



Environment and Resource Management MSc

Vrije Universiteit Amsterdam - Fac. der Aard- en Levenswetenschappen - M Environment and Resource Management
- 2016-2017

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

The year schedule can be found at the FALW-website.

Further programme information can be found at www.environmentmaster.nl.

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

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Expired programme components Environment and Resource Management

The course programme components presented in the list below will no longer be part of the examination programme in academic year 2014-2014.

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
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 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 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. have demonstrated skills, notably: writing, framing, presenting, and reviewing.
8. 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: declining bluefin tuna populations; unforeseen effects of contaminants; human protein needs and disruption of the nitrogen cycle; and the invasion of the Wadden Sea by foreign species such as the Pacific oyster. 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 group activities (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
- Reading and exam preparation: 50 hours
- Assignment: 35 hours
- Presentations: 25 hours

Toetsvorm

Type of assessment

- group presentation (Pres) worth 25% of the final grade
- group assignment (A) worth 35% of the final grade
- Written exam (E) worth 40% of the final grade (minimum grade to pass the course: 5.5). One resit possibility in December. The last grade counts as final.
- It is compulsory to attend the indicator debate and the assignment presentations.

Literatuur

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

Students who have completed their bachelor's degree. Masters' students.

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 Blackboard).

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 MSc
Lesmethode(n)	Werkcollege
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),

Weight of each component: 50/50

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 Blackboard

Environmental Economics for ERM

Vakcode	AM_468020 ()
Periode	Periode 2
Credits	6.0

Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. P.J.H. van Beukering
Examinator	dr. P.J.H. van Beukering
Docent(en)	dr. P.J.H. van Beukering
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

Assignment (35%), closed-book exam (65%)

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 include among others:

- Dr Anniek 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	prof. dr. P.H. Pattberg
Examinator	prof. dr. P.H. Pattberg
Docent(en)	prof. dr. P.H. Pattberg
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.

Lecture (I)

Toetsvorm

- 1)Written assignment/group paper (50%) –
- 2)Final exam(50%)

Literatuur

currently being revised; please see syllabus on BlackBoard.

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. P.J.H. van Beukering
Examinator	dr. P.J.H. van Beukering
Docent(en)	prof. dr. P.H. Pattberg
Lesmethode(n)	Hoorcollege, Werkcollege
Niveau	400

Doel vak

The governance of ecosystem services and biodiversity is in its infancy. The current governance system has evolved through ad-hoc measures taken at national (e.g. protection of forests and wetlands), supranational (e.g. EU Bird's directives) through to international levels (e.g. Convention of Biological Diversity). However, the governance of comprehensive approaches to ecosystem and biodiversity protection has yet to emerge. There is considerable literature on the linkages between biodiversity, ecosystems and ecosystem services and their (economic) value, but studies and policies on how these values can be effectively incorporated into policy making and how the provisioning of ecosystem services can be safeguarded are much more scarce. This course will discuss the emerging literature; address policy and legal frameworks for ecosystem and biodiversity governance, identify and debate on the different instruments for ecosystem management; elaborate on the multi-scale and multidimensional challenges of ecosystem services; and discuss the politics and economics of this complex and emerging field. After having participated in this module, students should be able to assess and form judgments on:

- The characteristics of ecosystems and biodiversity and how these relate to the governance of ecosystem services and biodiversity worldwide
- What policy instruments are available at different governance levels and what the strengths and the weaknesses of the different policy instruments are.
- The trade-offs associated with the protection of ecosystems and biodiversity and how the interests of local communities can be incorporated in ecosystem and biodiversity governance.
- The current best practice examples of ecosystem services and biodiversity governance and ways forward to safeguard the protection of ecosystem service provisioning in the long run.

Inhoud vak

The course will focus on how ecosystems are currently managed and what would be required to safeguard the provision of ecosystem services in the long run. It will discuss the concept of ecosystem services, and its critiques, discuss the different types of policy instruments at different governance levels, introduce the existing national and international legal frameworks for ecosystem and biodiversity conservation, discuss the challenges associated with payments for ecosystem payments, and their effective design, introduce the concept of community co-management and private-public partnerships in ecosystem service provisioning, and provide an understanding of the different policy instruments available to govern ecosystems and protect biodiversity at multiple scales.

Onderwijsvorm

This course has 6 credits. This implies that there is a study load of 168 hours on students. The course has 32 contact hours; 7 lectures, 2 working sessions, 1 presentation session and 1 concluding session/wrap up. For each of the lectures, we selected 3 academic papers for you to study; in total 21 papers, plus the power points. In addition, we expect you to select an additional 4 peer-reviewed papers for your case study paper. The readings are provided as full papers and aim to give you a broad understanding of the issue concerning ecosystem and biodiversity governance as befits a master's programme. The structure of the lectures in class will help you identify the key questions on which you will be examined.

