

## Synopse

**Vierter Beschluss des Fachbereichs 08 – Biologie und Chemie - vom 27.01.2016  
zur Änderung der Speziellen Ordnung für den Master-Studiengang Global Change:  
Ecosystem Science and Policy des Fachbereichs 08 – Biologie und Chemie und der School of  
Biology and Environmental Science des University College Dublin vom 27.07.2012  
- zuletzt geändert durch den 3.Änderungsbeschluss vom 04.02.2015**

**I. In der Anlage 2 (Modulbeschreibungen) entfällt das Modul Reconstructing  
Paleoenvironments and Paleoclimates:**

<b>M-GC-PAL</b>	<b>Reconstructing Paleoenvironments and Paleoclimates</b>		<b>Summer</b>	<b>6-CP</b>
Title of module	<b>Reconstructing Paleoenvironments and Paleoclimates</b>			
Code of module	M-GC-PAL			
Faculty / study program / Institution	07/ Geography			
used in StG / Sem.	2 Sem., MSc Global Change			
Person in charge	Prof. Jürg Luterbacher, PhD, Prof. Dr. Markus Fuchs			
Lecturers	Prof. Jürg Luterbacher, PhD, Prof. Dr. Markus Fuchs			
Prerequisites	None			
Course aims	<p>The students will</p> <ul style="list-style-type: none"> <li>— learn about climate proxies (including from biological archives) from different areas of the world learn how statistical reconstructions are performed using different proxies and estimate uncertainties of past climate,</li> <li>— study and understand past climate variations in different areas of the world,</li> <li>— study and understand the role of different forcings (anthropogenic, sun, volcanoes) responsible for past climate variations,</li> <li>— discuss relevance of palaeoclimatology in the context of current and future climate,</li> <li>— understand the importance of chronologies and time series,</li> <li>— discuss open issues in palaeoclimatology,</li> <li>— learn palaeoclimatological field work,</li> <li>— practise and work on various sediment archives and proxies,</li> <li>— overview of luminisence dating techniques.</li> </ul>			
Course content	<p>Paleoclimatology is the study of climate and environmental processes in the geologically recent past prior to the existence of instrumental records. Instrumental records span only a tiny fraction of the Earth's climate history and so provide a totally inadequate perspective on climatic variation and the evolution of climate today. Studies of past climates must begin with an understanding of the types of proxy data available and the methods used in their analysis. The palaeorecord (derived from marine and lake sediments, ice cores, tree rings, corals, cave deposits, biological archives, historical documents, etc.) in concert with modelling of past scenarios provides a quantitative understanding of past Earth System variability and the underlying processes. In order to better understand current global changes and to project future scenarios, knowledge of what has happened in the past is imperative. Nowadays questions in palaeoclimatology relate increasingly to the regional climatic and environmental responses to global change, as these affect societies and form the basis for efficient adaptation measures. The course will also include 2 to 3 days field course in the vicinity of Giessen where information from tree rings is gathered which is used to derive palaeo temperature and precipitation covering the past millennium.</p>			
Class format	Lectures and 2 to 3 days field course			
Workload	180 h		Credit Points: 6	
containing:	A-Course		B-self study	C examination
	a presence	b preparation/post		
				Total

			processing, LN			
	Lecture	80	25			
	Seminar	20	20			
	Practice	24	11			
	Total	124	56			180
Examination format Grading Repetition	Oral presentation (30%), report (70%)					
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					

**II. In der Anlage 2 (Modulbeschreibungen) wird das Modul Man in Past Climates and Climate Change Impacts neu aufgenommen:**

