

M.Sc. Environmental Governance
Faculty of Environment and Natural Resources

Module Handbook

Winter Semester 2019/20

Albert-Ludwigs-Universität Freiburg



UNI
FREIBURG



MEG | M. Sc.
Environmental
Governance

Albert-Ludwig-University Freiburg

Table of Contents

Programme Overview	3
Aim.....	3
Structure.....	3
Internship.....	4
Master Thesis.....	4
Language.....	5
MEG Semester Schedule.....	6
Module Descriptions.....	7
1st Semester	8
Sustainability and Governance	9
Global Societal Change	11
Global Environmental Changes	13
Human-Environment Interactions.....	15
Regional Studies: Integrated Case Study	17
Governance Research and Skills.....	19
Global Environmental Politics.....	21
2nd Semester.....	23
Economics, Institutions, and the Environment.....	24
Ecosystem Management.....	26
Environmental Policy Analysis	28
Elective: Leadership and Social Entrepreneurship	30
Elective: Sustainability Planning and Assessment	32
Elective: Global Sustainability Transformations in Local Contexts	34
Environmental Psychology and Sociology.....	36
Obligatory Internship	38
3rd Semester.....	39
Elective: Environmental Conflict Management & Participation	42
Elective: Sustainability Management and Reporting	42
Forests and Rural Development	44
Elective: Technology Assessments	46
Elective: Environmental and Energy Transition Law	48
Elective: Life Cycle Management.....	50
Elective: Research Design in Environmental Governance.....	52
Elective: Economics of Ecosystem Services and Biodiversity.....	54
4th Semester Summer Term 2020.....	56
Master Thesis	57
Room Plans	58
MEG Programme Contacts	58

Programme Overview

The M.Sc. -programme Environmental Governance (MEG) was established in 2005 to train leaders to be able to reconcile different social perspectives with regard to the sustainable use of environmental resources as a basis for sustainable development - for any development, at any scale from local to global, and in any context worldwide. The Programme targets future leaders with grand, innovative ideas about environmental governance arrangements beyond the traditional functional, structural and territorial boundaries ('sustainability designers'). The ideal MEGgie embraces and understands the complexities of sustainable development, but is also capable of finding ways to implement solutions in organisations, enterprises and administrations in a context-sensitive manner ('sustainability facilitators').

MEG is accredited in accordance with international standards for higher education and in 2006, the German Academic Exchange Service (DAAD) acknowledged the programme as a *Development-Related Postgraduate Course* and thus offers a limited number of DAAD/EPOS scholarships.

Aim

The MEG Programme aims at:

Realizing - The development of a sound knowledge base of the most pressing environmental issues facing the planet and their underlying societal causes;

Understanding - The reflection on human-environment interactions from a wide spectrum of disciplines, approaches, and world-views;

Managing - The provision of methodological knowledge and skills for the context-sensitive design and management of environmental governance processes.

Structure

The MEG study programme is designed as a two-year (4 semesters), full-time programme (120 ECTS). In total, 120 credits are required for the successful completion of the programme. An internship of seven weeks and a master thesis are also incorporated into the curriculum.

All modules are organized as three-week block courses (modules). The semester thus consists of a sequence of 3-week modules, all of which are completed with an examination (project, presentation, oral examination, written exam or paper). The advantage of this modular structure is that it offers a great deal of space for varied and tailored-to-content learning and teaching. An important feature of the modularised course system is that the students play an active role at all levels, including teaching and research. The course system not only conveys specialised knowledge, but also trains students to handle scientific methods with confidence. Key qualifications are

supported through a number of techniques, such as discussions, presentations, working groups and written assignments.

Students earn 5 ECTS (European Credit Transfer System) credits upon successful completion of each module. The modules are classified as either core or elective.

A typical week of a module consists of approximately 20-25 hours of lectures. It is expected that students spend about the same amount of time on work related to the course outside of the normal lecture hours. The yearly workload is 1800 hours.

Internship

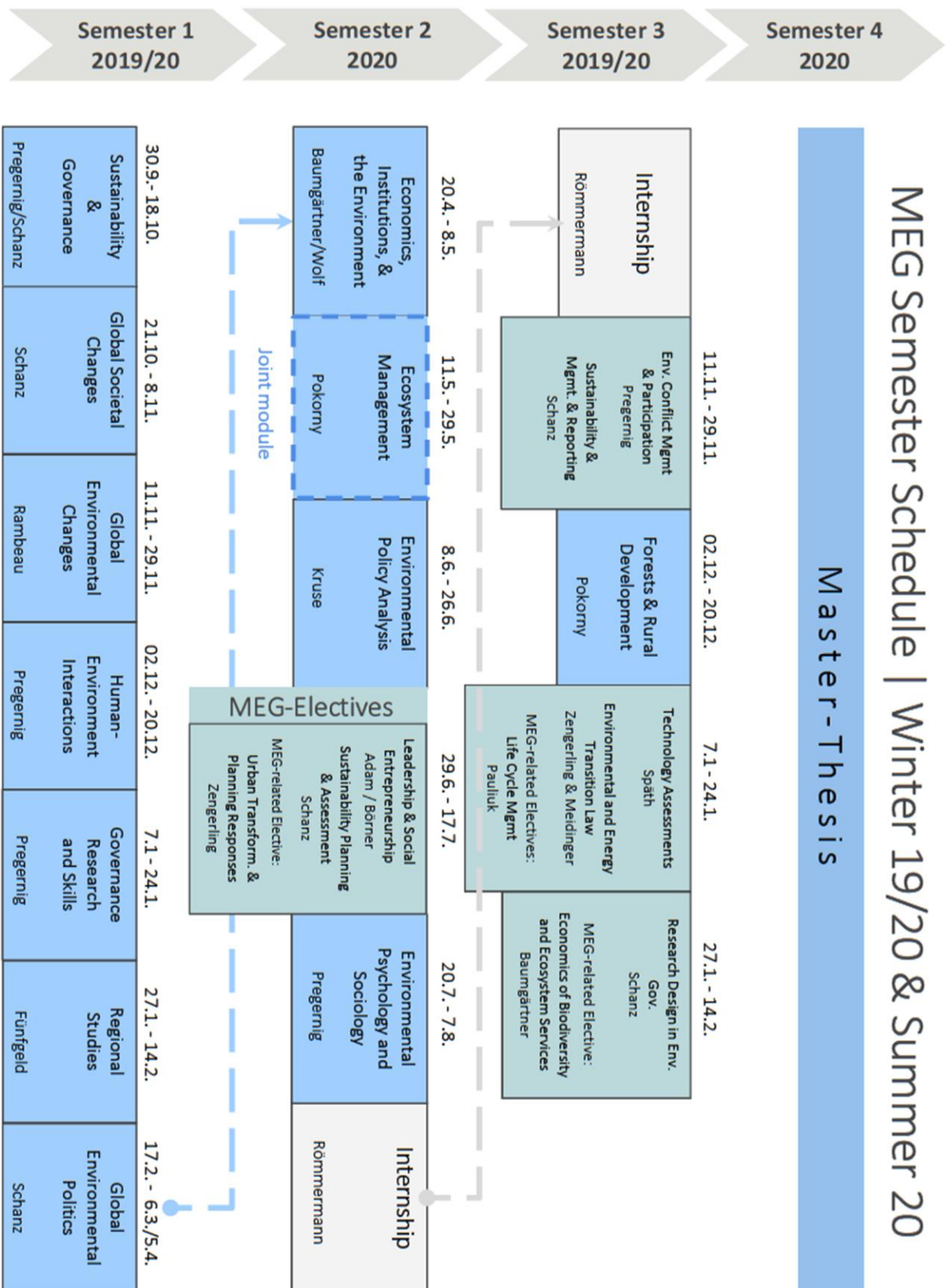
An internship (10 ECTS) of a minimum duration of 7 weeks (full time) is mandatory for successful completion of the program. It is usually completed during the lecture-free periods between the second and third semester, but can also be carried out flexibly at another time, if required. The internship should provide students with a first insight into potential employment sectors; in all sectors this is primarily achieved by practical work. Students should experience typical work processes and the human interactions in the organization ('everyday work experiences'). Additionally, students should become familiar with the structures within an organization, as well as the interconnections with external systems. Furthermore, the expert knowledge gained in the course of the studies should be intensified and, to a certain degree, applied during the practical training. Students are highly encouraged to spend their internship abroad. More information, guidelines, and necessary documents can be found under this [link](#) and a short module description on page 38 of this hand book.

Master Thesis

Many people see the writing of an M.Sc.-thesis (30 ECTS) as the coronation of higher academic education. And indeed, the importance of the thesis work is also reflected by the prominent role it takes within the whole M.Sc.-programme. After completing core and elective subjects in the educational programme, the M.Sc.-thesis offers the challenge to set up and to carry out a scientific research project in an almost fully self-responsible manner, but under the guidance of an experienced supervisor. The Master's Thesis is completed in a set time-period of six months and can be started after 70 ECTS have been earned. More information, guidelines, and necessary documents can be found under this [link](#) and a short module description on page 55 of this hand book.

Language

The programme and its core and elective modules are taught entirely in English. For admission into an elective module from another programme, proof of a C1 language level in the Common European Framework is required. Native speakers are exempt from this obligation. Participation in core modules is reserved for those students admitted to the MSc Environmental Governance programme.



Module Descriptions

In the following module descriptions, *learning goals and qualifications* are classified into a common categorization. This classification builds on a taxonomy of educational objectives, most commonly known as *Bloom's Taxonomy*, which was developed by a group of measurement specialists under the coordination of Benjamin S. Bloom in the 1950s. Here, a revised taxonomy of educational objectives (following Anderson & Krathwohl, 2001) is applied. This classification comprises the following categories:

- 1 *Remember:* retrieving relevant knowledge from long-term memory
- 2 *Understand:* determining the meaning of instructional messages (interpreting, exemplifying, summarizing...)
- 3 *Apply:* carrying out or using a procedure in a given situation
- 4 *Analyze:* breaking material into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose
- 5 *Evaluate:* making judgment based on criteria and standards
- 6 *Create:* putting elements together to form a novel, coherent whole or make an original product

The order of the module descriptions within one chapter results from the chronological sequence of the modules (see page 6, MEG Module Semester Overview).

Preliminary remarks on examinations in the module descriptions

Oral examinations, such as "oral presentations", "poster presentations", "group work presentations", have a duration of at least 10 minutes and a maximum of 30 minutes per candidate according to the applicable framework examination regulations. If specifications that are more concrete have been made, these are stated in the individual module descriptions.

The duration of written exams is at least 60 minutes and maximum 240 minutes according to the applicable framework examination regulations. The concrete time specification is usually listed in the module descriptions. The dates for exams as well as the valid aids will be announced to the students in a timely manner.

