moodle Info Site 2026-2030 and at studies.fi.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Language of instruction

English

Study module EQF level

ECGS-modules are Master's level studies, second-cycle degree/EQF level 7

Study module level

intermediate to advanced

Study module structure

Compulsory studies, 30 cr

- ECGS-049 Nature-based Solutions, 5 cr
- ECGS-904 Urban Environmental Policy, 5 cr
- ECGS-907 Urban Biodiversity, 5 cr
- ECGS-909 Global topical issues in urban studies, 5 cr
- ECGS-901 Field Course in Urban Environmental Ecology, 10 cr

Alternative studies, 15 cr

- IND-512 Indigenous biocultural conservation and well-being, 5 cr
- FOR-275 Soils and climate change, 5 cr
- ECGS-089 Just Sustainability Transformations, 5 cr
- ECGS-205 Sustainable consumption governance, 5 cr
- ECGS-911 Urban Pollution, 5 cr
- ECGS-906 Urban Climate, 5 cr

ECGS-210 Policy, politics and everyday practices in local environments, 45 cr

ECGS-210 Politiikka, politiikkaohjaus ja arkiset käytännöt paikallisissa ympäristöissä
ECGS-210 Policy, politik och vardagliga verksamhetsmodeller i lokala miljöer

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	45 cr
Languages	English, Swedish, Finnish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Eva-Karin Heiskanen, Responsible teacher Senja Laakso, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: This module provides students with a comprehensive understanding on policies, technologies and practices, their multi-level nature, and their dynamics especially in local environments and everyday life settings. With a particular focus on systems of consumption and production, their governance, and environmental impact, the module equips students with critical skills to reflect on the power and material structures, institutional dynamics, as well as social and cultural norms, steering consumption of resources. Building on an engaging, context-sensitive perspectives and real-life projects, students will develop their research skills and capabilities for collaboration with researchers, practitioners, and other stakeholders. The module offers skills and proficiencies especially for students wishing to work with local government, particularly in engaging local residents in action for sustainability.

Learning outcomes

FI: Having completed the Policy, politics and everyday practices in local environments module, students have the basic knowledge and skills enabling them to work as an expert in the fields of environmental policies, sustainable consumption and production, and governance processes especially in local environments. They understand, can apply and critically reflect upon the key research paradigms, theoretical approaches and empirical research findings and have the capabilities to evaluate competing research perspectives and policy proposals.

After completing the Policy, politics and everyday practices in local environments module, students are able to structure and analyze policy, design and communications problems related to sustainability in local environments and link them to multi-level dynamics and power relations. They have a conceptual and experiential understanding of different ways in which such problems can be framed. Additionally, students improve their practical research design, methods, data collection, writing and communication skills.

Students write their MSc thesis (ECGS-006) on a relevant topic with support from a dedicated seminar group (ECGS-004).

In ECGS, this disciplinary study module corresponds to a Master's degree in Social Sciences (M.Soc.Sc.).

Prerequisites

FI: Bachelor's degree in a suitable subject

Additional information

FI:

Target groups

ECGS students in the GS study track

Recommended time or stage of studies for completion

Master's studies years 1-2.

Term/teaching period when the module will be offered

Module schedules can be found at the ECGS Moodle Info Site 2026-2030 and at studies.fi.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Study module EQF level

7

Study module structure

Compulsory studies, 30 cr

- ECGS-089: Just sustainability transformations, 5 cr
- ECGS-904 Urban environmental policy, 5 cr
- ECGS-201 Perspectives on sustainable consumption systems, 5 cr
- ECGS-202 Sociotechnical reconstruction of consumer society, 5 cr
- ECGS-205 Sustainable consumption governance, 5 cr
- AGERE-E15 Climate and energy policy, 5 cr

Alternative studies, 15 cr

- ATM-379 Systems change now, 5 cr
- FOR-111 Behaviour change and sustainability, 5 cr
- ECGS-302: Sustainability in a diverse society, 5 cr
- COS-CM323 Co-creation and citizen participation in urban development, 5 cr
- IND-510 Indigenous peoples, epistemic and linguistic diversity, 5 cr
- COS-CM306: Sustainable welfare, 5 cr

ECGS-810 International Environmental Governance, 45 cr

ECGS-810 Kansainvälinen ympäristöhallinta

ECGS-810 Internationell miljöstyrning

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	45 cr
Languages	English, Finnish, Swedish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Nina Janasik, Responsible teacher Jamie Jenkins, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: The module provides a critical overview of central theories related to international environmental governance of global environmental challenges, risks and vulnerabilities (such as energy, natural resources, marine resources). Methodologically, it presents methods of sustainability science and environmental social science (both quantitative and qualitative methods), and environmental economics and management. Thematically, the module analyzes global sustainability challenges in the domains of climate science, energy transitions, food and marine management and governance. The module places special emphasis on the critical analysis of cross-cutting chronic global environmental challenges.

Learning outcomes

FI:

- Critically review central theories related to international environmental governance of global environmental challenges, risks and vulnerabilities (such as energy, natural resources, marine resources).
- Use and build on methods of sustainability science and environmental social science (both quantitative and qualitative methods), and environmental economics and management.
- Analyze global sustainability challenges in the domains of climate science, energy transitions, food and marine management and governance.
- Analytically navigate cross-cutting chronic global environmental challenges.

In ECGS, this disciplinary study module corresponds to a Master’s degree in Science (M.Sc.) or a Master’s degree in Science (Agriculture and Forestry).

Prerequisites

FI: Bachelor’s degree.

Additional information

FI:

Target groups

GS students in the ECGS Master’s programme.

Recommended time or stage of studies for completion

Master's studies years 1-2.

Term/teaching period when the module will be offered

Module schedules can be found at the ECGS Moodle Info Site 2026-2030 and at studies.fi.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Language of instruction

English

Study module EQF level

EQF 7

Study module level

intermediate studies

Study module structure

Compulsory studies, 30 cr

1. ECGS-089 Just sustainability transformations, 5 cr
2. AGERE-E15 Climate and energy policy, 5 cr
3. FOR-104 International forest policy, politics and power, 5 cr
4. ECGS-088 Social study of global environmental risks, 5 cr
5. a) ECGS-204 Business in the natural environment, 5 cr OR
   b) IND-512 Indigenous biocultural conservation and well-being, 5 cr
6. a) AGERE-E14 Economics and governance of marine resources, 5 cr OR
   b) OTM-314 Sustainability in International law, 5 cr

Alternative studies, 15 cr

1. ATM-378 Sustainability Now, 5 cr
2. ECGS-904 Urban Environmental Policy, 5 cr
3. IND-511 Methodologies and research ethics in Indigenous Studies, 5 cr
4. ATM-404 Environmental and Climate Regulation in the EU, 5 cr
5. GPC-0319 Global Climate Governance: Organizations, Networks and Knowledge, 5 cr

ECGS-410 Just and sustainable forest and land governance, 45 cr

ECGS-410 Oikeudenmukainen ja kestävä metsien ja maan hallinta

ECGS-410 Rättvis och hållbar skogs- och naturförvaltning

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	45 cr
Languages	English, Finnish, Swedish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Maria Brockhaus, Responsible teacher Hanna Tuomisto, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: Forests and forestlands for food, fibre and fuel are contested spaces in the Global North and South, which often produce inequal outcomes in benefit and burden sharing for the many diverse actors involved. Forests and forestlands are high on international and domestic agendas, featuring prominently as problem and solution in global environmental change. This study module will provide a basic understanding of the societal, economic, and ecological dimensions of forest, forestlands and people, their relations, and interdependencies. Students will gain knowledge on discursive practices and dominant narratives, incentive structures and related business models.

The course selections aim to provide students with skills to dissect complex forest and land policy arenas and the underlying and often imbalanced power relations, and to inform decision makers, practitioners, and businesses on alternative pathways. The knowledge and skills acquired in this module will enable students to facilitate and to contribute to larger, transformative societal change within and beyond the land and forest sector.

Learning outcomes

FI:

- To gain a holistic understanding of the role and ecological, economic, and societal dimensions of forest, forestlands and forest-related people, for and also beyond fibre, food and fuel production.
- To assess underlying politics and power and implications for social and environmental justice particularly in the Global South.
- To understand sustainability transitions related to forests, forest lands, people, markets and the business structures in which they operate, and have tools to facilitate change at actor, group and sociopolitical levels in the Global North and South

In ECGS, this disciplinary study module corresponds to a Master’s degree in Science (Agriculture and Forestry).

Prerequisites

FI: Bachelor's degree.

Additional information

FI:

Target groups

Students of the GS study track in the ECGS Master's Programme.

Recommended time or stage of studies for completion

Master's studies years 1-2.

Term/teaching period when the module will be offered

Module schedules can be found at the ECGS Moodle Info Site 2026-2030 and at studies.fi.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Language of instruction

English

Study module EQF level

7

Study module structure

Compulsory studies, 30 cr

1. ECGS-089: Just sustainability transformations, 5 cr
2. FOR-104 International forest policy, politics and power, 5 cr
3. ECGS-302: Sustainability in a diverse society, 5 cr
4. AGRI-222 Sustainable Food Systems 3–5 cr (ECGS needs to select 5cr)
5. a) FOR-101 Responsible business management in circular bioeconomy, 5 cr
   b) AGRI-224 Life Cycle Assessment in the Context of Agriculture and Forestry, 5 cr
6. a) FOR-281 Tropical landscape change, 5 cr (odd years)
   b) FOR-276 Sustainable forestry and agroforestry in the tropics, 5 cr (even years)

Alternative studies (15 cr) (select one of each theme):

CLIMATE AND SUSTAINABILITY:

- FOR 285-Climate change mitigation and adaptation in forestry, 5 cr
- ATM379 Climate University – SYSTEMSCHANGENOW, 5 cr
- FOR-111 Behaviour change and sustainability, 5 cr

INDIGENOUS STUDIES AND RISK:

- IND-512 Indigenous biocultural conservation and well-being, 5 cr
- IND-513 Indigenous Peoples and International Law, 5 cr
- ECGS-088 Social Study of Global Environmental Risks, 5 cr

POLITICS, BUSINESS AND DEVELOPMENT

- YMK-3303 Political ecology and resource politics, 5 cr
- YMK-3305 Classics in Global Development Studies, 5 cr
- ECGS-204 Business in the natural environment, 5 cr

ECGS-310 Diversity and Justice for Sustainability, 45 cr

ECGS-310 Monimuotoisuus ja oikeudenmukaisuus kestävyydessä

ECGS-310 Mångfald och rättvisa för hållbarhet

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	45 cr
Languages	English, Finnish, Swedish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Michiru Nagatsu, Responsible teacher Guido Caniglia, Responsible teacher Annukka Vainio, Responsible teacher Pirjo Virtanen, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: This study module equips students with critical skills to reflect on the foundational questions underpinning sustainability research and practice. It explores diverse ontological, epistemological, and axiological frameworks that shape different research traditions, policies and decision-making. Emphasis is placed on the dynamic, real-world social-ecological contexts in which sustainability knowledge is produced and applied. Indigenous social worlds and values are learned within both global Indigenous and Sámi contexts. Building on an engaging, context-sensitive perspective, students will develop an ability to facilitate communication and collaboration among researchers, practitioners, and other stakeholders, contributing to the resolution of complex sustainability challenges in ethically responsible, fair, and just ways.

Learning outcomes

FI: In this module, you will learn:

- to recognize and to develop critical ability to engage with different epistemologies, ontologies and values in sustainability;
- to understand changing economic, social, legal, and political forces affecting diversity in human and more-than-human communities;
- how to engage with and to communicate differences and diversity in research, policy and practice; and
- how to design and facilitate just processes of knowledge synthesis and co-production to solve complex sustainability challenges.

In ECGS, this disciplinary study module corresponds to a Master’s degree in Social Sciences (M.Soc.Sc.) or a Master’s degree in Science (Agriculture and Forestry).

Prerequisites

FI: Bachelor's degree.

Additional information

FI:

Target groups

GS track students of ECGS Master's programme.

Recommended time or stage of studies for completion

Master's studies years 1-2.

Term/teaching period when the module will be offered

Module schedules can be found at the ECGS Moodle Info Site 2026-2030 and at studies.fi.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Language of instruction

English

Study module EQF level

7

Study module structure

Compulsory studies, 30 cr:

- IND-510 Indigenous Peoples, Epistemic and Linguistic Diversity, 5 cr
- IND-512 Indigenous biocultural conservation and well-being, 5 cr
- ECGS-089: Just sustainability transformations, 5 cr
- IND-513 Indigenous Peoples and International Law, 5 cr
- ECGS-091 Knowledge co-production and transformative research, 5 cr
- ECGS-302 Sustainability in a diverse society, 5 cr

Alternative studies, 15 cr:

- IND-511 Methodologies and research ethics in Indigenous Studies, 5 cr
- YMK-3303 Political ecology and resource politics, 5 cr
- SOSM-SL322 Feminist STS, 5 cr
- ECGS-049 Nature-based Solutions, 5 cr
- ECGS-904 Urban Environmental Policy, 5 cr
- FILM-3005 Philosophy of the Social Sciences, 5 cr
- IND-514 Indigenous arts and media, 5 cr

ECGS-111 Aquatic Sciences, Subject Teacher module, 15 cr

ECGS-111 Akvaattiset tieteet, Aineenopettajan moduuli

ECGS-111 Akvatiska vetenskaper, Modul för ämneslärare

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	15 cr
Languages	English, Swedish, Finnish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Leena K-L Nurminen, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: The functioning and management of aquatic ecosystems, both marine and freshwater, including biological, chemical and physical regulatory mechanisms.

Learning outcomes

FI:

- Comprehensive knowledge on the functioning of aquatic ecosystems, both marine and freshwater, including their food webs, and biological, chemical and physical regulatory mechanisms
- Skills in planning and carrying out aquatic ecosystem research
- Knowledge on diagnosing the main environmental problems of aquatic ecosystems and means to apply research-based solutions in resolving them
- Comprehensive knowledge on planning and methodology of aquatic ecosystem management and restoration

Additional information

FI:

Target groups

Students of the ECGS Master’s programme, Biology Subject Teacher Study Track.

Recommended time or stage of studies for completion

Master's studies years 1-2.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Language of instruction

Finnish, English

Study module EQF level

7

Study module structure

Alternative studies, select 15 cr:

- ECGS-011 Advanced aquatic and sediment biogeochemistry, 5 cr
- ECGS-018 Food webs of aquatic ecosystems, 5 cr
- ECGS-103 Function and management of freshwater ecosystems, 5 cr
- ECGS-101 Advanced marine ecology, 5 cr

Possible to choose one:
- ECGS-023 Functional Marine Ecology, 10 cr
- ECGS-102 Advanced freshwater ecosystems, 10 cr

ECGS-511 Changing Arctic and northern environments, Subject teacher module, 15 cr

ECGS-511 Muutokset Arktisessa ja pohjoisessa ympäristössä, Aineenopettajan moduuli

ECGS-511 Föränderliga Arktiska och nordliga miljöer, Modul för ämneslärare

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	15 cr
Languages	English, Finnish, Swedish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustain- ability 100%
Responsible persons	Tarmo Virtanen, Responsible teacher Jan Weckström, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: In the study module of Changing Arctic and northern environments students will develop an understanding of Arctic ecosystems and specific environmental issues related to the Arctic and knowledge of long-term perspective on Arctic environmental changes and human activities. The Changing Arctic and northern environments study module deals with central theories, concepts and glossary of Arctic research, including the questions of resilience, bifurcations and critical transitions.

