



Environment and Resource Management MSc

Vrije Universiteit Amsterdam - Fac. der Aard- en Levenswetenschappen - M Environment and Resource Management
- 2017-2018

The one-year Master programme Environment and Resource Management (ERM) aims to ensure that students acquire theoretical concepts, practical skills and operational techniques that allow them to find solutions for societal problems that relate to natural resources and the environment. Students are trained to bring in their disciplinary knowledge and co-operate in multidisciplinary teams so that they can contribute to an integrated approach towards problem analysis and problem solving in private, public, national, and international organisations dealing with natural resources and the environment.

The programme offers four specializations:

- Environmental studies
- Energy studies
- Climate and Water
- Ecosystems Services and Biodiversity

A complete programme description can be found at the BETA-website.

More information

- All compulsory courses and electives you find in the [year schedule](#);
- A complete description of the programme you find in the [Teaching and Examination Regulations](#);
- For more information about the programme you can contact the [academic advisor](#) (VU students only);
- As a VU student you need to register for all courses via [VU.net](#). Only after you completed your enrollment for the study programme you can register for courses;
- More information on all the courses you find through the links below.

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MSc ERM, spec. Energy and Climate

Vakken:

Naam	Periode	Credits	Code
Energy and Climate Governance	Periode 3	6.0	AM_1155
Sustainable Energy Analysis	Periode 1	6.0	AM_468018

MSc ERM, spec. Ecosystems Services

Vakken:

Naam	Periode	Credits	Code
Governance of Ecosystem Services	Periode 3	6.0	AM_468025
Value of Ecosystem Services	Periode 1	6.0	AM_468024

MSc ERM, spec. Environmental Studies

Opleidingsdelen:

- [optional modules](#)
- [choose at least one of these courses](#)

optional modules

Vakken:

Naam	Periode	Credits	Code
Climate Modelling	Periode 3	6.0	AM_450004
Modern Climate and Geo-ecosystems	Periode 1	6.0	AM_1124
Sedimentary Environments and Climate Archives	Periode 1	6.0	AM_450330
Selected Issues: Global Environmental Governance	Periode 2	6.0	S_SIGEG
Theories and Approaches in International Relations	Periode 1	6.0	S_TAIR
Workshop in Global Environmental Governance	Periode 4	12.0	S_WGEG

choose at least one of these courses

Vakken:

Naam	Periode	Credits	Code
Energy and Climate Governance	Periode 3	6.0	AM_1155
Governance of Ecosystem Services	Periode 3	6.0	AM_468025
Sustainable Energy Analysis	Periode 1	6.0	AM_468018
Value of Ecosystem Services	Periode 1	6.0	AM_468024
Water Governance	Periode 3	6.0	AM_1192
Water Management	Periode 1	6.0	AM_468023

MSc ERM, compulsory courses for all themes

Vakken:

Naam	Periode	Credits	Code
Causes and Consequences of Environmental Change	Periode 1	6.0	AM_1049
Environmental Economics for ERM	Periode 2	6.0	AM_468020
Environmental Policy	Periode 2	6.0	AM_468021
Methods of Environment and Resource Management	Periode 4	6.0	AM_1135
Research Project	Ac. Jaar (september)	18.0	AM_468017
Research Workshops	Periode 4	6.0	AM_1136

MSc ERM, spec. Water and Society

Vakken:

Naam	Periode	Credits	Code
Water Governance	Periode 3	6.0	AM_1192
Water Management	Periode 1	6.0	AM_468023

Causes and Consequences of Environmental Change

Vakcode	AM_1049 ()
Periode	Periode 1
Credits	6.0

Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. A.J.A. van Teeffelen
Examinator	dr. A.J.A. van Teeffelen
Docent(en)	dr. M.H. Lamoree, prof. dr. P.H. Pattberg, prof. dr. ir. P.H. Verburg, dr. ir. C.J.E. Schulp, dr. A.J.A. van Teeffelen
Lesmethode(n)	Hoorcollege, Werkgroep, Computerpracticum, Werkcollege
Niveau	400

Doel vak

To develop a common knowledge base about the causes and consequences of environmental change and about how different disciplines perceive and address environmental problems.

By the end of this course, students:

1. can classify and illustrate the diversity of environmental problems;
2. can explain key concepts from the natural and the social sciences as they apply to the analysis of environmental problems;
3. are able to analyse causality for a selection of environmental problems, using the Drivers-Pressures-States-Impacts-Responses (DPSIR) framework in particular;
4. can critically reflect on frameworks and indicators used in analysing environmental trends;
5. are able to explain the roles of the economic system and the function of policy and governance in dealing with environmental problems;
6. understand different perspectives on the causes and consequences of environmental change, including their own, and can contrast these;
7. demonstrated a capacity to collaborate in interdisciplinary teams and contribute to a shared goal.

Inhoud vak

At present, unsustainable modes of consumption and production worldwide threaten to alter core functions of the earth system. Anthropogenic climate change and the accelerating loss of biodiversity are two pressing problems that receive much media attention. However, there are many other environmental problems at scales varying from local to global. These include for example: the spatial and temporal complexity of land use change; unforeseen effects of contaminants; human protein needs and disruption of the nitrogen cycle; and the effects of invasive species on social-ecological systems. In short, more sustainable development pathways are urgently needed. Identifying such pathways requires an interdisciplinary understanding and the involvement of numerous academic disciplines, including the natural and social sciences.

To provide such integrated understanding, this course will introduce students to one prominent analytical framework, called Drivers-Pressures-States-Impacts-Responses (DPSIR) framework. DPSIR serves to structure problems and to identify different disciplinary contributions to understanding, analysing and dealing with problems. It contributes to the disentangling of complex problems, taking into account also limits to fully understanding such problems, for example inadequate scientific knowledge, uncertainty with regards to the benefits of environmental remediation (and particularly when the costs are known), reluctance of

societies to acknowledge or to deal with environmental change, or scale mismatches between a problem and its management.

DPSIR may be seen to comprise two 'arms': causes of environmental change (Drivers, Pressures, States), and consequences of environmental change (Impacts and Responses). Because the impacts and responses are covered in other ERM courses, notably environmental economics and environmental policy in Period 2, this course places more emphasis on causality.

Topics range from land use, fisheries, poverty, the setting of environmental standards, stakeholders, and climate change. These topics have been selected to highlight the breadth of challenges for environment and resource management, as well as to illustrate different disciplinary perspectives. The natural science perspective attempts to understand how environmental problems emerge. The economic perspective focuses on the growth debate (does economic growth increase social welfare?) and the use of economic instruments to redress the impacts of environmental change and to implement policy. The social science perspective assesses how environmental policy and governance can modify or redirect the patterns of behaviour that are common, if not inherent, in our societies.

Onderwijsvorm

The course is worth 6 ECTS credits which corresponds to 168 hours of work per student.

The course comprises two sets of activities. The first takes place in classes, where information is presented through lectures, presentations, workshops, debates, seminars etc.

The second includes assessments where student's ability to achieve the course's objectives is tested. Assessment involves a group activity (presentation and a written assignment), and the exam. Feedback opportunities are included in class activities as well as assessments.

Approximate time allocation:

- Class: 55 hours (h=20, 2=15, pra=1, pro=4)
- Reading and exam preparation: 50 hours
- Assignment: 45 hours
- Presentations: 15 hours

Toetsvorm

Type of assessment

- Group assignment (A) worth 40% of the final grade
- Written exam (E) worth 60% of the final grade (minimum grade to pass the course: 5.0). One resit possibility in December. The last grade counts as final.
- It is compulsory to attend the indicator debate and the assignment presentations.

Literatuur

The course builds on (parts of) two text books, complemented by scientific articles, which are announced in the course guide.

Ø Matson, P. Clark, W.C., Andersson, K. (2016). Pursuing sustainability – a guide to the science and practice. Princeton University Press.

Ø Harris, J.M. and Roach, B. (2014) Environmental and Natural Resource Economics: A Contemporary Approach. 3rd Edition. Chapter 9 (Lecture Population, Affluence, Technology) and Chapters 1+7 (Lecture Economic instruments). Required text for ERM Course on Environmental Economics (Period 2).