1st Semester

Winter Term 2019/20

Module number 94115	Module name Sustainability and Governance		
Course of study M.Sc. Environmental Governance	Type of course Core module	Semester / Rotation 1 st / Winter Term	
Teaching methods Lecture, excursions, group work	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Individual presentation of poster (10%) Group work presentation (10%) Written exam (80%), 90 minutes		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Prof. Dr. H. Schanz, e-mail: heiner.schanz@envgov.uni-freiburg.de		SWS 4	
Additional teachers involved Prof. Dr. U. Schmidt, e-mail: uwe.e.schmidt@ifp.uni-freiburg.de ; Prof. Dr. M. Pregernig, e-mail: michael.pregernig@envgov.uni-freiburg.de			
<p>Syllabus</p> <p>‘Sustainable development’ is an ambivalent term: it stands out both for its strong political appeal and its high degree of analytical vagueness. Based on a historical overview of natural resource conservation efforts, students become familiarized with the cultural roots of the concept and major shifts in its meaning. Today, sustainable development is a concept used in many different forms in at least as many different contexts. The module highlights the importance of the concept in local, national and international political processes. It critically assesses the opportunities, as well as the challenges, of operationalizing sustainable development, <i>inter alia</i>, by means of criteria, indicators and application of the ‘Sustainability Matrix’ approach. Different approaches to sustainable development are illustrated using examples of urban development, natural resource conservation, and development cooperation.</p> <p>Sustainable development requires adequate <i>governance</i> processes. Although governance has received increasing attention as a research object from many disciplines, no simple understanding of the term has evolved yet. Students will be introduced to different meanings, modes and theoretical approaches to the concept of governance. Their respective promises and pitfalls in relation to the conservation of natural resources and sustainable development will be elaborated based on case studies from different regions of the world.</p> <p>The key topics of this module will be imparted by means of interactive lectures (‘Socratic teaching’), guided reading exercises, excursions, and the preparation and presentation of cases in groups.</p>			
<p>Learning goals and qualifications</p> <p>In this module students learn to:</p> <ul style="list-style-type: none"> – describe the history of natural resource conservation efforts and their link to sustainable development (1); – understand the interests and world views that have influenced the discourse on ‘Sustainable Development’ in the various phases of its diffusion (2); – identify challenges of assessing sustainability by means of indicators, and develop the capacity to deal with conflicts that may result from trade-offs and diverging priorities (3); – identify and interpret the different meanings, modes and theoretical approaches of the governance 			

concept (2);

- understand the changing roles of governments, private sector actors, and civil society in the governance of human-environment interactions (2);
- apply basic literature and internet research skills (3);
- demonstrate basic presentation skills (3).

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form.

Agrawal, Arun & Lemos, Maria C. (2007): A Greener Revolution in the Making? Environmental Governance in the 21st Century, *Environment: Science and Policy for Sustainable Development*, 49/5: 36-45.

Dryzek, J.S. (2005): Environmentally Benign Growth: Sustainable Development. *The Politics of the Earth: Environmental Discourses*. J. S. Dryzek. Oxford, Oxford University Press: 145-152.

Schmidt, U.E. (2002): *Der Wald in Deutschland im 18. und 19. Jahrhundert*. Saarbrücken: Conte. (excerpts translated into English)

Module number 94135	Module name Global Societal Change		
Course of study M.Sc. Environmental Governance	Type of course Core module	Semester / Rotation 1 st / Winter Term	
Teaching methods Lectures, group work, excursion	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Written Group work and presentations (10%) Written exam (90%), 120 minutes		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Prof. Dr. H. Schanz, e-mail: heiner.schanz@envgov.uni-freiburg.de		SWS 4	
Additional teachers involved Dr. M. Adelman, e-mail: martin.adelmann@abi.uni-freiburg.de ; Prof. Dr. P. Poschen, e-mail: peter.poschen@envgov.uni-freiburg.de			
Syllabus <p>Increasing attention has been paid to global environmental issues in the last decades. However, a deeper understanding of these material and physical phenomena requires looking at emerging global societal trends. The Module is divided into two parts:</p> <p>In a first part, the students were introduced in a theoretical and practical analysis of globalization as a process encompassing transformations in social, political and economic structures that shape and responding to environmental changes. Based on it, multi-layered issues such as migration, urbanization, poverty and gender are reviewed in relation to the normative goal of sustainable development. Moreover, students are familiarized with development theories that take into account structures of international (development) cooperation.</p> <p>In a second part the students were introduced in trends in economies and the changing landscape of labor markets.</p> <p>Additionally to the Module an academic excursion to the headquarters of the GIZ and the KfW give the students an insight into the applied work of how development agencies deal with the discussed issues.</p> <p>Overall, students are invited to reflect on the current global patterns of production and consumption in a context constrained by environmental problems and inter- and intra-generational inequalities. They are required to apply concepts and theories to case studies presented in class.</p>			
Learning goals and qualifications: <p>In this module students learn to:</p> <ul style="list-style-type: none"> – understand emerging trends of global societal change and their interrelation with global environmental change (2); – compare the effects of global societal change between different social groups and regions of the world (2); – evaluate different theoretical approaches and explanatory frameworks that attempt to give account of global societal change (5); – produce case studies transferring scientific concepts to applied problems (6); – apply different assessment approaches (incl. systems analysis, value chain analysis, life cycle analysis) (5); 			

- exemplify theoretical constructs with real life examples (2);
- comprehend applied engagement and work in the area of global societal change (6).

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings:

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form. The following are some of the preliminary readings:

Castells, Manuel (2000): Towards a sociology of the network society. In: Contemporary Sociology, 29, 5, p. 693-699.

Johnston, R.J. et al. (Eds.) (2002): Geographies of global change: Remapping the World. Oxford, Second Edition, Part I and III.

Knox, P.L./ Marston, S. (2004): Places and regions in global context : human geography. 3rd. Ed. Prentice Hall.

Senge, P.M. (2010): The Fifth Discipline: The Art and Practice of the Learning Organization. Cornerstone.

Bojer, M.M., Roehl, H. et al. (2008): Mapping Dialogue: Essential Tools for Social Change. Chagrin Falls, OH: Taos.

Module number	Module name		
94125	Global Environmental Changes		
Course of study M.Sc. Environmental Governance	Type of course Core module	Semester / Rotation 1 st / Winter Term	
Teaching methods Lecturers, group work and discussions, presentations of results	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Written exam (60%), 120 minutes Group work presentation (40%)		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Dr. Claire Rambeau, E-mail: claire.rambeau@geologie.uni-freiburg.de		SWS 4	
Additional teachers involved Prof. Dr. Pregernig, Prof. Dr. Dirk Schindler, Dr. Kristin Steger, PD Dr. Jürgen Kreuzwieser, Dr. Inge De Graaf, Dr. Patrick Pyttel, Dr. Maria Helena Pereira-Peixoto			
<p>Syllabus</p> <p>Students will be introduced to some of the most important global environmental problems, such as pollution, forest loss and degradation, global warming, eutrophication of ecosystems, land use change, water scarcity, soil degradation, and others. Concurrently, the module is designed to familiarize students with the process of gaining reliable information about the environment. This competence will be applied when student groups prepare a short presentation on adaptation options to a particular global environmental change issue. In this presentation, the students will address the following points:</p> <ol style="list-style-type: none"> 1. Why is this aspect of adaptation important? What are the dimensions of this problem and how does it affect humans and society? 2. How certain are the data to quantify this environmental change problem? What are current trends and how certain are the predictions for its future development? 3. What information/evidence do we have on the likely success of the particular adaptation strategy? Are there already any technical or political solutions in place? How effective are they? <p>Against this background, research ethics, the quality and reliability of scientific information, and the role of science in the public discourse will be discussed.</p> <p>Students will work independently in groups to develop these presentations. Tutors will guide them in this task. The content of the lectures will provide the basis for a final exam at the end of the module. The assessment is based on the presentation (40%) and the exam (60%).</p>			
<p>Learning goals and qualifications</p> <p>In this module students learn to:</p> <ul style="list-style-type: none"> – understand the most pressing global environmental issues (2); – understand the important models and assumptions used to predict future environmental conditions, and the uncertainties associated with them (3); – develop the capacity to assess scientific information critically (5); – reflect on the role of science in society (4, 5). 			

Development of the following qualifications is supported through:

- literature research, reading/assessing/debate scientific documents
- presentation skills

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form. The following links are some preliminary readings:

<http://www.millenniumassessment.org/en/index.aspx>

<https://www.ipcc.ch/>

Module number	Module name		
94145	Human-Environment Interactions		
Course of study	Type of course	Semester / Rotation	
MSc Environmental Governance	Core module	1 st / Winter Term	
MSc Forest Sciences	Elective module	3 rd / Winter Term	
MSc Environmental Sciences	Elective module	3 rd / Winter Term	
Teaching methods	Prerequisites for attendance	Language	
lecture, group work	None	English	
Type of examination (Final Grade Composition)		ECTS-LP (Workload)	
PL Group work poster and presentation (50%)		5 (150h, of this 60 contact hrs.)	
Written exam (50%), 90 minutes			
Module coordinator		SWS	
Prof. Dr. M. Pregernig, e-mail: michael.pregernig@envgov.uni-freiburg.de		4	
Additional teachers involved			
Prof. Dr. M. Shannon			
Syllabus			
<p>All people live within an environmental context and all societies have developed ways of managing their interactions with their environment. This course explores the various ways in which societies organize and manage relationships with their environmental context, and their use and appreciation of natural resources. Social institutions can take many forms: rituals, traditions, informal practices, and formalized procedures.</p> <p>In the first part, this course will focus on key concepts to understand human-environment interactions (incl. property, resources and institutions); in the second part, it will deal with various conceptual frameworks of environmental management. Throughout the course, experienced scholars and PhD students will present and discuss integrated case studies.</p> <p>Students will have a core set of readings to introduce them to the main institutions for managing human environment interactions. Student teams will chose a real-world case study of problematic human-environment interactions and will analyze this case study based on the concepts introduced and discussed in class. In general, classes will be a mix of lecture and discussion for which students have prepared the readings in advance.</p>			
Learning goals and qualifications:			
In this module students learn to:			
<ul style="list-style-type: none"> – understand of the ways in which societies organize and manage human-environment relationships (2); – recognize the necessity of an interdisciplinary approach to manage human-environment systems (2); – develop the capacity to assess institutional arrangements (5); – reflect on approaches to manage human-environment interactions (5); – improve problem solving skills and time management (3); – demonstrate a high level of creativity during group work (3). 			
<u>Classification of cognitive skills following Bloom (1956):</u>			
1 = <i>Knowledge</i> : recalling facts, terms, basic concepts and answers; 2 = <i>Comprehension</i> : understanding something; 3 = <i>Application</i> : using a general concept to solve problems in a particular situation; 4 = <i>Analysis</i> : breaking something down into its parts; 5 = <i>Synthesis</i> : creating something new by putting parts of different ideas together to make a whole; 6 = <i>Evaluation</i> : judging the value of material or methods.			