Learning outcomes

FI: Students will learn basics of Arctic ecosystem properties and get to know the main environmental issues which are especially significant in the Arctic. Students get familiar with real-world problems and abilities for their management and solving. They also learn key research methods and approaches and data acquisition means and become familiar with Arctic literature and topical research reports.

Prerequisites

FI: Bachelor's degree in environmental or related sciences. Joint introductory studies in sustainability sciences or other relevant Master's programme studies.

Additional information

FI:

Target groups

Students in the ECGS Master's programme, Biology Subject Teacher Study Track.

Recommended time or stage of studies for completion

Master's studies years 1-2.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Language of instruction

English

Study module EQF level

7

Study module structure

Alternative studies, 15 cr:

- ECGS-051 Arctic climate change in aquatic ecosystems, 5 cr
- ECGS-052 Arctic climate change in terrestrial ecosystems, 5 cr
- ECGS-034 Seminar in northern ecosystems and environment, 5 cr
- ECGS-068A Past environmental change, lectures 5 cr
- ECGS-032 Field course on Arctic ecosystems, 10 cr

ECGS-921 Urban socio-ecological interactions & governance, Subject Teacher module, 15 cr

ECGS-921 Kaupungin sosioekologinen vuorovaikutus ja hallinto, Aineenopettajan moduuli

ECGS-921 Urban socio-ekologisk interaktion och styrning, Modul för ämneslärare

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	15 cr
Languages	English, Finnish, Swedish
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	David Kotze, Responsible teacher Ian MacGregor Fors, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Content description

FI: This MSc module aims to provide students with a comprehensive understanding of urban environmental challenges and sustainability solutions. Students will explore the intersection of urban biodiversity, environmental policy, and nature-based solutions to address pressing global issues. The module fosters critical thinking and interdisciplinary approaches to urban studies, emphasizing just sustainability transformations, governance, and the impacts of climate change and pollution on urban environments. Students will gain experience in assessing ecological dynamics and policy implications in urban settings

Learning outcomes

FI: Upon successful completion of this module, students will be able to:

- Analyze and evaluate urban environmental policies and sustainability strategies.
- Apply interdisciplinary knowledge to address biodiversity conservation and climate change in urban settings.
- Assess the role of governance, consumption, and just sustainability transformations in urban ecological systems.
- Apply scientific methods to study urban environmental challenges.
- Develop solutions for pollution, climate change, and biodiversity loss in cities, integrating nature-based and policy-driven approaches.

Prerequisites

FI: Bachelor's level studies in environmental issues, or equivalent studies.

Additional information

FI:

Target groups

Students in the Biology Subject Teacher Study Track of the ECGS MSc programme. Disciplinary module for ECGS students interested in urban environmental issues, from ecology, the environment, climate, biodiversity, sustainability, nature-based solutions, policy and planning.

Certain courses have a limited capacity for student intake (consult the course descriptions).

Recommended time or stage of studies for completion

Master's studies years 1-2.

Expiry of studies

Studies will expire in 10 years from the date of last completed study in the module.

Language of instruction

English

Study module EQF level

ECGS-modules are Master's level studies, second-cycle degree/EQF level 7

Study module level

intermediate to advanced

Study module structure

Alternative studies, select 15 cr

- ECGS-049 Nature-based Solutions, 5 cr
- ECGS-904 Urban Environmental Policy, 5 cr
- ECGS-907 Urban Biodiversity, 5 cr
- ECGS-909 Global topical issues in urban studies, 5 cr
- ECGS-901 Field Course in Urban Environmental Ecology, 5 cr

ECGS-005 Master's thesis

ECGS-005 Maisterintutkielma

ECGS-005 Magisteravhandling

Abbreviation: Maisterintutkie

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	30 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Bio- ja ympäristötieteellinen tiedekunta, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: The student needs to have the necessary knowledge and skills for collecting the data (field/laboratory) and processing (statistics) them, and skills for scientific writing.
Prerequisite studies: Introduction to Sustainability Science and Sustainability Science Concepts. Bachelor's degree.

Learning outcomes

FI: After completing the thesis, the student will be able to

- to plan and implement a research project in a timeframe
- to define appropriate research questions and base them with a theoretical framework
- to design and carry out data collection under supervision
- to analyse and interpret the research results
- to present the results of the research according to scientific standards
- to receive and use feedback in his/her own research and writing
- to apply ethical principles in science.

Content

FI: The Master’s thesis is usually based on an empirical research project and critical contemplation of the results in the light of scientific literature on the topic. The thesis may also consist of a theoretical literature study. A Master’s thesis project usually consists of four distinct phases

1. design and planning of the study
2. gathering the data (field work and/or laboratory work and/or mathematical modelling)
3. analysing the data (validation/quality control, statistical analysis, plotting)
4. interpreting and discussing the results in the light of existing literature.

Additional information

FI:

Target groups

The course is compulsory for the students of Master's Programme in Environmental Change and Global Sustainability. EC study line.

Recommended time or stage of studies for completion

Mainly second year of MSc studies. Research plan periods 3-4 during the first year of MSc studies, and gathering of data in the summer of the first study year or during periods 1-2 of the second study year; data processing and writing period 3 of the second study year.

Assessment practices and criteria

Approval and grading is based on the written Master's thesis. The MSc thesis will be graded on the scale according the guidelines of the university.

Completion method

Student will write the MSc thesis on the basis of guidelines delivered in the Master's seminar. In many cases, the work is carried out in a research project in which the student has a clearly defined and independent role. The total workload (corresponding 30 cr.) starting from designing the project to its completion is approximately 4.5 months (800 hrs or 20 weeks at 40 hrs/week).

Detailed information about the Master's thesis is provided by the MSc programme.

Other information

The Master's thesis project may not be started before obtaining an approval for the Master's thesis plan. For further information, see the general Instructions for Master's Theses.

Each MSc thesis must have at least one supervisor at the university or elsewhere.

Relations to other study units

Master's Thesis work is done in connection to Master's Thesis Seminar.

The thesis may not be approved before the student has passed the maturity test.

Responsible person

Head of the Master programme David Thomas

Course level

Master's level, (second-cycle degree/EQF level 7).

Study materials

FI: Mainly international, scientific papers depending on the topic of the Master's thesis.

ECGS-153 Internship period

ECGS-153 Työharjoittelu

ECGS-153 Arbetspraktik

Abbreviation: Työharjoittelu

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5-10 cr
Languages	Finnish, Swedish, English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Anna-Lea Rantalainen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree.

Learning outcomes

FI: After engaging in internship, the student

- is familiar with working life on her/his own field
- can integrate theory and practice by applying their field specific knowledge in a work environment
- knows her/his competence better for the future carrier development
- is able to reflect her/his strengths and weaknesses
- has gained larger network of colleagues and co-operation partners

Content

FI: Practical training and portfolio performances.

Additional information

FI: Completion methods

The student must agree with the coordinator university lecturer Anna-Lea Rantalainen (anna-lea.rantalainen@helsinki.fi) that their planned traineeship is suitable for the programme.

Minimum length of the traineeship is one month (5 cr) or two months (10 cr). A minimum duration of a university subsided traineeship is two months.

More information on traineeship can be found on the page: https://guide.student.helsinki.fi/en/traineeships

After permission to perform the traineeship in selected place, first portfolio is returned to Moodle (https://moodle.helsinki.fi/course/view.php?id=31008). After the traineeship, the second portfolio is returned along with work certificate.

Instructions for portfolios are available as general UH guidelines for internships: https://guide.student.helsinki.fi/en/article/traineeship-nutshell and ECGS Portfolio Moodle-page.

Grading scale

Pass/fail

Assessment practices and criteria

Approved internship portfolios and a certificate of work.

Activities and methods in support of learning

Learning is reflected in portfolios.

Target groups

Open to all ECGS master programme students.

Teaching period when the course will be offered

Continuously in any period.

Recommended time or stage of studies for completion

1st or 2nd study year in master's programme.

Expiry of studies

Valid for 10 years

Language of instruction

English

Language of learning

English, Finnish or Swedish

Course level

EQF level 7

Study materials

FI: Instructions in Moodle platform.

ECGS-154 Research group training, Work placement

ECGS-154 Tutkimusryhmäharjoittelu, Harjoittelu

ECGS-154 Forskningspraktik, Praktik

Abbreviation: ECGS-154

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5-10 cr
Languages	Finnish, Swedish, English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Olli-Pekka Penttinen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: BSc in relevant field. The theoretical major subject studies should be completed to an appropriate extent, and the student should be sufficiently familiar with relevant research methods.

Learning outcomes

FI: 5 cr course:
After the course the student

- has a basic knowledge of practical research work in the research group
- has the basic skills needed to work independently in a research group
- is able to interact with researchers
- has sufficient domain knowledge of the research area
- can evaluate personal research results in the light of corresponding research in the subject area.
- can collaborate and manage time
- be able to write a clear report of the work done.

10 cr course:

After the course the student

- has a intermediate/advanced knowledge of practical research work in the research group
- has the intermediate skills needed to work independently in a research group
- has good communication skills and is able to interact with researchers
- has sufficient domain knowledge of the research area
- can evaluate personal research results in the light of corresponding research in the subject area.
- can collaborate and manage time
- be able to write a clear report of the work done.

Content

FI: 5 cr course:
The goal of this course is to provide students short-term experience in the practical work in a research group at the University, a research institute or a company. The minimum practical training period consists of 15 working days. The student and the research group must negotiate the timetable. Prior to the practical work, the student should contact the responsible teacher and agree upon the project with him. After the course, student will write a portfolio with specific artefacts indicating importance of the work and what was student's own role in the project. The portfolio should include a timeline of activities during the training period, as well as information on knowledge and basic skills received during the training period

10 cr course:

The goal of this course is to provide students long-term (2-3 months) experience in the practical work in a research group at the University, a research institute or a company. The minimum practical training period consists of 45 working days. The student and the research group must negotiate the timetable. Prior to the practical work, the student should contact the responsible teacher and agree upon the project with him. After the training, student will write a portfolio with specific artefacts indicating importance of the work and what was student's own role in the project. The portfolio should include a timeline of activities during the training period, as well as information on knowledge and basic skills received during the training period.

Additional information

FI:

Completion methods

5 cr course:

Active participation, arranged in advance, in the activities of a research group for 15 days.

10 cr course:

Active participation, arranged in advance, in the activities of a research group for 45 days, or longer.

Grading scale

Scaling pass/fail (report and supervisor's statement)

Assessment practices and criteria

Portfolio assessment. Purpose of an assessment portfolio is to document student's learning during RGT. The items in the portfolio must be designed to elicit the knowledge and skill specified in the outcomes. Instruction preparing for portfolio is given in the Moodle page of the RGT (course id= 37507),

Target groups

RGT is organized only for Master's students in Environmental Change and Global Sustainability

Teaching period when the course will be offered

Organised every year, period I- IV, summer period, recommended for 2nd year students. Research groups are in responsible unit to provide training

Recommended time or stage of studies for completion

Second year

Study module

Study module ECGS-muut

Elective studies

Expiry of studies

10 years

Language of instruction

Finnish, Swedish, English

Language of learning

Finnish, Swedish, English

Course level

EQF 6-7 / Basic to intermediate

Study materials

FI: Scientific literature related to the project

ECGS-026 Portfolio for future

ECGS-026 Tulevaisuus portfolio
ECGS-026 Portfolio för framtiden

Abbreviation: ECGS-026

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	1-5 cr
Languages	Finnish, Swedish, English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Olli-Pekka Penttinen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree

Learning outcomes

FI: After the course student has gained e.g. following skills

- has the basic skills needed to participate seminars
- understands the importance of scientific communication
- has incresed labour market intelligence
- has gained understanding of generic skills required in future working life
- has incresed pathfinding capacity
- has increased ability to combine domain specific skills and generic skills
- recognizes the diverse elements of communication and professionalism

Content

FI: Participation in scientific conferences and other events relevant to the field of education

Additional information

FI:

Completion methods

The student can participate e.g. to scientific seminars and report on student's own learning by building portfolio from the information collected from the seminar presentations. The student chooses the seminars to attend from the following categories: thesis defenses, specific seminars, congresses, workshops, short courses, group mentoring, or other clearly defined scientific or education events including also a role of organizer. The seminars should be from the area of ECGS study lines.

After the course, students must return a portfolio reflection assignment to the Moodle platform. Keyword is the reflection. If you are unfamiliar or need support with your portfolio-work, please contact responsible teacher. Portfolio are created using either PowerPoint or any portfolio platform or other available platforms. 10 full day seminars with accepted portfolio assignments correspond 5 cr; 2 thesis defense sessions correspond one full day.

Grading scale

Pass/fail

Assessment practices and criteria

Portfolio assessment. Purpose of the assessment portfolio is to document student's learning during events. The items in the portfolio must be designed to elicit the knowledge and skill specified in the outcomes. Instruction preparing for portfolio is given in the Moodle page of the Portfolio for future

Target groups

Optional for students in ECGS

Teaching period when the course will be offered

Period 1-4

Recommended time or stage of studies for completion

First and second year of MSc studies

Study module

Study module ECGS-muut

Elective studies

Expiry of studies

10 years

Language of instruction

English, Finnish

Language of learning

Finnish, English, Swedish

Course level

EQF 7 / basic

Study materials

FI: Seminar/events material

ECGS-006 Master's thesis

ECGS-006 Maisterintutkielma

ECGS-006 Magisteravhandling

Abbreviation: Maisterintutkie

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	30 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Bio- ja ympäristötieteellinen tiedekunta, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: The student needs to have the necessary knowledge and skills for collecting the data (field/laboratory) and processing (statistics) them, and skills for scientific writing.
Prerequisite studies: Introduction to Sustainability Science and Sustainability Science Concepts. Bachelor's degree.

Learning outcomes

FI: After completing the thesis, the student will be able to

- to plan and implement a research project in a timeframe
- to define appropriate research questions and base them with a theoretical framework
- to design and carry out data collection under supervision
- to analyse and interpret the research results
- to present the results of the research according to scientific standards
- to receive and use feedback in his/her own research and writing
- to apply ethical principles in science.

Content

FI: The Master's thesis is usually based on an empirical research project and critical contemplation of the results in the light of scientific literature on the topic. The thesis may also consist of a theoretical literature study. A Master's thesis project usually consists of four distinct phases

1. design and planning of the study
2. gathering the data (field work and/or laboratory work and/or mathematical modelling)
3. analysing the data (validation/quality control, statistical analysis, plotting)
4. interpreting and discussing the results in the light of existing literature.

Additional information

FI:

Target groups

The course is compulsory for the students of Master's Programme in Environmental Change and Global Sustainability. GS study line.

Recommended time or stage of studies for completion

Mainly second year of MSc studies. Research plan periods 3-4 during the first year of MSc studies, and gathering of data in the summer of the first study year or during periods 1-2 of the second study year; data processing and writing period 3 of the second study year.

Assessment practices and criteria

Approval and grading is based on the written Master's thesis. The MSc thesis will be graded on the scale according the guidelines of the university.