Doelgroep

The course is part of the MSc programme 'Environment and Resource Management' but open to all MSc students.

Overige informatie

The course is coordinated by Dr. Astrid van Teeffelen, and lectured by:

- Dr. Astrid van Teeffelen (astrid.van.teeffelen@vu.nl)
- Oscar Widerberg, MSc (oscar.widerberg@vu.nl)
- Dr. Harry Aiking (harry.aiking@vu.nl)
- Dr. Pieter van Beukering (pieter.van.beukering@vu.nl)
- Dr. Marja Lamoree (marja.lamoree@vu.nl)
- Prof. Dr. Philipp Pattberg (philipp.pattberg@vu.nl)
- Dr. Nynke Schulp (nynke.schulp@vu.nl)
- Prof. Dr. Peter Verburg (peter.verburg@vu.nl)

Climate Modelling

Vakcode	AM_450004 ()
Periode	Periode 3
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. D.M.V.A.P. Roche
Examinator	dr. D.M.V.A.P. Roche
Docent(en)	prof. dr. A.J. Dolman, dr. D.M.V.A.P. Roche
Lesmethode(n)	Werkcollege, Computerpracticum
Niveau	400

Doel vak

The objective of this course is to provide an overview of numerical climate models and their applications, with a focus on Earth Science studies.

Inhoud vak

Geological archives show convincingly that the climate system experiences variability on a wide range of time-scales. For Quaternary studies, climate variations at the following time-scales are most important: glacials-interglacials, millennia and centuries-decades. This course focuses at the mechanisms behind these variations, thereby using climate models as a tool, i.e. numerical computer models in which the dynamics of the climate system are calculated. The combination of these models and geological data will be treated extensively. The course consists of lectures giving an overview of climate models and their application (different types for different time-scales), computer practicals and discussion meetings, in which students discuss the recent literature in detail. In this way the course considers case studies for the different time-scales and deals with recent developments in climate modelling. The following two questions are central to the course: 1) What is the driving mechanism behind climate change at a particular time-scale? 2) How can we optimise the combination of climate models and geological data in order to increase our understanding of climate evolution?

Onderwijsvorm

Lectures, discussion meetings and computer exercises.

Toetsvorm

Compulsory participation in discussion meetings, computer exercises, oral presentation and written exam.

Literatuur

Text book:

Goosse, H. (2015) Climate System Dynamics and Modelling. Cambridge University Press, 358 p., ISBN 978-1-107-44583-3

Additional:

Lecture notes and selected papers (made available through Canvas).

Overige informatie

The course is open for participation to students from alternative M.Sc. programmes at the VU University Amsterdam, or from other universities. If you are a professional and wish to attend this course you can also participate on a contract basis. In both cases please do contact the course coordinator to find out if you fulfill the background knowledge requirements and for enrollment procedures.

Energy and Climate Governance

Vakcode	AM_1155 ()
Periode	Periode 3
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	prof. dr. P.H. Pattberg
Examinator	prof. dr. P.H. Pattberg
Docent(en)	prof. dr. P.H. Pattberg, O.E. Widerberg
Lesmethode(n)	Werkcollege, Hoorcollege
Niveau	400

Doel vak

After concluding this course, students should:

Be able to define and explain key concepts of relevance to the climate change governance and energy issue;

Understand the causes, impacts and effects of climate change and the key scientific controversies in the regime;

Be able to identify, explain and analyze the various policy options for mitigation and adaptation at different levels of governance with a specific focus on energy related options;

Be able to understand the key political challenges in the climate change regime, the common problems facing all countries, and the various and changing coalitions in the regime;

Be able to explain the long-term objective, the principles, the commitments of countries and other key elements of the Climate Change Convention, the quantified commitments of developed countries, and the

flexibility mechanisms under the Kyoto Protocol;

Be able to explain the role of energy in the climate change regime, and the various aspects of policy with respect to renewable energy transition

Be able to define and explain the role of market mechanisms in the climate change regime, their advantages and disadvantages, and their potential in addressing the climate change problem;

Be able to make a judgment about which principles, policy instruments and approaches are likely to be most efficient, equitable and/or effective in addressing the climate change problem, including energy policy.

Inhoud vak

Global governance of human-induced climate change, including both mitigation and adaptation, is a hotly debated subject. Current (international and transnational) climate policy is the result of a complex and long-lasting negotiation process at multiple levels of governance. In this process, the science of the complex earth and climate system is closely linked to questions on the socio-economic effects of climate change, the options for global environmental governance as determined by the structure of international organizations, international economic and political relations and environmental law.

The course includes:

an overview of the science of climate change, its impacts (IPCC Fifth Assessment Report) uncertainties, mitigation, adaptation;

discussion of climate change policy options at multiple levels of governance, including the international climate change regime, national and European policies, and transnational approaches;

analysis of the political challenges in climate change and the positions of different countries and actors;

assessment of the economics of climate change including analyzing the flexible mechanisms (Emission trading, Clean Development Mechanisms) and options for Post Kyoto measures;

analysis of the challenges for a transition to renewable energy at various scales;

the relation between global energy policy (including its geo-political aspects) and the climate change regime.

Onderwijsvorm

Seminar/'Werkcollege' (s)

Toetsvorm

Written examination (E), Report (R), Simulation (Sim)

Weight of each component: 40/40/20

Compensation: is it possible to compensate one component with another?

NO

Mode of re-examination for the different components: re-sit for both written exam and final and paper

Literatuur

See Course manual on Canvas

Aanbevolen voorkennis

basic knowledge of environmental policy and governance

Doelgroep

master students

Environmental Economics for ERM

Vakcode	AM_468020 ()
Periode	Periode 2
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. M.J. Koetse
Examinator	dr. M.J. Koetse
Docent(en)	dr. P.J.H. van Beukering, dr. M.J. Koetse
Lesmethode(n)	Werkcollege, Werkgroep
Niveau	400

Doel vak

This module gives an introduction to the economic analysis of environmental problems, and aims to give an overview of economic environmental policy instruments in different policy contexts from the local through to the global level. A critical cause of environmental problems is that not all of the costs (including environmental) caused by economic agents are borne by those responsible for generating them.

This problem will be conceptualized in this course through the notion of externalities. There are various instruments and institutional arrangements for addressing such externalities. Criteria for their selection and evaluation will be studied. Applications of environmental policies at various administrative levels (i.e. local, national, international), different economic sectors and different country contexts will be discussed. This course tackles some of the most pressing environmental problems that our planet faces today, such as the depletion of fish stocks, climate change, environmentally-induced poverty, and environmental effects of trade and globalization.

The overarching objective of this course is to familiarize students with the economic analysis of environmental problems. After following this course, students should be able to judge how well certain policy instruments and institutional arrangements perform in terms of effectiveness, efficiency and the distribution of welfare in society.

Inhoud vak

After having participated in this module, students should be able to answer the following questions:

- What is the fundamental nature of environmental problems from an

economic perspective, in relation to notions like externalities, public goods and free riding, and what does this imply for the feasibility of (easy) solutions?

- Under which conditions are environmental regulations necessary or when are self-regulation / economic instruments more appropriate?
- How are poverty, development, and the environment interlinked, and what is the role of globalization in stimulating or hampering sustainable development?
- How to derive optimal levels of pollution and resource use from a societal perspective?
- Which economic policy instruments are available, and what are their (dis)advantages in view of the selection criteria and in specific country contexts?
- What are critical and debatable assumptions of core policy insights within environmental economics, such as related to economic costs-benefit analysis of climate policy?

In this course "Environmental Economics", one distinct subject will be addressed per week. This implies that various activities (e.g. (guest) lectures, interactive events) will take place on a weekly basis addressing a distinct central topic. The subjects and lectures are as follows:

- Policy instruments (Week 1);
- Government versus self-regulation (Week 2);
- Optimal resource use (Week 3);
- International trade and the environment (Week 4);
- Risk and uncertainty (Week 5);
- Poverty and the environment (Week 6).