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form.

McKean, Margaret A. (2000): Common Property: What Is It, What Is It Good For, and What Makes It Work?
In: Gibson, Clark, McKean, Margaret A. & Ostrom, Elinor (eds) People and Forests: Communities, Institutions, and Governance. Cambridge, MA: MIT Press. 27–56.

Holling, C.S. (2001): Understanding the Complexity of Economic, Ecological, and Social Systems. Ecosystems, 4/5, 390-405.

Robbins, Paul (2012): Political Ecology: A Critical Introduction [2nd ed.]. Chichester; Malden, MA: J. Wiley & Sons.

Module number 94155	Module name Regional Studies: Integrated Case Study		
Course of study M.Sc. Environmental Governance	Type of course Core module	Semester / Rotation 1 st / Winter Term	
Teaching methods Lectures, group work, research	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Individual assignment based on literature (10%), ca. 500 words PL Group work presentation (40%), 30 minutes Individual report (50%), ca. 2000 words		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Prof. Dr. H. Fünfgeld, e-mail: hartmut.fuenfgeld@geographie.uni-freiburg.de		SWS 4	
Additional teachers involved Dr. Markus Weidenbach			
<p>Syllabus</p> <p>In this course students will be introduced to conventional and emerging concepts of geographical regional studies. This will encompass integrated and interdisciplinary approaches of geographical research, including social constructivist perspectives on these fields.</p> <p>In addition, students will be made familiar with Geographic Information System (GIS) software. This methodological tool is used to support decision-making processes in environmental governance. After a five-day introduction to the software, students will apply their GIS skills to a case study (see below). The fulfillment of short GIS exercises will help prepare the students for the larger assessment and strengthen their skills for accurate data collection.</p> <p>The concepts of geographical regional studies will be applied to case studies covering particular social and environmental topics of the Freiburg region e.g. concerning urban development, regional transformations and governance processes. These practical exercises will be carried out in groups, giving students the opportunity to examine an issue of their interest in more depth, using interdisciplinary approaches. Here, groups can opt for various methods of data collection and integrate their GIS skills. The outcomes of the case studies in Freiburg will be presented to the whole group and the teaching staff at the end of the module. The case study research results, the quality and the reliability of the acquired scientific information (including geo-data), and the critical assessment of the case study approach will form part of the assessment.</p>			
<p>Learning goals and qualifications</p> <p>In this module students learn to:</p> <ul style="list-style-type: none"> – understand and evaluate different methodological approaches for regional analysis (1, 5); – use Geographic Information System software at a basic level (1); – evaluate the construction and use of geo-data and its role in policy making (5); – appreciate the social, institutional and political dimensions of scientific information (2); – analyze scientific documents and interpret scientific data (4, 2); – understand and apply research ethics (2, 3); and – produce case studies applying theoretical concepts of regional geography and skills of GIS software to 			

factual situations (6, 3).

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form. The following are some preliminary readings:

- Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, 12(2), 219–245. <https://doi.org/10.1177/1077800405284363>
- Holmen, H. (1995). What's New and What's Regional in the "New Regional Geography"? *Geografiska Annaler. Series B, Human Geography*, 77(1), 47. <https://doi.org/10.2307/490374>
- Wei, Y. D. (2006). Geographers and Globalization: The Future of Regional Geography. *Environment and Planning A*, 38(8), 1395–1400. <https://doi.org/10.1068/a38458>
- Sidaway, J. D. (2013). Geography, Globalization, and the Problematic of Area Studies. *Annals of the Association of American Geographers*, 103(4), 984–1002. <https://doi.org/10.1080/00045608.2012.660397>
- Koch, N. (2016). Is a "critical" area studies possible? *Environment and Planning D: Society and Space*, 34 (5), 807–814. <https://doi.org/10.1177/0263775816656524>

Module number 94165	Module name Governance Research and Skills	
Course of study M.Sc. Environmental Governance	Type of course Core module	Semester / Rotation 1 st / Winter Term
Teaching methods Lectures, workshop, group work	Prerequisites for attendance None	Language English
Type of examination (Final Grade Composition) PL Multiple individual written exercises and final essay (67%), ca. 1000 words Individual presentations (33%)		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)
Module coordinator Prof. Dr. Michael Pregernig, e-mail: michael.pregernig@envgov.uni-freiburg.de		SWS 4
Additional teachers involved Prof. Dr. H. Roehl; Louise Northover		
<p>Syllabus</p> <p>Studying socio-environmental problems requires critically engaging with different types of data, cooperating with researchers and other stakeholders with diverse backgrounds, as well as an ability to write analytically and scientifically. This module fosters the development of key governance skills, which are connected with tools and practices of <i>organizational learning</i>, a variety of methods and techniques for conducting <i>governance research</i>, and effective <i>scientific writing</i>. Accordingly, the module is organized into three blocks of approximately one week.</p> <p>An essential prerequisite for fostering governance processes is, <i>inter alia</i>, the ability to understand organizations and their inherent logics. The first week of the module will largely be devoted to the topic of <i>organizational learning</i>. Students will get acquainted with tools of organizational knowledge management and dialogue methods for social change as well as the basics of futures research and scenario planning techniques. Based on that, they will develop a personal change agenda.</p> <p>The inherent complexity of socio-environmental issues often makes it more challenging and increasingly necessary for these issues to be clearly outlined for the public, government authorities, and private actors by scientists, so that they can be effectively addressed. In this regard, scientific knowledge is useful for detecting, describing, and explaining socio-environmental problems and developing corresponding solutions. Nonetheless, not all knowledge dubbed ‘scientific’ has the same quality, and not all research is conducted in line with good scientific practices. This block presents an overview of the principles of solid scientific methods in the social sciences. Students acquire the necessary skills to differentiate solid research from ungrounded science. Building on central debates of the philosophy of science, the commonalities and specificities of quantitative and qualitative scientific methods are outlined. Students become familiar with different types of research designs and are able to critically assess them. They develop an understanding of different strategies of data collection, sampling, data interpretation and analysis. Finally, students become aware of the ethical underpinnings of good scientific practice.</p> <p>The third week will be devoted to the question of “what makes a (scientific) text a pleasure to read?” Formulating clear analytical questions, developing a stringent line of argumentation, and using proper scientific language are critical for doing governance research. The focus of this last part of the module will be on the <i>coherence</i> of scientific texts (i.e. overall structure, logic and content), on <i>cohesion</i> (i.e. the links within the text, including signposting, conjunctions and relative pronouns, in written English), on <i>register</i> (i.e. the degree of formality), and on <i>flow</i> (i.e. writing in a clear academic style that helps the reader to move through the text and grasp the main ideas without undue effort). Students apply these skills in written assignments.</p>		

Learning goals and qualifications:

In this module students will learn to:

- outline the characteristics of selected tools of organizational learning, and make use of these tools (2);
- discuss the commonalities and specificities of quantitative and qualitative social scientific methods (4);
- evaluate central ethical dimensions of good scientific practice (5);
- discern and apply basic guidelines of effective scientific writing (3).

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

- Bojer, M. M., Roehl, H., Knuth, M., & Magner, C. (2006). Mapping dialogue. A research project profiling dialogue tools and processes for social change Johannesburg: GTZ.
- Bryman, A. (2015). "The nature of quantitative research". *Social Research Methods*. Oxford: Oxford University Press, pp.148-169.
- Merriam, S. (2009), *Qualitative Research. A Guide to Design and Implementation*. San Francisco: Jossey-Bass.
- Swales, J. and C. B. Feak (2012). *Academic writing for graduate students: essential tasks and skills*. Ann Arbor: University of Michigan Press.

Module number 94175	Module name Global Environmental Politics		
Course of study MSc Environmental Governance	Type of course Core module	Semester / Rotation 1 st / Winter Term	
Teaching methods Lectures, group work, written assignment	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Short written group assignments (20%), ca. 1-10 pages Individual research paper (80%), ca. 3700 words		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Prof. Dr. H. Schanz, e-mail: heiner.schanz@envgov.uni-freiburg.de		SWS 4	
Additional teachers involved Prof. Dr. Peter Poschen, e-mail: peter.poschen@envgov.uni-freiburg.de			
Syllabus <p>The goal of this module is (1) to review and evaluate the organizational structure of the global environmental governance system, and (2) to practice research and academic writing skills in the area of global environmental politics and development. Accordingly, the module consists of two interrelated parts.</p> <p>In the first part of the module, students will gain knowledge of theoretical and analytical approaches to global environmental governance. Students will analyze the structure, authority, legitimacy and effectiveness of global environmental governance. Teaching methods include interactive lectures, independent individual and group work in class, and reading assignments. Furthermore, students have the opportunity to attend an excursion to encounter different international organizations. The excursion is an accompanying offer to deepen their knowledge and allow them to gain insights into the operation and functioning of various types of international organizations.</p> <p>In a second part of the module, students produce a research paper, in which they independently investigate and critically assess one issue in global environmental governance using theoretical and analytical ideas from the first part of the module, and insights and contacts gained throughout the first semester. The overarching goal of the final part of the module – in the context of the Master’s program – is to encourage students to practice their research and writing skills for assignments and a Master’s thesis in the subsequent terms. Students have the opportunity to work on a paper over several weeks. The paper submission deadline is scheduled for the end of the spring break (the exact deadline will be communicated in due time).</p>			
Learning goals and qualifications <p>In this module students learn to:</p> <ul style="list-style-type: none"> – understand and critically assess the system of global environmental governance (1,2,5); – understand historical origins of global environmental cooperation and sources of authority for international governmental and non-governmental environmental organizations (2); – evaluate the role of various types of organizations, including development aid organizations, international organizations, international non-governmental organizations, and international financial institutions, in global environmental politics and governance (5); – understand and evaluate various pathways of influence of global environmental politics on domestic environmental policies (2,5); – establish contacts and gain practical experience with the structure, functions and operations of 			

governmental and non-governmental organizations in environment and development areas (3);

- acquire and practice research skills and academic writing skills in international environmental politics and governance (2, 3).