<b>M-GC-MPC</b>	<b>Man in Past Climates and Climate Change Impacts</b>	<b>Summer</b>	<b>6 CP</b>		
<u>Title of module</u>	<u>Man in Past Climates and Climate Change Impacts</u>				
<u>Code of module</u>	<u>M-GC-MPC</u>				
<u>Faculty / study program / Institution</u>	<u>07/ Geography</u>				
<u>used in StG / Sem.</u>	<u>2 Sem., MSc Global Change; 2 Sem., MSc MKP</u>				
<u>Person in charge</u>	<u>Prof. Dr. A. Dittmann / Prof. J. Luterbacher, PhD</u>				
<u>Prerequisites</u>	<u>None</u>				
<u>Course aims</u>	<p>The students will</p> <ul style="list-style-type: none"> <li>– <u>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,</u></li> <li>– <u>learn how statistical reconstructions are performed using different proxies and estimate uncertainties of past climate,</u></li> <li>– <u>study and understand past climate variations in different cultures and cultural contexts,</u></li> <li>– <u>study and understand the role of different forcings (anthropogenic, sun, volcanoes) responsible for past climate variations,</u></li> <li>– <u>discuss relevance of palaeoclimatology in the context of current and future climate,</u></li> <li>– <u>discuss open issues in palaeoclimatology and impacts on ecology and society.</u></li> </ul>				
<u>Course content</u>	<ul style="list-style-type: none"> <li>– <u>Paleoclimatology as a study of climate and environmental processes in the geologically recent past prior to the existence of instrumental records</u></li> <li>– <u>Studies and methods of past climates with an understanding of the types of proxy data available</u></li> <li>– <u>Modelling of past scenarios to understand past Earth System variability and the underlying processes</u></li> <li>– <u>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</u></li> </ul>				
<u>Class format</u>	<u>Seminar, Practical</u>				
<u>Workload</u>	<u>180 h</u>		<u>Credit-Points: 6</u>		
<u>containing:</u>		<u>A Course</u>	<u>B self-study</u>	<u>C examination</u>	<u>Total</u>
		<u>a presence</u>	<u>b preparation/post</u>		

			<u>processing, LN</u>			
	<u>Seminar</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>40</u>	
	<u>Practice</u>	<u>20</u>	<u>20</u>	<u>40</u>		
	<u>Total</u>	<u>40</u>	<u>40</u>	<u>60</u>	<u>40</u>	<u>180</u>
<u>Examination format</u> <u>Grading</u> <u>Repetition</u>	Pre-examination exercise: short oral presentation  Examination: written report (65 %), oral presentation (35 %)					
<u>Availability</u> <u>Duration</u>	Summer, each year one semester					
<u>Acceptance capacity</u>	None					
<u>Language of instruction</u>	English					
<u>Literature</u>	Will be distributed and announced					
<u>Notes</u>	Information concerning modules and literature: see board of information / Date: see university calendar					

### III. In der Anlage 2 (Modulbeschreibungen) entfällt das Modul Global Challenges and Green Issues:

<b>BIOL40110</b>	<b>Global Challenges and Green Issues</b>			<b>Winter</b>	<b>5-CP</b>	
<u>Title of module</u>	<b>Global Challenges and Green Issues</b>					
<u>Code of module</u>	BIOL40110					
<u>Faculty / study program / Institution</u>	UCD, Biology & Environmental Science					
<u>used in StG / Sem.</u>	1 Sem., MSc Global Change					
<u>Person in charge</u>	Dr Jonathan Yearsley					
<u>Prerequisites</u>	None					
<u>Course aims</u>	On successful completion of the course, students will have a broad understanding of the contemporary Earth Science issues relating to energy, the environment, climate change and policy.					
<u>Course content</u>	A module that overviews global challenges, green issues, policy and the multidisciplinary research themes associated with the Structured PhD Programmes of UCD's Earth Institute ( <a href="http://www.ucd.ie/earth">http://www.ucd.ie/earth</a> ). This module consists of a seminar series (roughly 15 seminars), given by leading figures from academia and the private sector. Each seminar will have associated reading material.					
<u>Class format</u>	Seminar					
<u>Workload</u>				Credit Points: 5-CP		
<u>containing:</u>		<u>A-Course</u>		<u>B-Self study</u>	<u>C-examination</u>	<u>total</u>
		<u>a-presence</u>	<u>b preparation/post processing, LN</u>			
	<u>Seminar</u>	<u>14</u>				
	<u>Total</u>	<u>14</u>		<u>70</u>		<u>84</u>
<u>Examination format</u> <u>Grading</u> <u>Repetition</u>	Multiple Choice Questionnaire: Multiple choice (100%)					
<u>Availability</u> <u>Duration</u>	Winter This module will only run if numbers exceed 20. This will be confirmed in early October. The seminars will take place over 3 consecutive days at the end of the first semester (typically the 1st week in December).					
<u>Acceptance capacity</u>	None					

Language of instruction	English
Literature	
Notes	

**IV. In der Anlage 2 (Modulbeschreibungen) wird das Modul Political Consulting – Environmental Policy and Development Cooperation neu aufgenommen:**