Toetsvorm

- Closed-book exam (60%)
- Assignments (30%)
- Paper review & pitch (10%)

Literatuur

Harris, J.M. & Roach B. (2013). Environmental and Natural Resource Economics: A Contemporary Approach - Third Edition. Routledge: Taylor & Francis Group, London.

Vereiste voorkennis

This course is suited for students with a broad range of disciplinary backgrounds. A background in economics is no prerequisite.

Doelgroep

This course is suited for students with a broad range of disciplinary backgrounds. This course provides some of the fundamental building blocks for the MSc Environmental and Resource Management (ERM). It provides the basic framework for economic re-search methods, such as cost-benefit analysis and environmental valuation, which be treated in the ERM course Environmental Policy Tools. We encourage students who are more interested in only theoretical/mathematical analysis to follow the environmental economics course provided by the Faculty of Economics and Business Administration.

Overige informatie

This course will provide a sound balance between theoretical lectures and guest lectures by academic and policy experts of a relevant field of environmental economics. Several interactive sessions stimulate active

learning of students. To stress the societal importance of environmental economics, guest lecturers performing in this course typically come from outside academia, and may include:

- Dr Anniëk Mauser (Director Sustainability - Unilever);
- Dr Bertholt Leeftink (Deputy Secretary General - Ministry of Economic Affairs)
- Dr Mathijs Bouman (Economic Journalist / Commentator - FD, RTL-Z)
- Prof Ruud Huirne (Director Food & Agri - Rabobank)
- Carel Drijver (Director Marine Department - WWF)
- Dr Sander de Bruyn (Chief Economist - CE Delft)
- Danielle Hirsch (Director - Both Ends)

Environmental Policy

Vakcode	AM_468021 ()
Periode	Periode 2
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	O.E. Widerberg
Examinator	O.E. Widerberg
Docent(en)	O.E. Widerberg
Lesmethode(n)	Werkcollege, Hoorcollege
Niveau	400

Doel vak

The overall aim of the ERM master program is to enable students to develop abilities and multidisciplinary techniques which will allow them to apply to societal problems relating to natural resources and the environment. Environmental Policy contributes to this overall aim by introducing students to the actors, institutions and instruments relevant in the design and implementation of environmental policies at the local, national and supranational levels. Accordingly the course objectives -defined rather broadly are the following:

1. Give a basic understanding of the public and private actors and institutions involved in environmental governance at local, national and supranational levels.
2. Be able to evaluate the effectiveness and legitimacy of actors and institutions involved in environmental governance at local, national and supranational levels.
3. Understand and be able to explain, analyze and propose solutions regarding the complexity of decision-making structures, procedures and negotiations of environmental issues.
4. Apply the knowledge learned on the basis of written assignments , and a written exam.

Inhoud vak

The course consists of four main components: a) the emergence and basic concepts of environmental policy and governance; (b) the role of public policy and state actors in environmental policy and governance; (c) the role of market-based approaches in environmental policy and governance; (d) the role of networked governance (with a focus on non-state actors).

Onderwijsvorm

The course is worth 6 ECTS points which corresponds to 150 hours of work per student. The course is based on a series of lectures.

Toetsvorm

1)Written assignment/group paper (50%) –

2)Final exam(50%)

Literatuur

Please see syllabus on Canvas.

Doelgroep

Master students

Governance of Ecosystem Services

Vakcode	AM_468025 ()
Periode	Periode 3
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. J.J. Dijk
Examinator	dr. J.J. Dijk
Docent(en)	prof. dr. P.H. Pattberg, dr. J.J. Dijk
Lesmethode(n)	Hoorcollege, Werkcollege
Niveau	400

Doel vak

The course aims to increase students' knowledge and understanding of ecosystems and biodiversity governance by focusing on the relevant socioeconomic, legal, policy and political science perspectives. The course will elaborate on the multi-dimensional aspects of the governance of ecosystems and biodiversity, illustrated for different types of ecosystems and governance structures, varying from local community-based approaches to Payments for Ecosystem Services (PES) and global agreements such as Reducing Emissions from Deforestation and Forest Degradation (REDD) and Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Inhoud vak

The governance of ecosystem services and biodiversity is increasing in importance. Current governance systems have evolved through policies developed at national (e.g. protection of wetlands), supranational (e.g. EU legislation such as Natura 2000) and global levels (e.g. Convention on Biological Diversity). Contrary to the existing literature on the valuation of ecosystem services, studies on how these values can be best safeguarded and translated into effective policy measures and incentives for a sustain-able management of ecosystem services are still relatively scarce. Governing biodiversity and ecosystem services is complicated because of a number of factors, such as their public good characteristics, the often unclear distribution of user and property rights, and high transaction costs of effective enforcement and control. Also, scientific uncertainty surrounding the relationship between biodiversity protection, ecosystems and ecosystem services plays a role. The course will focus on how ecosystems are currently managed, what

policies and policy measures are in place, from self-governance and regulation to market-based approaches, and what lessons have been learned so far in developing and implementing different governance structures at local, national and international level to safeguard the provision of ecosystem services in the long run.

After following this course, students should be able to: (1) understand the concept and key elements of ecosystem services and biodiversity governance; and (2) analyze governance issues and evaluate the strengths and weaknesses of various policy instruments and organizational frameworks related to sustainable ecosystem services and biodiversity management in different contexts.

A profound understanding of the governance of ecosystem services and biodiversity requires knowledge of the characteristics of ecosystem services and biodiversity and their users or beneficiaries; available policy instruments at different governance levels and their effectiveness in providing ecosystem services and biodiversity protection; and potential trade-offs between the protection of ecosystem services and biodiversity and other socio-economic interests at local community, regional or national sector level.

More specifically, students should be able to understand (note that this list is an example, it might change with the annually changing group of guest lecturers):

1. How financial institutions impact ecosystems and biodiversity, and how they can mitigate these impacts in their operations;
2. How ecosystems services play a role in the supply chain and how policies in the supply chain, such as certification, can make the chain more sustainable;
3. How Payments for Ecosystem Services (PES) can be designed as to create a sustainable construct for maximizing ecosystem services (e.g. group vs. individual schemes, transaction cost, PES in a policy mix);
4. How marine or terrestrial parks can design a framework of sustainable financing to have sufficient means available to manage their resources;
5. How international agreements such as the CBD and CITES are important instruments to manage trans-boundary ecosystems and biodiversity;
6. How and under what conditions, community based management can be implemented sustainably to manage ecosystems and/or adapt to climate change;
7. How national policy instruments can be designed with the purpose to green the agricultural sector.

Onderwijsvorm

The course corresponds to 6 ECTS and consists of a combination of (guest) lectures and interactive sessions over a period of 4 weeks.

The main topics will be discussed during the lectures, guest lectures and interactive sessions, which take place three times a week and last for a maximum of 3 hours. For each lecture, one or more book chapters and/or scientific articles will be prescribed, on which students will be examined at the end of the course together with the PowerPoint presentations used during the lectures.

In addition to the (guest) lectures, students will work in groups on a scientific paper about a topic of their own choice related to the governance of biodiversity or a specific ecosystem service. A list of topics to choose from will be provided at the beginning of the course. To guide students in their writing, a working session is organized once per week. The paper is developed and written during the first 3 weeks of

the course and presented to the course coordinators in the fourth week using PowerPoint (or similar). The presentation is compulsory and will be graded.

Students will write a short scientific paper in groups of 3 or 4 students. The aim of the paper is for students to improve their knowledge and understanding of eco-system services and biodiversity governance. Papers should not exceed 5,000 words (excluding references, tables and figures). The main question that each scientific paper should address is: "For a specific ecosystem service or biodiversity issue at a certain governance level (international, national, local): how is the ecosystem or biodiversity governed and what are the mechanisms used to safeguard the future provisioning of ecosystem services and protect biodiversity?" More information on the required content for the paper will be provided at the beginning of the course.

Toetsvorm

The course ends with a closed book examination based on the lectures and the papers studied for the course. The examination will count for 60% of the final grade. The other 40% of the grade is based on the paper (80%) and the presentation (20%). Students should pass both paper and exam and have a minimum grade of 5.5 for each component.