Completion method

Student will write the MSc thesis on the basis of guidelines delivered in the Master's seminar. In many cases, the work is carried out in a research project in which the student has a clearly defined and independent role. The total workload (corresponding 30 cr.) starting from designing the project to its completion is approximately 4.5 months (800 hrs or 20 weeks at 40 hrs/week).

Detailed information about the Master's thesis is provided by the MSc programme.

Other information

The Master's thesis project may not be started before obtaining an approval for the Master's thesis plan. For further information, see the general Instructions for Master's Theses.

Each MSc thesis must have at least one supervisor at the university or elsewhere.

Relations to other study units

Master's Thesis work is done in connection to Master's Thesis Seminar.

The thesis may not be approved before the student has passed the maturity test.

Responsible person

Head of the Master programme David Thomas

Course level

Master's level, (second-cycle degree/EQF level 7).

Study materials

FI: Mainly international, scientific papers depending on the topic of the Master's thesis.

ECGS-001 Introduction to Sustainability Science

ECGS-001 Johdatus kestävyystieteeseen

ECGS-001 Introduktion i hållbarhetsvetenskap

Abbreviation: Introduction to

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, English, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Janna Pietikäinen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor degree in relevant field

Equivalences to other studies

AYECGS-001en Open uni: Introduction to Sustainability Science

Learning outcomes

FI: After the course the student

- has basic understanding what sustainability science is and knows its historical development
- can discern the theoretical frameworks and key concepts behind sustainability science
- has basic understanding how human and natural systems interact
- can describe social-ecological systems and knows the fundamental principles of systems thinking
- has an understanding of inter- and transdisciplinary approaches and can communicate in interdisciplinary contexts
- is able to describe planetary boundaries
- can describe and analyse sustainability problems and suggest possible solutions through inter- and transdisciplinary thinking
- understands the institutional contexts and conditions of sustainability problems and their solutions
- has an understanding of the contents of the ECGS Master's programme, including the modules outside the student’s own module

Content

FI: The course brings together the new students across the EC and GS study track divide and introduces the modules and topics covered in the ECGS master programme. The course covers basic principles of sustainability science with special reference to its interdisciplinary and systemic dimensions. The focus of the course is on addressing real world sustainability problems like climate change, biodiversity loss, deteriorated aquatic ecosystems, access to clean water, land use change, food security, and other complex or wicked problems.

Additional information

FI:

Completion methods

Participation in teaching

On-site lecture course.

Since one aim in the course is that students from the two study tracks and eight modules will meet and learn from the different points of views covered in ECGS, integrating themselves into the programme, alternative completion methods will be offered only when strictly needed.

Grading scale

Scale 0-5

Assessment practices and criteria

The learning outcomes are assessed using self- and peer evaluation. The grading criteria are given in Moodle.

Activities and methods in support of learning

The course will include lectures and course work sessions, where students will work in groups. Working in groups is particularly important in this course because of the goals related to integration to the programme, inter- and transdisciplinary problem solving, and communication skills.

Written assignments supports deeper understanding of the topics the student find most relevant. Regular self-assessment during the course supports the reflection of student's individual learning progress. Peer-evaluation enhance learning how to give and receive constructive feedback.

Exact course work and activities will be provided in the annual teaching programmes.

Target groups

1st year ECGS master's degree students

Teaching period when the course will be offered

1st period

Recommended time or stage of studies for completion

1st year of master studies.

Expiry of studies

10 years

Language of instruction

English

Language of learning

English, Finnish or Swedish

Literature and learning material

Lecture material and other material assigned to the course in Moodle.

Course level

EQF leve 7 / intermediate

ECGS-004 Master's thesis seminar

ECGS-004 Maisterintutkielmaseminaari

ECGS-004 Magisteravhandlingens seminarium

Abbreviation: ECGS-004

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, English, Swedish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Eva-Karin Heiskanen, Responsible teacher Jaanika Blomster, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Introduction to Sustainability Science, Sustainability Science Concepts, methodology courses and relevant advanced studies needed for own research work. Bachelor's degree.

Learning outcomes

FI: The aim of the course is that the student

- gets an overview of the thesis process
- will be able to formulate and write a research plan
- can plan and give oral presentations with visual material on one’s own research plan and the results of the study
- will be able to critically analyse other students’ research plans and results
- can give and receive feedback on the presentations

Content

FI: Students plan their research, write the research plan and present the plan and the results in the Master's Thesis Seminar. The seminar consists of contact teaching common for all ECGS students, and seminar presentations and discussion sessions in groups formed according to research topics or approaches.

Additional information

FI: Completion methods

Participation in teaching (joint sessions, seminar groups) and independent work

Grading scale

Pass/fail

Assessment practices and criteria

The student will pass the course once all tasks are completed:

- attendance of the common sessions and tasks related to them completed (5 sessions, 2 hr each)
- attending the discipline-specific seminar group sessions (8 sessions, 1.5 h each)
- presentations (2) in the discipline-specific groups

Target groups

ECGS students only

Teaching period when the course will be offered

Periods 1 and 3

Recommended time or stage of studies for completion

Recommended 1st year spring or 2nd year autumn

Study module

Compulsory in ECGS-450 CORE STUDIES module

Expiry of studies

Course is valid for 10 years

Language of instruction

English

Language of learning

Finnish, English, Swedish

Literature and learning material

Lecture material and other material assigned to the course in Moodle

Course level

Master's level, (second-cycle degree/EQF level 7).

ECGS-008 Master's thesis for Subject Teacher

ECGS-008 Maisterintutkielma aineenopettajille

ECGS-008 Magisteravhandling för ämneslärare

Abbreviation: Maisterintutkie

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	30 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Bio- ja ympäristötieteellinen tiedekunta, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: The student needs to have the necessary knowledge and skills for collecting the data (field/laboratory) and processing (statistics) them, and skills for scientific writing.
Prerequisite studies: Introduction to Sustainability Science and Sustainability Science Concepts. Bachelor's degree.

Learning outcomes

FI: After completing the thesis, the student will be able to

- to plan and implement a research project in a timeframe
- to define appropriate research questions and base them with a theoretical framework
- to design and carry out data collection under supervision
- to analyse and interpret the research results
- to present the results of the research according to scientific standards
- to receive and use feedback in his/her own research and writing
- to apply ethical principles in science.

Content

FI: The Master's thesis is usually based on an empirical research project and critical contemplation of the results in the light of scientific literature on the topic. The thesis may also consist of a theoretical literature study. A Master's thesis project usually consists of four distinct phases

1. design and planning of the study
2. gathering the data (field work and/or laboratory work and/or mathematical modelling)
3. analysing the data (validation/quality control, statistical analysis, plotting)
4. interpreting and discussing the results in the light of existing literature.

Additional information

FI:

Target groups

The course is compulsory for the students of Master's Programme in Environmental Change and Global Sustainability, subject teacher study line..

Recommended time or stage of studies for completion

Mainly second year of MSc studies. Research plan periods 3-4 during the first year of MSc studies, and gathering of data in the summer of the first study year or during periods 1-2 of the second study year; data processing and writing period 3 of the second study year.

Assessment practices and criteria

Approval and grading is based on the written Master's thesis. The MSc thesis will be graded on the scale according the guidelines of the university.

Completion method

Student will write the MSc thesis on the basis of guidelines delivered in the Master's seminar. In many cases, the work is carried out in a research project in which the student has a clearly defined and independent role. The total workload (corresponding 30 cr.) starting from designing the project to its completion is approximately 4.5 months (800 hrs or 20 weeks at 40 hrs/week).

Other information

The Master's thesis project may not be started before obtaining an approval for the Master's thesis plan. For further information, see the general Instructions for Master's Theses.

Each MSc thesis must have at least one supervisor at the university or elsewhere.

Relations to other study units

Master's Thesis work is done in connection to Master's Thesis Seminar.

The thesis may not be approved before the student has passed the maturity test.

Responsible person

Head of the Master programme David Thomas

Course level

Master's level, (second-cycle degree/EQF level 7).

Study materials

FI: Mainly international, scientific papers depending on the topic of the Master's thesis.

ECGS-002 Philosophy and Methodology of Sustainability Science

ECGS-002 Kestävyystieteen filosofia ja metodologia

ECGS-002 Hållbarhetsvetenskapens filosofi och metodik

Abbreviation: Philosophy and

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Michiru Nagatsu, Responsible teacher Milutin Stojanovic, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Basic science and social science methodology courses will help understand key concepts that are assumed in the course.
Bachelor's degree.

Equivalences to other studies

AYECGS-002en Open uni: Philosophical and Methodological Foundations of Sustainability Science

Learning outcomes

FI: After completing this course you are able to

- describe and apply key concepts of sustainability science
- understand what constitutes scientific knowledge in sustainability science and how it is produced
- understand the relations between science, values and policy in sustainability issues
- understand and describe challenges of interdisciplinary and transdisciplinary research on sustainability
- propose possible ways to address these challenges
- work in group to discuss these issues and learn from others' perspectives.

Content

FI:

- What is Sustainability?
- Interdisciplinarity and Sustainability Science
- Values in Sustainability Science
- Fossil-Fuelled Civilisation
- Social Metabolism

- Sustainability Transitions or Societal Collapse?
- Eco-emotions: anxiety, assurance, fear and hope

Additional information

FI:

Completion methods

- Attendance in a lecture and a seminar per week (required)
- Weekly learning diary
- Final exam (required)

When the teacher accepts that there is legitimate reason that the method above cannot be used, book exams will be prepared for those students.

Grading scale

General scale, 0-5

Assessment practices and criteria

Learning diary: pass or 'incomplete' (need to resubmit)

Final exam, criterion:

- Does the essay clearly show that you have read and understood the relevant learning materials (articles, lectures)?
- Does the essay define and explain your concepts clearly?
- Does the essay make your assumptions clear and transparent? Does the essay present a sound argument?
- Does the essay answer the questions asked?
- Is the essay's structure clear and easy to follow (e.g. sections)? Is the style appropriate for a written academic essay?

20% for each criterion: The percentages are a rough guide. Excelling in one category can in part compensate for shortcomings in other dimensions of the essay.

Activities and methods in support of learning

- Active discussion with course participants is expected. Learn to listen and talk well.
- Seminars may happen outdoors, weather permitting.

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

Master's level, (second-cycle degree/EQF level 7).

Course level: intermediate

Study materials

FI: Weekly reading assignments may change every year. Basically we read 1-2 papers/week, a book chapter or a peer-reviewed scientific article. The following ebooks are available as basic textbooks for background knowledge and references:
eBook1: Robertson (2017) Sustainability: Principles and Practice

eBook2: Caradonna (2014) Sustainability: A History

eBook3: Stern (2018) Social Science Theory for Environmental Sustainability: A Practical Guide

eBook4: de Vries (2013) Sustainability Science

eBook5: Norton (2015) Sustainable Values, Sustainable Change

ECGS-050 Effective Science Communication

ECGS-050 Tehokas Tiedeviestintä

ECGS-050 Effektiv Vetenskapskommunikation

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Swedish, Finnish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Christopher Raymond, Responsible teacher David Thomas, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: A bachelor's degree (or equivalent) in natural or social sciences. The course is tailored to Finnish Master's thesis requirements. Open to Erasmus students.

Equivalences to other studies

ECGS-007 Science Conference Course

Learning outcomes

FI: By the end of this course, students who effectively engaged with course material should be able to:

- Identify the structural factors that contribute towards a quality scientific paper in the social sciences or natural sciences
- Critically read scientific publications and integrating critical literature reviews into scientific articles
- Apply time management and project management techniques to deliver projects on time and overcome writer's blocks and other creative slowdowns
- Identify and apply the principles of effective science communication for a wider non-specialist audience.
- Use AI in research

Content

FI: A core course which will support all courses in the ECGS program. The course provides students with the skills to communicate the results of their work to scientific and societal audiences. The course also teaches time management skills and tools to deliver projects and dissertations in time.
Lectures on science communication, project management, scientific writing and dealing with deadlines. Popular science exercises. Choose between, e.g., a scientific poster, "popular science" article, or similar medium of scientific communication. Workshops on how to effectively communicate science on social media.

Additional information

FI: Completion methods
Participation in lectures, individual and group work, and practical workshops. The course includes compulsory face-to-face meetings and cannot be completed entirely by distance learning.

Grading scale

Scale pass/fail

Assessment practices and criteria

- learning diary (2000 words): Critical analysis of a scientific book, taking account the content from the lectures
- Individual assignment: newspaper article or a scientific poster on a science topic of relevance to ECGS, applying the principles of effective science communication learnt during the course
- peer to peer discussion and feedback on the newspaper article or poster written by another peer

Activities and methods in support of learning

Lectures presenting on the theory of critical reading and science communication will be conducted one day per week.

Separate to this we encourage each assignment group to meet 1-day per week to prepare their assignments and provide feedback (self-organised online or in-person).

Target groups

Open primarily to ECGS master students and secondarily AGERE or FOR master students. Open to Erasmus students.

Teaching period when the course will be offered

Teaching period 2

Recommended time or stage of studies for completion

Compulsory for all ECGS Masters students. Ideally taken in the second year of Masters Program, prior to commencement of thesis writing.

Study module

Compulsory methodological study in ECGS-450 core studies-module

Expiry of studies

The course is valid for 10 years

Language of instruction

English

Language of learning

English, Finnish or Swedish

Course level

EQF primarily 7, also 8

Master's level, (second-cycle degree/EQF level 7). The course is also suitable on Doctoral level (thirdcycle (doctoral) degree/EQF level 8)

Study materials

FI: We will be drawing on:

- Open access learning templates from Wallace, M. and Wray, A. (2021). 4th#Edn. Critical Reading and Wri-ting for Postgraduates. Sage Publications.https://uk.sagepub.com/en-gb/eur/critical-reading-and-wri-ting-for-postgraduates/book269501
- Open access book by Illington, S. and Allen, G. (2016) Effective Science Communication A practical guide to surviving as a scientist. IOP Books. https://iopscience.iop.org/book/mono/978-0-7503-11700

Lecture material and other material assigned to the course in Moodle. Some course material to be handed out during workshops separately to Moodle platform.

ECGS-024 Technology in ecological research and environmental monitoring

ECGS-024 Teknologian käyttö ekologisessa tutkimuksessa ja ympäristömonitoroinnissa

ECGS-024 Teknik inom ekologisk forskning och miljöövervakning

Abbreviation: Technology in E

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki

Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	John Loehr, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree

Learning outcomes

FI:

- Ability to independently plan missions and operate remotely operated vehicles
- Ability to process data to make orthomaps and 3d models using online resources and photogrammetry software
- Knowledge of ROV use in ecological research
- Ability to plan and execute 2d drone mapping mission
- Ability to use automatic aquatic data loggers and analyse the data
- Proficiency in use of Benthotorch for making benthic algal content measurements
- Ability to make 3d photogrammetry and Lidar modelling
- Ability to collect and analyze bioacoustic data

Content

FI:

- Introduction to RPAS (Remotely Piloted Aerial Vehicle) and aquatic ROV (Remotely Operated Vehicle) technology
- Basic proficiency in operation of these vehicles. Includes European drone pilot A1/A3 qualification
- Planning and execution of 2d mapping mission
- 2d orthomapping and 3d photogrammetry and lidar modelling
- ROV use in environmental research
- Gathering and analysing bioacoustics data
- Students will plan and execute their own mini research projects using techniques learned during the contact days

Additional information

FI: Completion methods
Field course, in person

Grading scale

General scale 0-5

Assessment practices and criteria

Grade consists of assessment of class participation and groupwork presentation

Target groups

ECGS and EEB students given priority

Teaching period when the course will be offered

Usually end of September or beginning of October

Recommended time or stage of studies for completion

MSc first or second year

Expiry of studies

Course is valid for 10 years

Language of instruction

English, Finnish for one-on-one discussion

Language of learning

English, Finnish

Course level

Master's level, (second-cycle degree/EQF level 7).