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form. Introductory readings:

Speth, James Gustav & Hass, Peter M. 2006. *Global Environmental Governance*. Washington, D.C.: Island Press
Dauvergne, Peter, ed. 2012. *Handbook of Global Environmental Politics*. 2 ed. Cheltenham: Elgar

2nd Semester

Summer Term 2020

Module number 94250	Module name Economics, Institutions, and the Environment		
Course of study M.Sc. Environmental Governance	Type of course Core module	Semester / Rotation 2 nd / Summer Term	
Teaching methods Lectures, group work, tutorial	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Written exam (100%), 90 minutes		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Prof. Dr. Stefan Baumgärtner, e-mail: stefan.baumgaertner@ere.uni-freiburg.de		SWS 4	
Additional teachers involved Dr. Stephan Wolf, e-mail: stephan.wolf@ere.uni-freiburg.de			
<p>Syllabus</p> <p>In this module, students will learn how to view and analyze environmental governance from an economic perspective and employ economic methods. A core idea of economics is that resources that are scarce and have alternative uses should be allocated efficiently with regard to achieving societal objectives, such as the maximization of welfare, social justice, and sustainability. Hence, students will learn and critically discuss a number of principles of economics as applied to problems of environmental governance.</p> <p>Furthermore, students will learn theoretical concepts and methods of environmental and institutional economics. These concepts and methods will be employed to analyze economy-environment systems. Topics to be covered include the following: public environmental goods, common-pool-resources, and environmental externalities. A particular focus is on the role of institutions and environmental policies, and how to design them such that they work efficiently in solving environmental problems.</p> <p>Overall, this module is about the interrelationship between individuals, society, and nature. The guiding questions are: What is the outcome if self-centered individuals act independently and in their own interest (such as when trading on competitive markets)? How can institutions help achieve societal allocations that maximize social welfare (through top-down government by the state, as well as through fostering and mediating bottom-up social interactions)? And who bears responsibility for what, and to what extent, when the objective is sustainable development?</p>			
<p>Learning goals and qualifications</p> <p>In this module students learn to:</p> <ul style="list-style-type: none"> – understand what constitutes economics as a scientific discipline and environmental economics in particular (1,2); – understand how economists explain the emergence of environmental and resource problems (1,2); – understand and explain the standard solutions economists recommend in order to address environmental problems (1,2); – apply the economic framework and the economic tool-set to the analysis of environmental and resource problems (3,4,5); – assess critically the economic approach to environmental governance and grasp its potential as well 			

as its limits (4,6).

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form.

Module number 94265	Module name Ecosystem Management		
Course of study M.Sc. Environmental Governance M.Sc. Forest Sciences M.Sc. Environmental Sciences	Type of course Core module	Semester / Rotation 2nd / Summer Term	
MSc Geographie des Globalen Wandels	Elective		
Teaching methods Lectures, excursions, group work, tutorials, independent learning	Prerequisites for attendance Students should be vaccinated against ticks and tetanus	Language English	
Type of examination (weighting) PL Written Report (100%), ca.2000 words		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Prof. Dr. B. Pokorny, e-mail: benno.pokorny@waldbau.uni-freiburg.de		SWS 4	
Additional teachers involved Dr. Luca Corlatti, Dr. C. Fricke, PD Dr. Peter Pechacek, Prof. Dr. Michael Pregernig, Dr. Ida Wallin			
Syllabus: In the 1990s, the concept of Ecosystem Management emerged as a new paradigm for the management of natural resources. It is based on the objectives of sustainable use and conservation of natural resources, as well as fair and equitable sharing of benefits from ecosystem goods and services. Underpinning this approach are explicit objectives for the management of natural resources that can be translated into measurable goals, and subsequent monitoring. Ecosystem management recognizes that ecosystems are complex and interconnected, and function on a range of spatial and temporal scales. While management should be based on sound ecological models and aimed at maintenance of ecosystem integrity, the approach acknowledges that ecosystem knowledge is limited, and paradigms are provisional and likely to change. Consequently, management approaches are viewed as hypotheses, which require testing through systematic research and monitoring, resulting in adaptive management. In this module, students will be introduced to the concepts underpinning the Ecosystem Management approach, enabling them to critically evaluate its strengths and limitations. The module comprises an excursion of approximately one-week duration to a landscape setting, which serves as a case study through which to examine the approach. In the last phase of the module, the students discuss their field experiences, and, based on that, write a report in which they assess the feasibility, potential and limitations of the approach.			
Learning goals and qualifications In this module students learn to: <ul style="list-style-type: none"> – understand basic ecological principles (2); – identify and analyze the importance of ecosystem functions (1, 4); – interpret the main concepts underpinning the Ecosystem Management Approach (2); – recognize the necessity to integrate social and natural science knowledge for effective ecosystem management (2); – evaluate the strengths and limitations of the Ecosystem Management approach using a case study of a forested landscape in Central Europe (5); – produce a framework for Ecosystem Management, recombining concepts and principles learned during the course (6). <u>Classification of cognitive skills following Bloom (1956):</u> 1 = <i>Knowledge</i> : recalling facts, terms, basic concepts and answers; 2 = <i>Comprehension</i> : understanding something; 3 = <i>Application</i> : using a general concept to solve problems in a particular situation; 4 = <i>Analysis</i> :			

breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core Readings:

Bundesamt für Naturschutz 2008. Landscape Planning. The basis of sustainable landscape development. BfN, Bonn. (pages 8-17)

Christensen et al. 1996. The report of the Ecological Society of America Committee on the scientific basis for ecosystem management. *Ecological Application* 6(3), 665-691.

Cortner, H.J. and Moote, M.A. 1999. The politics of ecosystem management. Washington, DC: Island Press. Chapters 3+4 (pp. 37-72)

Noon, B.R. & J.A. Blakesley (2006): Conservation of the Northern Spotted Owl under the Northwest Forest Plan. *Conservation Biology* 20 (2): 288-296

Additionally, a list of relevant texts will be made available at the start of the course

Module number 942255	Module name Environmental Policy Analysis		
Course of study MSc Environmental Governance	Type of course Core module	Semester / Rotation 2 nd / Summer Term	
Teaching methods Lecture, group work	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Group work presentation (20%) Reflective essay (30%), ca. 1500 words Written exam (50%), 60 minutes		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Dr. Sylvia Kruse, Email: sylvia.kruse@ifp.uni-freiburg.de		SWS 4	
Additional teachers involved Dr. Ida Wallin, PD Dr. G. Winkel and others			
Syllabus <p>Governments have sought to address environmental issues by formulating and implementing a wide array of policies. These practices, which formally comprise the policy process, have attracted important academic attention. As a result, various theories have been formulated with the aim of understanding this process and informing decision makers. Taking into account these elements, this module includes a critical review of the premises of classical and contemporary theories of political science. With that, students are enabled to appreciate how policy studies have evolved from positivistic and rational models to approaches that seek to give account of the role of ideas and beliefs in the formulation and implementation of environmental policies. Likewise, it becomes evident how policy formulation and implementation involves actors beyond government agents, presenting the opportunity to discuss emerging governance arrangements.</p> <p>The theoretical and practical contents presented instruct students how to conduct policy analyses. Additionally, and in a more formal manner, frameworks applied to policy analysis are presented such as the multiple streams approach, the study of policy networks, the advocacy coalition framework, and discourse analysis. Students have to choose one of these approaches and apply it in a case study.</p>			
Learning goals and qualifications <p>In this course students learn to:</p> <ul style="list-style-type: none"> – differentiate basic concepts of political science and assess their usefulness for policy analysis and environmental governance (2); – understand the elements affecting the processes of environmental policy making and the coordination mechanisms of decision making needed for its success (2); – evaluate critically political theories, concepts, perspectives and approaches of policy studies (5); – analyze the dynamics between internat. environmental treaties a. national environmental legislation (4); – conduct environmental policy analysis and policy evaluation research (3, 6). <p><u>Classification of cognitive skills following Bloom (1956):</u> 1 = <i>Knowledge</i>: recalling facts, terms, basic concepts and answers; 2 = <i>Comprehension</i>: understanding something; 3 = <i>Application</i>: using a general concept to solve problems in a particular situation; 4 = <i>Analysis</i>: breaking something down into its parts; 5 = <i>Synthesis</i>: creating something new by putting parts of different ideas together to make a whole; 6 = <i>Evaluation</i>: judging the value of material or methods.</p>			

Core readings:

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form.

Module number 94298	Module name Elective: Leadership and Social Entrepreneurship		
Course of study MSc Environmental Governance	Type of course Elective module	Semester / Rotation 2 nd / Summer Term	
Teaching methods lectures, group work	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Group and individual presentations (20%) Written group essay (40%), ca. 5000 words Written individual essay (40%), ca. 2000 words		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Prof. Dr. H. Schanz, e-mail: heiner.schanz@envgov.uni-freiburg.de		SWS 4	
Additional teachers involved Barbara Börner (social entrepreneurship and sustainability consultant); external experts			
Syllabus <p>While environmental governance is often associated with governments, it also takes into account the role of other stakeholders that have an impact on the environment, including the private sector, NGOs and civil society. This module will deal with two prominent approaches in the field of environmental governance: (i) (environmental) leadership, particularly beyond governments, and (ii) social entrepreneurship.</p> <p>(i) Recent research shows that <i>environmental leadership</i> is often viewed as an “unequivocal good” and important for effective environmental governance; however, these assumptions are rarely critically discussed and empirically tested (Evans et al. 2015). (Environmental) leadership remains a broad, multi-faceted and contested concept. We will review theories of leadership in order to understand what it takes to be a leader, what leaders do, where leaders come from, how leaders interact with their social environment and their followers, how leadership develops, and how specifically leadership shapes environmental and sustainability governance. The students will apply various approaches to leadership to specific case studies in order to explore the role of leaders and leadership in concrete organizations and contexts.</p> <p>(ii) The concept of <i>Social Entrepreneurship</i> addresses social and ecological challenges that are unmet by private markets or governments; it is motivated primarily by generating earned income to serve a social mission, or by the role of innovation in creating social change. In this course, the key tenets of social entrepreneurship are discussed and exemplified by specific “business cases.” In the practical part of the course, students will evaluate real-world start-up social enterprises via small “consultancy projects.” Students will conduct business case studies and present their evaluations to the class.</p> <p>The module also includes a one-day study trip to RegionalWert A.G., a social enterprise and a citizen shareholder society that supports sustainable regional agriculture and food economy in the Freiburg area by linking citizen investors and sustainable enterprises.</p>			
Learning goals and qualifications <p>In this module students learn to:</p> <ul style="list-style-type: none"> – understand and critically assess different approaches to (environmental) leadership and social entrepreneurship (1, 2); – evaluate the role of leaders and leadership in environmental governance processes (5); – compare the perspectives, strengths and weaknesses of different approaches (4); 			

- apply theoretical approaches to current issues and specific cases of leadership and social entrepreneurship (3); and
- evaluate how theoretical approaches to social entrepreneurship work in practice (5).

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form. The following are some preliminary readings.

Zeyen, A., M. Beckmann and R. Akhavan. 2013. Social Entrepreneurship Business Models: Managing Innovation for Social and Economic Value Creation. In: Managementperspektiven für die Zivilgesellschaft des 21. Jahrhunderts. Management als Liberal Art. Wiesbaden: Springer Gabler.