Literatuur

See the study manual on Canvas. The compulsory reading list will contain about 15 (up to max. 20) academic papers which will be closely related to the topics of the guest lecturers (to be read in advance). If you want to get a better impression of the literature requirements, please contact the course coordinator for last year's study manual.

Furthermore, chapters 1, 8, 9, 10, 11 & 12 of "Bouma, J. and P.J.H. van Beukering. Ecosystem services: from concept to practice. Cambridge University Press" will be required reading for the (standard) lectures.

Aanbevolen voorkennis

Students are encouraged to take the course 'Value of Ecosystem Services and biodiversity' (AM_468024).

Doelgroep

MSc students Environmental Resource Management (doctoral students or other MSc students are also welcome: please contact the course coordinator).

Methods of Environment and Resource Management

Vakcode	AM_1135 ()
Periode	Periode 4
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	O.E. Widerberg
Examinator	O.E. Widerberg
Docent(en)	dr. P.J. Ward, dr. ir. C.J.E. Schulp, O.E. Widerberg, dr. J.E. Blasch, dr. J.J. van der Vliet
Lesmethode(n)	Werkcollege, Computerpracticum, Excursie, Hoorcollege, Werkgroep, Deeltoets extra zaalcapaciteit

Doel vak

The overall objective of the course is to provide students with an overview of relevant methods and techniques for environmental resource management and to teach them how to apply these methods. At the end of the course students should:

1. Understand and be able to explain the main methods and approaches used to support environmental and resource management;
2. Be able to apply several of the learnt methods and approaches to environmental problems;
3. Be able to interpret, analyse, and critically reflect on the results gained from applying the methods and approaches of the selected modules.

Inhoud vak

This course provides a hands-on introduction to several of the more technical methods that can be used to support environmental and resource management. At the start of the course, an introductory overview is given of four of these methods: economic valuation methods, scenarios analysis, spatial analysis, and stakeholder analysis.

After this introduction, each student selects two methods to be studied in more depth. The methods will be taught through a combination of lectures, practical classes, and (computer) exercises. The methods will be applied in (simplified) environmental problems, and students will reflect on the results.

- In weeks 1-2, students can study either economic valuation methods or scenario analysis;
- In weeks 3-4, students can study either spatial analysis or stakeholder analysis.

Onderwijsvorm

The methods will be taught through a combination of lectures, practical classes, and (computer) exercises. The methods will be applied in (simplified) environmental problems, and students will reflect on the results.

Toetsvorm

The assessment will consist of written assignments (short papers, fact-sheets) and oral presentations. Precise information will be made available via Canvas. Resits of the assignments and/or oral presentations will be organised. Precise information will be made available via Canvas.

Literatuur

See the study manual on Canvas

Modern Climate and Geo-ecosystems

Vakcode	AM_1124 ()
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. G.M. Ganssen
Examinator	dr. G.M. Ganssen

Docent(en)	dr. G.M. Ganssen
Lesmethode(n)	Werkcollege, Hoorcollege
Niveau	400

Doel vak

In the first part the course gives an introduction of modern atmospheric and oceanic processes which form an important basics for the reconstruction of the climate of the past. Next to important basic parameters which trigger the modern circulation of both spheres, atmosphere and oceans, the main circulation patterns will be discussed together with the implications for the global climate.

In the second part the modern ocean changes and their implications for the geocosystems will be discussed. Together, this will form the basic understanding of processes which govern changes in the geological past.

Inhoud vak

- the basic parameters and properties for atmospheric and ocean processes leading to the formation and circulation of air and water masses
- characterization of climatic regions of the world from the poles to the tropics
- special features of the climate systems like the monsoon, ENSO and NAO systems
- the effect of ocean changes on geocosystems now and in the recent past

Onderwijsvorm

Lectures and workshops, literature reading, oral and written presentations by the students and discussing the results and quality of the presentation

Toetsvorm

Written exam after week 2 about the basics (50% of the grade)
oral and written presentation of a topic (second part of the course, 50% of the grade)

Literatuur

Lecture notes (powerpoints of the presentations by the teacher), selected papers and Ruddiman, W.F., 2013. Earth's Climate: past and future. W.H. Freeman and Company New York.

Vereiste voorkennis

Some basic knowledge of the climate system, interest in climate change

Doelgroep

Students from the geo and environmental study areas

Intekenprocedure

Subscription via BB

Research Project

Vakcode	AM_468017 ()
Periode	Ac. Jaar (september)
Credits	18.0
Voertaal	Engels

Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. ir. O.J. Kuik
Docent(en)	dr. ir. O.J. Kuik
Lesmethode(n)	Werkcollege
Niveau	500

Doel vak

The main objectives of the RP are:

- 1.To further develop and apply the theoretical frameworks and methods elaborated in previous ERM courses in a specific environmental or resource context;
- 2.To independently apply the knowledge and skills obtained in the previous ERM courses to a particular research question;
- 3.To become acquainted and familiar with environmental and resource research in practice.

A RP is carried out individually and independently under supervision of an appointed supervisor and after approval of the RP Work Plan by the supervisor.

Inhoud vak

In the Research Project (RP) course of the ERM programme, the student will individually carry out a research project at one of the research groups at the VU University Amsterdam or externally at another university or (inter-)governmental organisation, a non-governmental organisation, or company. All non-VU organisations are hereafter referred to as external organisation.

The study credits for the course are 18 ECTS, which equals 63 days of work full-time (i.e. 8 hours a day). The RP course starts on 1 April 2018 and the final report has to be submitted online for assessment on the 30th of June 2018.

The student identifies the subject of his or her RP before the start of the Research Workshops preceding the RP course, including a suitable supervisor and/or placement, which fits the interests of the student and those of the external organisation. The collaboration between student and supervisor is formalized in an Agreement Form. During the Research Workshops the Work Plan of the RP is written. Like the Agreement Form, this Work Plan is submitted online via Form Desk to the RP supervisor for approval before the start of the RP.

Onderwijsvorm

During the RP, communication and information exchange between the student and supervisor is paramount to ensure the RP develops according to plan. This may happen via in person consultations, e-mail, skype or telephone. When you prepare your Work Plan you should make clear how and how often you will communicate and exchange information about your progress with your supervisor. Make sure that both you and your supervisor are content with the arrangement and that you, as a student, are confident that you will get enough feedback to do your research properly and in time.

To ensure that meetings with your supervisor are efficient, it may help to have a clear agenda, prepare the subject(s) you wish to discuss in advance and make a short report of the meeting (definition of actions and decisions taken, appointment for next meeting) and send this to your supervisor after the meeting. This is especially important when you are going abroad for a certain part of the RP.

Toetsvorm

The ERM RP and the final report will be assessed by both the supervisor and an independent second assessor via an online Assessment Form (see Annex E). The second assessor is appointed by the RP coordinator. The assessment follows a double blinded peer review procedure. This means that neither student nor supervisor will know beforehand the identity of the second assessor.

The assessment of the RP will be based on the following three components:

1. Final Report (80% of the total grade based upon three categories):

a) Originality (20%)

Novelty and originality of the research question and/or research methodology, both theoretically and empirically, including the way the methodology was developed and (complex) data and information was handled and how this adds to the existing scientific knowledge and literature.

b) Content (70%)

The extent to which the chosen research methodology is appropriate to the research problem at hand, the research method is applied correctly, and the collected data and information substantiate the conclusions and recommendations.

c) Report format (10%)

Is the report structured in a logical way, is the use of English correct, are quotations and scientific references properly acknowledged, is the lay out (headings, margins, tables, figures, style) consistent and uniform, are the graphical and photograph illustrations of sufficient quality, is the cover and title page and table of contents according to the RP requirements?

The final report is evaluated by the student's supervisor and an independent second assessor based on the criteria above.

2. Execution (10% of total grade)

- Degree of independence with which the student carried out the RP
- Communication with supervisor: keeping appointments and handling of feedback
- Time management

The way the student executed the RP is evaluated by the student's supervisor based on the criteria above.