ECGS-091 Knowledge co-production and transformative research

ECGS-091 Tiedon yhteistuotanto ja transformatiivinen tutkimus

ECGS-091 Samskapande av kunskap och transformativ forskning

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Guido Caniglia, Responsible teacher Michiru Nagatsu, Responsible teacher Erik Andersson, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree.

Learning outcomes

FI: By the end of the course, students will be able to:

- Understand and critically reflect on key theories and frameworks in co-production and transformative research
- Recognize and respond to ethical and political complexities in collaborative processes
- Understand the different outcomes of co-creation and design a targeted, co-productive, reflexive, and ethically grounded participatory process
- Apply creative and experiential methods to support inclusive knowledge co-production

Content

FI: This course introduces students to the theory and practice of knowledge co-production and tive research (often also defined as transdisciplinary research) as approaches and frameworks f sing complex societal and environmental challenges. Students will explore how inclusive, collab and action-oriented research can contribute to sustainability transformations, while navigating pluralism, power asymmetries, and political tensions. The course emphasizes creativity, long ter gement, and arts-based and experiential approaches, and invites students to engage with their tices through dialogue, embodiment, and experimentation. Overlapping ethical and methodological reflection and learning are woven in throughout, with the goal to support students in navigating the u ties, conflicts, and power dynamics of real-world co-production. Through case studies analysis, c sessment of analytical frameworks, and learning-by-doing, students will gain an understanding lenges and opportunities that collaborative research entail when attempting to design just, refle impactful research processes.

Key Topics

- Foundations of co-production and transformative research
- Dialogue and the main methodological approaches in knowledge co-production (e.g., transdisciplinary methods)
- Main characteristics of co-production and transformative research (e.g. theory of change, local agency, reflexivity)
- Systems-oriented, arts-based and experiential methods for engagement and transformation
- Ethical-methodological capacities for navigating the complexities of knowledge co-production

Additional information

FI: Completion methods

- Reflexive Learning Portfolio

Ongoing reflections combining text, visuals, and creative formats to explore personal, ethical conceptual dimensions of co-production.

- Critical Case Study Analysis

In-depth analysis of a co-production or transformative research project of the student's choice, focusing on tensions, power, ethics, and impact.

- Final Design Task

Prototype a targeted, dialogue-based co-production process, integrating key frameworks, a series of sequential activities/exercises, and reflexivity.

The completion method may vary between the above-mentioned methods between academic years. The completion method(s) will be determined and redefined in the annual teaching programs.

Grading scale

General scale, 0-5

ECGS-003 Practical application of sustainability science: learning project

ECGS-003 Kestävyystiede käytäntöön -projektikurssi
ECGS-003 Hållbarhetsvetenskap i praktiken - projektkurs

Abbreviation: Practical appli

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, English, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Jaanika Blomster, Responsible teacher Eva-Karin Heiskanen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree

Equivalences to other studies

863067 Others (YE13.11)

or

86135 From science to practice - Aquatic Project Course

or

ECGS-0031 Governance of environmental problems of the Baltic Sea - a project course

Learning outcomes

FI: The aim of the course is that the students

- can carry out project work in small groups
- will be able to analyze and apply theories of their own field in practice and in developing new ideas
- is able to work in a multidisciplinary group and utilize the knowledge of his/her own filed towards reaching the aims of the working group
- will get true working life contacts
- will get practice on skills on group work, communication and in making presentations
- becomes aware of her/his own skills and know-how and will be encouraged by it

Content

FI: During the course students get familiar with project planning and mastering theory and carry out true projects for employers on the field. Students present their project outcome in a seminar. The work on the course is intensive and requires commitment to the project and the group.#

Additional information

FI: Completion methods
Participation in teaching and groupwork. Student groups present their project outcome in a seminar. Most of the group work is done during the teaching sessions. The course includes compulsory face-to-face meetings and cannot be completed entirely by distant learning.

Grading scale

Scale 0-5.

Assessment practices and criteria

The group will get a grade (0/1-5) of the work on the course. However, the final grade of a student can be affected by his/her activity on the course and the input on the project.

The grade is based on the group's self-evaluation and teacher evaluation. The partners will also be asked for their opinion about the group's work.

- Grade 5: The group works actively and supportively, and all members are involved. All tasks are completed with an open mind and showing expertise. The group is committed to meeting its targets.
- Grade 3: The group collaborates well and all tasks are completed. However, the criteria for excellent work are not met.
- Grade 1: The group works together and completed the assigned tasks.

Target groups

Primarily ECGS and AGERE students

Teaching period when the course will be offered

period 4

Recommended time or stage of studies for completion

1st or 2nd year of M.Sc. studies

Study module

Optional in ECGS-450 CORE studies

Expiry of studies

Course is valid for 10 years

Language of instruction

English

Language of learning

Finnish, English, Swedish

Literature and learning material

Scientific literature related to the topic of the project. Lecture material and other material assigned to the course in Moodle

Course level

EQF level 7 / advanced

ECGS-101 Advanced marine ecology

ECGS-101 Syventyvä meriekologia

ECGS-101 Fördjupad marinekologi

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Marie Nordström, Responsible teacher Alf Norkko, Responsible teacher Aleksandra Lewandowska, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Completed aquatic and/or ecological courses at BSc level are recommended. Bachelor's degree.

Learning outcomes

FI: After completing the course, students will have:

- an understanding of marine communities and associated processes
- an understanding of the relationship between structure and functioning in marine and coastal ecosystems
- knowledge of the main threats to marine ecosystems and associated changes in community structure and function
- knowledge of methods and approaches used in marine ecological research of biodiversity and functioning
- the ability to critically evaluate and synthesize studies published in scientific journals
- insight into current research questions and actors in the scientific field, nationally and internationally

Content

FI: This course provides the foundation for topics in marine ecology explored in following ECGS courses with marine focus

- Marine community ecology, structure and processes
- Biodiversity and functioning in marine ecosystems
- Mensurative and manipulative approaches
- Current challenges relating to anthropogenic pressures and climate change

Additional information

FI: Completion methods

- Lectures
- Literature discussions
- Individual assignment
- Group work (including data analysis, report writing, presentation)

Grading scale

General scale, 0-5

Assessment practices and criteria

Assessment and grading as follows:

Literature discussions, assigned work: 20%

Individual assignment: 20%

Group work: 60%

Target groups

First priority is given to ECGS students in the study module Aquatic Sciences, where the course is compulsory.

Second priority is given to other students in ECGS and students in the Master's Programme in Ecology and Evolutionary Biology.

Open to exchange students and other interested groups.

Teaching period when the course will be offered

Period 2

Recommended time or stage of studies for completion

First year of MSc studies

Study module

ECGS-110 Aquatic Sciences Study Module (compulsory course)

Expiry of studies

The course expires in 10 years. The completion method for the course, if completed over 10 years ago, is agreed with the course responsible teacher.

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

7 / advanced

ECGS-018 Food webs of aquatic ecosystems

ECGS-018 Vesiekosysteemien ravintoverkot

ECGS-018 Akvatiska födovävar

Abbreviation: ECGS-018

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, English, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Marie Nordström, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree. Completed basic aquatic and/or ecological courses at BSc level are recommended.

Learning outcomes

FI: After completing the course, students will have:

- a comprehensive understanding of the structure and functioning of aquatic food webs
- knowledge of the interactions among different food web components
- knowledge of the theories and hypotheses that describe the functioning of food webs
- the ability to evaluate the responses of aquatic food webs to different disturbances and management actions

Content

FI:

- Food web structure and components in aquatic ecosystems
- Food web functioning in aquatic ecosystems
- Aquatic food webs under anthropogenic pressure and climate change

Additional information

FI:

Completion methods

- Lectures
- Literature discussions with associated assignments
- Computer practical exercises with reporting
- Seminar + essay

Grading scale

General scale, 0-5

Assessment practices and criteria

Individual assignments constitute 40% of the grade, and the seminar (with essay) constitutes 60% of the grade

Target groups

First priority is ECGS students in the study module Aquatic Sciences, where the course is compulsory.

Second priority is other students in the ECGS Master's Programme and students in the Master's Programme in Ecology and Evolutionary Biology.

Open to exchange students and other interested groups.

Teaching period when the course will be offered

Periods I-II

Recommended time or stage of studies for completion

First year of MSc studies

Study module

ECGS-110 Aquatic Sciences Study Module (compulsory course)

Expiry of studies

The course expires in 10 years. The completion method for the course, if completed over 10 years ago, is agreed with the course responsible teacher.

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

7 / advanced

Study materials

FI: Literature and study material to be provided during the course

ECGS-103 Function and management of freshwater ecosystems

ECGS-103 Sisävesiekosysteemien toiminta ja hoito

ECGS-103 Funktion och förvaltning av sötvattensekosystem

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Jukka Horppila, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Basic knowledge on the structure of aquatic ecosystems. Bachelor’s degree.

Learning outcomes

FI:

- Knowledge on the responses of freshwater ecosystems to disturbances.
- Knowledge on diagnosing the environmental problems of lake ecosystems and means to apply research-based solutions in resolving them.
- Comprehensive knowledge on planning and methodology of freshwater ecosystem management and restoration.
- Ability to evaluate the effects of different restoration and management methods.
- Ability to give both written and oral justification for decisions made on the management and restoration of freshwater ecosystems.

Content

FI: Responses of aquatic ecosystems to disturbances, ecosystem resilience. Diagnostics of different disturbances. Goals, methodology and planning of freshwater management and restoration. Results of case studies.

Additional information

FI: Completion methods

Participating in contact teaching lectures. Group work in essay writing and presentation of essay conclusions in course seminars. Participation in the on-site lectures is voluntary, but the group work, attending the course seminars and seminar presentation are compulsory. The course cannot be completed as distance learning.

Grading scale

General scale, 0-5

Assessment practices and criteria

The grade of the course is given based on the written essay and seminar presentation.

Target groups

Students in the EC-line of ECGS (priority group), open to all master students and exchange students.

Teaching period when the course will be offered

Period 3-4 (lectures period 3, seminars period 4)

Recommended time or stage of studies for completion

1st study year in master's

Study module

ECGS-110 Aquatic sciences module

Expiry of studies

The course is valid for 10 years

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

EQF level 7 / Advanced

Study materials

FI: Lecture material and other material assigned to the course in Moodle. Additional materials announced separately each year.

ECGS-011 Advanced aquatic and sediment biogeochemistry

ECGS-011 Syventävä vesi- ja sedimenttibiogeokemia
ECGS-011 Fördjupad akvatisk och sedimentär biogeokemi

Abbreviation: ECGS-011

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, English, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Thomas Jilbert, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree.
It is an advantage if students are familiar with basic concepts in the field of aquatic biogeochemistry:

- Carbon, nitrogen and phosphorus cycling in aquatic systems
- Ocean circulation and the biological pump
- Early diagenesis in sediments and benthic nutrient fluxes
- Eutrophication and hypoxia
- Acid rain, acidification and recovery in freshwater systems
- Basic techniques in water and sediment chemical analysis

Learning outcomes

FI: Scientific knowledge gained during the course

- Understanding of dissolved and particulate organic matter cycling in estuarine and coastal systems
- Understanding of nutrient regeneration/removal and carbon burial in estuarine and coastal systems
- Understanding of the diagenetic zonation of sediments, and coupled microbial processes in the sediment column
- Understanding of benthic oxygen fluxes and the role of benthic organisms in coastal habitats
- Understanding of silicate chemistry in ocean-margin sediments
- Understanding of authigenic mineral formation (carbonates, phosphates, sulfides) in sediments
- Understanding of the impact of sediment processes on greenhouse gas emissions

Specific skills gained or further developed during the course

- Ability to read and evaluate English-language scientific articles in the field of aquatic biogeochemistry
- Ability to perform calculations using chemical equations, for quantitative understanding of element cycling, and to place the results in context

Content

FI: Online lecture content
The course includes lectures given onsite and as well as online recorded materials. Guest teachers and topics may vary between years but the course will cover the following main themes:

- Early diagenesis in sediments; redox zonation and microbially mediated reactions
- Coupled biogeochemical cycles in sediments and human impacts on reaction rates
- Dissolved organic matter cycling in boreal estuaries and implications for sediment organic matter composition
- Nutrient retention and release in coastal systems
- Benthic oxygen consumption and production in coastal ecosystems
- Impact of sediment processes on greenhouse gas emissions (CO_2, CH_4, N_2O)
- Authigenic mineral formation in sediments
- Sediment chemistry in marine oxygen minimum zones: carbon and silica cycling

Computer practical exercises

- Four interactive computer exercises based on the above topics

Minisymposium

- Attendance at a minisymposium featuring 4 PhD and postdoc researchers. Students listen to the presentations and formulate constructive questions.

Compulsory reading, completion of computer exercises and minisymposium report

- Each of the above components is augmented with additional tasks. Lectures have additional reading, the computer practicals contain extra tasks to be done in your own time, and a report must be written following the minisymposium.

Additional information

FI:

Completion method

Course components

The overall study time is approx. 135 hours (5 ECTS):

- Watching the online lectures and attending onsite lectures (8 x 2h)
- Completing the associated reading (8 x 4h)
- Attending the supervised computer practical exercises, or completing these in own time (4 x 2h)
- Attending the minisymposium (1 x 2 h)
- Writing the minisymposium report (1 x 8 h)
- Revision of material for exam (60-70 h)
- Final exam (1 x 2 h)

To pass the course, students must complete the computer exercises, minisymposium report and final exam. Alternative arrangements for the final exam are possible upon request, e.g. remote online exam

Grading scale

General scale, 0-5, whereby:

0-50% = fail

50-59% = pass grade 1

60-69% = pass grade 2

70-79% = pass grade 3

80-89% = pass grade 4

90-100% = pass grade 5

Assessment practices and criteria

Assessment breakdown

Students must complete each of the three following components to pass. Grading is weighted as follows:

- Computer practical exercises: 25%
- Minisymposium report:#25%
- Final exam: 50%

The computer practical exercises and the minisymposium report as graded as pass/fail, i.e. a student can achieve 50% (pass grade 1) by passing these components. The final exam may then raise the grade from 1 upwards.

Target groups

Priority is given to students of the degree programs ECGS (Aquatic Sciences module) and GEOM. Students from related MSc programs are welcome. The course can also be part of open university offerings.

Teaching period when the course will be offered

Period IV

Recommended time or stage of studies for completion

Period IV of year I of the MSc.

Study module

Aquatic Sciences

Language of instruction

English

Language of learning

English, Swedish, Finnish

Course level

7 / advanced

Study materials

FI: The course materials are accessible via the Moodle page. These include recorded lectures, textbook chapters and scientific articles.