Mair, J. 2010. Social Entrepreneurship: Taking Stock and Looking Ahead. In: A. Fayolle and H.

Matlay, eds. Handbook of Research on Social Entrepreneurship, Edward Elgar: Cheltenham, Chapter 2.

[Stephan](#), U. et. al. 2016. Organizations Driving Positive Social Change. A Review and an Integrative Framework of Change Processes. Journal of Management 42 (5), 1250 –1281.

Evans, Louisa S. et al. 2015. Understanding leadership in the environmental sciences. Ecology and Society 20(1): Art. 50

Gallagher, Deborah R., ed. 2012. Environmental leadership. Los Angeles: Sage

Module number 95993	Module name Elective: Sustainability Planning and Assessment	
Course of study MSc Environmental Governance	Type of course Elective module	Semester / Rotation 2nd / Summer Term
Teaching methods Lectures, group work, research	Prerequisites for attendance None	Language English
Type of examination (Final Grade Composition) PL PPT presentation to be handed in (100%) Re-exam: oral exam		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)
Module coordinator Prof. Dr. Heiner Schanz, e-mail: heiner.schanz@envgov.uni-freiburg.de		SWS 4
Additional teachers involved External experts on system analysis and system dynamics modelling [to be confirmed]		
Syllabus <p>In this module, students will be introduced to emerging concepts of public planning with regard to sustainability, i.e. appreciating the spatial and temporal dimensions of sustainability transformations. Starting from conventional frameworks of spatial planning, the evolution of strategic planning concepts in the sustainability context will be reviewed. This includes an overview of the characteristics, strengths, and limitations of major planning theories. The core of the module constitutes state-of-the-art understanding of specific and integrated strategies for sustainability planning and environmental assessments: conceptual approaches, theoretical underpinnings and methodologies.</p> <p>The module structure is as follows: Daily obligatory (self) preparation of lectures through intensive reading of core article. During contact hours: student facilitated discussion in groups, followed by a Socratic method-lecture based on reading summaries. Theoretical contents will be illustrated</p> <ul style="list-style-type: none"> – through a case study on “Planning and Implementing the Energy Transition in the State of Baden-Württemberg”, including field excursion. – five day workshop on system analysis and system dynamics modelling / causal loop diagramming <p>Grading will be based on preparation of individual policy briefs on the model-based analysis of the issue.</p>		
Learning goals and qualifications <p>In this module students learn to:</p> <ul style="list-style-type: none"> – understand the historical and theoretical origins of planning approaches for sustainability (2); – evaluate different sustainability assessment approaches, models, appraisals, and methodologies (5); – appreciate the spatial and temporal dimensions of sustainability transformations – develop critical thinking, reading, and research skills (3, 6); – learn to effectively and concisely present their findings through policy briefs (3); – facilitate group discussions and provide constructive feedback to classmates’ presentation (3); – introduction to causal loop diagramming (1, 2). <p><u>Classification of cognitive skills following Bloom (1956):</u> 1 = <i>Knowledge</i>: recalling facts, terms, basic concepts and answers; 2 = <i>Comprehension</i>: understanding something; 3 = <i>Application</i>: using a general concept to solve problems in a particular situation; 4 = <i>Analysis</i>: breaking something down into its parts; 5 = <i>Synthesis</i>: creating something new by putting parts of different ideas together to make a whole; 6 = <i>Evaluation</i>: judging the value of material or methods.</p>		

Core readings

Examples of obligatory readings during module and in preparation of lectures (one per day):

Davoudi, S., & Pendlebury, J. (2010). Centenary paper: The evolution of planning as an academic discipline. *Town Planning Review*, 81(6), 613-646. doi: 10.3828/tpr.2010.24

Lawrence, D. P. (2000). Planning theories and environmental impact assessment. *Environmental Impact Assessment Review*, 20(6), 607-625

Van Assche, K., & Verschraegen, G. (2008). The Limits of Planning: Niklas Luhmann's Systems Theory and the Analysis of Planning and Planning Ambitions. *Planning Theory*, 7(3), 263-283.

Dortmans, P. J. (2005). Forecasting, backcasting, migration landscapes and strategic planning maps. *Futures*, 37(4), 273-285

Garud, R., & Gehman, J. (2012). Metatheoretical perspectives on sustainability journeys: Evolutionary, relational and durational. *Research Policy*, 41(6), 980-995.

Kelly, R. A., Jakeman, A. J., Barreteau, O., Borsuk, M. E., ElSawah, S., Hamilton, S. H., . . . Voinov, A. A. (2013). Selecting among five common modelling approaches for integrated environmental assessment and management. *Environmental Modelling & Software*, 47, 159-181

Pfeffer, J., & Malik, M. M. (2017). Simulating the Dynamics of Socio-Economic Systems. In B. Hollstein, W. Matiaske, & K.-U. Schnapp (Eds.), *Networked Governance: New Research Perspectives* (pp. 143-161). Cham: Springer International Publishing.

Svendrup, H. U., Olafsdottir, A.H. (2018) System Analysis and System Dynamics Modelling. Icelandic University Reykjavik

Module number 10LE07S-M.95992 10LE08S-M.91804	Module name Elective: Global Sustainability Transformations in Local Contexts	
Course of study Msc Renewable Energy Management MSc Environmental Governance MSc Geographie des Globalen Wandels MSc Environmental Sciences	Type of course Elective	Semester / Rotation 2 nd / Summer Term
Teaching methods lectures, thematic seminar sessions, guided reading and assignments, group work and discussions	Prerequisites for attendance None	Language English
Type of examination (Final Grade Composition) PL Group presentation (30%), 15 minutes Individual essay (40%), ca. 2000 words Group Case Study (30%), ca. 3000 words		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)
Module coordinator Dr. Cathrin Zengerling, e-mail: cathrin.zengerling@enrlaw.uni- freiburg.de		SWS 4
Additional teachers involved Dr. Benedikt Schmid, e-mail: benedikt.schmid@geographie.uni-freiburg.de		
<p>Cities consume about 75% of global energy and material flows and are home to more than half of the global population – with a rising tendency. They are an increasingly visible actor in emerging polycentric environmental governance, engage in international legal regimes such as the Paris Agreement and transnational municipal networks (TMNs). Infrastructures and lifestyles in local systems are crucial for people's well-being within planetary boundaries. Many processes of sustainability transformations around energy, mobility, food, housing, and consumer goods are rooted in local systems. They offer room for experiments and niches and allow for first steps in diffusion and upscaling. Local governments can be closer to people and more responsive to specific local needs and conditions than higher levels of government. Local economies play a key role in value creation and capture.</p> <p>In this module, students learn about cities and municipalities as actors in an emerging system of polycentric environmental governance. They gain knowledge on the role of local governments within the Paris Agreement, TMNs as well as national state hierarchies in different legal systems and the respective local scope of action. We explore different modes of governing processes of transformation across different sectors (energy, mobility, food, housing and others) as well as scales (neighbourhood, city, translocal) in international case studies in the global north and south. The key forms of local decision-making (including referendums), formal as well as informal steering instruments including land use plans, urban development contracts and climate action plans are introduced. Students also get insights into the relationship and forms of cooperation between urban and (surrounding) rural areas in the context of the (energy) transition. With regard to local and community economies, students learn about (re)municipalisation, eco-social enterprises and community initiatives. We discuss alternative forms of ownership such as cooperatives and sharing schemes, in particular in the context of alternative economies and degrowth.</p> <p>The course is taught in an interactive manner. We will kick off our joint work with an explorative zero carbon walk in a Freiburg neighbourhood. Throughout the course, we present and discuss international case studies and students get the chance to deepen their knowledge in their main fields of interest. The course also encompasses an excursion to the new low carbon urban development project Dietenbach and discussions with representatives of the urban planning department.</p>		

Learning goals and qualifications

In this module students learn to:

- develop a critical understanding of contemporary processes of urban sustainability transformations with a main focus on the sectors of energy, mobility, housing and food (1,2);
- understand the role of cities in emerging polycentric environmental governance, varying local scopes of action and key formal and informal steering instruments of urban governance (2,3);
- discuss and reflect upon the role of law and planning in urban sustainability transformations, (2,4);
- analyse academic publications, legal and policy documents and other planning-related materials (3,4);
- apply their knowledge to case studies of contemporary urban transformation processes in their field of interest (3,4,5);
- compare, contrast, and transfer their knowledge to other cases (5, 6).

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form. The following are some examples of texts we will be reading in the course:

- Kraas, F., Leggewie, C., Lemke, P., Matthies, E., Messner, D., Nakicenovic, N., ... & Butsch, C. (2016). *Humanity on the move: Unlocking the transformative power of cities*. WBGU-German Advisory Council on Global Change.
- Reading material will be provided during the course via the e-learning platform ILIAS.

Module number 94260	Module name Environmental Psychology and Sociology		
Course of study M.Sc. Environmental Governance	Type of course Core module		Semester / Rotation 2 nd / Summer Term
Teaching methods Lecture, group work	Prerequisites for attendance None		Language English
Type of examination (Final Grade Composition) PL Scientific poster and group presentation (67%) Written exam (33%)			ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)
Module coordinator Prof. Dr. Michael Pregernig, e-mail: michael.pregernig@envgov.uni-freiburg.de			SWS 4
Additional teachers involved Prof. Dr. A. Ernst (Environmental Psychology), e-mail: ernst@usf.uni-kassel.de			
Syllabus Environmental psychology and sociology examines how humans interact with their biophysical environments. Environmental psychology studies human-environment interactions from the perspective of <i>individuals</i> , while environmental sociology takes the perspective of <i>collective actors</i> (groups, organizations, societies). The module is split in two parts according to this disciplinary distinction: (1) <i>Environmental Sociology</i> : The sub-module starts with a historic overview of the field. In a second step, various theories of environmental sociology are introduced and exemplified by means of concrete applications. The set of presented theories includes Ecological Marxism, Ecological Modernization, the Theory of Social Practices, Social Movements Theory, Ecofeminism, etc. In a third step, student groups critically apply selected theoretical approaches to empirical case studies of their choosing. (2) <i>Environmental Psychology</i> : The sub-module lays the theoretical grounds for individual environmental behavior by describing a well-known behavioral architecture. The role of incentives, environmental awareness, perceived behavioral control and group influences will be addressed. Furthermore, students will learn about how environmental risks are constructed and perceived, taking into account the intrinsic complexity of social and environmental systems through which they evolve and take shape. Finally, decision support systems will be discussed with respect to their impact on individual as well as institutional decision-making and behavior.			
Learning goals and qualifications In this module students learn to: <ul style="list-style-type: none"> – differentiate conceptualizations of nature-society interrelations and their implications for current environmental problems (2); – apply theoretical approaches to the study of current environmental issues (3); – evaluate the role of incentives, environmental awareness, and group influence in environmental conservation (5); – assess the psychological dimensions of environmental risks and their effect on decision making and policy implementation (2). <u>Classification of cognitive skills following Bloom (1956):</u> 1 = <i>Knowledge</i> : recalling facts, terms, basic concepts and answers; 2 = <i>Comprehension</i> : understanding something; 3 = <i>Application</i> : using a general concept to solve problems in a particular situation; 4 = <i>Analysis</i> :			

breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form. Preliminary readings:

Gould, Kenneth A. & Lewis, Tammy L. (2009): *Twenty Lessons in Environmental Sociology*. New York; Oxford: Oxford University Press.

