

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 1
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	------

Inhaltsverzeichnis

Overview	2
UCD - Core modules:	3
Global Change Ecology – Introduction.....	3
Core Skills for Research.....	4
Plant-Atmosphere Climate Interaction	5
Science and Policy	6
Environmental Impact Assessment.....	7
Environmental Law and Policy	8
UCD – Optional modules:	9
Biodiversity	9
Peatland and Environmental Change.....	10
JLU - Core modules:	11
Plant-Soil-Atmosphere Interactions.....	11
Ecosystem and model development.....	12
Policy Consultancy	13
Resource Economics and Environmental Management	14
Biodiversity Informatics	15
Man in Past Climates and Climate Change Impacts.....	16
JLU – Optional modules:	17
Scientific Presentations in Ecology	17
Evolutionary Biology	18
Human Health Impacts of Climate Change: the International Dimension	19
Global Change: advanced techniques.....	20
Political Consulting – Environmental Policy and Development Cooperation.....	21
Work Placement.....	22
Research Project Thesis	24

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 2
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	------

Overview

UCD	Core modules	Code	Credits
	Core Skills for Research	BIOL40010	5
	Plant-Atmosphere Climate Interaction	BOTN40180	5
	Global Change – Introduction	ENVB40130	5
	Science and Policy	BIOL40140	5
	Environmental Impact Assessment	ENVB40040	5
	Environmental Law and Policy	LAW30440	5
	Optional modules		5
	a) Biodiversity	ZOOL40010	5
	b) Peatland and Environmental Change	ENVB40040	5
	Total CP in UCD for taught modules		35

JLU	Core modules	Code	Credits
	Plant-Soil-Atmosphere Interactions	M-GC-PSA	5
	Ecosystem and Model development	M-GC-ÖUM	3
	Policy Consultancy	M-GC-PBR	6
	Resource Economics and Environmental Management	M-GC-REM	6
	Biodiversity Informatics	M-GC-BDI	3
	Man in Past Climates and Climate Change Impacts	M-GC-MPC	6
	Optional modules		6
	a) Scientific Presentations in Ecology	M-GC-SEM	3
	b) Human Health Impacts of Climate Change: the International Dimension	M-GC-CCH	6
	c) Global Change – Advanced Techniques	M-GC-GCE	3
	d) Political Consulting – Environmental Policy and Development Cooperation	M-GC-PCE	6
	Total CP in JLU for taught modules		35

Module 'Work Placement'	UCD	20
Module 'Research Project/Thesis'	UCD	30
Total Number of CP		120

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 3
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	------

UCD - Core modules:

ENVB40130	Global Change Ecology – Introduction		Winter	5 CP	
Title of module	Global Change Ecology – Introduction				
Code of module	ENVB40130				
Faculty / study program / Institution	UCD, Environmental Biology				
used in StG / Sem.	1 Sem., MSc Global Change				
Person in charge	Prof. Thomas Bolger				
Prerequisites	None				
Course aims	Introduction to global change as a many-faceted process arising from human and natural activities. Topics covered include elevated concentrations of atmospheric CO ₂ , enhanced levels of nitrogen deposition, changes in land use, biodiversity loss and global warming. The background is set through descriptions of the diversity of terrestrial systems, the differences between terrestrial and aquatic systems and the importance of climate in determining the distribution and functioning of terrestrial systems.				
Course content	<p>What will the student learn?</p> <p>On completion of this module students should:</p> <ul style="list-style-type: none"> - Understand the ecosystem concept; - Appreciate the differences between terrestrial and aquatic ecosystems; - Understand the drivers of global change; - Understand the consequences of global change. 				
Class format	Lecture and practice				
Workload	112 h			Credit-Points: 5 CP	
containing:	A Course		B Self-study	C examination	total
	a presence	b preparation/post-processing, LN			
	Lecture	18			
	Practical	9			
	Field Trip	5			
	Total	32	80		112
Examination format Grading Repetition	Essay on aspects of global change (25%); end of course examination (50%) and report from fieldtrip (25%)				
Availability Duration	Winter, each year one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes					

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 4
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	------

BIOL40010	Core Skills for Research		Winter	5 CP		
Title of module	Core Skills for Research					
Code of module	BIOL40010					
Faculty / study program / Institution	UCD, Biology					
used in StG / Sem.	1 Sem., MSc Global Change					
Person in charge	Dr Jonathan Yearsley					
Prerequisites	None					
Course aims	This module aims to equip MSc students with the skills required for completion of a research project, including critical review of primary literature in the field of biology and environmental science and design and analysis of biological and environmental experiments. Instruction will also be provided in the key skills required to succeed in job applications.					
Course content	<p>What will the student learn?</p> <p>The student will learn to</p> <ul style="list-style-type: none"> - critically review an article of primary scientific literature in the field of biology and environmental science, - design a biological / environmental experiment, taking due account of independence, allocation of replicates and controls, - select and undertake basic univariate analyses using a widely available software package, - select multivariate analyses appropriate for analysis of a range of data sets and objectives, - construct an effective job application (CV and cover letter) and approach an interview in a professional manner. 					
Class format	Lecture and practice					
Workload	111 h		Credit-Points: 5 CP			
containing:		A Course		B Self-study	C examination	total
		a presence	b preparation/post processing, LN			
	Lecture	20				
	Practical	12				
	Computer Aided Lab	4				
	Specified Learning Activities	12				
	Total	48		63		111
Examination format Grading Repetition	Experimental design and analysis (30%), written exam (70%)					
Availability Duration	Winter, each year one semester					
Acceptance capacity	None					
Language of instruction	English					
Literature						
Notes						

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 5
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	------