ECGS-052 Arctic climate change in terrestrial ecosystems

ECGS-052 Arktinen ilmastonmuutos maaekosysteemeissä

ECGS-052 Arktisk klimatförändring i terrestra ekosystem

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Tarmo Virtanen, Responsible teacher Tomas Roslin, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree (in environmental or related sciences or corresponding knowledge of ecology).

Equivalences to other studies

ECGS-039 Arctic climate change

Learning outcomes

FI: After the course the student

- has basic understanding of climate and terrestrial ecosystem features and processes specific for Arctic areas
- has knowledge about Arctic terrestrial ecosystem types and landscape properties, ecology, and species properties;
- can describe the links between organisms and functioning in different terrestrial ecosystems and the potential changes that will appear in these links under climate change over various time scales;
- can apply the achieved information to environmental management and climate mitigation and adaptation

Content

FI: The course includes lectures and literature of the effects of climate change on the organisms and functioning of terrestrial tundra and Arctic peatland ecosystems. Lectures will cover the subject in a broad ecological context. CAFF-report "State of the Arctic Terrestrial Biodiversity: Key Findings and Advice for Monitoring" and some other reading material to be announced in the course are used.

Additional information

FI: Completion methods
To complete the course, the students are supposed to listen to the lectures (compulsory attendance at 50% of lectures), write a 1500 word essay based on the lecture series and related literature search, and prepare a document based on the provided material.

Grading scale

General scale, 0-5

Assessment practices and criteria

The course will be graded as 0-5 using the scores achieved from an assignment (50%) based around the literature summary, and a 1500-word essay based on the lecture series (50%)

Activities and methods in support of learning

Moodle page, feedback on course assignments given in Moodle.

Target groups

ECGS students. Priority is given to students in the study module Changing Arctic and Northern Environments, where the course is compulsory. Open to other interested students with fitting backgrounds and exchange students.

Teaching period when the course will be offered

II period.

Recommended time or stage of studies for completion

During 1st year of Master’s studies.

Study module

ECGS-510 Changing Arctic and northern environment module.

Expiry of studies

Course is valid for 10 years.

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

EQF level 7 / Advanced

Study materials

FI: Course material and instructions will be distributed during the course in Moodle. Literature needed in seminar and course work will be agreed on with the teachers of the course.

ECGS-051 Aquatic ecosystems in a changing Arctic

ECGS-051 Akvaattiset ekosysteemit muuttuvassa Arktiksessa

ECGS-051 Akvatiska ekosystem i ett föränderligt Arktis

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	David Thomas, Responsible teacher Marie Nordström, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree in environmental or related sciences or corresponding knowledge of aquatic ecology

Equivalences to other studies

ECGS-039 Arctic climate change

Learning outcomes

FI: After the course the student will have:

- a knowledge about a range of Arctic aquatic ecosystems;
- a basic understanding of how climate change is influencing aquatic ecosystems and processes specific for Arctic areas
- a basic understanding to be able to describe the links between organisms, food webs and their functio-ning in different aquatic ecosystems and the potential changes to these webs under climate change over various time scales;
- chance to apply the achieved information to environmental management and discussions about climate mitigation and adaptation

Content

FI: The course includes lectures and literature review of the effects of climate change on the organisms, food webs and functioning of a range of Arctic aquatic ecosystems. Lectures will cover the subject in a broad ecological context.

Additional information

FI: Completion methods
To complete the course, the students are supposed to attend the lectures. There will be a 1500 word essay based on the lecture series as well as a "short dialogue" about climate issue on aquatic systems in the Arctic (based on the provided material).

Grading scale

General scale 0-5

Assessment practices and criteria

The course will be graded as 0-5 using the scores achieved from an assignment (50%) based around a literature summary, and a 1500-word essay based on the lecture series (50%)

Activities and methods in support of learning

Moodle page, feedback on course assignments will be given in Moodle.

Target groups

ECGS students and other interested students with fitting backgrounds. Priority is given to ECGS students in study modules 1. Changing Arctic and Northern Environments and 2. Aquatic Sciences.

Open to exchange students

Teaching period when the course will be offered

Period II

Recommended time or stage of studies for completion

During 1st year of Master's studies for ECGS students in the Changing Arctic and Northern Environments study module.

During 2nd year of Master's studies for ECGS students in the Aquatic Sciences study module.

Study module

ECGS-510 Changing Arctic and northern environment study module.

Expiry of studies

Course is valid for 10 years.

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

EQF level 7 / Advanced

Study materials

FI: Course material and instructions will be distributed during the course in Moodle. Literature needed in seminar and course work will be agreed on with the teachers of the course.

ECGS-034 Seminar in northern ecosystems and environment

ECGS-034 Pohjoiset ekosysteemit ja ympäristö –seminaari

ECGS-034 Seminarium i norra ekosystem och miljö

Abbreviation: ECGS-034

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	David Thomas, Responsible teacher Tomas Roslin, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: ECGS-051 and ECGS-052 (Previously ECGS-039 Arctic climate change and ECGS-031)

Equivalences to other studies

ECGS-037 Seminar in Northern Ecosystems and Environment

Learning outcomes

FI: During and after the course, the student

- gains insight into environmental problems and potential solutions in northern areas
- gets practice in scientific information retrieval, critical reading, writing and oral presentation
- learns to act as an opponent
- has a wide view on topical research issues specific for Arctic and other northern areas

Content

FI: The seminar deals with topical research in northern areas, covering atmospheric, climatic, terrestrial, fresh water, marine and socio-environmental sciences

Additional information

FI: Completion methods
Course info meeting, oral presentation and written essay, listening to presentations, acting as an opponent. Attendance mandatory (two absences allowed)

Grading scale

0-5

Assessment practices and criteria

Grade mean of presentation and essay

Activities and methods in support of learning

Feedback after the oral presentation, feedback on essay

Target groups

ECGS-students, EEB-students, Geology and Geophysics, and other interested students with fitting backgrounds. Open to exchange students

Teaching period when the course will be offered

Each year, period 4

Recommended time or stage of studies for completion

1st study year

Study module

“Changing Arctic and northern environments” module in ECGS

Expiry of studies (New)

Valid for 10 years

Language of instruction

English

Language of learning

English, Finnish or Swedish

Literature and learning material

The seminar oral presentations and essays are prepared based on scientific articles

Course level

Master’s level, also suitable on Doctoral level

ECGS-068A Past Environmental Change

ECGS-068A Menneet ympäristömuutokset

ECGS-068A Gångna miljöförändringar

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Jan Weckström, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree in environmental or related sciences.
Recommended prerequisites: ECGS-051 Arctic climate change in aquatic ecosystems and ECGS-052 Arctic climate change in terrestrial ecosystems (Previously ECGS-039 Arctic climate change or ECGS-031).

Equivalences to other studies

ECGS-065 Practicals in past environmental change

or

ECGS-067 Past Environmental Change

or

ECGS-068 Past environmental change

Learning outcomes

FI: The main objective of this course is to provide the student with fundamentals of reconstructing past natural and anthropogenic climate and environmental change, and an understanding of long-term variability as a backbone for environmental management and conservation.
After completing the course, students will be able to

- understand and apply various approaches (field sampling, sediment dating, microscopic and data analytical techniques) to study long-term climate and environmental changes using peatland, lake sediment and marine sediment archives
- critically evaluate and compare the strengths and the weaknesses of research approaches and results
- distinguish between anthropogenic and natural changes in different ecosystems

Content

FI: Principles of palaeoecology, environmental archives and proxies, dating methods and data treatment, applications in past environmental reconstruction. Potential of past environmental information in detection and evaluation of natural and anthropogenic environmental changes and in environmental management and conservation.

Additional information

FI: Completion methods
Lectures and written assignment

Grading scale

General scale, 0-5

Assessment practices and criteria

Final grade (0-5) is based on the lecture series exam (70%) and the written assignment (30%).

Activities and methods in support of learning

Moodle page.

Target groups

Students in Environmental Change and Global Sustainability, Aquatic Sciences, Geology and Geophysics, and other interested students with fitting backgrounds. Open to exchange students.

Teaching period when the course will be offered

Period III

Recommended time or stage of studies for completion

Start during 1st year of Master's studies

Study module

ECGS-510 Changing Arctic and northern environments

Expiry of studies

Course is valid for 10 years.

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

EQF level 7, can also be 8

Advanced

Study materials

FI: Course materials (lecture slides, handouts, readings) will be distributed in Moodle.

ECGS-032 Field course on Arctic ecosystems

ECGS-032 Arktisten ekosysteemien kenttäkurssi

ECGS-032 Fältkurs i arktiska ekosystem

Abbreviation: ECGS-032

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	10 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Jan Weckström, Responsible teacher Tarmo Virtanen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree in environmental or related sciences, recommended courses ECGS-051 Arctic climate change in aquatic ecosystems, 5 cr and / or ECGS-052 Arctic climate change in terrestrial ecosystems, 5 cr

Equivalences to other studies

ECGS-035 Field Course on Arctic Ecosystems and Climate Change

or

51992 Advanced Field Course at Kilpisjärvi Biological Station

Learning outcomes

FI: After the course the student

- has a deeper understanding of Arctic ecosystems and their structure and functioning
- has the ability to analyse and identify climate change impacts on Arctic natural and human systems
- can plan and conduct a small-scale field study on some aspect of Arctic environmental change
- can analyse and interpret field-based data and present key findings of a research exercise
- learns to work in small groups
- can apply achieved information on various topics of environmental management and conservation

Content

FI: Research project in small groups in the field in Kilpisjärvi, seminar presentation on agreed topic during field part of the course, laboratory and data work in Viikki after the field work, written project report, and presentation of its results in the final seminar, and learning diary.

Additional information

FI: Completion methods
Participation in course work and data collection in the field in Kilpisjärvi, laboratory and data analyses in Viikki, course work report, seminar presentations, learning diary.

Grading scale

General scale 0-5

Assessment practices and criteria

Course field work, report and its presentation 75%, Seminar presentation 25%. In addition, self and peer evaluation of course work and learning diary are taken into account.

Activities and methods in support of learning

Moodle page.

Target groups

Primarily for students in ˝"Environmental Change and Global Sustainability"- Master's Programme. Students of "Changing Arctic and northern environments" module are prioritised. If there is space on the course, also students from other Master's programmes from relevant fields can participate.

Teaching period when the course will be offered

Annual course. Students are selected during Period III, and the introduction and planning meeting is held in Period IV. Field part (one week) in August in Kilpisjärvi, followed immediately by laboratory and data analysis week in Viikki, and report finalizing and final seminar in I period.

Recommended time or stage of studies for completion

Start during 1st year of Master's studies.

Study module

ECGS-510 Changing Arctic and northern environment module.

Expiry of studies

Course is valid for 10 years.

Language of instruction

English

Language of learning

English, Finnish or Swedish

Course level

EQF primarily 7, but also 8 / advanced

Study materials

FI: Course material and instructions will be distributed during the course in Moodle. Literature needed in seminar and course work will be agreed on with the teachers of the course.

ECGS-901 Field course in Urban Environmental Ecology

ECGS-901 Urbaaniekologian kenttäkurssi

ECGS-901 Fältkurs i stadsmiljöekologi

Abbreviation: ECGS-901

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	10 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	David Kotze, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree.
Recommended: this course is compulsory in the ECGS-920 Urban socio-ecological interactions & governance module. It is recommended that at least the ECGS-907 course (Urban Biodiversity) is taken before doing this field course. Another course that will benefit students is ECGS-909 Global topical issues in urban studies.

Learning outcomes

FI: In this field and laboratory course, students will learn basic research methods in urban environmental ecology. Using these skills, the knowledge they have gained during some lecture courses in the Urban socio-ecological interactions & governance module will be practically implemented. "Urban laboratories" in the Helsinki metropolitan area (primarily around the Viikki bay/Vanhankaupunginselkä), with labwork in Viikki, will serve as model sites to teach students how to use scientific research methods in urban ecological and environmental research in a city setting of varying degrees of urbanisation.

Content

FI: The course consists of introductory lectures, field excursions and fieldwork, laboratory work, a seminar and finally a group essay. Various urban themes are explored, for instance; urban soils, urban climate, urban water, urban biodiversity, social.

Additional information

FI: Completion methods
The course cannot be completed as distance learning. Intensive fieldwork, 2 times per week (full days), for about a month and a half (late-April to mid-June). The fieldwork will be done around the Viikki bay (Vanhankaupunginselkä), while laboratory analyses, statistical analyses, seminar preparation and presentation will take place on the Viikki campus. The seminar presentation and essay are done in groups of ca. 5 students per group.

Alternative completion methods include personal seminar presentations, and an individual essay.

Grading scale

General scale 0-5

Assessment practices and criteria

All students will participate in the collection of field data and laboratory analysis of all themes in the course. Students will do a group report on one of the themes of the course. Seminar presentation and participation are compulsory. Individual assessments are available as an alternative completion method.

Activities and methods in support of learning

Active participation in the “start-up” lectures, in collecting data in the field, in analysing the data in the laboratory, basic statistical analyses of the data, writing a report and participate in the seminar (both presenting and critiquing other presentations).

Target groups

Compulsory for students who take the Urban socio-ecological interactions & governance module in ECGS.

Students of ECGS. It is recommended to take it after ECGS-907 and/or ECGS-909. Students from other degree programmes and exchange students are welcome but preference will be given to those taking the 45 cr Urban socio-ecological interactions & governance module. Space is limited to 40 students.

Teaching period when the course will be offered

Period IV

Recommended time or stage of studies for completion

1st study year in ECGS

Study module

ECGS-920 Urban socio-ecological interactions & governance

Expiry of studies

Valid for 10 years

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

Master’s level, (second-cycle degree/EQF level 7).

Course level, intermediate to advanced

Study materials

FI: Course / work handout and other material to be distributed during the course in Moodle. Literature on the basics of experimental design will be provided, together with summary articles on the themes chosen for that particular year.

ECGS-904 Urban Environmental Policy

ECGS-904 Kaupunkiympäristöpolitiikka

ECGS-904 Stadmiljöpolitik

Abbreviation: ECGS-904

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Sirkku Juhola, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor’s degree. A good background knowledge of governance and policy processes. The course is for MA level students.

Learning outcomes

FI: The objective is to introduce the main concepts of urban environmental policy and governance in the context of global urbanisation trends and increasing challenges of sustainability. At the end of the course, the students will have a good grasp of how environmental policy in urban areas is made, who takes part and what kinds of policy instruments are used.

Content

FI: The main theoretical approaches and key concepts in urban environmental policy and governance are explored, as well as the main concepts that are employed in identifying and critically examining sustainability solutions. The course covers different modes of urban governance, the actors involved in decision making and instruments used in steering environmental action in the urban context and applies these in different thematics and city examples.

Additional information

FI: Completion methods
The course consists of listening to lectures (16h), compulsory core readings for lectures, a presentation and a written assignment English.

The completion method may vary between the above-mentioned methods between academic years. The completion method(s) will be determined in the annual teaching programmes.

Grading scale

General scale 0-5

Assessment practices and criteria

Course is assessed based on the presentation (30%) and the written assignment (100%).

Activities and methods in support of learning

(Online) lectures, group work, seminars, writing exercises.

Target groups

ECGS students.

Primary priority is given to students in modules ECGS-920 Urban socio-ecological interactions and governance and ECGS-210 Policy, politics and everyday practices in local environments.