Toetsvorm

The students will be asked to select a topic which will form the basis for a presentation and a paper. The course ends with a closed book examination. The examination will count for 50% of the final results, the paper for the other 50%. Students should pass both paper and exam.

Literatuur

See Study Manual (which will become available December 2013. It will contain 21 academic papers. If you want to get an impression of the literature requirements please contact the coordinator for last year's study manual).

Aanbevolen voorkennis

Students are encouraged to also take course 468024 'Values of ecosystem services and biodiversity'.

Doelgroep

MSc students Environmental Resource management (doctoral students or other MSc students are also welcome: please contact the coördinator)

Overige informatie

Several guest lecturers will give presentations, like for example from the Initiative Sustainable Trade (IDH-on certification), IUCN (on community co-management), the Dutch Environmental agency (PBL- on legal frameworks for ecosystem protection) and the Dutch development bank (FMO- on financing biodiversity protection). Given the heavy study load, students are discouraged to register for more than one specialization course.

Methods of Environment and Resource Management

Vakcode	AM_1135 ()
Periode	Periode 4
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. P.J. Ward
Examinator	dr. P.J. Ward
Docent(en)	dr. P.J. Ward
Lesmethode(n)	Werkcollege, Computerpracticum, Excursie, Hoorcollege, Werkgroep, Deeltoets extra zaalcapaciteit
Niveau	400

Doel vak

Increase student knowledge and understanding of writing a Research Plan

Enhance interaction between students to also learn from each other in designing and developing their Research Plan

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 several different methods, including: economic 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.

Students will participate in one of four 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 Aysem Mert.

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 supervisor 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

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 several different methods, including: economic methods, scenarios analysis, spatial analysis, and stakeholder analysis.

Toetsvorm

The assessment will consist of assignments, presentations, and/or written examinations on the tools used by the students. Precise

information will be made available via Blackboard.

Any exams will be closed book examinations, i.e. you will NOT be allowed to consult any course material during the examination.

Results of the assignments and/or written examinations will be organised. Precise information will be made available via Blackboard.

Literatuur

See the study manual on BB

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)	Excursie, Werkcollege
Niveau	400

Doel vak

In the first part the course gives an introduction of modern atmospheric and oceanic processes which form an important basis 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 geoecosystems 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 geoecosystems 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 2016 and the final report has to be submitted online for assessment on the 30th of June 2016.

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 2016. 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 2016, 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 2016 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 2016.

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 2016.

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, dr. J.E. Blasch
Lesmethode(n)	Werkcollege, Werkgroep, Hoorcollege
Niveau	400

Doel vak

Increase student knowledge and understanding of writing a Research Plan

Enhance interaction between students to also learn from each other in designing and developing their Research Plan

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 four 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 Aysem Mert.

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 supervisor 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 BlackBoard

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 Geo-ecosystems

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 Blackboard.

Doelgroep

MSc students Political Science

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	B. van der Kroon MSc
Examinator	B. van der Kroon MSc
Lesmethode(n)	Werkcollege, Hoorcollege
Niveau	400

Doel vak

The unit is designed to familiarize students with the basic principles of sustainable energy analysis and equip them with the tools that will help them both to understand the main determinants of their use/diffusion and to critically evaluate the range of policy options to tackle related problems.

After following this course, students should be able to:

- Make use of scientific information about major energy resources and conversion processes in order to assess the social, economic and environmental impacts of existing and new technologies in the energy sector.
- Apply this scientific information in the widely different context of industrialised, emerging and least developed nations.
- Evaluate the sustainability implications of different energy technology choices in a comprehensive and balanced way.
- Assess the potential and implications of using biomass, wind, water and solar re-sources to replace fossil fuels for both rich and poor energy users.

Inhoud vak

Energy technology plays a central role on the road towards sustainable development. Energy is the engine of economic growth and therefore a key prerequisite for development. But at the same time it is causing persistent environmental problems. Assessing energy technology in the light of the long-term transition towards sustainability requires a basic understanding of available energy resources and conversion processes including their environmental impacts and opportunities for performance improvement. The potential role and impact of energy technologies are strongly dependent on the stage of economic development of the nation and sector where it will be applied.

The course introduces students to key concepts of sustainable energy analysis and technology choice. The unit will be a combination of theory and evidence/discussion, relating theoretical arguments with recent experiences in the domain of energy use. The module will focus both on renewable as well as non-renewable energy, and will analyse energy technologies in the context of both developed and developing countries.

Some of the topics dealt with in this course are:

- Economic feasibility of renewable energy
- Sustainable biofuels
- Smart energy cities
- Smart mobility
- Energy use in developing countries
- Business models for energy access

Onderwijsvorm

Lectures, team assignment and workshop

25 hs for the Dragon's Den assignment and 195 hs for lectures.