BOTN40180	Plant-Atmosphere Climate Interaction		Winter	5 CP	
Title of module	Plant-Atmosphere Climate Interaction				
Code of module	BOTN40180				
Faculty / study program / Institution	UCD, Botany				
used in StG / Sem.	1 Sem., MSc Global Change				
Person in charge	Dr Jennifer McElwain				
Prerequisites	None				
Course aims	We are currently experiencing major changes in our climatic and atmospheric environment. Conservative estimates project that the concentration of greenhouse gas carbon dioxide will double by the end of this century and global temperatures are expected to rise by 1 to 4 °C. A major issue facing the scientific and political community is how these projected changes will influence natural ecosystems, plant and animal ecology and biodiversity. This course will explore examples of plant-atmosphere and plant-climate interactions in the geological past, in the more recent past of Quaternary glacial-interglacial cycles and from experimental studies of the present day. The course will provide a framework for understanding the nature and scale of evolution, adaptation and eco-physiological responses of plants to their atmospheric and climatic environment.				
Course content	The learning objectives of this course are: <ul style="list-style-type: none"> - to understand plant evolution over the past 3700 million years (with specific emphasis on land plant evolution over the past 500 million years). - to understand fossil plant responses to environmental extremes associated with mass extinction events in Earth history. - to understand global, regional, local and individual level responses to past, present and likely future atmospheric CO₂ concentrations. 				
Class format	Lecture and practice				
Workload	106 h			Credit-Points: 5 CP	
containing:	A Course		B Self-study	C examination	total
	a presence	b preparation/post processing, LN			
	Lecture	12			
	Conversation Class	4			
	Specified Learning Activities	40			
	Total	56	50		106
Examination format Grading Repetition	Short in class presentation on research paper 30%; end of semester essay style examination (70%)				
Availability Duration	Winter, each year one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes					

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 6
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	------

BIOL40140	Science and Policy		Winter	5 CP	
Title of module	Science and Policy				
Code of module	BIOL40140				
Faculty / study program / Institution	UCD, Biology				
used in StG / Sem.	1 Sem., MSc Global Change				
Person in charge	Dr Tamara Hochstrasser				
Prerequisites	None				
Course aims	The role of science and scientists in Western societies is rapidly changing. New technologies in particular the World Wide Web make information available in much faster time and to a wider audience than was traditionally the case. In the first half of this course, student participants should become familiar with the history of science in society as well as with the social structure and functioning of the scientific community over time through a series of readings and discussion groups. In the second half of the course, the students will explore the interface with the wider society by running a project where citizens are involved in the scientific process.				
Course content	<p>What will the student learn?</p> <p>On completion of this module students should be able to:</p> <ul style="list-style-type: none"> - give an outline of how the role of science in society evolved over time - clearly explain the difference between scientific knowledge and other kinds of knowledge – priorities, normative and positive claims - be able to lead a citizen group in a discussion of a scientific topic - have a clear understanding and a working knowledge of methods to bridge the gap between scientists and society. 				
Class format	Lecture and practice				
Workload	110 h			Credit-Points: 5 CP	
containing:	A Course		B Self-study	C examination	total
	a presence	b preparation/post processing, LN			
Lectures	20				
Small group	10				
Practical	20				
Specified Learning Activities	20				
Total	70		40		110
Examination format Grading Repetition	Essay (40%) and oral examination (60%)				
Availability Duration	Winter, each year one semester				
Acceptance capacity	20				
Language of instruction	English				
Literature					
Notes					

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 7
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	------

ENVB40040	Environmental Impact Assessment		Winter	5 CP	
Title of module	Environmental Impact Assessment				
Code of module	ENVB40040				
Faculty / study program / Institution	UCD, School of Biology and Environmental Science				
used in StG / Sem.	1 Sem., MSc Global Change				
Person in charge	Dr Tasman Crowe				
Prerequisites	None				
Course aims	This module outlines the development and philosophy of the EIA framework in Ireland and Europe. We then focus on the practicalities of preparing an Environmental Impact Statement, including scoping and the collection, synthesis and dissemination of relevant information. Emphasis is placed on biological sampling and coastal examples. We compare EIA processes in a range of countries and discuss the pros and cons of different approaches. The course includes a mock EIA exercise and guest lectures from practising environmental consultants and decision makers.				
Course content	<p>What will the student learn?</p> <p>Describe the philosophy, background and development of the Environmental Impact Assessment (EIA) process in Europe and Ireland and place it in a broader framework of approaches to environmental management;</p> <ul style="list-style-type: none"> - Summarise the general legal framework for EIA in Ireland, including the different categories of impact that must be addressed; - Discuss some of the difficulties of assessing 'significance' of impacts; - Work as part of a team to prepare a scoping report (part of EIA), based on practical experience of doing so; - Take a critical view of the design and interpretation of biological surveys for EIA; - Critically appraise the relative merits and flaws of EIA systems in different countries; - Consider the different careers available in the field of EIA and their spheres of influence. 				
Class format	Lecture and practice				
Workload	102h		Credit-Points: 5 CP		
containing:	A Course		B Self-study	C examination	total
	A presence	b preparation/post processing, LN			
	Lectures	9			
	Specified Learning Activities	30			
	Total	39	63		102
Examination format	Simulation exercise (30 %) and exam (70 %)				
Grading					
Repetition	In-semester assessment				
Availability	Winter, each year				
Duration	one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes					

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 8
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	------

LAW30440	Environmental Law and Policy			Winter	5 CP
Title of module	Environmental Law and Policy				
Code of module	LAW30440				
Faculty / study program / Institution	UCD, School of Law				
used in StG / Sem.	1 Sem., MSc Global Change				
Person in charge	Dr Andrew Jackson				
Prerequisites	None				
Course aims	On completion of this module, diligent students should: (1) have a good grounding in the history and key principles of substantive environmental law; (2) understand how environmental law is enforced and the remedies available for breach of environmental law at national, European and international levels; (3) understand the implications of the level at which environmental law is made - domestic, European and international; (4) have developed an awareness of the challenges that this field of law faces and will face in the future.				
Course content	Environmental law is fundamental to how society interacts with the natural world around it. This module will examine the key principles of environmental law, its underlying philosophies, and how it is applied, at national, European and international levels. It will trace the development of environmental law to date and its sources, and will examine how environmental law has become an integral part of many aspects of community life. Fundamental concepts and principles of environmental law will be illustrated with contemporary international and domestic examples, including from climate change law, nature conservation law, and the law of sustainable development. Remedies and enforcement will be studied in detail. This module will not deal in depth with Planning Law, which is covered in a separate module.				
Class format	Lectures, Specified Learning Activities				
Workload					Credit-Points: 5 CP
containing:	A Course		B Self-study	C examination	total
	a presence	b preparation/post processing, LN			
	Lectures	24	64		88
	Specified Learning Activities	12			12
	Total				100
Examination format Grading Repetition	Essay (25%), Examination (75%)				
Availability Duration	Winter, each year one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes					