Secondary priority is given to students in modules ECGS-310 Diversity and Justice for Sustainability and ECGS-810 International Environmental Governance.

The course is for MA level students.

Teaching period when the course will be offered

Period II

Recommended time or stage of studies for completion

1 year of studies.

Study module

Compulsory in study modules

- ECGS-920 Urban socio-ecological interactions & governance
- ECGS-210 Policy, politics and everyday practices in local environments

Optional in study modules

- ECGS-810 International environmental governance
- ECGS-310 Diversity and Justice for Sustainability

Expiry of studies

Valid for 10 years

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

Master's level, (second-cycle degree/EQF level 7). Course level: intermediate

Study materials

FI: Literature in catalog form (can be divided into compulsory and optional) will be provided every year.

ECGS-907 Urban Biodiversity

ECGS-907 Urbaanin luonnon monimuotoisuus

ECGS-907 Urban biologisk mångfald

Abbreviation: Urban Biodivers

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Ian MacGregor Fors, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Required: Basic knowledge in environmental sciences, Bachelor’s degree
Recommended: Basic knowledge in ecology

Learning outcomes

FI:

- Understand key theoretical concepts related to biodiversity and urban ecology.
- Comprehend how urban environments influence wildlife communities and shape ecological patterns and processes.
- Learn how wildlife is adapting to urban environments.
- Apply methodological tools to describe urban environments.
- Bridge scientific knowledge with real-world applications in urban planning and conservation.

Content

FI: Theoretical

- What is biodiversity and how to approach it?
- What does urban mean?
- Urban ecology paradigms
- Study groups and field survey approaches (focal sites, urban gradients, citywide)
- Biodiversity responses to urbanization
- Urban filtering process
- Biotic homogenization
- From patterns to processes
- Translating urban biodiversity knowledge into action

Practical

- Exercise on Urban ecology paradigms
- Exercise on Focal study groups
- Exercise on Establishing urbanization density gradients
- Field trip
- Seminar presentation

Additional information

FI: Completion methods
To complete the course, students are expected to actively participate in lectures and discussion sessions and attend a one-day field trip to four selected sites in Helsinki, where they will collect data relevant to the course themes. Based on this data, each student will develop an individual report. Students will also deliver a seminar presentation on a topic of their choice.

Grading scale

General scale 0-5

Assessment practices and criteria

Field trip report (50%), Seminar presentation (50%)

Target groups

Master's (and above) students, with priority given to those in the ECGS program. Compulsory for students who take the Urban socio-ecological interactions & governance module in ECGS.

However, if space allows, other students with an interest in urban ecology and biodiversity are also welcome to join.

Teaching period when the course will be offered

Period III

Recommended time or stage of studies for completion

1st study year in ECGS

Study module

ECGS-920 Urban Socio-ecological Interactions & Governance

Expiry of studies

The course is valid for 10 years

Language of instruction

English

Language of learning

English, Finnish, Swedish

Course level

Master's level, (second-cycle degree/EQF level 7).

Course level, intermediate to advanced

Study materials

FI:

- Nilon CH, Aronson MFJ (2023) The Routledge Handbook of Urban Biodiversity. Routledge, Longon, 469p.
- Doublas I et al (2010) The Routledge Handbook of Urban Ecology. Routledge, Longon, 688p.
- Magurran A, McGill BJ (2011) Biological diversity: Frontiers in Measurement and Assessment. Oxford University Press, Oxford. 345p.

ECGS-049 Nature-based Solutions

ECGS-049 Luontopohjaiset ratkaisut

ECGS-049 Naturbaserade lösningar

Abbreviation: Nature-based So

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Christopher Raymond, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree

Learning outcomes

FI: After completing this course, it is intended that students will be able to:

- Define nature-based solutions and their applicability to different challenges in urban contexts, including environmental justice and social inclusion, human well-being, climate resilience and multi-level governance
- Use mixed-methods to assess the co-benefits and costs of nature based solutions on important urban challenges relevant to specific cases in Finland or globally.
- Critically discuss the role of nature-based solutions in supporting transformations toward sustainability in urban contexts.

Content

FI: The course will present an overview of the policy relevance of nature-based solutions and their role in addressing important challenges in urban areas. We will then critically review and discuss different concepts and associated methods for assessing the co-benefits and costs of nature-based solutions at planning, implementation and evaluation phases. Students will write an essay based on a topic selected from a pre-selected list. Students will then be asked to address a challenge of a city within Finland (or abroad) using a nature-based solution approach. They will organize in groups and produce a report and presentation concerning the challenge addressed, the potential and limitations of their proposed NBS to address the challenge, including an evaluation of the costs and benefits of the NBS on two or more of the following domains: social inclusion, environmental justice, human well-being, environmental governance and/or ecosystem resilience.

Additional information

FI: Completion methods
The course will consist of lectures, workshops, field trips, a group project and a final seminar presentation and an essay. Participation in teaching (lectures, group work / excursions / seminar, group presentations. The course includes compulsory face-to-face meetings and cannot be completed entirely by distance learning.

Grading scale

General scale, 0-5

Assessment practices and criteria

An individual essay (40%), group report (50%), attendance and active participation in group discussions and group work (10%).

Activities and methods in support of learning

Students should be willing to work in interdisciplinary teams, drawing on concepts from e.g., environmental sciences, human geography, health sciences and political ecology. Students should also be willing to work on solutions-oriented research where the aim is to solve a problem relevant to cities in Finland or abroad.

Target groups

Inter-disciplinary module for Masters students of ECGS, AGERE, FOR and USP programs interested in having a more systemic understanding of the co-benefits and costs of nature on urban systems. Priority is given to ECGS students in study modules 1. Urban socio-ecological interactions & governance and 2. Diversity and Justice for Sustainability.

Attendance will be recorded. Students can only miss a maximum of 10% of classroom, group or field work.

Teaching period when the course will be offered

Period 1.

Recommended time or stage of studies for completion

1st or 2nd study year in master's degree phase

Study module

Compulsory to the study module ECGS-920 Urban socio-ecological interactions & governance.

Expiry of studies

The course is valid for 10 years

Language of instruction

English

Language of learning

English, Finnish or Swedish

Course level

Course EQF level 7

Study materials

FI: Anguelovski, I and Corbera, E. (2023) Integrating justice in nature-based solutions to avoid nature-enabled dispossession. Ambio https://doi.org/10.1007/s13280-022-01771-7
Fransen, A., Bulkeley, H. (2024) Transnational Governing at the Climate–Biodiversity Frontier: Employing a Governmentality Perspective. Global Environmental Politics 2024; 24 (1): 76–99. https://doi.org/10.1162/glep_a_00726

Hansen et al. (2023) Transformative or piecemeal? Changes in green space planning and governance in eleven European cities. European Planning Studies. https://doi.org/10.1080/09654313.2022.2139594

McPhearson, T., Kabisch, N., Frantzeskaki, N. (2023) Nature-based Solutions for Cities. Edward Elgar. Open Access Book https://doi.org/10.4337/9781800376762

McPhearson, T., Cook, E.M., Berbés-Blázquez, M., Cheng, C., Grimm, N.B. (2022) A social-ecological-technological systems framework for urban ecosystem services. One Earth 5 (5), 505-518

Raymond, C.M., Frantzeskaki, N., Kabisch, N., Berry, P., Breil, M., Nita, M.R., Geneletti, D., Calfapietra, C., 2017. A framework for assessing and implementing the co-benefits of nature-based solutions in urban areas. Environ. Sci. Policy 77.https://doi.org/10.1016/j.envsci.2017.07.008(opens in a new tab)

Raymond, C.M., Rautio, P., Fagerholm, N. et al. (2025) Applying multispecies justice in nature-based solutions and urban sustainability planning: Tensions and prospects. npj Urban Sustain 5, 2. https://doi.org/10.1038/s42949-025-00191-2

Seddon, N. (2022) Harnessing the potential of nature-based solutions for mitigating and adapting to climate change. Science. DOI:10.1126/science.abn9668

Seddon, N., Chausson, A., Berry, P., Girardin, C.A.J., Smith, A., Turner, B., 2020. Understanding the value and limits of nature-based solutions to climate change and other global challenges. Philos. Trans. R. Soc. B Biol. Sci. 375.https://doi.org/10.1098/rstb.2019.0120

Stijnen, C., Frantzeskaki, N., & Wijsman, K.#(2024).#Beating around the bush: A scoping review of trade-offs for just planning and governance of urban nature-based solutions.#Urban Forestry and Urban Greening,#102, https://doi.org/10.1016/j.ufug.2024.128525

Tozer et al. (2020) Whose city? Whose nature? Towards inclusive nature-based solution governance. Cities https://doi.org/10.1016/j.cities.2020.102892

ECGS-909 Global topical issues in urban studies

ECGS-909 Globaalit ajankohtaiset kysymykset kaupunkitutkimuksessa

ECGS-909 Globala aktuella frågor inom urbana studier

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Ian MacGregor Fors, Responsible teacher David Kotze, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree.
Recommended: this course is compulsory in the Urban socio-ecological interactions & governance (45 cr) module.

Basic understanding of urban environmental and ecological issues. Of benefit to students taking this course is the bachelor course ENV-381 Topical Issues in Urban Research

Equivalences to other studies

ECGS-903 Urban Ecosystem Ecology

Learning outcomes

FI: The students will have the opportunity to learn what urban studies experts do around the world. These include advances in theoretical, methodological, practical, political and social aspects of urban studies, with a focus on the environment.

Content

FI: The course consists of a short introductory lecture by the responsible teachers, followed by online (live and recorded) lectures by national and international experts.

Additional information

FI: Completion methods
Learning diaries of the lectures

Grading scale

General scale, 0-5

Assessment practices and criteria

All students are required to participate in the lectures (real time) or watch the pre-recorded lectures during the course period. Short learning diaries need to be written of all lectures. Passing a final exam based on the presentations will be required to complete the course.

Activities and methods in support of learning

Students need to watch all lectures by the experts.

Target groups

Compulsory for students who take the Urban socio-ecological interactions & governance module in ECGS (first priority).

Students of ECGS and USP (Master's thesis programme in Urban Studies and Planning).

Students from other degree programmes and exchange students are welcome.

Teaching period when the course will be offered

Period III

Recommended time or stage of studies for completion

1st study year in ECGS

Study module

ECGS-920 Urban socio-ecological interactions & governance

Expiry of studies

Valid for 10 years

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

Master's level (second-cycle degree/EQF level 7).

Intermediate to advanced

Study materials

FI: Literature will be provided by the experts.

ECGS-089 Just Sustainability Transformations

ECGS-089 Oikeudenmukaiset kestävyysmurrokset
ECGS-089 Rättvisa hållbarhetsomställningar

Abbreviation: ECGS-089

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Guido Caniglia, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree. Recommended, ECGS-084 Environment Technology and Culture, ECGS-002 Philosophical and Methodological Foundations of Sustainability Science

Equivalences to other studies

ECGS-081 Analytical approaches to human environmental interaction

Learning outcomes

FI: Students will learn: (i) about the main theories used to explain processes of sustainability transformations in terms of social-ecological and socio-technical systems change; (ii) about environmental justice histories, movements, concepts, and theories (iii); about the transformative practices and politics of marginalized groups aiming to combine social justice and environmental sustainability and support JSTs; (iii) how to critically investigate and analyze such practices and politics using framings (e.g., prefiguration, liminality, resistance, self-determination) from multiple disciplines (e.g., political ecology, transition scholarship, science and technology studies); (iii) how to write an argumentative essay using multiple disciplinary perspectives and dealing with issues related to JSTs; (iv) how to work collaboratively in interdisciplinary environments.

Content

FI: The pressing environmental and societal challenges of our world, from loss of biodiversity to climate change and inequalities, call for transformations in economies, societies, cultures, and politics. These transformations should not be only ecologically beneficial, but also just and equitable for the most vulnerable and marginalized groups. All over the world, individuals, groups, and organizations are finding new ways to generate transformative change by combining and balancing environmental sustainability and social justice. In this course, students will explore: (1) the theories used to explain transformative change processes, such as sustainability transformation, and *just sustainability transformation* (JST) and (2) the practices and politics that diverse societal actors have used to pursue social and environmental justice in transformative ways, in different cultural and geographical contexts.
The course is highly interdisciplinary as students will actively engage with recent interdisciplinary scholarship from the social sciences and the humanities dealing with JSTs, such as political ecology, transition studies, science and technology studies, ethics, political philosophy, and ecological economics. The course makes use of an intersectional approach considering multiple axes of marginalization and injustice (e.g., due to race, ethnicity, ability, gender, and sexuality) in understanding and addressing JSTs.

This course interweaves frontal lectures, discussions in plenary and small-group settings, and individual or group activities. It is divided in three main parts:

- Part I is based on inputs from the instructor and discussions of assigned materials about the intersection of justice, sustainability, and transformation (e.g., scientific articles, reports, videos, websites).
- Part II is organized through facilitated activities for the analysis of specific case studies of transformative change through a justice perspective.
- Part III consists in a series of writing exercises, where students progressively develop a short essay. The exercises are guided and facilitated by the instructor.

Additional information

FI: Completion method
Participation in teaching

Grading scale

0-5

Assessment practices and criteria

Students' work will be evaluated in relation to:

- Active participation in class discussions and activities, including weekly response to the readings and an interdisciplinary Mind Map (40 %)
- A Case Study Report (20%)
- A short Argumentative Essay (40%)

The instructor will provide constant feedback during class activities (especially in Part II and III, respectively towards the development of the Case Study Report and of the Argumentative Essay).

Activities and methods in support of learning

Target groups

ECGS students. Primary target group is GS study line students in ECGS. Secondary target group is EC line students in the study module Urban socio-ecological interactions & governance. Third target group students in the MA in Contemporary Societies (COS) and students in the Master's Programme in Social Research (SOSM). The course is open to everyone. Suitable for exchange students. Access to the course is limited to 45 participants.

Teaching period when the course will be offered

Period 3

Language of instruction

English

Language of learning

English, Finnish, Swedish

Course level

Master’s level, (second-cycle degree/EQF level 7). The course is also suitable on Doctoral level (third-cycle (doctoral) degree/EQF level 8).

Equivalences to other courses

ECGS-081

Recommended time or stage of studies for completion

First year of Master’s studies

Study module

Compulsory in all study modules of the GS study track, optional course in study module Urban socio-ecological interactions & governance.

Expiry of studies

Valid for 10 years

Study materials

FI: Learning material: Lecture material and other material assigned to the course in Moodle.
Literature: Mandatory course reader compiled of 20-25 articles and book chapters is available on course web pages in Moodle. The specific texts will be updated every year given the fast developments of the discourse around just sustainability transformations.

ECGS-201 Perspectives on sustainable consumption and production systems

ECGS-201 Näkökulmia kestävän kulutuksen ja tuotannon järjestelmiin

ECGS-201 Perspektiv på hållbara konsumtions- och produktionssystem

Abbreviation: ECGS-201

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, English, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Toni Ruuska, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor’s degree in suitable field

Learning outcomes

FI: Having completed this course, students are able to identify, describe and critically assess the different approaches and main contributions, in the field of environmental social sciences, concerning sustainable consumption and production systems. Students are able to analyze how and why different theoretical and methodological research traditions present different point of views to sustainable consumption and production. Students are also able to apply the different research approaches and findings to practical, political and policy problems, and to anticipate their implications. They can also present constructive and academically grounded criticism toward key problems and change initiatives concerning sustainable consumption and production systems.