Gardner, G.T. & Stern, P. (2nd ed. 2000). *Environmental problems and human behavior*. Boston: Allyn and Bacon.

Module number 6900	Module name Obligatory Internship		
Course of study M.Sc. Environmental Governance	Type of course Core module		Semester / Rotation
Teaching methods Self-procured internship	Prerequisites for attendance None		Language -
Type of examination (Final Grade Composition) Pre-approved internship of a duration of at least 7 weeks, full-time hours.			ECTS-LP (Workload) 10 (300h)
Module coordinator Prof. Dr. H. Schanz, e-mail: heiner.schanz@envgov.uni-freiburg.de			SWS -
Additional teachers involved -			
<p>Syllabus</p> <p>The MEG Internship Guidelines provide an orientation in internship-related-matters. Please note that only the exam regulations (§5) of your study programme are a legally binding. It is suggested to have your intended internship pre-approved by the MEG Internship Coordinator, Seirra Römmermann meg.coordinator@envgov.uni-freiburg.de.</p> <p>Duration</p> <p>According to the exam regulations of your MSc programme you are required to complete an internship of at least seven weeks. Upon successful completion, you will earn 10 ECTS credits. It is recommended that the internship take place between the 2nd and 3rd semesters.</p> <p>Working hours</p> <p>The internship should be on a full-time basis (in total 275 hours). Part-time contracts are possible upon consultation and under the condition that you work at least half-days and a minimum 3 days a week.</p> <p>Interruptions</p> <p>The internship should only be interrupted for urgent reasons and with the consent of the Internship Coordinator. Any hours lost through absence must be made up for within the internship period. Similarly, hours/days missed due to illness should be made up for if they exceed 5 working days.</p> <p>Internship Provider</p> <p>The internship can take place in Germany or abroad. Your internship must be in a field relevant to your MSc programme. The institution, organisation or company needs to be directed by a person with a university degree. Exceptions may be possible after consultation. The supervision of your internship lies solely with the responsible person at your Internship Provider.</p>			

3rd Semester

Winter Term 2019/20

Module number 94903	Module name Elective: Environmental Conflict Management and Participation	
Course of study MSc Environmental Governance	Type of course Elective module	Semester / Rotation 3 rd / Winter Term
Teaching methods Lecture, group work, excursion	Prerequisites for attendance None	Language English
Type of examination ((Final Grade Composition)) PL Group presentations of case study (40%) Group written case study report (ca. 6000 words) (60%)		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)
Module coordinator Prof. Dr. M. Pregernig, e-mail: michael.pregernig@envgov.uni-freiburg.de		SWS 4
Additional teachers involved Dr. Bleta Arifi, Dr. Julia Gorricho and other guest lectures		
<p>Syllabus</p> <p>Conflicting interests and rivalling activities of heterogeneous parties accompany the use of natural resources and landscapes. Conflicts are among the important driving forces in environmental policy. Today, in addition to traditional litigation, a range of alternative methods are used for dispute resolution. These include facilitation, mediation or conflict assessment, which are expected to allow involved stakeholders to reach a mutually satisfactory agreement on their own terms.</p> <p>In this module, students are introduced in the conceptualisation and the management of environmental conflicts. The course includes both an overview of relevant <i>conflict theory</i>, as well as <i>practical experiences</i> in conflict management. Students are assisted in understanding theoretical frameworks explaining environmental conflicts, and in evaluating conflict resolution and conflict management techniques. Several case studies of conflict analysis and management are presented. In a one-day excursion students will learn about specific conflict resolutions techniques as applied in a rural wind-mill construction project.</p> <p>The module puts special emphasis on <i>participatory</i> forms of conflict resolution. Based on theoretical literature, students evaluate the advantages of participation, as well as its limits and dangers. Students discuss the foundations of participation in (different) theories of democracy, and they get familiarized with various methods of participatory conflict resolution. Guest lecturers will present practical case experiences.</p> <p>In a small research project, student groups will work on real-world conflicts, providing a brief description of the conflict setting, and an analysis of the key stakeholders and their interests. They then design ideal-type conflict management or participation techniques. Students' projects are presented and discussed in class.</p> <p><i>Prerequisites for attendance:</i> Students have to bring a good basic understanding of social science theories and methods either substantiated via the successful attendance of relevant courses and/or previous practical experiences.</p>		
<p>Learning goals and qualifications</p> <p>In this module students learn to:</p> <ul style="list-style-type: none"> – develop an understanding of the social and political functions of conflicts (2); – understand the genesis and escalation of environmental conflicts (2); – understand and apply techniques to manage environmental conflicts (3); – develop the capacity to evaluate (participatory) conflict resolution and management (5); – apply research methods (analysis of literature, interview techniques etc.) (3). 		

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form.

Walker, G. B., & Daniels, S. E. (1997). Foundations of Natural Resource Conflict: Conflict Theory and Public Policy. In B. Solberg & S. Miina (Eds.), *Conflict Management and Public Participation in Land Management*. EFI Proceedings – No. 14 (pp. 13–36). Joensuu: European Forest Institute.

Renn, Ortwin & Schweizer, Pia-Johanna (2009): Inclusive risk governance: concepts and application to environmental policy making. *Environmental Policy and Governance*, 19/3, 174-185.

Troja, M. (2003): Resolving Environmental Conflicts: Mediation and Negotiation as Institutional Capacities for Social Learning. In: Breit, H., Engels, A., Moss, T. & Troja, M. (eds) *How Institutions Change: Perspectives on Social Learning in Global and Local Environmental Contexts*. Opladen: Leske + Budrich. 233-267.

Module number 94135	Module name Elective: Sustainability Management and Reporting		
Course of study M.Sc. Environmental Governance	Type of course Elective Module	Semester / Rotation 3rd / Winter Term	
Teaching methods (‘Socratic’) Lectures, case study work, presentations	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Research Paper (100%), maximum 15 pages plus references		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Prof. Dr. Heiner Schanz; Email: heiner.schanz@envgov.uni-freiburg.de		SWS 4	
Additional teachers involved -			
<p>Syllabus</p> <p>The perspectives on ‘sustainability’ in business and consequently the type of sustainability management companies are engaged in are shifting. Following Gerdeman (2014) some companies still initially focus on compliance issues and due diligence resp. regulatory affairs, whereas others become more strategic about sustainability by focusing on increasing efficiency and increasing reputation through developing business cases based on sustainability considerations. Still other companies shift to more advanced innovative stages by integrating sustainability into the core of the business in ways that transform the company. The shift in sustainability management approaches is accompanied by a growing market for sustainability services, ranging from classical strategy consultants including stakeholder management and CSR-activities to sustainability reporting and sustainability assurance services.</p> <p>The module provides a conceptual and theoretical overview on different approaches and instruments to sustainability issues in business management and reporting in general. It is not intended as a technical module to train students in the application of different instruments in sustainability management and reporting, but rather to understand the main driving forces underlying the shifts in sustainability management and reporting, as well as in sustainability services. This will be accomplished through a combination of interactive (‘Socratic’) lectures, intensive readings, case studies from different industries as well as short research assignments.</p>			
<p>Learning goals and qualifications:</p> <p>In this module students learn to:</p> <ul style="list-style-type: none"> – identify the main approaches of sustainability management and reporting in companies and their distinctive characteristics (1, 2); – understand the shifts and their underlying dynamics in approaches to sustainability management and reporting (2); – apply basic skills of research to relevant case studies (3, 6). <p><u>Classification of cognitive skills following Bloom (1956):</u></p> <p>1 = <i>Knowledge</i>: recalling facts, terms, basic concepts and answers; 2 = <i>Comprehension</i>: understanding something; 3 = <i>Application</i>: using a general concept to solve problems in a particular situation; 4 = <i>Analysis</i>: breaking something down into its parts; 5 = <i>Synthesis</i>: creating something new by putting parts of different ideas together to make a whole; 6 = <i>Evaluation</i>: judging the value of material or methods.</p>			

Core readings:

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form.

Miller, K.P. and Serafeim, G. (2014): Chief Sustainability Officers: Who Are They and What Do They Do?

Chapter 8 in *Leading Sustainable Change*, Oxford University Press, 2014. Available at SSRN:

<http://ssrn.com/abstract=2411976> or <http://dx.doi.org/10.2139/ssrn.2411976> .

Schrettle, S., Hinz, A., Scherrer -Rathje, M., & Friedli, T. (2014). Turning sustainability into action: Explaining firms' sustainability efforts and their impact on firm performance. *International Journal of Production Economics*, 147, 73-84.

Starik, M., & Kanashiro, P. (2013). Toward a Theory of Sustainability Management: Uncovering and Integrating the Nearly Obvious. *Organization & Environment*, 26(1), 7-30.

Dauvergne, P., & Lister, J. (2012). Big brand sustainability: Governance prospects and environmental limits. *Global Environmental Change*, 22(1), 36-45. doi:<http://dx.doi.org/10.1016/j.gloenvcha.2011.10.007>

Friedman, M. (1970). The Social Responsibility of Business is to Increase its Profits. *The New York Times Magazine*, pp. 32-33, 122-126. Retrieved from <http://www.umich.edu/~thecore/doc/Friedman.pdf>

Kolk, A. (2010). Trajectories of sustainability reporting by MNCs. *Journal of World Business*, 45(4), 367-374.

Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: a review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, 59, 5-21. .