3. Oral presentation (10% of total grade)

- Content: clear, understandable story line
- Narrative techniques: captivating way of presenting (voice, gestures, involving audience)
- Use of audio-visual devices (Power Point, Film)
- Debating capacities (handling of questions)
- Time management (within the allocated 20 minutes).

The presentation is evaluated by the student's supervisor based on the criteria above.

Note: A no-show of the student for the scheduled presentation, without prior notice and/or valid reason, means a fail (grade 0). An attendance list will be used to check if all students attend the presentations of their fellow students. Attendance is mandatory.

4. Attitude (insufficient/sufficient/good)

This criterion has to be sufficient in order to get a grade and refers to a student's general work attitude in the RP, motivation and

commitment.

The student's attitude is evaluated by the supervisor based on the student's performance during the entire RP period.

The assessment of the RP is partly based on the final report (80%), execution (10%) and presentation (10%). For all three components the student has to have a score of at least 6.0. Also the attitude has to be sufficient in order to be able to pass the course. Numerical grades for the different components are given using one decimal point. The final grade is rounded to a half or whole decimal point.

The grading of the final report is based on originality, content and format. Here no minimum limits to the grading apply as long as the overall grade is 6.0 or higher. Content is considered most important and is therefore given the highest weight (70%), followed by originality (20%) and report format (10%).

The final grade consists of a weighted average of the grades given by the supervisor and the independent second assessor. The second assessor only evaluates the final report based on the same criteria as the supervisor. Both have to grade the final report as 6.0 or higher. The assessment of the final report by the supervisor is given more weight (70%) than the assessment of the second assessor (30%) in view of the fact that the supervisor has more in-depth knowledge and information about the student's abilities and the writing of the final report.

If one of the two grades the final report lower than 6.0 or the difference in grading is more than 2 points, a third assessor is appointed by the RP coordinator following the same double blinded review procedure and asked to evaluate the final report. The grade of the third assessor is in that case decisive in the final outcome of the assessment. Hence, if also the third assessor grades the final report lower than 6.0, this results in an overall fail for the RP. If the grading by supervisor and second assessor was higher than 6.0 but resulted in a difference of more than 2 points, the final grade is established by taking the mean of the grades given by the second and third assessor and giving this a weight of 30% in the final grade.

All students have to present their work to their supervisor and fellow students in a public meeting and submit their final report by the 30th of June 2018. If the final grade of the assessment is lower than 6.0 the student has the opportunity to revise and resubmit the final report within 30 days before the 31st of July 2018, after which the report will be evaluated once again by the supervisor and an independent second assessor. Not submitting the final report in time before or on 30 June 2018 means a no show and hence a fail (grade is 0). Students only have the opportunity for a resit if they submit their final report before the deadline of 30 June 2018.

Literatuur

The literature review is depending on the subject and the option chosen.

Vereiste voorkennis

In order to be allowed to start the ERM Research Projects course, students must have participated in the courses Research Methods (AM_1135) and Research Workshops (AM_1136) and obtained a minimum of 18 ECTS in the ERM by the 31st of March 2018.

Aanbevolen voorkennis

Students are strongly recommended to have followed: Environmental Economics (AM_468020) and Environmental Policy (AM_468021)

Overige informatie

The Research Placement is subject to the FALW Work Placement and Thesis Regulations. These regulations require detailed written agreements between supervisor and student that specify the conditions for the Research Project. Please consult the Faculty's website for more information.

Research Workshops

Vakcode	AM_1136 ()
Periode	Periode 4
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	prof. dr. P.H. Pattberg
Examinator	prof. dr. P.H. Pattberg
Docent(en)	dr. ir. O.J. Kuik, prof. dr. P.H. Pattberg, dr. ir. J. van Vliet, O.E. Widerberg, dr. J.E. Blasch
Lesmethode(n)	Werkcollege, Werkgroep, Hoorcollege
Niveau	400

Doel vak

- Increase student knowledge and understanding of writing a Research Plan
- Develop academic writing skills, including writing an abstract, evaluation and conceptual framework sections
- Develop presentation skills, including a pitch of the research topic and presentation of the completed research design
- Enhance cooperation and interaction among students to also learn from each other in designing and developing their Research Plan, including giving peer-to-peer feedback

Inhoud vak

The course 'Research Design' has been developed to optimally prepare students for their Research Project, which starts immediately after completion of the Research Design course. The course consists of one plenary session and four workshop breakout sessions, in which the instructors offer general information in the form of lectures and informal discussions on how to produce a research design for an MSc thesis.

Students will participate in one of three research tutorials in order to specialize in the more disciplinary aspects of designing research:

- The research tutorials in Environmental Economics, taught by Dr Julia Blasch and Dr. Onno Kuik;
- The research tutorial in Environmental Geography, taught by Dr Jasper van Vliet;
- The research tutorial in Environmental Governance, taught by Dr Oscar Widerberg.

Students will follow the research tutorial of the discipline that is closest to the theories, methods, and research topics of their Research Project. This is in general the disciplinary orientation of the first

super-visor of their Research Project.

Therefore, students whose first Research Project supervisor is a member of

- the IVM section Environmental Economics, will follow the research tutorial in Environmental Economics;
- the IVM section Environmental Policy Analysis, will follow the research tutorial in Environmental Governance;
- the IVM section 'Environmental Geography' (chair group Verburg) or the IVM section Water and Climate Risks (chair group Aerts) will follow the research tutorial in Environmental Geography.

Onderwijsvorm

Seminar/'Werkcollege' (s)

Toetsvorm

The grades for the Research Design course consist of three elements:

- Peer-to-peer review session compilation: 20% of total grade, to be assessed by Tutors;
- Presentation of Research Design: 40% of total grade, to be assessed by Tutors;
- Written Research Design: 40% of total grade, to be assessed by Supervisor of Research Project.

The final grade for the course will consist of the weighted average of the three partial grades, with the additional condition that the grade for the written Research Design must be 6.0 or higher.

Should a student fail the course, we offer a resit for both an oral presentation and a revised version of the research design four weeks after the end of the course. We advise students that our experience indicates that expectations of Tutors and supervisors increase given the extra time available in the course of the resit period.

Attendance and active participation in all sessions is compulsory. Tutors will maintain an attendance list. Students can miss sessions only with a valid reason, which should be discussed with the Tutor in advance (unless the reason is sickness). If students are absent without a good reason, they will not receive a grade on this course element.

Literatuur

See Course manual on Canvas

Sedimentary Environments and Climate Archives

Vakcode	AM_450330 ()
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. F.J.C. Peeters
Examinator	dr. F.J.C. Peeters

Docent(en)	dr. F.J.C. Peeters, dr. C.J. Beets, dr. C. Kasse
Lesmethode(n)	Excursie, Werkcollege, Hoorcollege
Niveau	400

Doel vak

To learn and understand how environmental and climate changes are recorded in marine, coastal and terrestrial depositional environments, and to understand the recording process as a function of the dynamics of these environments.

Inhoud vak

The course deals with the sedimentology, geochemistry and stratigraphy of marine, coastal, fluvial, lacustrine and eolian palaeoclimate records. The focus is on those processes relevant for understanding how climate/environmental change is recorded in the different palaeoclimate archives. In addition, the susceptibility of key aspects of those environments to climate-change impacts will be addressed. Marine and terrestrial palaeoclimate records receive equally attention.

Onderwijsvorm

Lectures, literature study, group discussions and a field excursion to Southern Limburg.

Toetsvorm

Written exam and report of the field excursion to southern Limburg.

Literatuur

Lecture notes, selected papers.

Aanbevolen voorkennis

Bachelor courses: Terrestrial environments (450097), Climate Science (450240); Master courses: Modern Climate Systems (450185), Modern Geoecosystems

Doelgroep

AM_ES 1, AM_ES-ESE 1, AM_ES-EDU 1, AM_ES-SC 1, AM_ES-ESP 1

Selected Issues: Global Environmental Governance

Vakcode	S_SIGEG ()
Periode	Periode 2
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Sociale Wetenschappen
Coördinator	prof. dr. P.H. Pattberg
Examinator	prof. dr. P.H. Pattberg
Docent(en)	prof. dr. P.H. Pattberg
Lesmethode(n)	Werkgroep
Niveau	500

Doel vak

- To increase students' knowledge of major empirical developments in Global Environmental Governance;
- To train students in identifying the policy relevance of the results

of political research as well as detecting pitfalls and shortcomings;

- To invite reflection on the policy relevance and strategic consequences of research;
- To develop students' academic writing skills.