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 9
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	------

UCD – Optional modules:

The student will choose one module from the following list:

ZOOL40010	Biodiversity	Winter	5 CP		
Title of module	Biodiversity				
Code of module	ZOOL40010				
Faculty / study program / Institution	UCD, Zoology				
used in StG / Sem.	1 Sem., MSc Global Change				
Person in charge	Prof. Thomas Bolger				
Prerequisites	None				
Course aims	Biodiversity loss due to human activities is currently more rapid than at any time in human history. To achieve progress towards biodiversity conservation it is necessary to respond with actions that recognise the conservation and sustainable use of biodiversity. These responses need to recognise the indirect and direct drivers of change as well as mechanisms of coexistence and community assembly. In this course the definition, measurement, maintenance and value of biodiversity are discussed taking into account the constant change which is characteristic of ecological systems. While the value of biodiversity will be discussed primarily on ecological grounds; economic, aesthetic and ethical issues will also be discussed. Issues arising from the Millennium Ecosystem Assessment and the EU Strategy for Sustainable Development will be used to structure discussion.				
Course content	<p>What will the student learn?</p> <p>On completion of this module, students should be able to:</p> <ul style="list-style-type: none"> - evaluate techniques of biodiversity enumeration; - demonstrate knowledge of mechanisms of coexistence and assembly of communities; - examine and determine the functional, aesthetic, ethical and economic values of biodiversity; - understand the difficulties with the identification of keystone species. 				
Class format	Lecture and practice				
Workload	Credit-Points: 5 CP				
containing:	A Course		B Self-study	C examination	total
	a presence	b preparation/post processing, LN			
	Lecture	12			
	Tutorial	8			
	Total	20	80		100
Examination format Grading Repetition	Written exam (1 hour) (65%), presentation in class (35%)				
Availability Duration	Winter, each year one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes					

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 10
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

ENVB40040	Peatland and Environmental Change		Winter	5 CP	
Title of module	Peatland and Environmental Change				
Code of module	ENVB40040				
Faculty / study program / Institution	UCD, Biology				
used in StG / Sem.	1 Sem., MSc Global Change				
Person in charge	Dr Florence Renou-Wilson				
Prerequisites	None				
Course aims	<p>Aim:</p> <p>This module should provide the students with a comprehensive summary of peatland science. Human activity, climatic variability as well as other natural processes shape peatlands which are dynamic ecosystems, constantly evolving. From microbial diversity to entire landscape, students will develop an understanding peatlands especially Irish ones but also around the world.</p>				
Course content	<p>What will the student learn?</p> <p>On completion of this module, students should be able to:</p> <ul style="list-style-type: none"> - recognise peatland types and understand their natural history (their origin and development and how they got to their current status), - understand processes within these ecosystems (ecology, hydrology and peat accumulation), - understand peatland-environment feedback, especially with regards to global climate - recognise the different ecosystem services they provide and appraise the consequence of these values, - evaluate resource management options. 				
Class format	Lecture and practice				
Workload				Credit-Points: 5 CP	
containing:	A Course		B Self-study	C examination	total
	a presence	b preparation/post processing, LN			
Lecture	16				
In class conversation	4				
Field trip	6				
Total	26		80		106
Examination format Grading Repetition	In class presentation on research paper (30%), written examination (2hours)(70%)				
Availability Duration	Winter, each year one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes					

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 11
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

JLU - Core modules:

M-GC-PSA	Plant-Soil-Atmosphere Interactions		Summer	5 CP	
Title of module	Plant-Soil-Atmosphere Interactions				
Code of module	M-GC-PSA				
Faculty / study program / Institution	08/ Biology/ Department of Plant Ecology				
used in StG / Sem.	2 Sem., MSc Global Change, MSc Biology				
Person in charge	Prof. Christoph Müller, PhD.				
Lecturers	Müller, Grünhage, Koyro				
Prerequisites	None				
Course aims	<p>Students</p> <ul style="list-style-type: none"> - have good knowledge of ecophysiology, System ecology and microbial ecology, - know the most important methods in autecology and synecology, - know matter of transformation processes and nutrient cycles on community and ecosystem level, - have the ability to organize on their own current scientific literature, - have the ability to plan ecological experiments, to interpret results and evaluate, discuss and present them adequately. 				
Course content	<ul style="list-style-type: none"> - Photosynthesis of plants and communities in relationship to abiotic factors and climate change (e.g. increasing CO₂ concentrations). - C and N transformations in terrestrial ecosystem (e.g. permanent grassland). - Energy fluxes in permanent grassland. - Interactions between vegetation and soil. - Statistical method in aut- and synecology. 				
Class format	lectures (25%), seminar (12.5 %), practical (62.5%)				
Workload	150 h		Credit-Points: 5		
containing:	A Course		B self-study	C examination	total
	a presence	b preparation/post processing, LN			
Lecture	20	20			
Seminar	4	3			
Practice	40	63			
Total	64	86			150
Examination format	report (100%)				
Grading					
Repetition					
Availability	Summer, each year				
Duration	one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes	Information concerning modules and literature: see board of information / Date: see university calendar				

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 12
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

