

Summer School 2013 – Freshwater Ecosystems in Urban Systems – ecotoxicology, ecology and biology

Week 1							
	Monday, 30.09.	Tuesday 01.10.	Wednesday 02.10.	Thursday 03.10.	Friday 04.10.	Saturday 05.10.	Sunday 06.10.
Morning 09:00-12:00	Welcome and Introduction 9:00-9:30 :Welcome greetings (Prof. Dr. Bernd Sures, UDE) 9:30-10:00: Introduction: University of Duisburg Essen /ZWU (Prof. Dr. T. Schmidt, UDE) Short Break 10:15-11:00: Introduction round (all) 11:15-12:00: Contents of SummerSchool (Prof. Dr. Bernd Sures, UDE)	Clean(ing) waste water I Excursion Waste water treatment plant: Emscher estuary - Introduction and site visit (Dinslaken) (Dipl.-Ing. Stefan Stegemann, Emschergenossenschaft)	Water management Lecture (09:00-10:00) Overview of technologies for drinking water treatment (Dr. R. Hobby, UDE) Lecture (10:00-11:00) Integrated water management: issues, aims and problems (Prof Dr A. Niemann, UDE) Lecture (11:00-12:00) Trade-offs between human and environmental water needs in times of global change - the role of ecosystem services and environmental hazards across river basins (Dr. Kathrin Knüppe, USF Osnabrück)	Workshop Self-determined group work	Ecology and management of freshwaters Lecture (9:00-10:00) Communities in freshwater systems (Yaron Hershkovitz, UDE) Lecture (10:00-11:00) The Water Framework Directive (Dr. Christian K. Feld, UDE) Lecture (11:00-12:00) HMWB – The concept of Heavily Modified Water Bodies within the Water Framework Directive (Dr. Sebastian Birk, UDE)	Düsseldorf (Departure 09:00 h) Aquazoo (10:00-12:00) Boat trip, Media Harbour (13:00-14:00) Guided tour Old town TV Tower (14:30-15:30) Free time Departure to Essen (18:00h)	Self-determined day
	Basics in water & waste water Lecture (13:30-14:30) Water, Hygiene and Culture: A Historical Case Study (Prof Dr J. Gurr, Prof. HC Flemming, UDE) Coffee break Lecture (15:00-16:00) Waste water treatment technologies in arid regions (Prof. Dr.-Eng. Fatma El-Gohary, National Reseach Center, Egypt)	Clean(ing) waste water II Excursion Waste water treatment plant Bottrop: Site visit Reconstruction of the river Emscher System (Dr. Georg Schmelz, Emschergenossenschaft) Central sewage sludge incineration (Dr. Georg Schmelz, Emschergenossenschaft)	Workshop 13:30-14:00: Introduction into workshop (Prof. Dr. Bernd Sures, UDE) Afterwards: Definition of groups and tasks (Until 15:30h)	Workshop Self-determined group work (Until 15:30h)	Sustainability Lecture (13:30-15:00) How to realize sustainable development in communities (1) (Prof Dr A. Smits, Radboud University, NL) Lecture (15:00-16:30) How to realize sustainable development in communities (2) (Prof Dr A. Smits, Radboud University, NL)		
	Evening off	“Welcome - Dinner” incl. Professors at “Copobianco”, Essen (18:30h)	Zeche Zollverein, Essen (Departure 16:00 h)	Gasometer Oberhausen Exhibition: Christo “Big Air Package” (Departure 15:45 h)	Evening off		

Week 2							
	Monday 07.10.	Tuesday 08.10.	Wednesday 09.10.	Thursday 10.10.	Friday 11.10.	Saturday 12.10.	Sunday 13.10.
Morning 9:00-12:00	Aquatic biology I Excursion <i>Sampling macroinvertebrates at the "Borbecker Mühlenbach"</i> <ul style="list-style-type: none"> - Visit of blacksmith's shop - Visit of restoration sites along the river - Taking macroinvertebrate samples 	Aquatic biology II <i>Continue determining river organisms</i> OR <i>Continue self-determined group work</i>	Ecotoxicology I Lecture (09.00-10:00) <i>Aquatic ecotoxicology I – Introduction to ecotoxicology and assessment of toxicity</i> (Dr. Sonja Zimmermann, UDE) Lecture (10:15-11:15) <i>Aquatic ecotoxicology II – Toxicity testing</i> (Dr. Sonja Zimmermann, UDE) Schnelltest? Henrike Hamer ?	Workshop <i>Finishing of report</i>	Workshop <i>Presentation of results</i>	Cologne (Departure 8:30) Cathedral – Guided tour (10:00 -11:00) Guided tour Old town (12:30-14:00) Free time	Self-determined day Departure
	Aquatic biology II Lecture (13:30-14:30) <i>Overview: Determination of aquatic organisms</i> (Caroline Winking, UDE) <i>Afterwards starting to determine river organisms</i>	Soft skills Workshop (13:30-17:00) <i>Innovation and Change Management</i> (Dr G. Jones, Director – Corinium Innovation Ltd)	Ecotoxicology II – Effects of contaminants Lecture (13:30-14:30) <i>Contaminant loads of the river Elbe within the city of Hamburg</i> (Ilka Keller, BSU Hamburg) Lecture (14:30-15:30) Henner Hollert?	Biomonitoring Lecture (13:30-14:30) <i>The "Multi-Habitat-Sampling" – a standardized method to sample benthic invertebrates</i> (K. Januschke, UDE) Lecture (14:30-15:30) Bioindicators – organisms for assessment of environmental conditions (Milen Nachev/Nadine Ruchter, UDE) Lecture (15:30-16:30) Christian Selbach: tba (UDE)	Feedback <i>Transfer of results to home countries</i> <i>Discussion of problems and perspectives</i>	Departure to Essen (17:00 h)	
	Optional evening programm	Optional evening programm	Villa Hügel, Essen Guided tour (Departure 15:45)	Landschaftspark Duisburg-Nord Guided tour "Nightlight" (Departure 17:30)	"Goodbye – Dinner" Restaurant Hülmannshof incl. Professors (18:30 h)		
Evening							