Inhoud vak

This course introduces students to the current state of research within the field of global environmental governance. Global environmental change is one of the great challenges humankind is facing today. Humans now influence almost all biological and physical systems of the planet. Scientists today see mounting evidence that the entire earth system now operates well outside the normal state exhibited over the past 500,000 years, and that human activity is generating change that extends well beyond natural variability – in some cases, alarmingly so – and at rates that continue to accelerate. The perennial question from a social science perspective is how to organize the co-evolution of societies and their surrounding environment, in other words, how to develop effective and equitable governance solutions for today's global problems.

This course builds on Theories and Approaches: International Relations and Political Concepts and Processes by teaching students how to apply core concepts of political science to substantial issues in international studies. At the same time, students will be made aware of the current state of research within the field of global environmental governance. This knowledge will be useful in the upcoming workshop later in the program.

Governance refers to the phenomenon that many public functions increasingly seem to be assumed and carried out by actors other than the government actors of the nation-state. In particular, the course further investigates three profound transformation in global environmental governance: (1) the increasing diversity of agency (i.e. the observation that authority to govern is vested not only in governments and public actors but in a host of non-state actors as well); (2) the institutionalization of novel governance mechanisms and instruments beyond international agreements (e.g. private certification schemes in global forest politics); and (3), the increased fragmentation of global environmental governance into a number of functionally interlinked but increasingly conflictive policy domains (e.g. the potential overlap between climate change and biodiversity governance). For each type of empirical transformation discussed above, a selection of important examples will be analyzed. Students are encouraged to make their own contributions in the form of one essay that presents original research and one class presentation that critically discusses a concrete empirical example of global environmental governance.

Onderwijsvorm

Seminar

Toetsvorm

Written assignment (50%) + class participation (10%) + group presentation (40%)

Literatuur

We will use the following text book: Biermann, Frank, and Philipp Pattberg, editors (2012): Global Environmental Governance Reconsidered. Cambridge, MA: MIT Press.

A reading list will be made available via Canvas.

Doelgroep

Overige informatie

This course is compulsory for students in the track Global Environmental Governance and optional for students in the other Master tracks.

Sustainable Energy Analysis

Vakcode	AM_468018 ()
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. B. van der Kroon MSc
Examinator	dr. B. van der Kroon MSc
Docent(en)	dr. J.E. Blasch
Lesmethode(n)	Werkcollege, Hoorcollege
Niveau	400

Doel vak

The unit is designed to familiarize students with the basic principles of sustainable energy and to equip them with the knowledge and tools that will help them both to understand the main determinants of sustainable energy generation and use and to critically evaluate the range of policy options to accelerate the energy transition.

After following this course, students should be able to:

- Understand the basic technical and economic principles underlying today's energy production, distribution and consumption around the globe and have an idea of the possible pathways into a sustainable energy future
- understand the economic, social and environmental challenges related to the energy transition process and critically discuss possible solutions and strategies for the de-carbonization challenge
- Know about a diverse set of policy instruments and strategies that can be implemented to support the energy transition process
- Able to make judgment about which principles, policy instruments and approaches are likely to be most efficient, equitable and/or effective in addressing the energy transition
- Critically reflect on sustainable energy innovations
- Demonstrate a capacity to operate in a multidisciplinary team and constructively contribute to the development of a shared project
- Understand the main components of a successful business model and can apply this in designing a business plan for a novel energy service or product
- Ability to synthesize information into a pitch for a non-academic audience

Inhoud vak

Energy is central to nearly every major challenge and opportunity the world faces today. Be it for jobs, security, climate change mitigation, food production or increasing incomes, access to clean and sustainable energy for all is essential (UN, 2015). The transition towards an affordable, reliable, and sustainable energy system can be accelerated by investing in renewable energy resources, prioritizing energy efficient practices, and adopting clean energy technologies and

infrastructure. Sustainable Energy Challenges "SEC" introduces students to key aspects of the energy transition from a socio-economic perspective. Besides a brief introduction into the technological aspects of the energy transition, the lectures will focus on the economic, societal and political conditions for sustainable energy generation, distribution and use.

The course is built on a series of 10 lectures and seminars by the lecturers and selected guest speakers. The unit will be a combination of theory and evidence-based discussions, relating theoretical arguments with recent experiences in the domain of the transition to sustainable energy.

The course is built on 4 main blocks.

1. Technological perspectives (greening energy production and use)
2. Economic perspectives (energy markets)
3. Policy framework for the energy transition (climate and energy policy instruments)
4. Thematic session on topics such as:
 - Consumer behavior
 - Energy for the South
 - Mobility

Next to the (guest) lectures, the course contains a six-week assignment carried out in groups of 4-5 students. In this group assignment students will work on developing a business plan for a renewable energy product or service.

Onderwijsvorm

The course is worth 6 ECTS credits which corresponds to 168 hours of work per student.

The course comprises two sets of activities. The first takes place in classes, where information is presented through lectures, presentations, debates, seminars etc. The second includes assessments where student's ability to achieve the course's objectives is tested. Assessment involves group activities (presentation and a written assignment), and the exam. Feedback opportunities are included through group meetings as well as assessments.

Approximate time allocation:

- Class: 28 hours
- Reading and exam preparation: 70 hours
- Assignment: 60 hours
- Presentations: 10 hours

Toetsvorm

Type of assessment:

- Group assignment (A) and Group presentation (Pres) worth 40% of the final grade
- Written exam (E) worth 60% of the final grade
- Minimum grade to pass the course: 5.5. It is not possible to compensate one component with another
- It is compulsory to attend the group presentation session

Literatuur

See course manual on Canvas

Theories and Approaches in International Relations

Vakcode	S_TAIR ()
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Sociale Wetenschappen
Coördinator	prof. dr. P.H. Pattberg
Examinator	prof. dr. P.H. Pattberg
Docent(en)	prof. dr. P.H. Pattberg
Lesmethode(n)	Hoorcollege
Niveau	400

Doel vak

Objectives and learning goals:

- To provide students with an overview of the theoretical foundations of IR, thus enabling them to analyse concrete historical developments from various theoretical perspectives;
- To teach students to critically reflect upon the meta-theoretical foundations - and their methodological and normative implications – of (social science) theory (increasing their reflexive knowledge of both the main traditions and of paradigmatic change);
- To familiarize students with the critical assessment of political science literature, in particular by placing it within a historical context and by reflecting upon both the social constitution of theory as well as its socially constitutive effects.

Inhoud vak

Whereas IR traditionally (and narrowly) defined deals almost exclusively with relations between states, the 'discipline' has moved much beyond such a narrow state-centrism in order to embrace a much broader conception of world politics in which there is attention to both state and non-state actors and both interstate and other global social structures. This broader conception of world politics is point of departure for this introductory course and is in fact taken one step further by departing from the notion that contemporary world politics is of a fundamentally transnational nature. Thus, politics is not just between states but also the political struggle between various transnational interest groups, movements and social forces. Although there is no world polity, there is a European polity, and internationally there are numerous international organizations that constitute institutionalized structures of global governance. Policy, finally, is not just produced by states as foreign policy, but also by the aforementioned international organizations and by the EU. A second characteristic is that although we consider IR as a mature sub-discipline of political science which is grounded in various approaches and methods of general political science (and therefore clearly linked to the other stream of the MSc in Political Science), we also recognize the contributions from other disciplines (including philosophy, economics, sociology, anthropology, and law) to the field and stress the importance of interdisciplinary research. This course is structured as a historical overview of the development of the discipline, placed in a wider historical context of 'real-world' developments in the global system - stressing the obvious links between those developments and the development of theory - as well as in a wider social science context, trying to see how IR theory developed in relation to other disciplines and to wider debates within the social sciences. Next to the historical

context considerable attention is given to the meta-theoretical assumptions (and methodological implications thereof) underlying various approaches and theories as we believe that these are key to understanding the major debates, and that - for their own research - it is important that students critically reflect upon those assumptions.