M-GC-ÖUM	Ecosystem and model development		Summer	3 CP																																					
Title of module	Ecosystem and model development																																								
Code of module	M-GC-ÖUM																																								
Faculty / study program / Institution	08/ Biology/ Department of Plant Ecology																																								
used in StG / Sem.	2 Sem., MSc Global Change, MSc Biology																																								
Person in charge	Prof. Christoph Müller, PhD.																																								
Lecturers	Müller, Grünhage																																								
Prerequisites	None																																								
Course aims	<p>Students</p> <ul style="list-style-type: none"> - understand scientific problems and know how to structure and analyse them, - have a good overview of current topics in functional biodiversity, - have the ability to organize on their own current scientific literature relevant botanical databases, - are able to construct mathematical models, - are able to use the most important techniques and programming of mathematical models, - understand to adequately handle results of models and critically reflect results and validate them. 																																								
Course content	<ul style="list-style-type: none"> - System and its components, - Structure of ecological systems and its mathematical development, - Measure and analyse data of ecological experiments, - Meta-Analysis of selected features of selected datasets, - Programming of models, - Illustration and validation of model results. 																																								
Class format	lecture (27%), seminar (13%), practical (60%)																																								
Workload	90 h		Credit-Points: 3																																						
containing:	<table border="1"> <thead> <tr> <th></th> <th colspan="2">A Course</th> <th>B self-study</th> <th>C examination</th> <th>total</th> </tr> <tr> <th></th> <th>a presence</th> <th>b preparation/post processing, LN</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Lecture</td> <td>8</td> <td>16</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Seminar</td> <td>4</td> <td>8</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Practice</td> <td>18</td> <td>36</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>30</td> <td>60</td> <td></td> <td></td> <td>90</td> </tr> </tbody> </table>			A Course		B self-study	C examination	total		a presence	b preparation/post processing, LN				Lecture	8	16				Seminar	4	8				Practice	18	36				Total	30	60			90			
	A Course		B self-study	C examination	total																																				
	a presence	b preparation/post processing, LN																																							
Lecture	8	16																																							
Seminar	4	8																																							
Practice	18	36																																							
Total	30	60			90																																				
Examination format Grading Repetition	Oral presentation (30%), report (70%)																																								
Availability Duration	Summer, each year one semester																																								
Acceptance capacity	None																																								
Language of instruction	English																																								
Literature																																									
Notes	Information concerning modules and literature: see board of information / Date: see university calendar																																								

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 13
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

M-GC-PBR	Policy Consultancy	Summer	6 CP																														
Title of module	Policy Consultancy																																
Code of module	M-GC-PBR AfK-Nr. 336																																
Faculty / study program / Institution	ZEU (Center for international Development and Environmental Research)																																
used in StG / Sem.	2 Sem., MSc Global Change																																
Person in charge	Prof. Dr. Thilo Marauhn																																
Lecturers	Prof. Dr. Thilo Marauhn																																
Prerequisites	None																																
Course aims	Additional to academic qualifications, students have to acquire more skills in order to carry out socially relevant functions as managers and leaders in their home country and abroad. They need specific skills which exceed the simple transfer of knowledge in order to communicate relevant information and findings to decision makers in politics, economy and society. That includes interpersonal skills like a convincing appearance, confident association with stakeholders and skills in debating, consulting and communicating. The aim of the lecture is on the one hand, to make students aware of different political processes and the possible ways for actors to influence decision-making processes, and on the other hand, to demonstrate how advisers themselves analyse the area and way they might be able to influence the political process. The knowledge of the practical side of governance will be integrated into different theoretical approaches. Apart from the knowledge of different analytical models, the students are able to convey them on the political practice in a professional and methodical way. Additionally, the students get the possibility to be individually coached. Within this training students can improve rhetorical, social and personal skills.																																
Course content	<ul style="list-style-type: none"> - The lecture deepens the students' knowledge of the basic principles in regional, national and international politics and policy consulting. The basics of policy consulting, governance and communication will be analysed and discussed methodical and with regard to contents. - The lecture will be accompanied by JLU teaching staff, external experts and practitioners of the policy consulting practice (particularly of consulting companies). - The interdisciplinary approach allows the students to gain a broad knowledge of theoretical and practical research on governance, policy management and public affairs. Additionally, this knowledge will be deepened in practical exercises. - The contents will be deepened in a topic-oriented study-trip to the "Gesellschaft für Internationale Zusammenarbeit" (GIZ) GmbH. The participants will be confronted with a specific task of the political, social or economic practice which they have to solve in team work. Afterwards, the groups will present their results. 																																
Class format	Lecture, practice																																
Workload	180 h		Credit-Points: 6																														
containing:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="2">A Course</th> <th>B self-study</th> <th>C examination</th> <th>total</th> </tr> <tr> <th></th> <th>a presence</th> <th>b preparation /post processing, LN</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Lecture</td> <td style="text-align: center;">30</td> <td style="text-align: center;">25</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Practice</td> <td style="text-align: center;">30</td> <td style="text-align: center;">25</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td style="text-align: center;">60</td> <td style="text-align: center;">50</td> <td style="text-align: center;">40</td> <td style="text-align: center;">30</td> <td style="text-align: center;">180</td> </tr> </tbody> </table>			A Course		B self-study	C examination	total		a presence	b preparation /post processing, LN				Lecture	30	25				Practice	30	25				Total	60	50	40	30	180	
	A Course		B self-study	C examination	total																												
	a presence	b preparation /post processing, LN																															
Lecture	30	25																															
Practice	30	25																															
Total	60	50	40	30	180																												
Examination format Grading, Repetition	Written test (40%), oral test (40%), presentation (20%)																																
Availability, Duration	Summer, each year, one semester																																
Acceptance capacity	None																																
Language of instruction	English																																
Literature																																	
Notes	Information: see http://www.uni-giessen.de/cms/fbz/zentren/zeu/news/politikberatung																																

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 14
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