Module number 94360	Module name Forests and Rural Development		
Course of study M.Sc. Environmental Governance	Type of course Core	Semester / Rotation 3 rd / Winter Term	
Teaching methods Lecture, group work	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Oral exam (80%), 15 minutes Written Concept Note (20%), ca. 2000 words plus budget table		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Prof. Dr. B. Pokorny, e-mail: benno.pokorny@waldbau.uni-freiburg.de		SWS 4	
Additional teachers involved Invited experts from the private and public sector			
Syllabus In the rural tropics, combining economic development with nature conservation remains an unsolved challenge. Prevailing development dynamics still tend to aggravate rather than to solve environmental problems and may negatively affect local land users. Despite manifold efforts at the national, regional and international levels, in most tropical countries, environmental degradation and marginalization of local land users continue at unabated speeds. In rural regions, the rapid expansion of agro-industry, cattle-ranching, the exploitation of oil, gas and minerals, as well as the construction of roads and dams exacerbate destructive land-use dynamics. This dynamic brings, on the one hand, the benefits of economic development to thousands of rural families, while, on the other hand, threatening their livelihoods and livelihood bases. Against this backdrop, this module intends to critically reflect on theoretical and operational approaches for rural development so as to prepare students for dealing with development practices characterized by multi-stakeholder situations, multiple objectives and complex dynamics. Guided by intensively discussed scientific articles, students will reflect upon the concepts and meanings of development, and the potential and limitations of different approaches and instruments. By exploring options for the development in context of rural forest regions, the module will challenge insights from theoretical and empirical studies.			
Learning goals and qualifications In this module students learn to: <ul style="list-style-type: none"> – understand the approaches of development, poverty and participation (2); – develop an understanding of the options of forest-based development in the context of rural tropics (2); – recognize the complexity and dynamism of socio-ecological systems and identify mechanisms to cope with this complexity (2, 4); – comprehend the need and possibilities to combine academic and participatory research approaches (2); – apply skills to design research and development projects (3); – critically reflect on the implications of development paradigms (5); – engage in interdisciplinary teamwork to formulate holistic development concepts for a case study in rural tropics (3, 6). 			

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

Colen L., Maertens M and Swinnen J. 2008. Foreign direct investment as an engine for economic growth and human development: a review of the arguments and empirical evidence. Working Paper 16, Leuven Centre for Global Governance Studies: Leuven, 48p.

Engel S., S. Pagiola, S. Wunder 2008. Designing payments for environmental services in theory and practice: an overview of the issues. *Ecological Economics* 65, 663-674.

Freire P. 1970. *Pedagogy of the Oppressed*. Chapter 1. Continuum Publishing Company, New York. Transcribed by Dominc Tweedie.

Pearce D., F.E. Putz, J.K. Vanclay 2001. Sustainable forestry in the tropics: panacea or folly? *Forest Ecology and Management* 172, 229-247.

Pokorny B., Scholz I. and De Jong W. 2013. REDD+ for the poor or the poor for REDD+? About the limitations of environmental policies in the Amazon and the potential of achieving environmental goals through pro-poor policies. *Ecology and Society* 18(2): 3.

Sayer J.A. and B. Campbell. 2001. Research to integrate productivity enhancement, environmental protection, and human development. *Conservation Ecology* 5(2): 32.

Terluin I.J. 2003. Differences in economic development in rural regions of advanced countries: an overview and critical analysis of theories. *Journal of Rural Studies* 19. 327-344.

Wunder S. 2001. Poverty Alleviation and Tropical Forests – What scope for synergies. *World Development* 19 (11), 1817-1833

Module number 95990	Module name Elective: Technology Assessment		
Course of study M.Sc. Environmental Governance	Type of course Core	Semester / Rotation 3 rd / Winter Term	
Teaching methods Lecture, group work	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Literature review along with Guiding Questions, ca. 4 pages (40%) Group Written Report, 30-40 pages (50%) Individual contributions to group reports, 10-20 pages (10%)		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator PD Dr. Philipp Späth, Email: spaeth@envgov.uni-freiburg.de		SWS 4	
Additional teachers involved Invited experts			
Syllabus Focus: Urban Food Production <p>As environmental limitations of current economic regimes and lifestyles are increasingly recognized, hope is often directed towards technological innovations (e.g. resource efficiency, 'green' technologies). To what extent particular technological innovations can in fact alleviate pressure on natural resources and systems is hard to assess, particularly in their early stages of development. Assumptions about the 'superiority' of certain technologies, which are consensual to a certain extent, are a precondition for any attempt to accelerate the development and diffusion of these technologies by any means of science, technology and innovation governance.</p> <p>In this course, various attempts to assess the potentials and risks involved in technological change are scrutinized. Starting from an overview of approaches, institutions and methods of TA, we aim to understand the dilemmas of such endeavors and how they have been tried to be surmounted. Students first elaborate short scoping studies on various new technologies that are promoted in the context of urban food production. The second and third week of the module are largely dedicated to the simulation of a typical (German) TA process on a topic, with the class jointly developing a TA study on a self-selected topic around new ways of growing food in cities.</p> <p>Important: The particularly extensive group work in this module absolutely requires the regular and reliable attendance of all students, their willingness to self-organize and a strong commitment to contribute to an unfolding and, at times, uncertain research process. Group presentations by students will also be carried out in the module.</p>			
Learning goals and qualifications <p>In this module students learn to:</p> <ul style="list-style-type: none"> – describe various objectives and institutional forms of technology assessment (1); – understand the assumptions and world views that influenced various approaches to TA (2); – be fluent with TA terminology and practices (3); – identify different challenges and dilemmas of expertise or consensus-oriented methods for TA (5); – criticize TA studies of various scopes (6); – position themselves with regard to different approaches to technology assessment (6); – assess the potential and risks potentially involved in various forms of urban food production (3). <p><u>Classification of cognitive skills following Bloom (1956):</u> 1 = <i>Knowledge</i>: recalling facts, terms, basic concepts and answers; 2 = <i>Comprehension</i>: understanding</p>			

something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form. The following is a comprehensive introductory reading:

Grunwald, A. (2009). "TECHNOLOGY ASSESSMENT: CONCEPTS AND METHODS". In: D. M. Gabbay, P. Thagard, J. Woods and A. W. Meijers. *Philosophy of technology and engineering sciences*, Amsterdam: Elsevier; pp. 1103-1145. Available as pdf.

Module number	Module name		
10LE07-M.640009	Elective: Environmental and Energy Transition Law		
Course of study MSc Renewable Energy Management M.Sc. Environmental Governance MSc Environmental Sciences MSc Forest Sciences	Type of course Elective	Semester / Rotation 3 rd / Winter Term	
Teaching methods Socratic lectures, group work, presentations	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Group presentation (20%, 15 min.) Written exam (40%, 120 minutes), Written report (40%, 3000 words)		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Dr. Catherin Zengerling, e-mail: cathrin.zengerling@enlaw.uni-freiburg.de Prof. Dr. Errol Meidinger, email: eemeid@buffalo.edu		SWS 4	
Additional teachers involved Invited experts from the private and public sector			
Syllabus <p>In this module students gain fundamental knowledge of environmental and energy transition law from multi-level governance and international comparative perspectives. They acquire sector-specific knowledge of environmental law in the fields of climate change, air pollution, water, oceans, biodiversity, nature protection, chemicals and waste/circular economy law. With regard to energy transition law, students become familiar with energy and planning law directed to energy efficiency and the switch from fossil fuel based to renewable energy in the sectors of electricity, heating/cooling and mobility.</p> <p>Throughout the course, students learn about different legal instruments and their strengths and weaknesses in reaching regulatory goals. Both, public and private law perspectives as well as different legal traditions such as common and civil law approaches are covered. Students also get insights into the role of environmental protection and the energy transition in other international legal regimes such as world trade, investment and human rights law.</p> <p>The course is taught interactively and active participation of students is encouraged. Students become familiar with various primary legal documents such as (excerpts of) international treaties, European directives, constitutions, national laws, administrative permits, land use plans as well as decisions of the judiciary, and learn how to work with them. Students apply and deepen their knowledge under guidance of the instructors in their specific fields of interest via case studies. Throughout the course, various soft skills such as debating in socratic discussions, scientific writing, interdisciplinary and intercultural teamwork are imparted.</p>			
Learning goals and qualifications In this module students learn to: <ul style="list-style-type: none"> - identify the main types and instruments of environmental and energy transition law and their distinctive characteristics (1)(2); - understand interactions and conflicts between different types, sources and instruments of environmental and energy transition law (2); - assess the inherent strengths and limitations of environmental and energy transition law for 			

environmental and energy governance (5);

- realize that there are alternative ways of structuring environmental and energy transition responsibilities and powers through law (2)(4);
- formulate legal and policy arguments relevant to future environmental and energy transition law development (6);
- critically and intelligently evaluate arguments for legal change (4);
- understand the relationship between scientific knowledge, social movements, and environmental/ energy transition law (2);
- apply basic skills of legal research and legal arguments to relevant case studies (3)(6).

Classification of cognitive skills following Bloom (1956):

1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

Sands, P., & Peel, J. (2018). *Principles of international environmental law*. Cambridge University Press.

Meidinger, Errol (2008), "Property Law for Development Policy and Institutional Theory: Problems of Structure, Choice and Change." In David Mark, Barry Smith, and Isaac Ehrlich, *The Mystery of Capital and the New Philosophy of Social Reality*. Chicago: Open Court Publishing, pp.193-227.

Reading material will be provided during the course via the e-learning platform ILIAS.

Module number 97020	Module name Elective: Life Cycle Management	
Course of study MSc Renewable Energy MSc Environmental Governance MSc Forest Sciences MSc Environmental Sciences	Type of course Elective Module	Semester / Rotation 3rd / Winter Term
Teaching methods Lectures, exercises, group work	Prerequisites for attendance Calculations with Excel, Basic knowledge on vectors, matrices, matrix multiplication and matrix inversion	Language English
Type of examination (Final Grade Composition) PL Written exam (33%), 90 minutes Term paper + group work (67%), ca. 4000 words		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)
Module coordinator Stefan Pauliuk, PhD (stefan.pauliuk@indecol.uni-freiburg.de)		SWS 4
Additional teachers involved Prof. Dr. Rainer Griebhammer, MSc Kavya Madhu		
<p>Syllabus The course enables participants to conduct, interpret, document, and present life cycle assessment studies of products or technical installations using state-of-the-art tools and databases.</p> <p>Content During the first half of the course, the motivation behind and theory of life cycle assessment, including the modelling of life cycle inventories and life cycle impact assessment, is presented. The participants conduct exercises and study the relevant literature.</p> <p>During the second half, the participants learn how to conduct and document a life cycle assessment study that meets both ISO and scientific standards. The participants form small groups of 2-3, chose a product or installation, and perform a life cycle management case study. The final report on the case study is due at the end of the module. It will be graded and the result will account for two thirds of the final grade of the course.</p> <p>During the second half, background lectures and discussions on the potential, limits, applications, and future development of life cycle management will be held.</p> <p>A written exam (1.5 hours), the result of which accounts for one third of the final grade, will be held at the end of the course.</p> <p>The module is interactive and encourages strong student participation.</p>		

Learning goals and qualifications

- Basic knowledge of quantitative systems analysis of human-environment systems, basics of material and energy flow analysis (1);
- Detailed knowledge about the state of the art, the software, and databases of life cycle assessment according to the standards ISO 14040 and 14044 (1,3,4);
- Basic knowledge of life cycle impact assessment methods (1, 2, 3);
- Soft skills: discussion, scientific writing skills, capacity for team work (2);
- At the end of the course, the successful participant will be able to conduct, interpret, document, and present life cycle assessment studies of products or technical installations using state-of-the-art tools and databases (1-6).