Onderwijsvorm

Seminar. Building on prior knowledge of students (i.e., students from our Bachelor's programme are assumed to have basic knowledge of the IR and European integration literature used in the bachelor, and students coming from outside to have an equivalent knowledge), students will work through the literature in tutorial form. The total amount of reading will be about 80 pages per session.

Toetsvorm

Participation, including three pieces of homework (30%) and one final essay (70%).

Literatuur

To be announced.

Doelgroep

MSc Political Science students.

Value of Ecosystem Services

Vakcode	AM_468024 ()
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. M.J. Koetse
Examinator	dr. M.J. Koetse
Docent(en)	dr. P.J.H. van Beukering, dr. M.J. Koetse
Lesmethode(n)	Hoorcollege, Excursie
Niveau	400

Doel vak

One of the hot topics in environmental management today is the concept of "ecosystem services". This concept can be defined as the benefits that people obtain from ecosystems. Important ecosystem services are food, fuel, timber and water provision, carbon storage and sequestration, soil formation, climate and disease regulation, aesthetic benefits and spiritual values. By putting ecosystem services central in the debate on nature conservation, the societal benefits of nature conservation and the need to align conservation and development goals are stressed. Quantification and apportionment of ecosystem services and biodiversity are major challenges. This course aims to assess the importance of ecosystem services and biodiversity for nature, the economy and people.

Inhoud vak

The course focuses on an understanding of what specific services are provided by ecosystems, how these are linked to biodiversity. It attempts to remain close to the practicality of quantification. It will

then continue to address the economics of ecosystem services. Various ecosystems (e.g. forests, coral reefs, wetlands, rivers) and forms of biodiversity are covered (e.g. wildlife, flora). Next to main and guest lectures and debate, the course contains a six-week case study carried out in groups of 3-4 students. The subjects addressed in this group assignment either come from real "clients" such as governmental and non-governmental organizations, or can also be developed by the students themselves. The main objective of the assignment is to apply the skills taught in the course in a real life example. More details of the assignment are provided below.

After having participated in this module, students should be able to answer the following questions:

1. How do ecosystems produce ecosystem services and how are ecosystems changing over time and space?
2. How does biodiversity relate to ecosystem services?
3. What services do ecosystems and biodiversity provide and how can these services be measured?
4. What is the social and economic importance of the ecosystem services and biodiversity and what drives these economic and cultural values?
5. What instruments are available to mobilize payments for ecosystem services necessary for sustainable management of ecosystems and biodiversity?
6. What is the role of ecosystem services in alleviating poverty?
7. How to conduct a rapid appraisal of ecosystem services taking into account the above-mentioned issues?

Onderwijsvorm

- Lectures;
- Guest lectures;
- Exercises;
- Interactive events;
- Research project in case study.

Toetsvorm

- A group case study presentation and a final paper;
- The course ends with a closed book exam;
- Weight exam: 60%;
- Weight assignment (presentation and paper): 40%;
- Students must pass all (5.5 or higher).

Literatuur

The main written source is a book which is especially written for this specialization in Ecosystem Services:

Bouma, J. and P.J.H. van Beukering (2015). Ecosystem services: from concept to practice. Cambridge University Press. Cambridge.

In addition, several freely downloadable journal articles and papers are part of the reading material.

Vereiste voorkennis

Students do not require a specific disciplinary background, although affinity with ecology and economics is useful.

Doelgroep

Students with an interest in the link between the natural environment and society. This interest may vary widely, possibly including topics such as nature conservation, tourism, food production, poverty, international trade, education, and landscapes.

Overige informatie

The course is taught by Dr Mark Koetse, Dr Pieter van Beukering and Prof Dr Peter Verburg (IVM-VU). Guest lecturers may include:

- Dr Rudolf de Groot (Wageningen University);
- Dr Ben ten Brink (PBL, Netherlands);
- Dr Roel Slootweg (SEVS);
- Dr Mathew Parr (IUCN);
- Drs Emilie Reuchlin-Hugenholtz (WWF)

Water Governance

Vakcode	AM_1192 ()
Periode	Periode 3
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. J. Dell'Angelo
Examinator	dr. J. Dell'Angelo
Docent(en)	prof. dr. D. Huitema
Lesmethode(n)	Hoorcollege
Niveau	400

Doel vak

Water is central for ecosystems, human wellbeing and development. The relationship between society and water resources is critical and complex. Water issues have been historically treated as a technical problem, something to be resolved through hydraulic and engineering solutions. However the increasing and exacerbating competition over water resources due to expanding global population, climate change and conflicting production activities raises new political and democratic challenges. Understanding water governance implies developing multidisciplinary knowledge about the different problems, approaches, perspectives and controversies related to how societies cooperate and compete over water resources. This course aims at building students' knowledge, critical thinking and analytical skills on the governance of freshwater resources with particular emphasis on the institutional, political and organizational dimensions.

Course objectives:

The main objective of this course is for you to develop an expert understanding of the multidimensional challenges of governance of water resources. Collectively as a class, and individually, you will develop expertise in the water governance world by engaging with the core scientific literature, discussing and tackling real world problems and independent research activities. By the end of the course, you will have gained an understanding of the complexity of water governance: the various models of governance, its structures and institutions at multiple scales, the different values and uses of water, and the main frames and debates from multiple perspectives.

By the end of this course you will be able to:

- Describe various principles and theories for water governance and management
- Apply these to analyze different water policy and governance interventions, by analyzing them from diverse and diverging perspectives
- Formulate your own analysis and suggestions regarding water-governance interventions on multiple scales: local, national and international
- Synthesize and communicate your ideas and expertise orally and in written form

Inhoud vak

Week 1: Global dimensions of water and the role of water governance

1. Introduction to water governance, global dimensions of water governance
2. NEXUS
 - a. Virtual water, agriculture and food security
 - b. Water and Energy
3. Water wars, conflicts and competition

Week 2: Water Governance: foundations and trends

4. Adaptive Governance and Management
5. Integration, participation and democracy
6. International Cooperation

Week 3: Water Governance: policy and management

7. Preparation session for the final exam
8. Water Rights
9. Urban and rural water worlds
10. Water politics, privatization and controversies

Week 4: Exam week

11. Q&A class session before exam

Onderwijsvorm

Format of the Course:

This course will be intensive, because during three weeks you will be “immersed” in water governance studies [pun intended]. We will spend an important amount of the course in the classroom but you will also be required to study the readings to prepare for lectures and discussions. We will have three weekly meetings and each day we will mix: frontal lectures, discussions and group activities and we will have guest speakers delivering lectures on specific topics.

The structure of each session consists of lectures at the start, where I will first highlight concepts and key questions related to the topics we are working on. We will then engage in-group discussions associated with the key issues addressed in each session. The group activities will include simulations and team assignments and presentations. Readings will be assigned for each session and it will be essential to be well prepared in order to successfully participate and address key questions that we will tackle. Finally, writing assignments, problem solving and pop-up quizzes will be an integral part of the course too.

Participation: Due to the complexity of the issues addressed and the concentrated length of the course I highly recommend attending every session. Of course, if you will have serious family or health reasons you can count on my help for making up for your absence and catching up, but otherwise it will really not be in your interest to miss classes.

The amount of the material that we will go through and the very short time to prepare between the end of classes and the final exam will not allow you to be successful in this course if you procrastinate.

I will lead group discussions on key questions related to the readings. To make the most of our time together, I will call on students directly to address specific question during the group discussion. I will apply the “Socratic method” and challenge you to defend your opinions. (This is a method that might seem a little intimidating, but is particularly useful to develop the capacity to debate publicly and defend your opinions – in line with the learning goals of the course.)

