Synopse

Dritter Beschluss des Fachbereichs 08 – Biologie und Chemie - vom 04.02.2015
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 2.Änderungsbeschluss vom 05.02.2014

I.   § 2 erhält folgende Fassung:

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§ 2 (zu § 2 AllB)
Der Fachbereich Biologie und Chemie (FB 08) der JLU und die School of Biology and Environmental Science des UCD verleihen nach erfolgreich abgeschlossenem Studium den akademischen Joint~~Double~~-Degree „Master of Science" (abgekürzt: „M.Sc.").

II.   In der Anlage 2 (Modulbeschreibungen) entfällt das Modul Freshwater Resources Assessment:

~~ENVB40120~~	~~Freshwater Resources Assessment~~		~~Winter~~	~~5 CP~~
~~Title of module~~	~~Freshwater Resources Assessment~~			
~~Code of module~~	~~ENVB40120~~			
~~Faculty / study program / Institution~~	~~UCD, Biology~~			
~~used in StG / Sem.~~	~~1 Sem., MSc Global Change~~			
~~Person in charge~~	~~Dr Mary Kelly-Quinn~~			
~~Prerequisites~~	~~None~~			
~~Course aims~~	~~The overall aim of this course is to equip students with the skills (theoretical backgrounds and practical methods) to participate in freshwater studies and reporting on water quality with particular emphasis on the detection of impacts from land-use activities. It commences with an overview of the range of freshwater habitats and their physico-chemical and biological characteristics. This includes instruction to the basic biology of key aquatic biota such as macroinvertebrates. Pollution types, sources and impacts are outlined. The main part of the course deals with assessment of water quality and the focus is on the requirements of the EU Water Framework Directive. Concepts and issues explored include ecosystem health/integrity, stress factors, reference or ecological target conditions, physical habitat description, lake and river typologies, design of monitoring programmes, monitoring using fish, invertebrates and plants; rapid bioassessment assessment protocols, multimetric vs multivariate approaches, biological indicators; sub-lethal stress indicators, analyses and interpretation of macroinvertebrates data; biotic metrics and indices and `hindcasting methods'.~~			
~~Course content~~	~~What will the student learn?~~ ~~On completion of this module students should:~~ ~~- have acquired knowledge of basic concepts in freshwater ecology;~~ ~~- be able to confidently design or review a monitoring programme to detect potential impacts of land-use activities on water quality;~~ ~~- have basic knowledge of methodologies for collection and processing of water and biological samples;~~ ~~- have ability to interpret biological and chemical water-quality data;~~ ~~- have sufficient knowledge to read and communicate water quality information in reports;~~ ~~- appreciate the requirement of the Water Framework Directive (WFD);~~ ~~- recognise the ecological basis of the WFD requirements;~~ ~~- be able to source and review freshwater research literature and;~~ ~~- work as a team to compile reports and make oral presentations.~~			
~~Class format~~	~~Lecture and practice~~			
~~Workload~~	~~124 h~~		~~Credit-Points: 5 CP~~	
~~containing:~~		~~A Course~~	~~B Self-study~~	~~C examination~~	~~total~~
		~~a presence~~	~~b preparation/post~~		

				processing, LN			
	~~Lecture~~	~~12~~					
	~~Practical~~	~~24~~					
	~~Field trip~~	~~8~~					
	~~Specified learning activities~~	~~20~~					
	~~Total~~	~~64~~		~~60~~			~~124~~

~~Examination format Grading Repetition~~	~~Group or individual report (40%), written examination (2 hours) (60%)~~
~~Availability Duration~~	~~Winter, each year~~ ~~one semester~~
~~Acceptance capacity~~	~~None~~
~~Language of instruction~~	~~English~~

III. In der Anlage 2 (Modulbeschreibungen) erhält das Modul Palaeoclimatology die folgende Fassung:

M-GC-PAL	**Reconstructing Paleoenvironments and Paleoclimates** ~~Palaeoclimatology~~	**Summer**	**6 CP**
Title of module	**Reconstructing Paleoenvironments and Paleoclimates** ~~Palaeoclimatology~~		
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	The students will - 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 areas of the world, - 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, - understand the importance of chronologies and time series, - discuss open issues in palaeoclimatology, - learn palaeoclimatological field work, - practise and work on various sediment archives and proxies, - overwiev of luminisence dating techniques.		
Course content	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.		
Class format	Lectures and 2 to 3 days field course		
Workload	180 h	Credit-Points: 6	
containing:		A Course	B self-study	C	Total

		a presence	b preparation/post processing, LN		examination	
	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

IV. In der Anlage 2 (Modulbeschreibungen) erhält das Modul Climate Change and Human Health die folgende Fassung:

M-GC-CCH	Human Health Impacts of Climate Change: the International Dimension Climate Change and Human health	Summer	6 CP

Title of module	Human Health Impacts of Climate Change: the International Dimension Climate Change and Human Health
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	None Basic knowledge in statistics and familiarity with computer use
Course aims	The students will - 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	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.
Class format	Lectures, Seminar, and Practice

Workload	180 h			Credit-Points: 6		
containing:		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					