Toetsvorm

A written exam (80%) and a team presentation on the assignment (20%).

Literatuur

Reader with open source literature

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

The course is based on Scott Burchill et al (2013). Theories of International Relations, 5th ed. London: Palgrave (to be bought). A reader will be made available.

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. P.J.H. van Beukering
Examinator	dr. P.J.H. van Beukering
Docent(en)	dr. P.J.H. van Beukering
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

- A group case study presentation and a final report
- The course ends with a closed book exam
- The exam weighs 70%, the group assignment (presentation & final report) 30%
- Students must pass all (5.5 or higher)

Toetsvorm

A group case study presentation and a final paper;
The course ends with a closed book exam;
The exam weighs 70%, Assignment (presentation and paper) 30%.
Students must pass all (5.5 or higher).

Literatuur

The main written source is a book (i.e. Bouma and Van Beukering 2015) 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 Pieter van Beukering and Prof Dr Peter Verburg (IVM-VU University)

Guest lectures are provided by:

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

Doel vak

"Change the world, work with water". Water issues affect hundreds of millions of people, in various different ways.

Central to the resolution of such issues is the notion of governance. Governance is about the efforts of public and private parties to address problems. It is also about the creation of institutions that manage water. And it is about the principles that underpin water management.

This course introduces you to the field of water governance, After following the course you will have learned:

- * the basic concepts and theories in the field of water governance, and to apply these to current problems
- * which possible criteria exist to evaluate governance performance against, and how to apply them to current debates
- * the current trends and innovations (globally and regionally) in water governance, what drives governance innovations that are currently taking place, and you will have how to critically think about their performance based on real life applications

Inhoud vak

Chapter 1. Water governance

- seriousness of water issues: climate change, population growth, urbanization;
- recognition that technical expertise only is insufficient for solving these issues;
- Focus on water governance
- What is governance?

Chapter 2. Shifts in water governance

- Hollowing out of the nation state
- Decentralization
- Privatization/ marketization of water
- Stakeholder participation/ community self-organization
- Catchment/ basin approach
- Internationalization

II. ANALYTICAL CONCEPTS FOR STUDYING WATER GOVERNANCE

Chapter 3. Institutions (Ostrom, Hall, Pierson, March, Olsson, Smith, Ingram)

- What are institutions?
- New-Institutionalisms
- Rational choice institutionalism: design-rules
- Historical institutionalism: path-dependency

- Sociological institutionalism: logic of appropriateness
- Discursive institutionalism:
- Illustration of these four 'lenses' with one water case.

Chapter 4. Learning, innovation and change (Campbell, Sanderson, Pahl-Wostl, Rotmans)

- Need for learning, innovation and change
- What is learning, what is innovation?
- Types of learning and change?
- Conditions conducive to learning
- Illustration of concept of learning with one water case

Chapter 5. Goals, norms and evaluation

- Main goals of water resources management: sustainability, resilience, adaptability, fairness, equity, effectiveness, efficiency
- Relevance of monitoring and evaluation
- Types of monitoring and evaluation: goal-oriented, process-oriented (responsive), participatory monitoring and evaluation
- Illustration of types of monitoring and evaluation with a water case

Chapter 6. Agency (Kingdon, Mintrom, Olsson, Westley, Taylor)

- Structure-agency dilemma
- Leadership/ Entrepreneurship
- Forms of leadership
- Leadership strategies

III. RECENT DIRECTIONS IN GOVERNING WATER

Chapter 7. The desire for integration (Schlager and Blomquist)

- Water systems approach, Integrated Water Resources Management, River Basin Management (bioregional approach)
- Institutional: different types of RBOs
- Learning/ innovation: Lack of learning due to uncritical copying of concepts.
- Evaluation: rather poor results due to institutional stickiness/ lack of learning
- Agency: Who plays a role in successful implementation of these concepts
- Illustration with example of....
- Challenges and pitfalls of integration

Chapter 8. The desire for more democracy (Ingram, Warner, Wester)

- Participatory governance (participatory planning and management)
- Institutional: multi-stakeholders platforms, water user associations
- Learning/ innovation: multi-stakeholder interaction may enhance learning, but power relations may inhibit learning
- Evaluation: rather poor results due to institutional stickiness/ lack of learning + concept of participatory monitoring and evaluation
- Agency: Who plays a role in successful implementation?
- Illustration with example of...
- Challenges and pitfalls of democratization

Chapter 9. The desire for adaptiveness

- Concept of adaptive management/ governance
- Institutional: institutional prescriptions of adaptive management
- Learning/ innovation: is at the core of this concept: management

as an ongoing learning process

- Evaluation: First evidence... adaptive management as the new Holy grail/ Remedy to institutional stickiness??
- Agency: Role of leadership in realizing adaptive management
- Illustration with example of...
- Challenges and pitfalls of adaptive management