<b>M-GC-PCE</b>	<b>Political Consulting – Environmental Policy and Development Cooperation</b>	<b>Summer</b>	<b>6 CP</b>		
<u>Title of module</u>	<u>Political Consulting – Environmental Policy and Development Cooperation</u>				
<u>Code of module</u>	<u>M-GC-PCE</u>				
<u>Faculty / study program / Institution</u>	<u>08/ Biology/ Department of Plant Ecology</u>				
<u>used in StG / Sem.</u>	<u>2 Sem., MSc Global Change</u>				
<u>Person in charge</u>	<u>Chair of examination board MSc Global Change</u>				
<u>Lecturers</u>	<u>N.N.</u>				
<u>Prerequisites</u>	<u>None</u>				
<u>Course aims</u>	<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"> <li>- become aware of political approaches, processes, fields and actors,</li> <li>- understand key concepts in political consulting,</li> <li>- learn about possibilities to influence decision-making processes,</li> <li>- analyse political advisers' ways of professional and methodical performance.</li> </ul>				
<u>Course content</u>	<ul style="list-style-type: none"> <li>- Approaches, processes, fields and actors of political consulting</li> <li>- Lecture series by external experts from nature conservation, development cooperation, fight against poverty, equal rights, energy transition, biodiversity research etc.</li> <li>- Best-practice</li> <li>- practical exercises on political consulting</li> </ul>				
<u>Class format</u>	<u>Lecture, Seminar, practice</u>				
<u>Workload</u>	<u>180 h</u>	<u>Credit-Points: 6</u>			
<u>containing:</u>	<u>A Course</u>		<u>B self-study</u>	<u>C examination</u>	<u>total</u>
	<u>a presence</u>	<u>b preparation /post processing, LN</u>			
	<u>Lecture</u>	<u>30</u>	<u>30</u>		<u>60</u>
	<u>Seminar</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>100</u>
	<u>Practice</u>	<u>8</u>	<u>12</u>		<u>20</u>
	<u>Total</u>	<u>58</u>	<u>62</u>	<u>20</u>	<u>180</u>
<u>Examination format Grading, Repetition</u>	<u>Written report (65%), oral presentation (35%)</u>				
<u>Availability, Duration</u>	<u>Summer, each year, one semester</u>				
<u>Acceptance capacity</u>	<u>None</u>				
<u>Language of instruction</u>	<u>English</u>				
<u>Literature</u>					
<u>Notes</u>	<u>Information concerning modules and literature: see board of information / Date: see university calendar</u>				

**V. In der Anlage 2 (Modulbeschreibungen) entfällt das Modul European Environmental Policy:**

<b>PEP40560</b>	<b>European Environmental Policy</b>		<b>Winter</b>	<b>5-CP</b>	
<b>Title of module</b>	<b>European Environmental Policy</b>				
<b>Code of module</b>	PEP40560				
<b>Faculty / study program / Institution</b>	UCD, Geog, Planning & Env Policy				
<b>used in StG / Sem.</b>	1 Sem., MSc Global Change				
<b>Person in charge</b>	Dr Finbarr Brereton				
<b>Prerequisites</b>	None				
<b>Course aims</b>	<p>On successful completion of the course, students will be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate advanced knowledge of the origin of EU Environmental Policy,</li> <li>• Demonstrate an advanced understanding of current EU Environmental Legislation,</li> <li>• Demonstrate knowledge of policy instruments that can be employed in relation to EU Environmental Policy,</li> <li>• Demonstrate knowledge of policy dilemmas caused by Climate Change and formulate policy responses to these problems,</li> <li>• Develop self-directed learning skills.</li> </ul>				
<b>Course content</b>	<p>This module will comprehensively address European Union Environmental Policy under the following headings:</p> <p>i) The need for EU environmental Policy</p> <p>It will examine the background and context to EU Environmental Policy and determine when the environment became an EU concern and examine the influence of issues such as acid rain, Climate Change and CFCs in Ozone layer depletion as a precursor to Environmental Policy. Trans-Boundary issues will be examined where relevant (e.g. air pollution).</p> <p>ii) Environmental Legislation</p> <p>The module will then focus on legal basis for EU Environmental Policy, such as Treaties and the structure of DG Environment. It will also cover some of the specific environmental legislation that covers the following areas: Air Quality; Noise; Land use; Nature and biodiversity; energy; waste; water and how these policies fit with national policies.</p> <p>iii) Policy Instruments</p> <p>It will examine the types of policy instruments that can be employed in relation to EU Environmental Policy such as market based instruments (e.g. EU Emissions Trading Scheme, Environmental Tax Reform etc.)</p> <p>iv) EU Environmental Policy in a global context</p> <p>Finally, there will be a discussion of EU Environmental Policy in a global context and outline where the EU is leading the way in global terms in relation to Green Policy initiatives. This includes commitments under treaties such as the Kyoto protocol.</p>				
<b>Class format</b>	Lecture and practice				
<b>Workload</b>	Credit Points: 5-CP				
<b>containing:</b>	<b>A-Course</b>		<b>B-Self-study</b>	<b>C-examination</b>	<b>total</b>
	<b>a-presence</b>	<b>b preparation/post processing, LN</b>			
	Lecture	24			
	Specified Learning Activities	12			
	<b>Total</b>	<b>36</b>	<b>64</b>		<b>100</b>
<b>Examination format</b>	Assignment (25%), examination (75%)				
<b>Grading</b>					
<b>Repetition</b>					