Preparation advice: As MSc students you are very qualified, motivated and brilliant therefore some of this advice might be unnecessary. However.. I can't stress enough the importance to hit the ground and start running from day one, actively participate and not fall behind...keep in mind it's only 3 weeks of classwork. A critical aspect is that you make an effort to study the assigned readings before class. If you don't you will see pages adding up quickly and you not be as able to engage productively in discussions and have less information and tools to understand the lectures. I will be available almost every afternoon during the weeks of classwork, my objective is that you learn and succeed and I look forward to work with you, so please take advantage of office hours.

Toetsvorm

Assessment: assignments, exams and grading system:

Pop quizzes: without prior notice I will give you short quizzes on the readings. Being prepared for the quizzes is a great way to prepare in advance for the final exam. (Some of the questions in the quizzes will be on your final exam). Feedback but no formal grading

Public presentations: You will be paired in teams and will give a power point presentation on a key issue from the course. In another document I will give advice and instructions. 15%

Research short paper (1500 words excluding references): the paper will be on the same topic that you will choose for your presentation. In another document I will give advice and instructions. 25%

In class final exam: there will be a closed-book (nothing allowed on your desk except your pen) 2.5h exam. In another document I will give advice and instructions on preparation. 60%

Literatuur

Online reader, organized around the above topics

Aanbevolen voorkennis

Environmental policy, decision-making

Doelgroep

Master level students with an interest in understanding the role of governance in the emergence of water issues, and their potential resolution

Intekenprocedure

Through the regular VU channels

Water Management

Vakcode	AM_468023 ()
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. P. Scussolini
Examinator	dr. P. Scussolini
Docent(en)	prof. dr. J.C.J.H. Aerts, dr. R. Lasage, dr. H. de Moel, T.I.E. Veldkamp MSc
Lesmethode(n)	Hoorcollege, Computerpracticum
Niveau	400

Doel vak

The key objectives are: 1) to understand how water-related processes, such as floods and droughts, affect our society, and 2) elaborate on how water management can address these issues. For this, the course provides students with a multi-disciplinary view of water management, including the physical assessment, the practice and strategies, and the economic dimension of the matter. We will emphasise on the implications of long term trends, e.g., in climate and land use, and we will reason on the uncertainty about these trends and how risk analysis can assist the water manager in harnessing these uncertainties. More in detail, the goals for students are:

- To understand the complex interactions between various water-related issues (e.g., scarcity, floods, pollution) and natural and socio-economic dynamics.
- To be able to approach a complex water-related issue in a systematic and integrated manner, and to analytically interpret data and information about this issue.
- To critically select the most appropriate measures to alleviate water-related issues, evaluating their positive and negative effects on different stakeholders.

Inhoud vak

Several phenomena contribute to increase risks in the earth hydrological system: among them population growth, economic development and climate change. Water managers are confronted with a continuous stream of new scientific information on these phenomena. Floods and droughts are expected to increasingly affect societies and economies, and new approaches in water management are needed to deal with these challenges. Furthermore, the development of adequate water management strategies that can be used in practice is a difficult issue and is the result of a complex and long-lasting policy process from the national down to the local level. In this process, the science of the water- and socio-economic systems can play an important role by supplying policy-makers with answers on, e.g., the socio-economic effects of floods and droughts. Moreover, uncertainty in future trends add new challenges to water management, which can only be addressed by risk-based techniques. Finally, water managers nowadays need to cooperate with spatial planners, especially in large cities, to incorporate in planning adequate consideration of increasing risks, such as from storm surges and sea level rise.

Onderwijsvorm

The figure provided in the Study Manual shows the framework of the course, which reflects the principles of the Integrated Water Risk Management cycle. The lectures and the computer practicums cover each steps of IWRM. Some lectures are topic-specific, whereas most of them are cross-disciplinary, and will deal with more than one concept in the figure's blocks. The course starts with explaining the water cycle, and the IWRM itself, and then moves on to deal with more detailed aspects of the physics of water systems, and how human systems interface with them. This framework also serves as the basis to structure and inspire the paper assignment on water in cities.

The course consists of several sessions, consisting of lectures by the experts fostering interactive discussion, two computer practicums, and student presentations. Further, you will team up in groups of two/three students to write a paper on water-related issues and adaptation in cities, which will be presented in the final two sessions (see details in section 6).

This course has 6 credits, implying a study load of 168 hours. The table in the Study Manual presents a rough subdivision of the workload into the different course activities.

A considerable effort will be dedicated on developing your own case study. For this you'll have to perform a literature study, write a paper and perform a peer-review of a paper of other students.

Toetsvorm

The course will be assessed through: 1) a written, closed-book exam (60%); 2) a paper assignment (35%); 3) a peer review of another group's paper (5%).

The written exam will (likely) last 2 hours, and will be based on the compulsory readings and on the lectures. Also, questions related to insights learned during the computer practicums can be asked.

Quantitative question may be asked, for which you'll need to bring a calculator. The written exam counts for 60% of the final grade.

For the paper assignment, groups of students investigate a water-related issue and its management in a city of their choice, and compose and present a paper. Paper and presentation will be evaluated as 35% of the final grade.

You will also individually perform a peer-review of the paper of another group, and you will be graded for the quality and the insights of your review, representing the 5% of the final grade.

Other small exercises, although not evaluated, are compulsory, these are:

- The exercise of the computer practicums. These need to be handed in via Canvas.
- The literature research exercise included in the lecture on flood risk.
- Presence and active contribution to all presentations.

Literatuur

The following table details the compulsory reading for this course. It is very advisable to familiarize with the readers before the lecture, and to do any preparatory exercises suggested in the Canvas. The compulsory reading contains information that can be tested at the exam. Some items are specified as "background reading", and they are meant mainly for students who want to learn more about specific subjects. All readings are either freely available from university computers and from home by using the VU proxy server, or are uploaded to the Canvas.

Doelgroep

MSc students Environment and Resource Management (ERM), MSc Hydrology; Earth Sciences and Economics(ESE).

Workshop in Global Environmental Governance

Vakcode	S_WGEG ()
Periode	Periode 4
Credits	12.0
Voertaal	Engels
Faculteit	Faculteit der Sociale Wetenschappen
Coördinator	prof. dr. P.H. Pattberg
Examinator	prof. dr. P.H. Pattberg
Docent(en)	prof. dr. P.H. Pattberg
Lesmethode(n)	Werkgroep
Niveau	600

Doel vak

To train students in critically evaluating political science research, in particular in the area of global environmental governance; To guide students in the process of designing theory-guided research projects, alone or in working groups; To train students in selecting and applying the appropriate methods and techniques of data collection and analysis to carry out research projects; To enhance the abilities of students in academic writing and reporting on research for discussion; To invite critical theoretical and normative reflection on the research results; To train students to work in small research teams.

Inhoud vak

At the beginning of this workshop, students select one environmental policy field or problem to further analyze during the course. Each week is dedicated to one specific aspect of global environmental governance: After an introduction into current debates in global change research, the first week focuses on drivers of environmental degradation, such as contemporary production and consumption practices, inadequate regulation of business and industry, globalization, and vulnerability (financial and otherwise). In week two, the focus is on international governance within the respective issue area, i.e. environmental regimes and international organizations. Week three extends this mapping of key institutions and actors to the transnational realm (e.g. cities, companies, non-governmental organizations). Week four addresses the challenge of assessing effectiveness of global environmental governance practices, whereas in week five, we focus on the justice dimension of governance, particularly legitimacy, accountability and fairness. Finally, in week six, the broader question of interlinkages between issue areas, in particular between the environment and non-environmental domains, are addressed. After having studied and discussed the concept of the week, students work towards a short application to their policy field. Results will be presented in class and discussed with peers and the professors. The separate short assessments will form the basis for the final research paper.

Onderwijsvorm

Tutorial. Students will work in small groups, and report on their work both orally and in writing.

Toetsvorm

Individual assignments and group work well as in-class participation.

Literatuur

Selected articles and books

Vereiste voorkennis

Participation in Selected Issues in Global Environmental Governance (S_SIGEG) is required.

Doelgroep

MSc students in political science and international relations.