M-GC-REM	Resource Economics and Environmental Management		Summer	6 CP	
Title of module	Resource Economics and Environmental Management				
Code of module	M-GC-REM				
Faculty / study program / Institution	09/ Agricultural Sciences, Nutritional Sciences and Environmental Management				
used in StG / Sem.	2 Sem., MSc Global Change				
Person in charge	Prof. Dr. Ernst-August Nuppenau				
Lecturers	Prof. Dr. Ernst-August Nuppenau				
Prerequisites	None				
Course aims	<p>Students will</p> <ul style="list-style-type: none"> - have foundational knowledge modelling intertemporal optimization of agricultural resource utilization, - understand the basics of management concepts towards the resolution of resource use conflicts, - be able to simultaneously model ecological and economic material cycles, - be able to depict dynamic processes of resource regeneration, - be able to construct computer simulation models, - be able to derive economically and ecologically justifiable extraction rates from soil, water, and biotic resources, - be able to draw knowledge of such concepts as sustainability, the introduction of save minimum standards, etc. to aid efforts in resource management. 				
Course content	<ul style="list-style-type: none"> - intertemporal optimization and resource usage, - economics of non-renewable resources, - economics of renewable resources, - open access property and extinction of species as biotic resources, - nature conservation as common property management, - introduction to the economics of sustainable cultivation, - mathematical formulation of resource management models, - programming of optimization models, - management of cultivated landscapes, - trade and the environment, - political questions about the implementation of environmental policies, - international questions of resource protection, - resource evaluation, - property rights and institutions 				
Class format	Lecture (67%), seminar (20%), practice (13%)				
Workload	180 h		Credit-Points: 6		
containing:	A Course		B self-study	C examination	total
	a presence	b preparation/post processing, LN			
Lecture	40	50			
Seminar	12				
Practical	8				
Total	60	50	30	40	180
Examination format Grading Repetition	Oral presentation (30%), written examination (70%)				
Availability Duration	Summer, each year one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes	Information: see http://www.uni-giessen.de/cms/fbz/fb09/institute/iam/pau				

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 15
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

M-GC-BDI	Biodiversity Informatics		Summer	3 CP	
Title of module	Biodiversity informatics				
Code of module	M-GC-BDI				
Faculty / study program / Institution	08/ Biology/ Institute of Animal Ecology and Systematics				
used in StG / Sem.	2 Sem., MSc Global Change, MSc Biology				
Person in charge	Prof. Dr. T. Wilke				
Lecturers	Albrecht, Wilke				
Prerequisites	None				
Course aims	<p>Students</p> <ul style="list-style-type: none"> - receive an overview of important methods in biodiversity informatics and can critically judge their individual performances, - are familiar with the digital acquisition, management and processing of biodiversity data, - are able to plan complex field studies, - are familiar with important aspects of biodiversity modeling, - can critically assess changes in biodiversity over time, - understand human impact on biodiversity, - possess a high level of cognitive competence. 				
Course content	<ul style="list-style-type: none"> - acquisition, management and processing of biodiversity data, - biological databases and collections, - geo-referencing/GPS, - biodiversity indices, - visualization of spatially-explicit statistical data, - species range dynamics under global change scenarios, - human impact and invasion biology 				
Class format	Lecture (40%), Seminar (20%), Tutorial (40%)				
Workload	180 h		Credit-Points: 6		
containing:	A Course		B self-study	C examination	total
	a presence	b preparation/post processing, LN			
	Lecture	14	20		
	Seminar	7	7		
	Tutorial	14	28		
	Total	35	55		90
Examination format Grading Repetition	Exercises (50%), oral presentation (50%)				
Availability Duration	Summer, each year one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes	Information concerning modules and literature: see board of information / Date: see university calendar				

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 16
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

M-GC-MPC	Man in Past Climates and Climate Change Impacts		Summer	6 CP		
Title of module	Man in Past Climates and Climate Change Impacts					
Code of module	M-GC-MPC					
Faculty / study program / Institution	07/ Geography					
used in StG / Sem.	2 Sem., MSc Global Change; 2 Sem., MSc MKP					
Person in charge	Prof. Dr. A. Dittmann / Prof. J. Luterbacher, PhD					
Prerequisites	None					
Course aims	<p>The students will</p> <ul style="list-style-type: none"> – learn about climate proxies (including from biological archives) from different areas of the world covering the past 2000 years and their suitability for estimating past climate, – learn how statistical reconstructions are performed using different proxies and estimate uncertainties of past climate, – study and understand past climate variations in different cultures and cultural contexts, – study and understand the role of different forcings (anthropogenic, sun, volcanoes) responsible for past climate variations, – discuss relevance of palaeoclimatology in the context of current and future climate, – discuss open issues in palaeoclimatology and impacts on ecology and society. 					
Course content	<ul style="list-style-type: none"> – Paleoclimatology as a study of climate and environmental processes in the geologically recent past prior to the existence of instrumental records – Studies and methods of past climates with an understanding of the types of proxy data available – Modelling of past scenarios to understand past Earth System variability and the underlying processes – 2 to 3 days field course in the vicinity of Giessen where information from tree rings is gathered which is used to derive paleo temperature and precipitation covering the past millennium 					
Class format	Seminar, Practical					
Workload	180 h		Credit-Points: 6			
containing:	A Course		B self-study	C examination	Total	
	a presence	b preparation/post processing, LN				
	Seminar	20	20	20	40	
	Practice	20	20	40		
	Total	40	40	60	40	180
Examination format	Pre-examination exercise: short oral presentation					
Grading						
Repetition	Examination: written report (65 %), oral presentation (35 %)					
Availability	Summer, each year					
Duration	one semester					
Acceptance capacity	None					
Language of instruction	English					
Literature	Will be distributed and announced					
Notes	Information concerning modules and literature: see board of information / Date: see university calendar					

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 17
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

JLU – Optional modules:

The student will choose modules up to 6 CP in total from the following list:

M-GC-SEM	Scientific Presentations in Ecology		Summer	3 CP	
Title of module	Scientific Presentations in Ecology				
Code of module	M-GC-SEM				
Faculty / study program / Institution	08/ Biology/ Department of Plant Ecology				
used in StG / Sem.	2 Sem., MSc Global Change, MSc Biology				
Person in charge	Prof. Christoph Müller, PhD.				
Lecturers	Müller, Grünhage, Koyro				
Prerequisites	None				
Course aims	<p>Students</p> <ul style="list-style-type: none"> - are able to use English literature, - have the ability to have a scientific conversation in English, - know how to present scientific projects and results, - are able to discuss scientific work, - know the current methods in ecology and their problems, - are familiar with the scientific studies in the Department of Plant Ecology. 				
Course content	<ul style="list-style-type: none"> - Methods to present scientific results (oral and written presentations), - Typical feature of English presentations and structure of scientific papers in English (peer-reviewed journals), - Prepare content and presentation of current topics in ecology, - Presentation of scientific methods results at scientific conferences (oral, written) 				
Class format	Seminar (100 %)				
Workload	90 h		Credit-Points: 3		
containing:		A Course	B self-study	C examination	total
		a presence	b preparation/post processing, LN		
	Seminar	30	45		
	Presentation		15		
	Total	30	60		90
Examination format	Presentations (100 %)				
Grading					
Repetition					
Availability	Summer, each year				
Duration	one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes	Information concerning modules and literature: see board of information / Date: see university calendar				

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 18
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

M-GC-EVO	Evolutionary Biology		Summer	3 CP	
Title of module	Evolutionary Biology				
Code of module	M-GC-EVO				
Faculty / study program / Institution	08/ Biology/ Institute of Animal Ecology and Systematics				
used in StG / Sem.	2 Sem., MSc Global Change				
Person in charge	Prof. T. Wilke				
Lecturers	Wilke, Albrecht				
Prerequisites	None				
Course aims	<p>Students</p> <ul style="list-style-type: none"> - receive an overview of important evolutionary mechanisms in the animal and plant kingdoms, - acknowledge evolution as a complex and differentiated process, - understand both spatial and temporal components of evolutionary changes, - are able to establish evolutionary hypotheses, - possess a high level of cognitive competence, - have respect for life and develop ethical judgment, - develop a critical judgment relative to animal-human-comparisons. 				
Course content	<ul style="list-style-type: none"> - "Synthetic theory" of biological evolution, - Palaeobiology and evolutionary times scale, - Evolutionary mechanisms of plants and animals, - Macroevolution, - Biogeography, - Invasive species and biotic interchange, - Creationism and evolution critique. 				
Class format	Lecture (100%)				
Workload	90 h		Credit-Points: 3		
containing:	A Course		B self-study	C examination	total
	a presence	b preparation/post processing, LN			
	Lecture	24	36		
	Written final	2	28		
	Total	26	64		90
Examination format	Written final (100 %)				
Grading					
Repetition					
Availability	Summer, each year				
Duration	one semester				
Acceptance capacity	None				
Language of instruction	English				
Literature					
Notes					

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 19
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

M-GC-CCH	Human Health Impacts of Climate Change: the International Dimension		Summer	6 CP																																				
Title of module	Human Health Impacts of Climate Change: the International Dimension																																							
Code of module	M-GC-CCH																																							
Faculty / study program / Institution	07/ Geography																																							
used in StG / Sem.	2 Sem., MSc Global Change																																							
Person in charge	Dr. E. Xoplaki																																							
Lecturers	Dr. E. Xoplaki																																							
Prerequisites	Basic knowledge in statistics and familiarity with computer use																																							
Course aims	<p>The students will</p> <ul style="list-style-type: none"> - learn about the links between climate and health issues - learn how to deal with human health and climate data - learn how statistical methods are applied and results interpreted - study and understand climate variations in different areas of the world, - discuss relevance of human health issues in a climatological context - discuss open issues in climate change and health issues - detect linkages between mortality rate of vector born diseases (west Nile virus, malaria, etc.) and temperature time-series in a selected region and time. 																																							
Course content	<p>Human beings are exposed to climate change through changing weather patterns (temperature, precipitation, sea-level rise and more frequent extreme events) and indirectly through changes in water, air and food quality and changes in ecosystems, agriculture, industry and settlements and the economy. There are concerns that in the future changes in climate might increase the spread of diseases and threaten human health. However, detecting these changes is challenging because climate is only one of several factors which affect the prevalence of disease at the present day. For instance, changes in frequency and intensity of extreme weather and climate events could pose a serious threat to human health. These threats may either be direct, such as heat waves and flooding, or indirect, for example by the spread of tick-borne diseases. The course also deals with Malaria, Dengue fever, West Nile Fever, Leishmaniasis, and Chikungunya fever and their potential relationship to climate change. The course will also cover the following topics: Climate, a modern health determinant, links between climate change and health, Impact modeling: analysis approaches, Climate Change and Disease Hazards, Extreme temperature impacts on human mortality, Drought and pollution impacts (heat-compounded) detect linkages between mortality rate of vector born diseases (west Nile virus, malaria, etc.) and temperature time-series in a selected region and time.</p>																																							
Class format	Lectures, Seminar, and Practice																																							
Workload	180 h		Credit-Points: 6																																					
containing:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="2">A Course</th> <th>B self-study</th> <th>C examination</th> <th>Total</th> </tr> <tr> <th></th> <th>a presence</th> <th>b preparation/post processing, LN</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Lecture</td> <td style="text-align: center;">80</td> <td style="text-align: center;">20</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Seminar</td> <td style="text-align: center;">30</td> <td style="text-align: center;">24</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Practice</td> <td style="text-align: center;">16</td> <td style="text-align: center;">10</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td style="text-align: center;">126</td> <td style="text-align: center;">54</td> <td></td> <td></td> <td style="text-align: center;">180</td> </tr> </tbody> </table>					A Course		B self-study	C examination	Total		a presence	b preparation/post processing, LN				Lecture	80	20				Seminar	30	24				Practice	16	10				Total	126	54			180
	A Course		B self-study	C examination	Total																																			
	a presence	b preparation/post processing, LN																																						
Lecture	80	20																																						
Seminar	30	24																																						
Practice	16	10																																						
Total	126	54			180																																			
Examination format Grading Repetition	Oral presentation (40%), report (60%)																																							
Availability Duration	summer, each year one semester																																							
Acceptance capacity	None																																							
Language of instruction	English																																							
Literature	Will be distributed and announced																																							
Notes	Information concerning modules and literature: see board of information / Date: see university calendar																																							