Content

FI: This transdisciplinary course offers a multi-faceted review of research and theories that explore the questions of sustainable consumption and production systems. By introducing various perspectives, theories, and positions from the field of environmental social sciences, we examine the relationships between individualist, practice-oriented, and structural theoretical approaches. While going over and commenting different perspectives, students receive a holistic take on the research on sustainable consumption and production systems, as they learn to assess and analyze the respective theories, change initiatives, and modes of consumption and production.

Additional information

FI: Completion methods

Classroom instruction: Lectures and group discussions, Group work, Independent assignment

Independent study: Essay based on course readings, Field report based on an expert interview

Grading scale

General scale 0-5

Assessment practices and criteria

Attendance in class (20%), individual assignment based on lectures, discussion, and readings (40%), group work on a real-life problem, peer-to-peer assessment based on argumentation, reflection, and presentation (40%). More detailed evaluation criteria for each assignment available on the course Moodle page.

Target groups

Top priority: GS students for whom the course is mandatory, i.e., students selecting the Policy, politics and everyday practices in local environments module

Second priority (in this order):

- Master's students in Environmental Change and Global Sustainability program
- Master's students in Contemporary Societies Master's program, study track Consumption in Society
- Master's students in Food Economy and Consumption (only classroom instruction version)

Teaching period when the course will be offered

Yearly in period 1

Recommended time or stage of studies for completion

1st year

Study module

ECGS-210 Policy, politics and everyday practices in local environments

Expiry of studies

valid for 10 years

Language of instruction

English

Language of learning

English, Finnish or Swedish

Course level

7 / Intermediate

Study materials

FI: Course materials provided on the course Moodle site, all are available online

ECGS-202 The sociotechnical (re)construction of the consumer society

ECGS-202 Kulutusyhteiskunnan sosiotekninen (uudelleen)rakentuminen

ECGS-202 Den sociotekniska (re)konstruktionen av konsumtionssamhället

Abbreviation: ECGS-202

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Kaisa Matschoss, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor’s degree

Equivalences to other studies

EDUM504 Sustainable Culinary Culture

Learning outcomes

FI: After completing this course, the students will be able to analyse consumption patterns in a broader socio-technical context. They are familiar with the main research traditions in science and technology studies that are relevant to sustainable consumption.

The students will be able to use historical, statistical and media data to investigate the historical evolution of consumption and production patterns and conceptualize processes of socio-technical change.

They will have experience of collaboratively investigating an ongoing effort to change the course of unsustainable consumption patterns. They will have the ability to develop researchable problems, compile answers to these problems, critically evaluate their own and others’ research findings, and identify relevant implications for policy and practice.

Content

FI: The course will deal with:

- Theoretical foundation of research on sociotechnical change.
- Empirical findings concerning the historical evolution of main consumption domains (built environment, mobility, food, urban infrastructures) and their sustainability implications.
- Application of theoretical frameworks to practical present-day problems in own group research.
- Analysis of forces of stability and change in successful and unsuccessful attempts toward sustainability.

Additional information

FI: Completion methods
The course has two completion methods:

1. participation in lectures, doing a group work and presenting the findings, and commenting on another group’s work
2. independent completion which includes writing an essay similar to that of the group assignment- but doing the work alone

Grading scale

General scale 0-5

Assessment practices and criteria

For completion method 1:

The course utilizes an evaluation matrix with clearly formed criteria, which is addressed in the class and the students can find in Moodle. As part of the assessment the students will self-assess their group work and their individual performance. The course grade will be formed by a weighted average of attendance to lectures (20%), self-assessment (20%+20%) and teacher evaluation of the group assignment (40%). The teachers have a right to override an average, if it seems inappropriate relative to their assessment of the quality of the work.

For completion method 2:

The responsible teacher will assess the essay based on the same evaluation matrix as for completion method 1 provided to the student in Moodle.

Target groups

Priority is given to ECGS students in study module ECGS-210 Policy, politics and everyday practices in local environments

Teaching period when the course will be offered

3rd period

Recommended time or stage of studies for completion

1st year for ECGS students in study module Policy, politics and everyday practices in local environments

Study module

Advanced

Policy, politics and everyday practices in local environments

Expiry of studies

The course is valid for 10 years

Language of instruction

English.

The teacher can provide additional information in Finnish if requested by the student.

Language of learning

English, Finnish, Swedish, but the lectures are held in English.

Course level

Second-cycle degree/EQF level 7

Course level: advanced

Study materials

FI: Academic articles or other literature is provided to the students in Moodle. Students' own information search (statistical data, document data) depending on the group work/essay topic that they choose. Interviews executed by the students related to the group work/essay topic that they choose.

ECGS-205 Sustainable consumption governance

ECGS-205 Kestävän kulutuksen hallinta

ECGS-205 Styrning av hållbar konsumtion

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Senja Laakso, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree

Equivalences to other studies

ECGS-203 Sustainability in everyday life

Learning outcomes

FI: After completing this course, the students can identify relevant everyday consumption issues that have sustainability implications and are able to analyse consumption patterns as social practices. The students know how to define the key characteristics and mechanisms of governance processes and practices affecting consumption and understand their multi-level and multi-actor nature. They master basic research design, data collection and analysis methods (focus on qualitative methods), and research writing skills. They are able to condense and communicate pertinent insights from their small-scale research and identify relevant addressees for their research implications. They can also critically evaluate their own and others' research findings and provide constructive feedback.

Content

FI: The course will deal with:

- Theoretical foundation of research on social practices and governance mechanisms in the context of sustainable consumption
- Empirical findings concerning the governance of consumption
- A small-scale, independent research on everyday practices and their governance
- Succinct communication of research findings and provision of peer feedback

Additional information

FI: Completion methods
The course has two completion methods:

1. participation in lectures, doing an independent research assignment, writing a research report, presenting the findings, and commenting on others' reports
2. independent completion which includes reading the course material, completing an extended independent assignment and writing a research report

Grading scale

General scale, 0-5

Assessment practices and criteria

For completion method 1:

The course utilizes an evaluation matrix with clearly formed criteria, which is addressed in the class and is available for the students in the course Moodle page. As part of the assessment, the students will peer-assess each other's research reports and their presentation. The course grade will be formed by a weighted average of attendance to lectures and group discussions (30%), peer-assessment of research report (30%) and teacher's evaluation of the research report (40%). The teacher has a right to override an average, if it seems inappropriate relative to their assessment of the quality of the work.

For completion method 2:

The responsible teacher will assess the research report based on the same evaluation matrix as for completion method 1, provided to the student in Moodle.

Target groups

Priority is given to ECGS students in study modules 1. Policy, politics and everyday practices in local environments and 2. Urban socio-ecological interactions & governance

Teaching period when the course will be offered

II

Recommended time or stage of studies for completion

1st year for ECGS students in study module Policy, politics and everyday practices in local environments

2nd year for ECGS students in study module Urban socio-ecological interactions & governance

Study module

Advanced

Policy, politics and everyday practices in local environment

Expiry of studies

The course is valid for 10 years

Language of instruction

English.

The teacher can provide additional information in Finnish if requested by the student.

Language of learning

English, Finnish, Swedish, but the lectures are held in English.

Course level

second-cycle degree/EQF level 7

advanced

Study materials

FI: Academic articles or other literature is provided to the students in Moodle. Students' own information search (document data) depending on the research topic that they choose.

ECGS-088 Social study of global environmental risks

ECGS-088 Globaalien riskien yhteiskuntatieteellinen tutkimus

ECGS-088 Globala miljörisker ur samhällsvetenskapligt perspektiv

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Nina Janasik, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Required prior studies: Bachelor level studies in environmental sciences, environmental social sciences, or social sciences
Recommended prior studies: ENV-348, or ENV-471, or equivalent

Learning outcomes

FI: After completing the course, students have an advanced-level environmental social science understanding of the phenomenon of global environmental risks from a theoretical, methodological and empirical point of view. The students understand the concepts of risk and uncertainty with associated disciplinary and interpretative differences. Students have a solid understanding of theory-based methods for analyzing global environmental risks from a social science perspective and can apply one of these methods to analyze a clearly defined empirical topic. Students gain an understanding of how environmental social science research on global environmental risk assessment and governance relates to the interdisciplinary field of sustainability studies.

Content

FI: The course provides an extensive overview of the assessment and management of global environmental risks in particular from an environmental social science perspective. It reviews three main approaches to risk and uncertainty (technical/economic, socio-cultural and governmentality) with associated theory-method packages (illustrated with examples). Empirically, the course focuses on three major global environmental risks: climate change, biodiversity loss especially as it relates to pandemic risk, and chemicalization. The course gives students an advanced opportunity to practice analyzing a clearly defined empirical topic (a case) in the light of one of the three main approaches to risk and uncertainty. The course forms part of the ECGS (GS) study track module International Environmental Governance.

Additional information

FI: Completion methods
Learning diaries and exam. Attendance in at least 8 of 10 lectures is required for successful completion of the course.

Alternative self-study methods can be discussed at a case bases with the course teacher. A series of video lectures will be made available for self-study of the course.

Grading scale

General scale, 0-5

Assessment practices and criteria

The learning diaries should be coherent and written in an analytical and reflective way. They should be based on the course literature and on the discussion during the lectures. The exam tasks are application-oriented and assess students' capacity to use theories and methods in analyzing a specific empirical case.

Target groups

Priority is given to ECGS students in study modules 1. ECGS-810 International Environmental Governance, 2. ECGS-410 Just and Sustainable Forest and Land Governance.

Other ECGS students; open to all

Teaching period when the course will be offered

3. period

Recommended time or stage of studies for completion

Master-level course, to be taken either in the 1. (recommended) or in the 2. year of Master studies. No Bachelor level students are accepted.

Study module

GS module International Environmental Governance

Expiry of studies

The course is valid for 10 years

Language of instruction

English

Course level

Course EQF 7 and 8 (upon separate agreement with course teacher)

Advanced

Study materials

FI: A compendium of course readings and other materials to be made available in Moodle.

ECGS-302 Sustainability in a diverse society

ECGS-302 Kestävyys moninaisessa yhteiskunnassa

ECGS-302 Hållbarhet i ett mångfaldigt samhälle

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Annukka Vainio, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor’s degree

Learning outcomes

FI: After completing the course, students will learn:

- to explore social diversity through psychological, historical, cultural, and institutional lenses while highlighting its broader impacts
- evidence-based strategies and best practices for fostering inclusion, reducing bias, and building stronger intergroup relation

Content

FI: In this course, the questions of sustainability are looked through the lens of social diversity. The course provides a background of theories and concepts that will help to understand better how diversity shapes individual and social behaviour, and how embracing diversity can foster more resilient communities. Concrete tools on how to engage with diversity are learnt during the course.

Additional information

FI: Completion methods

1) Contact teaching including lectures and experiments; or 2) a literature exam.

The completion method may vary between the above-mentioned methods between academic years. The completion method(s) will be determined in the annual teaching programmes.

Grading scale

General scale, 0-5

Target groups

- ECGS-students, GS study track. Priority is given to ECGS students in the study modules “Diversity and Justice for Sustainability” and “Just and sustainable forest and land governance”
- MEM students

Teaching period when the course will be offered

Period 2

Recommended time or stage of studies for completion

1st or 2nd year.

Study module

ECGS, GS study track module “Diversity and Justice for Sustainability”, optional in other GS modules

Expiry of studies

Course is valid for 10 years

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

EQF 7 / Advanced

Study materials

FI: Literature exam option: The Psychology of Diversity: Beyond Prejudice and Racism by James M. Jones, John F. Dovidio, Deborah L. Vietze (1st edition available in Helka, also as an electronic book; 2nd edition will be published in 2025)

ECGS-016 Fish research

ECGS-016 Kalantutkimus

ECGS-016 Fiskforskning

Abbreviation: Kalantutkimus

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Jyrki Lappalainen, Responsible teacher Kimmo Kahilainen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree

Equivalences to other studies

86103 Fish Research, Lectures (KALAT3.1)

or

86104 Fish Research, Field and Laboratory Course (KALAT3.2)

Learning outcomes

FI: After lectures and laboratory practices students have a knowledge of different basic methods used in fish research. They understand why a certain type of research method should be selected and used. Laboratory work aims to give practical skills in methods commonly used in fish research

Content

FI: Course grade is based on both exam (65%) and practical exercises in laboratory and a short report (35%). Ten lectures of 2 h each. After lectures, practical guided laboratory exercises (10 h) and 10 h of independent personal working with selected fish samples. Laboratory exercises (total of 20 h) include a short personal report of fish samples analyzed

Additional information

FI: Completion methods

Compulsory participation to lecture exam. After that, compulsory practical guided laboratory exercises of 10 h and independent laboratory working of 10 h on your own fish samples. The course grade is based both on lecture exam (total of 65% of grade), laboratory work (20 h) and personal report (35% of grade)

Grading scale

General scale 0-5

Assessment practices and criteria

Exam gives 65% of total points, and laboratory work and personal report gives 35% of total points. Final grade (scale 0-5) is based on exam, laboratory work and personal report.

Activities and methods in support of learning

Lectures and other materials in moodle

Target groups

ECGS students. Students from other master's programmes can be accepted if places are available

Teaching period when the course will be offered

Every year in period II

Recommended time or stage of studies for completion

Second study year for ECGS students

Study module

Optional in ECGS-110 Aquatic Sciences module

Expiry of studies

The course is valid for 10 years

Language of instruction

English, Finnish

Language of learning

English, Finnish, Swedish

Course level

Master's level, (second-cycle degree/EQF level 7).

Basic Master's level

Study materials

FI: Lectures slides and other materials are available in course pages in moodle

ECGS-102 Advanced freshwater ecosystems research

ECGS-102 Makeiden vesistöjen syvennetty tutkimus

ECGS-102 Avancerad sötvattenekosystem forskning

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	10 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Leena K-L Nurminen, Responsible teacher Kimmo Kahilainen, Responsible teacher
Study level	Intermediate studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Basic knowledge on the structure of aquatic ecosystems is recommended. Bachelor’s degree.

Equivalences to other studies

ECGS-019 Advanced Aquatic Ecosystems Research

ECGS-020 Nutrient Loading of Aquatic Ecosystems

Learning outcomes

FI:

- Understanding the role of abiotic and biotic factors regulating freshwater ecosystems in practice
- Understanding and detecting the causal relationships between catchment and freshwater
- Capability of formulating solid structured research questions
- Ability to plan and conduct independent field work within a given theme
- Ability to choose and use the field equipment for research questions
- Ability to compare and critically analyze the results obtained by different methods
- Ability to search, read and apply theoretical scientific knowledge to research
- Ability to produce logical scientific text and present results collected during the course

Content

FI: The field course gives comprehensive insight into the functioning of freshwater ecosystems including catchment and lake interactions as well as biotic and abiotic factors regulating food webs. Environmental change is considered holistically in both catchment and lake aspects. The field course begins with group planning of research questions giving hands on tools to conduct the field work and to apply different methods for environmental monitoring and sampling, as well as provides up-to-date knowledge on evaluating the main driving factors, such as eutrophication, nutrient loading, browning of ecosystems, affecting freshwater ecosystems.