Classification of cognitive skills following Bloom (1956):

- 1 = *Knowledge*: recalling facts, terms, basic concepts and answers; 2 = *Comprehension*: understanding something; 3 = *Application*: using a general concept to solve problems in a particular situation; 4 = *Analysis*: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Recommended reading

LCA Textbook: <http://www.lcatextbook.com/>. Much of the basic material of the course will be based on this book.

OpenLCA tutorials (<http://www.openlca.org/videos>).

Manual of the ReCiPe impact assessment method (http://www.lcia-recipe.net/file-cabinet/ReCiPe_main_report_MAY_2013.pdf).

Important:

This course requires each participant to work on her/his own laptop with the openLCA software (<http://www.openlca.org/>) and the ecoinvent database installed. openLCA is freeware. A copy of the ecoinvent database will be provided at the beginning of the course.

Module number 95995	Module name Elective: Research Design in Environmental Governance		
Course of study M.Sc. Environmental Governance	Type of course Elective	Semester / Rotation 3 rd / Winter Term	
Teaching methods Lectures, research assignments	Prerequisites for attendance None	Language English	
Type of examination (Final Grade Composition) PL Written exam based on readings (20%), 60 minutes Individual research poster (80%)		ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)	
Module coordinator Prof. Dr. Heiner Schanz; Email: heiner.schanz@envgov.uni-freiburg.de		SWS 4	
Additional teachers involved Dr. Kimberley O’Sullivan and guest lecturers			
Syllabus The overall goal of this module is to introduce the logic of social scientific inquiry in environmental governance and to offer students an opportunity to practice skills required for designing and conducting research projects, including a Master’s thesis project. Accordingly, in Week 1 is focused on the theory and logic of social research. Weeks 2 and 3 focus on developing a research proposal and a research poster. During the first week of the module, students study philosophical foundations of social research, discuss the logic of social inquiry, review types of research design and research methods, and analyze exemplary cases of social research in environmental governance. The first week’s class includes intensive reading, interactive lectures and guided seminars. At the end of this module part, students are required to take a written test. The goal of the second part of the module is to apply competences acquired during the first week. Students develop their own research project proposals and present them in the form of a research poster. This is not a master’s thesis proposal, but it can be developed into one. We encourage students to elaborate and test their first ideas for a thesis project in this module. It is an opportunity to practice key elements of a thesis proposal, receive feedback on ideas and develop a basis for a ‘real’ thesis research proposal. Students develop their proposals in close cooperation with lecturers and receive feedback.			
Learning goals and qualifications In this module students learn to: <ul style="list-style-type: none"> – distinguish between different philosophical perspectives underlying qualitative, quantitative and mixed methods methodologies in the social science research (2); – identify and understand different social science research designs and research processes (1, 2); – assess the applicability of qualitative and quantitative research methods to specific research problems and questions (4, 5); – design research projects on the basis of appropriate research questions and hypotheses that contribute to an increase of knowledge in their field of study (6); – elaborate research project proposals and research posters based on proposals (6). <u>Classification of cognitive skills following Bloom (1956):</u> <ul style="list-style-type: none"> – 1 = <i>Knowledge</i>: recalling facts, terms, basic concepts and answers; 2 = <i>Comprehension</i>: understanding something; 3 = <i>Application</i>: using a general concept to solve problems in a particular situation; 4 = 			

Analysis: breaking something down into its parts; 5 = *Synthesis*: creating something new by putting parts of different ideas together to make a whole; 6 = *Evaluation*: judging the value of material or methods.

Core readings

A list of relevant texts will be made available at the start of the course; obligatory readings (and part of the voluntary readings) will be made available online in electronic form. Preliminary readings:

MEG Guidelines for MSc Theses, available at https://www.meg.uni-freiburg.de/Filelist/Current%20Students/guidelines_master_thesis_2015_neu.pdf

Moon, K., & Blackman, D. (2014). A Guide to Understanding Social Science Research for Natural Scientists. *Conservation Biology*, 28(5), 1167-1177.

Timmermans, S., & Tavory, I. (2012). Theory Construction in Qualitative Research: From Grounded Theory to Abductive Analysis. *Sociological Theory*, 30(3), 167-186

Haq, M. (2014). A comparative analysis of qualitative and quantitative research methods and a justification for use of mixed methods in social research. Annual PhD Conference, University of Bradford Business School of Management, June 2014, 23 p.

Flick, U. (2015). *Introducing Research Methodology - A Beginner's Guide to Doing a Research Project*. 2nd edition, SAGE Publications, London.

Knopf, J. W. 2006. *Doing a Literature Review*. POnline, American Political Science Association

Vaccaro, I., Smith, E. A., & Aswani, S. (eds.). *Environmental Social Sciences: Methods and Research Design*. Cambridge: Cambridge University Press

Module number 64084	Module name Elective: Economics of Ecosystem Services and Biodiversity		
Course of study M.Sc. Environmental Sciences M.Sc. Forest Sciences M.Sc. Environmental Governance	Type of course Elective module		Semester / Rotation 3 rd / Winter Term
Teaching methods Lectures, discussions, homework, tutorial, group work, student presentations	Prerequisites for attendance Intermediate economics level environmental economics: see separate detailed specification algebra and calculus: see separate detailed specification willingness and capability for interdisciplinary work in economics good commandment of English		Language English
Type of examination (Final Grade Composition) PL Presentation and oral exercises (50%) Written exam (50%), 90 minutes			ECTS-LP (Workload) 5 (150h, of this 60 contact hrs.)
Module coordinator Prof. Dr. S. Baumgärtner, e-mail: stefan.baumgaertner@ere.uni-freiburg.de			SWS 4
Additional teachers involved -			
Syllabus <p>In this course, students will study biodiversity and ecosystem services from an economic perspective. Biodiversity is understood here as ‘the variability among living organisms from all sources ... and the ecological complexes of which they are part’ (United Nations Convention on Biodiversity 1992). Ecosystem services are “the benefits people obtain from ecosystems” (Millennium Ecosystem Assessment 2005). This includes provisioning services (e.g. the provision of food, fiber, fuels or clean drinking water), regulating services (e.g. climate regulation, erosion control, or the regulation of pests and diseases), and cultural services (e.g. aesthetic satisfaction, education, recreation, or spiritual fulfillment).</p> <p>While biodiversity is an issue of biology and ecology in the first place, the economic perspective can add valuable insights into why we are currently losing biodiversity and ecosystem services at unusually high rates, why this is a problem that we should be concerned about, and what we can do in order to conserve and sustainably use biodiversity and ecosystem services in an efficient manner.</p> <p>To this end, students in this course will learn advanced concepts and methods from environmental and resource economics, and integrate them in an interdisciplinary manner with concepts and methods from ecology, to gain an encompassing and methodologically sound economic understanding of biodiversity and ecosystem services.</p>			
Learning goals and qualifications In this module students learn to:			

- understand advanced theories, methods and empirical findings of economic environmental studies with respect to biodiversity and ecosystem services, and are able to reproduce them (1)
- critically reflect upon the economic approach to analyze the natural environment as well as its preconditions, limitations, and are able to reproduce and explain this to others (2)
- apply advanced theories and methods of economic environmental studies to smaller problems of biodiversity and ecosystem services autonomously (3)
- analyze reciprocal correlations between economic and environmental variables systematically and on an advanced professional level (4)

Core readings

There is no single textbook for this course. References to books and journal articles for each chapter will be given in class. References to start with are:

- The Economics of Ecosystems and Biodiversity (www.teebweb.org):
- Mainstreaming the Economics of Nature: Synthesis of the Approach, Conclusions and Recommendations (2010)
- Summary for Policy Makers: Responding to the Value of Nature (2009) and the talk of Dr. Pavan Sukhdev on *The Invisible Economy* on <http://bankofnaturalcapital.com/2010/10/04/dr-pavan-sukhdev-on-the-invisible-economy/>

References to books and journal articles for further reading will be given in class.

4th Semester

Summer Term 2020

Module number 8000	Module name Master Thesis		
Course of study M.Sc. Environmental Governance	Type of course Core module	Semester / Rotation -	
Teaching methods	Prerequisites for attendance 70 ECTS must have been earned	Language English	
Type of examination (Final Grade Composition) Submission of Master Thesis		ECTS-LP (Workload) 30 (900h)	
Module coordinator Prof. Dr. H. Schanz, e-mail: heiner.schanz@envgov.uni-freiburg.de		SWS	
Additional teachers involved -			
<p>Syllabus</p> <p>Many people see the writing of an M.Sc.-thesis as the coronation of higher academic education. And indeed, the importance of the thesis work is also reflected by the prominent role it takes within the whole M.Sc.-programme. After completing core and elective subjects in the educational programme the M.Sc.-thesis offers the challenge to set up and to carry out a scientific research project in an almost fully self-responsible manner, but under the guidance of an experienced supervisor.</p> <p>More information can be found on the MEG Website and under the following direct links:</p> <p>Administrative Guidelines: Administrative matters to start writing a thesis (Choosing a supervisor, registration, deadline, etc)</p> <p>Guidelines on how to write a Master Thesis: How to prepare for a master thesis what are the steps to write one (necessary skills, selecting a topic, looking for literature, grading, etc).</p>			
Learning goals and qualifications -			
Core readings -			

Room Plans

Modules usually take place in „Herderbau“:
Tennenbacher Str. 4
79106 Freiburg

Look for the individual floor-maps available on each level of the building (e.g. R 100 is on the 1st floor, R 310 is in the 3rd floor)

MEG Programme Contacts

Function	Name	Contact
Dean	Prof. Dr. Heiner Schanz	0761/203-8502 heiner.Schanz@envgov.uni-freiburg.de
Dean of Studies	Prof. Dr. Markus Weiler	0761/203-3535 markus.weiler@hydrology.uni-freiburg.de
Dean of Studies	Prof. Dr. Annika Mattissek	0761/203-3565 annika.mattissek@geographie.uni-freiburg.de
Programme Director	Prof. Dr. Michael Pregernig	0761/203-3708 michael.pregernig@envgov.uni-freiburg.de
Programme Module Coordinator	Seirra Römmermann	0761/203-8495 meg.coordinator@envgov.uni-freiburg.de
Programme Administrative Coordinator	Esther Muschelknautz	0761/203-3607 esther.muschelknautz@unr.uni-freiburg.de
Examination Office	Silke de Boer	0761/203-8610 silke.deboer@unr.uni-freiburg.de