Chapter 10. The desire for international cooperation

- Need for international cooperation: many shared water resources
- Institutional: Design characteristics of international RBOs, upsteam-downstream power asymmetries
- Learning: Search for common ground/ How to reach negotiated agreements
- Evaluation: How to measure success of international cooperation, eg counterfactual
- Agency: what kind of leadership do we need for establishing international cooperation (eg cultural sensitivity)
- Illustration with example of Rhine river cooperation
- Challenges and pitfalls of cross-border water governance

Chapter 11. The desire for a lean and mean government, and private sector involvement (Aerts, Botzen, van den Bergh, Quentin-Grafton)

- Why privatization? Economic decline in western world/ welfare state under pressure, lack of proper state institutions and/or financial resources in developing world
- Institutions: Concession model, PPP + trading water rights, flood insurance, relevance of institutional context, informal markets (drinking water supply in developing world)
- Learning/ innovation:
- Evaluation: eg: Do the poor benefit?
- Agency: role of boundary workers
- Illustration with example of flood insurance
- Challenges and pitfalls of private sector involvement

Chapter 12. The desire for resilient communities (e.g. Folke, Gunderson)

- Why community resilience?
- Institutions: Institutional prescriptions for increasing community resilience
- Learning/ innovation: community initiatives as an example of innovation
- Evaluation: Governments struggle with their role: how to create conditions for community self-organization.
- Agency: role of community leadership
- Illustration with example of flood resilient communities
- Challenges and pitfalls of increasing community resilience

Chapter 13. Old and new roles for the government

- New roles for the government due to desires and developments described in the preceding chapters. Government as facilitator, process managers, enabling government, as equal partner in horizontal (public-private) networks, etc...
- Old roles still relevant (!): Legislation, institutional framework, taxation, permit systems, enforcement, etc.
- Challenges and pitfalls of government intervention.

IV. REFLECTION AND FUTURE DIRECTIONS

Chapter 14. Making up the balance sheet: the challenges and pitfalls of

water governance in the 21st century

- Institutional stickiness ('Beaucoup ca change mais plus ca reste la main') Discursive change (IWRM, basin management, stakeholder participation, etc.) is not equal to institutional change..
- But: Institutional layering/replacement
- Important role for agency
- Promising innovations, questions on diffusion, upscaling of these successful examples
- But: be aware of limits to institutional transplantation, need for contextual sensitivity.

Toetsvorm

Halfway assignment & written exam

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
Lesmethode(n)	Hoorcollege, Computerpracticum
Niveau	400

Doel vak

The objective of this course is to understand how water related processes such as floods and droughts influence our society and what role water management plays in addressing and tackling these issues. This course aims to provide students a multi-disciplinary understanding of water management, including the physical dimensions of the hydrological cycle and coastal processes, the policy, law and long term trends such as climate change and land use change. It puts emphasis on the uncertainty of future trends and how risk management methods can be helpful for water managers for dealing with these uncertainties.

Key goals for students to reach at the end of the course are:

- To understand the complexity of various water related issues

(e.g. scarcity, floods, and droughts) and to assess the economic and social impacts

- To learn what kind of measures can be taken to alleviate water related problems and what kind of positive and negative effect these measures have on different users.
- To be able to systematically approach a complex and integrated water related issue and properly interpret data and information about this issue.

Inhoud vak

Water managers see themselves confronted with a continuous stream of increasingly credible scientific information on the potential magnitude of population growth, economic activities and climate change that increase the risk related to the earth hydrological system. It is expected that floods and droughts will increasingly affect societies and economies and new approaches in water management are needed to deal with these challenges. Furthermore, developing adequate water policies that can be used in practice is a difficult issue and is the result of a complex and long-lasting process from the national through 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. Uncertainty in future trends further puts new challenges to water management and risk based techniques can be helpful in dealing with these uncertainties. Finally, water management increasingly needs to cooperate with spatial planners, especially in large cities, to address increasing risk from storm surges and sea level rise.

Onderwijsvorm

This course consists of several sessions going into different subjects related to water management. These sessions will consist of lectures by the professors with interactive discussion; two practical assignments, and student presentations. Apart from these sessions, you will team up in pairs of two students to write papers on water related issues and adaptation in cities, which will be peer-reviewed by other students.

Activity Hours

- 1 Attending and contributing to sessions (12 times 3 hrs) 36 hours
- 2 Readings associated with lectures 28 hours
- 4 Paper: literature review (32 hours), writing (24 hours), peer review (8 hours) 64 hours
- 5 Exam preparation 40 hours
- TOTAL 168 hours

Toetsvorm

Written exam (50%), essay (40%) and peer-review (10%)

Literatuur

The literature for this course consists of various academic papers and chapters. These papers will be published 3 days before the lecture

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.