Additional information

FI: Completion methods
Lectures, field sampling and related laboratory work, experimental work, self-guided work, scientific text output, seminar. The course is a field course and cannot be completed as distance learning.

Grading scale

General scale, 0-5

Assessment practices and criteria

The grade is composed from three parts: course activity (20%), written report (50%) and seminar presentation (30%).

Target groups

Priority is given to ECGS students in the study module Aquatic Sciences, then other students in the EC-line of ECGS.

Open to master students and exchange students if there is space.

Teaching period when the course will be offered

Detailed timing alternating every other year between autumn open water season (nutrient loading) and winter season (winter limnology). Period 1: 2026-2027, 2028-2029 and period 3: 2027-2028, 2029-2030. The field part of the course is held at Lammi Biological Station.

Recommended time or stage of studies for completion

1st or 2nd study year

Study module

ECGS-110 Aquatic sciences module

Expiry of studies

The course is valid for 10 years

Language of instruction

English, Finnish

Language of learning

Finnish, English, Swedish

Course level

7 / intermediate

Study materials

FI: Lecture material and other material assigned to the course in Moodle. Additional materials announced separately each year.

ECGS-023 Functional Marine Ecology

ECGS-023 Funktionaalinen meriekologia

ECGS-023 Funktionell marinekologi

Abbreviation: Functional Mari

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	10 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Alf Norkko, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Completed basic aquatic courses in BSc-programme
Bachelor's degree

Learning outcomes

FI: The objective of the course is to provide students with insights on the importance of global change on marine biodiversity, and to obtain skills to describe the link between the structure and function of coastal ecosystems. Emphasis will also be placed on quantification of biodiversity and ecosystem functioning relationship, with descriptions on how anthropogenic stressors can compromise these relationships. Students will get a grasp of the conceptual and analytical procedures necessary for quantification of key ecosystem processes in coastal habitats and placing results in context for their scientific reporting.

Content

FI:

- Theoretical background on biodiversity ecosystem function studies in marine systems
- Methods for the analysis of ecosystem structure and function in benthic and pelagic habitats
- Quantification of environmental drivers affecting biodiversity
- Combination of field studies and experiments to build strength of inference in addressing context-dependence of pattern and process
- Analysis of data and reporting

Additional information

FI:

Target groups

MSc level. ECGS students in the ECGS-110 Aquatic Sciences module.

Teaching period when the course will be offered

Period IV, annual

Completion methods

Ten-day field and lab course at Tvärminne Zoological Station including a pre-course exam. The course includes lectures, demonstrations, practical work in the field and lab, and group projects.

Assessment practices and criteria

Grades 0-5. Grade is based on pre-course exam on background literature 1/3, field and lab work 1/3 and presentation of projects and report 1/3. Attendance is mandatory for all components.

ECGS-068B Past Environmental Change, Practicals

ECGS-068B Menneet ympäristömuutokset, Practicals

ECGS-068B Gångna miljöförändringar, Practicals

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Jan Weckström, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor's degree in environmental or related sciences.
Recommended prerequisites: ECGS-051 Arctic climate change in aquatic ecosystems and ECGS-052 Arctic climate change in terrestrial ecosystems (Previously ECGS-039 Arctic climate change or ECGS-031).

Equivalences to other studies

ECGS-065 Practicals in past environmental change

or

ECGS-067 Past Environmental Change

Learning outcomes

FI: After completing the course, students will be able to

- understand and apply various approaches (microscopic and data analytical techniques) to study long-term climate and environmental changes using different environmental archives
- critically evaluate and compare the strengths and the weaknesses of research approaches and results
- distinguish between anthropogenic and natural changes in different ecosystems

Content

FI: Group research projects: data collection and analysis, a research seminar and a research report.

Additional information

FI: Completion methods
The course includes compulsory on-site practicals (e.g. data analysis, laboratory work, microscoping) and cannot be completed by distance learning.

Grading scale

General scale, 0-5

Assessment practices and criteria

Final grade (0-5) is based on the research project seminar and research project report. Research project is carried out in groups; thus seminar and research project grades will be given as group grades, and weighed by self- and peer-assessment of group work skills.

Activities and methods in support of learning

Moodle page. Laboratory practicals, mentored project work in groups

Target groups

Students in Environmental Change and Global Sustainability, Aquatic Sciences, Geology and Geophysics, and other interested students with fitting backgrounds. Open to exchange students.

Teaching period when the course will be offered

Period IV

Recommended time or stage of studies for completion

Start during 1st year of Master's studies in ECGS.

Study module

ECGS-510 Changing Arctic and northern environments

Expiry of studies

Course is valid for 10 years.

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

EQF level 7, can also be 8

Advanced

Study materials

FI: Course materials (lecture slides, handouts, readings) will be distributed in Moodle.

ECGS-036 Arctic and human beings

ECGS-036 Arktinen alue ja ihmiset

ECGS-036 Arktiska området och människor

Abbreviation: Arctic and Huma

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Jussi Eronen, Responsible teacher Reetta Toivanen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor degree in environmental, social sciences or related field.

Equivalences to other studies

ALKU-305 Environment and Space

or

ALKU-EH512 Optional Course in Environmental Humanities 1

or

ALKU-EH513 Optional Course in Environmental Humanities 2

or

ALKU-EH514 Optional Course in Environmental Humanities 3

or

ALKU-EH515 Optional Course in Environmental Humanities or Social Sciences

Learning outcomes

FI:

- have a basic understanding of socioecological systems of the North
- gain understanding of the human and environmental history of the North (incl. archaeology)
- gain understanding of Arctic people and culture, including future conditions
- have knowledge of the climate and environmental impacts on various Arctic socio-ecological systems
- can critically assess the role of humans in the Arctic, including Indigenous peoples' livelihoods and cultures
- can apply the achieved information to environmental management, climate mitigation and adaptation

Content

FI: The course introduces the broad outlines of human history in the Arctic, as well as environmental history since the end of the Ice Age. Special emphasis is placed on socio-ecological systems in Fennoscandia and the Barents region. Students will explore how cultures and languages have adapted to northern conditions, and assess future challenges posed by climate change. Through either fieldwork or written assignments, students will critically engage with diverse forms of knowledge and examine how Arctic communities navigate changing ecological and socio-economic landscapes.

Additional information

FI: Completion Methods
The course can be organized either as a field course, with an option for independent completion method (written assignment), or as a regular course.

Option 1: Field-Based Course

- Pre-Field Phase: 2 preparatory meetings, reading of 8 academic articles, and submission of a 1500-word learning diary.
- Field Trip: Conducted at Kilpisjärvi Biological Station. Includes small group research, community engagement, and daily reflections.
- Post-Field Phase: Group presentations and individual 2500-word essay based on field experience.
- All meetings and field participation are mandatory. Estimated student cost: ~250 EUR.

Option 2: Written Assignment Track

- Essay 1: Routledge Handbook of Indigenous Peoples in the Arctic (10–15 pages)
- Essay 2: Reindeer Husbandry and Global Environmental Change (10–15 pages)
- Reading Journal: Reflective summaries (0.5–1 page each) for 12 academic articles.
- All components must be submitted in PDF format to both instructors.

Option 3: Lecture course

- Lectures, Seminar presentation/report, reading summary, group work, blog post, essay
- Lectures with the following structure: short introduction to the subject followed by open discussion based on few easy-to-read scientific papers that are available before the lecture
- Lecture diaries
- Seminar presentations by students based on the lecture topics (with in-depth scientific literature)
- Writing in groups a blog posts and individually a short essay

Grading scale

Pass/fail

Assessment practices and criteria

Active participation (for field option) and timely submission of all assignments.
All components are assessed on a pass/fail basis.

Target groups

ECGS students, primarily students in the study module Changing Arctic and Northern Environments. Open to other interested master's students.

Teaching period when the course will be offered

Period III & IV every year

Recommended time or stage of studies for completion

1st or 2nd study year in master's

Study module

Optional course in the study module Changing Arctic and Northern Environments

Expiry of studies

The course is valid for 10 years

Language of instruction

English

Language of learning

Finnish, English, Swedish

Course level

Master's level, (second-cycle degree/EQF level 7). The course is also suitable on Doctoral level (third-cycle (doctoral) degree/EQF level 8)

basic level

Study materials

FI: Assigned literature, academic articles, and lecture materials provided via Moodle or University Library.

ECGS-911 Urban pollution

ECGS-911 Kaupunkiympäristön saastuminen
ECGS-911 Förorening av stadsmiljön

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible persons	Anna-Lea Rantalainen, Responsible teacher Olli-Pekka Penttinen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: BSc degree in relevant field, basic course in chemistry, ecotoxicology and ecology recommended

Equivalences to other studies

ECGS-071 Advances in environmental chemistry

or

ECGS-076 Urban ecotoxicology

Learning outcomes

FI: After completing this course, students will be able to:

- describe the different origins, sources and types of environmental pollution, especially in urban environments.
- define the most harmful chemicals in the urban systems
- understand the fate and transport of urban pollutants
- demonstrate awareness of the great differences between the many possible biological endpoints in ecotoxicology, and to understand and explain the pros and cons of using these response metrics.
- critically discuss complex connections and interlinkages between systems regarding urban pollution

Content

FI: Our society benefits greatly from manufactured chemicals; they provide the fabric of our surroundings, play a key role in hygiene and health, and generally enhance our lifestyles. Yet the same chemicals, in the wrong place at the wrong time and at high concentrations, can cause problems for human health and wildlife. Urbanization brings different aspects to our ecosystems and within this course we will point out some of those from an ecotoxicological and environmental chemistry points of view. Overall, the fate and effects of harmful chemicals in urban environments is highly complex and differs between chemicals based on their structure, type, mixtures and environmental and ecological factors. Furthermore, urban systems are not closed and can be influenced by the area surrounding them. This means that it is incredibly difficult to summarize and simplify urban pollution.

Additional information

FI: Completion methods
Scoring is based on the final examination and the student is responsible for completing Moodle assignments on time.

Grading scale

General scale, 0-5

Activities and methods in support of learning

The course consists of 24 h online lectures, and short activating tasks in the Moodle platform

Target groups

Students of the ECGS programme, especially the study module Urban socio-ecological interactions & governance, students of other degree programmes or study tracks, students under the scope of cross-institutional agreements and exchange students.

Teaching period when the course will be offered

Period I

Recommended time or stage of studies for completion

2nd study year in ECGS

Study module

Optional course in ECGS-920 Urban socio-ecological interactions & governance

Expiry of studies

Valid for 10 years

Language of instruction

English, Finnish

Language of learning

Finnish, English, Swedish

Course level

EQF level 7

advanced studies

Study materials

FI: Literature in Moodle, book suggestions during the course, other online material

ECGS-906 Urban climate

ECGS-906 Kaupunki-ilmasto
ECGS-906 Stadsklimat

Abbreviation: Kaupunki-ilmast

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Leena Järvi, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor’s degree. Basic knowledge on QGIS is recommended.

Learning outcomes

FI:

- The student can describe the basic principles of urban climate (Urban heat island, wind, pollution) and what are its controlling effects

- The student can describe the basic principles of thermal effects and surface-atmosphere interactions
- The student knows basic principles of QGIS based The Urban Multi-scale Environmental Predictor (UMEP) model
- The student can simulate simple urban planning scenarios with UMEP
- The student has basic understanding on the connection between urban planning and climate

Content

FI: Basics and controlling factors of urban climate including urban heat island, pollution and wind. Basics on the interaction between the urban surface and the atmosphere including radiation and energy balance. Basics of UMEP. Application of climate knowledge in urban planning and design.

Additional information

FI: Completion methods
The course consists of lectures, exercises, group work, a final report and presentation of the group work.

Grading scale

General scale 0-5

Assessment practices and criteria

Evaluation matrix can be found from Moodle pages. 50 % of the exercises needs to be calculated. Grading is based on exercises (20%), learning diary (10%), project work evaluated by each group (10%) and final report and presentation (60%).

Activities and methods in support of learning

Learning diary. Moodle pages.

Target groups

The course is open to other Master degree programs, but the priority is for ECGS and Urban Studies and Planning MSc students (https://www.helsinki.fi/en/programmes/master/urban-studies-planning).

Teaching period when the course will be offered

Period IV, every 2nd year (2026, 2028,...)

Recommended time or stage of studies for completion

2nd study year in ECGS

Study module

Optional course in ECGS-920 Urban socio-ecological interactions & governance

Expiry of studies

Valid for 10 years

Language of instruction

English

Language of learning

English, Finnish, Swedish

Course level

EQF level 7 / intermediate

Study materials

FI: Book: Oke et al., Urban Climate, 2018 + lecture material + UMEP manual.
Literature to be agreed with the person in charge of the course

ECGS-204 Business in the natural environment

ECGS-204 Liiketoiminta luonnossa

ECGS-204 Verksamhet i den naturliga miljön

Abbreviation: ECGS-204

Curriculum periods	2026-27, 2027-28, 2028-29, 2029-30
Validity period	since 1 Aug 2026
Credits	5 cr
Languages	Finnish, English, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Environmental Change and Global Sustainability 100%
Responsible person	Eva-Karin Heiskanen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

FI: Bachelor’s degree in suitable field

Learning outcomes

FI: After having completed the course, students are familiar with the main discussions, developments, organizations and tools in corporate environmental responsibility and have the capability to monitor developments in the field and find further information. Students understand the mainstream and critical research perspectives on business and the natural environment and are able to develop an empirical research question that connects to a body of academic research in the field. They can write credibly, objectively and critically about corporate environmental responsibility.

Content

FI: Basics and critical analysis of

- The role of business in environmental sustainability
- Environmental management systems
- Sustainable supply chain management
- Sustainability reporting
- Innovation
- Human resource management
- Conceptual approaches to analysing business in the natural environment

Additional information

FI: Completion methods
The course is completed completely online, as independent study. The course consists of two parts:

1) Overview: Each student completes an online (Moodle) exam consisting of 10 short questions. Each question points to online information sources: webcasts, research articles, websites of relevant organizations or statistical reports, which you will need to study in order to answer the question. The aim of this part of the course is to ensure that you have an overview of the field and its practices (such as environmental management systems, the global reporting initiative, product-service systems)

2) Research perspectives essay: Drawing on the book Hoffman, A. & Georg, S. (2018) Business and the Natural Environment (Routledge Focus), each student should write a 10-page essay where you:

- select and describe a research perspective on business sustainability that interests you (3-4 p.)
- select and describe an empirical research topic that you could investigate from this perspective (3-4 p.) frame and motivate your essay with a good introduction (1-2 p.)
- end your essay with concluding reflections concerning the pros and cons of using this research pers-pective (1-2 p.)
- carefully copy-edit your text and make sure your references are in good order.

Grading scale

General scale 0-5

Assessment practices and criteria

Moodle exam, 50% and essay, 50%.

Target groups

One of two compulsory options in the module ECGS-810 International environmental governance (these students are prioritized)

Teaching period when the course will be offered

Offered in period 1 and period 3 (twice a year)

Recommended time or stage of studies for completion

1st or 2nd year

Study module

ECGS-810 International environmental governance

Expiry of studies

Valid for 10 years

Language of instruction

English

Language of learning

English, Finnish or Swedish

Course level

EQF level 7 /intermediate

Study materials

FI: Course materials provided on the course Moodle site, all are available online