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 20
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

M-GC-GCE	Global Change: advanced techniques		Summer	3 CP
Title of module	Global change ecology: stable isotopes and other advanced techniques			
Code of module	M-GC-GCE			
Faculty / study program / Institution	08/ Biology/ Department of Plant Ecology			
used in StG / Sem.	2 Sem., MSc Global Change			
Person in charge	Prof. Christoph Müller, PhD.			
Lecturers	Müller, Grünhage			
Prerequisites	None			
Course aims	<p>Students will</p> <ul style="list-style-type: none"> - have knowledge of current global change issues, - know the current methods for the investigation of global change effects on ecosystems, - have the ability to organize on their own current scientific literature, - have the ability to plan ecological experiments, to interpret results and evaluate, discuss and present them adequately. 			
Course content	<ul style="list-style-type: none"> - Current state-of-the-art scientific knowledge on Global Change Science (e.g. Paleoclimatology, Indicator-Proxies, current Trends, Intergovernmental Panel on Climate Change). - Quantification of global matter cycles using stable isotope based on the example of a permanent grassland. - Automated methods to quantify gas fluxes and the abiotic factors and their interactions that influence processes in permanent grassland. - Positive feedback effect of global change on biosphere processes (e.g. phenology). 			
Class format	lecture (25%), seminar (12.5%), practical (62.5%)			
Workload	90 h		Credit-Points: 3	
containing:	A Course		B self-study	C examination
	a presence	b preparation/post processing, LN		
	Lecture	10	16	
	Seminar	2	4	
	Practice	20	38	
	Total	32	58	90
Examination format Grading, Repetition	Oral presentation (30%), report (70%)			
Availability Duration	Summer, each year one semester			
Acceptance capacity	None			
Language of instruction	English			
Literature				
Notes	Information concerning modules and literature: see board of information / Date: see university calendar			

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 21
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

M-GC-PCE	Political Consulting – Environmental Policy and Development Cooperation		Summer	6 CP																																				
Title of module	Political Consulting – Environmental Policy and Development Cooperation																																							
Code of module	M-GC-PCE																																							
Faculty / study program / Institution	08/ Biology/ Department of Plant Ecology																																							
used in StG / Sem.	2 Sem., MSc Global Change																																							
Person in charge	Chair of examination board MSc Global Change																																							
Lecturers	N.N.																																							
Prerequisites	None																																							
Course aims	<p>Political consulting is of growing importance in nowadays fast changing societies. Current challenges arise in the fields of environmental policy and development cooperation according to climate change, globalisation, migration, poverty, north-south divide etc. On successful completion of this module, students will have a broad understanding of political consulting issues relating to these topics. They gain an insight into practical work of political consultants by experts from academia, public and private organisations, and third sector. Students</p> <ul style="list-style-type: none"> - become aware of political approaches, processes, fields and actors, - understand key concepts in political consulting, - learn about possibilities to influence decision-making processes, - analyse political advisers' ways of professional and methodical performance. 																																							
Course content	<ul style="list-style-type: none"> - Approaches, processes, fields and actors of political consulting - Lecture series by external experts from nature conservation, development cooperation, fight against poverty, equal rights, energy transition, biodiversity research etc. - Best-practice - practical exercises on political consulting 																																							
Class format	Lecture, Seminar, practice																																							
Workload	180 h		Credit-Points: 6																																					
containing:	<table border="1"> <thead> <tr> <th></th> <th colspan="2">A Course</th> <th>B self-study</th> <th>C examination</th> <th>total</th> </tr> <tr> <th></th> <th>a presence</th> <th>b preparation /post processing, LN</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Lecture</td> <td>30</td> <td>30</td> <td></td> <td></td> <td>60</td> </tr> <tr> <td>Seminar</td> <td>20</td> <td>20</td> <td>20</td> <td>40</td> <td>100</td> </tr> <tr> <td>Practice</td> <td>8</td> <td>12</td> <td></td> <td></td> <td>20</td> </tr> <tr> <td>Total</td> <td>58</td> <td>62</td> <td>20</td> <td>40</td> <td>180</td> </tr> </tbody> </table>					A Course		B self-study	C examination	total		a presence	b preparation /post processing, LN				Lecture	30	30			60	Seminar	20	20	20	40	100	Practice	8	12			20	Total	58	62	20	40	180
	A Course		B self-study	C examination	total																																			
	a presence	b preparation /post processing, LN																																						
Lecture	30	30			60																																			
Seminar	20	20	20	40	100																																			
Practice	8	12			20																																			
Total	58	62	20	40	180																																			
Examination format Grading, Repetition	Written report (65%), oral presentation (35%)																																							
Availability, Duration	Summer, each year, one semester																																							
Acceptance capacity	None																																							
Language of instruction	English																																							
Literature																																								
Notes	Information concerning modules and literature: see board of information / Date: see university calendar																																							

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 22
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