Availability Duration	Winter, each year one semester
Acceptance capacity	None
Language of instruction	English
Literature	
Notes	

**VI. In der Anlage 2 (Modulbeschreibungen) wird das Modul Environmental Law and Policy neu aufgenommen:**

<u>LAW30440</u>	<u>Environmental Law and Policy</u>	<u>Winter</u>	<u>5 CP</u>	
<u>Title of module</u>	<u>Environmental Law and Policy</u>			
<u>Code of module</u>	<u>LAW30440</u>			
<u>Faculty / study program / Institution</u>	<u>UCD, School of Law</u>			
<u>used in StG / Sem.</u>	<u>1 Sem., MSc Global Change</u>			
<u>Person in charge</u>	<u>Dr Andrew Jackson</u>			
<u>Prerequisites</u>	<u>None</u>			
<u>Course aims</u>	<u>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.</u>			
<u>Course content</u>	<u>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.</u>			
<u>Class format</u>	<u>Lectures, Specified Learning Activities</u>			
<u>Workload</u>	<u>Credit-Points: 5 CP</u>			
<u>containing:</u>	<u>A Course</u>	<u>B Self-study</u>	<u>C examination</u>	<u>total</u>
	<u>a presence</u>	<u>b preparation/post processing, LN</u>		
	<u>Lectures</u>	<u>24</u>	<u>64</u>	<u>88</u>
	<u>Specified Learning Activities</u>	<u>12</u>		<u>12</u>
	<u>Total</u>			<u>100</u>
<u>Examination format</u>	<u>Essay (25%), Examination (75%)</u>			
<u>Grading</u>				
<u>Repetition</u>				
<u>Availability</u>	<u>Winter, each year</u>			
<u>Duration</u>	<u>one semester</u>			
<u>Acceptance capacity</u>	<u>None</u>			

<u>Language of instruction</u>	<u>English</u>
<u>Literature</u>	
<u>Notes</u>	

**VII. In der Anlage 2 (Modulbeschreibungen) erhält die Modulübersicht folgende Fassung:**

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
	<a href="#">Environmental Law and Policy European Environmental Policy</a>	<a href="#">LAW30440PEP4056</a>	5
	<b>Optional modules</b>		<b>5</b>
	a) Biodiversity	ZOOL40010	5
	b) Peatland and Environmental Change	ENVB40040	5
	c) <a href="#">Global Change and Green Issues</a>		
	<b>Total CP in UCD for taught modules</b>		<b>35</b>

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
	<a href="#">Reconstruction Palaeoenvironments and Paleoclimates Man in Past Climates and Climate Change Impacts</a>	<a href="#">M-GC-PALMPC</a>	6
	<b>Optional modules</b>		<b>6</b>
	a) Scientific Presentations in Ecology	M-GC-SEM	3
	<del>b) Evolutionary Biology</del>	<del>M-GC-EVO</del>	<del>3</del>
	<del>b)e) Human Health Impacts of Climate Change: the International Dimension</del>	<del>M-GC-CCH</del>	<del>6</del>
	<del>c)d) Global Change – Advanced Techniques</del>	<del>M-GC-GCE</del>	<del>3</del>
	<del>d) Political Consulting – Environmental Policy and Development Cooperation</del>	<del>M-GC-PCE</del>	<del>6</del>
	<b>Total CP in JLU for taught modules</b>		<b>35</b>

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