BIOL40120	Work Placement	Summer	20 CP
Title of module	Work Placement		
Code of module	BIOL40120		
Faculty / study program / Institution	UCD, Biology		
used in StG / Sem.	1 Sem., MSc Global Change		
Person in charge	Dr Florence Renou-Wilson		
Prerequisites	None		
Course aims	<p>This Masters programme offers students the opportunity to spend 6 weeks in a real-life employment. The student will work in a setting that reflects his/her interests as an Environmental professional. Placements may vary considerably but in general terms the students will be placed in industrial, government, non-government or research environment where they will obtain a breadth of practical experience to complement their degree programme. Employers welcome 'transferable skills' acquired during a work placement such as communication, numeracy, use of IT, group work and time management to name but a few. The students will experience workplace culture making them more effective employee following graduation. The work experience is defined as a learning experience incorporating mentoring, professional supervision in which work is viewed from critical and evaluative perspectives much in contrast to the notion of routine or regular work.</p>		
Course content	<p>What will the student learn?</p> <p>In terms of broad learning outcome, at the end of this module, the students will:</p> <ul style="list-style-type: none"> -have increased their ability to relate academic theory to the work environment -have developed identified work related skills -be able to critically evaluate their learning from the placement -have enhanced their career knowledge -have planned, carried out, evaluated and reported on a project. <p>In particular they should have acquired skills to be able to:</p> <ul style="list-style-type: none"> -Evaluate the interaction between policies and the quality of the environment in its multiple biotic, abiotic and cultural-economic dimensions. -Describe some aspect of the environment which is impacted by global change and understand the implications and possible mitigation and adaptation measures. -Demonstrate an understanding of professional practice in some of the following areas: scientific analyst, policy adviser, researcher, environmental management industries. <p>How will the student learn?</p> <p>Pre placement submission: This involves 1) writing a CV and covering letters; 2) reflection on each application in terms of academic knowledge and related work skills; 3) analysis of skills to be gained while on placement (general knowledge and understanding; cognitive skills, subject specific skills, transferable skills)</p> <p>On placement: A 6 weeks contact time with employers is required. This involves 1) a log book or diary to be sent to the module co-ordinator weekly and should be based on activities and what the student has learnt from the activities (most important focus); 2) a short report on the profile of the host (to get to know an employer).</p> <p>Post placement: This involves 1) a final portfolio/report (whereby students should show how they have met the aforementioned learning outcomes) and 2) an oral presentation (15min with 5 min questions).</p> <p>The format of the final portfolio/report will be flexible depending on the skills a student may wish to develop but should incorporate observations, critical thinking, evaluation and research. It could be a typical report on a particular issue or on an aspect of the placement host (theme) or a draft paper (for publication).</p>		
Class format	Work placement		

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 23
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

Workload	400 h / 6 weeks <u>contact time with employer</u>			Credit-Points: 20	
containing:	A Course		B self-study	C examination	total
	a presence	b preparation/post processing, LN			
	work placement	270			
	Report			90	
	Total	270	40	90	400
Examination format Grading, Repetition	Log book (10%), Report/final portfolio (50%), seminar/presentation (40%) no grade: fail or pass				
Availability Duration	6 weeks contact time with employer				
Acceptance capacity	20				
Language of instruction	English				
Notes					

Spezielle Ordnung für den Master-Studiengang Global Change: Ecosystem Science and Policy Anlage 2: Modulbeschreibungen In der Fassung des 4. Beschlusses vom 27.01.2016	01.10.2012	7.36.08 Nr.4	S. 24
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------	-------

BIOL40130	Research Project Thesis		Summer	30 CP																														
Title of module	Research Project Thesis																																	
Code of module	BIOL40130																																	
Faculty / study program / Institution	UCD, Biology																																	
used in StG / Sem.	3 Sem., MSc Global Change																																	
Person in charge	Dr Florence Renou-Wilson																																	
Prerequisites	None																																	
Course aims	The research project is an important element of the Masters in Global Change as it involves the planning, execution and communication of a research question that the student wishes to investigate in depth. Students select individual projects from a list provided by the module co-ordinator, following consultation with the selected supervisor. During the third semester, a period of 16 weeks will be devoted entirely to the project work. Students will maintain regular contact with their supervisor, who will assist by guiding the project, reading and commenting on written work, and providing advice as necessary.																																	
Course content	What will the student learn? During the course of the research project, the student will: <ul style="list-style-type: none"> - develop independent research and organisational skills; - develop technical competence in the specific research area and learn to synthesise information and write a scientific report. 																																	
Class format	Research thesis																																	
Workload	600 h		Credit-Points: 30																															
containing:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="2">A Course</th> <th>B self-study</th> <th>C examination</th> <th>Total</th> </tr> <tr> <th></th> <th>a presence</th> <th>b preparation/post processing, LN</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Autonomous student learning</td> <td></td> <td>600</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td>600</td> <td></td> <td></td> <td>600</td> </tr> </tbody> </table>					A Course		B self-study	C examination	Total		a presence	b preparation/post processing, LN				Autonomous student learning		600										Total		600			600
	A Course		B self-study	C examination	Total																													
	a presence	b preparation/post processing, LN																																
Autonomous student learning		600																																
Total		600			600																													
Examination format Grading Repetition	On completion of the research project the student will produce a mini-thesis in the format of a scientific paper, which will be graded by a supervisor and a second assessor. The format for grading will be as follows: <table style="width: 100%; border: none;"> <tr> <td style="padding-right: 20px;">Statement of problem & literature review</td> <td style="text-align: right;">(20%)</td> </tr> <tr> <td>Statement of aims and objectives</td> <td style="text-align: right;">(10%)</td> </tr> <tr> <td>Methodology</td> <td style="text-align: right;">(20%)</td> </tr> <tr> <td>Treatment of results</td> <td style="text-align: right;">(15%)</td> </tr> <tr> <td>Discussion</td> <td style="text-align: right;">(15%)</td> </tr> <tr> <td>Referencing/Bibliography</td> <td style="text-align: right;">(10%)</td> </tr> <tr> <td>Other (layout/formatting/proof-reading)</td> <td style="text-align: right;">(10%)</td> </tr> </table>				Statement of problem & literature review	(20%)	Statement of aims and objectives	(10%)	Methodology	(20%)	Treatment of results	(15%)	Discussion	(15%)	Referencing/Bibliography	(10%)	Other (layout/formatting/proof-reading)	(10%)																
Statement of problem & literature review	(20%)																																	
Statement of aims and objectives	(10%)																																	
Methodology	(20%)																																	
Treatment of results	(15%)																																	
Discussion	(15%)																																	
Referencing/Bibliography	(10%)																																	
Other (layout/formatting/proof-reading)	(10%)																																	
Availability Duration	each year																																	
Acceptance capacity																																		
Language of instruction	English																																	
Literature																																		
Notes																																		