

PORTFOLIO OF MODULES

Module Descriptors

Double Degree Master of Science-Programme Water and Coastal Management

17.07.2007

Module title	Case Study I
Module code	CSI
Faculty / department	RUG, Faculty of Spatial Sciences
Degree programme	Master of Water and Coastal Management
Main focus	Introduction phase
Kind of module	Compulsory
Semester / Length of term	1st term of programme / 1 semester
Allocation to other degree programmes	COAST Master Cluster
Mode of teaching	Practical sessions and seminars on variable subjects of the integrated coastal zone management.
Language	English
Person in charge	Dr.ir. P. Ike
Lecturer	All the lecturers involved in the programme
Workload	Hours of presence: 126 hours, self studies: 54 hours
Kind of lesson	SE (2 EC), PR (4 EC)
Credit-points / ECTS	6 EC
Content of module	<p>The subjects of this introducing module are variable and take up a current problem of the water and coastal management. Particularly during a simulation game, where students, several lecturers and external specialists will be integrated, the following contents will be regenerated and comprehensive aspects will be pursued:</p> <ul style="list-style-type: none"> ○ Introduction to the analysis of complex problem situations and social conflict situations in decision making and space management ○ Introduction to the expertise fields of the groups taking part at the program ○ Access and motivation to the interdisciplinary discourse between students and lecturers ○ Social integration of the students
Aim of module	The students are able to work on an interdisciplinary research project independently. They can comprehend current scientific literature and consider it in their work. They can prepare a scientific project, accomplish it, and present it in a written elaboration and an oral presentation and public discussion as well.
Media	Methods and schemes in communication, moderation and interaction of groups; spatial plans and various types of scientific and administrative documents; common IT-technologies in use for documentation and presentation
Literature	<ul style="list-style-type: none"> ○ Continuously up-dated on-line information centre of the EU and references given therein: http://ec.europa.eu/environment/iczm/home.htm
Prerequisites	-
Previous knowledge	-
Associated to module	-
Minimal / maximal number of participants	25
Assessment / assignment	Homework (written elaboration, paper or manuscript, approx. 15 pages) and public presentation with discussion (approx. 20 minutes)
Assessment criteria	Scientific quality and soundness of the homework (75%) and the presentation (25%)

Module title	Environmental Science
Module code	ENV01
Faculty / department	Faculty V, ICBM
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Environmental Science
Kind of module	Compulsory
Semester / Length of term	1st and 2nd term of programme / 2 semesters
Allocation to other degree programmes	Master Marine Environmental Science Bachelor Environmental Science
Mode of teaching	1st term: Lectures, practical sessions and seminars on microbial ecology Lectures on mathematical modelling 2nd term: Lectures on geochemistry
Language	English
Person in charge	Prof. Dr. Wolff
Lecturer	Prof. Dr. Feudel Prof. Dr. Wolff Other lecturers of marine science
Workload	Hours of presence: 140 hours, self studies: 220 hours
Kind of lesson	LE (8 EC), SE (1 EC), PR (3 EC)
Credit-points / ECTS	12 EC
Content of module	<u>LE/PR/SE (2/3/1 EC) Microbial Ecology:</u> Determination of microbial biomass, collection of species composition: molecular ecology, determination of microbial activity in situ, isolation and cultivation, physiological limitation and conditions of 'starvation', aerobic e degradation of organic substances, anaerobic microbial food chain, interactions of bacteria, animals and plants; implications of microbes for the biogeochemical cycling of matter in the oceans, lakes, marine sediments, soil, microbial mats and extreme'' environments as well: submarine hydrothermal vents,, salt works, alkaline lakes. Fundamentals of environmental microbiology are described for wastewater purification and remediation of waters and soil. Instrumentations of different modern microbial methods are explained and applied (microelectrodes, interpretation of gradients, isotope techniques, molecular-biological techniques, etc). <u>LE (3 EC) Geochemistry:</u> Fundamental knowledge of sedimentation of organic and inorganic material and of the occurrence of the materials in the geosphere; variations of geochemical budgets in geological periods and of climate driven processes in the water column in different sedimentation areas. This set of knowledge is applied to assess and to evaluate past and recent environments. <u>LE (3 EC) Mathematical Modelling:</u> Basics of modelling focussing on spatially expanded systems, reaction diffusion systems, propagation of fronts and pulses, spatial structure formation and reaction diffusion advection systems.
Aim of module	The students possess essential knowledge on systems in the environment integrating knowledge from all the mathematical-scientific disciplines. They know how to use the methodical know-how in the single disciplines as well as the specific knowledge of interdisciplinary linkages.
Media	Class room: lecture assisted by computer/light projector and

	black board; practical session: use of laptops for calculations and modelling, common IT-technologies for documentation and presentation
Literature	<ul style="list-style-type: none"> ○ Elderfield, H. (2006): The oceans and marine geochemistry, 664 p., Elsevier. ○ Gershenfeld, N. (1998). The nature of mathematical modelling., 356 p., Cambridge Press. ○ Hurst, C.J et al. (Eds.) (2007). Manual of Environmental Microbiology, 1350 p. Amer. Soc. Microbiology. ○ Schlesinger, W.H. (2005): Biogeochemistry, 720 p., Elsevier ○ Townsend, C.R., Begon, M., Harper, J.L (2002): Essentials of Ecology, 544 p. Blackwell. - plus additional on-line material http://www.blackwellpublishing.com/townsend/
Prerequisites	-
Previous knowledge	-
Associated to module	-
Minimal / maximal number of participants	25
Assessment / assignment	All together two written examinations or two public presentations (with discussion and written elaboration, approx. 15 pages respectively approx. 20 minutes each). Precondition: Protocol and tests / exercises.
Assessment criteria	All parts of the module examination are considered equally. 50 % of the total number of points must be achieved in order to successfully pass a written examination.

Module title	Ecology and Ecosystems
Module code	ENV02
Faculty / department	Faculty V, IBU
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Environmental Science
Kind of module	Compulsory
Semester / Length of term	2nd term of programme / 1 semester
Allocation to other degree programmes	COAST Master Cluster
Mode of teaching	Lectures on general ecology Practical sessions and seminars on <ul style="list-style-type: none"> ○ Vegetation ecology / nature protection ○ Plant ecology ○ Terrestrial ecology ○ Aquatic ecology
Language	English
Person in charge	Prof. Dr. Kleyer
Lecturer	Dr. Zauke Prof. Dr. Kleyer apl. Prof. Priv.-Doz. Giani Other lecturers of biology / landscape ecology
Workload	Hours of presence: 70 hours, self studies: 110 hours
Kind of lesson	LE (2 EC), SE (1 EC), PR (3 EC)
Credit-points / ECTS	6 EC
Content of module	<u>LE (2 EC) General Ecology:</u> Organism and environment, population ecology, bi-systems, structure of ecological systems, biotic/abiotic factors, protection of certain species and biotopes and: <u>PR/SE (3/1 EC) Vegetation Ecology/Nature Protection:</u> Vegetation structure, biotope analyses (type of soil, soil dampness, microclimate, nutrient conditions etc.), transects or : <u>PR/SE (3/1 EC) Plant Ecology:</u> Current questions of plants in terrestrial ecology, e.g., analysis of the structure of ecological systems, material flow, functional plant species or: <u>PR/SE (3/1 EC) Terrestrial Ecology:</u> Representative view on different questions of terrestrial (open land) ecology, problem of recording methods as well as the influence of different abiotic and biotic factors on structure and dynamics of populations, work in the open land, evaluations in the laboratory or: <u>PR/SE (3/1 EC) Aquatic Ecology:</u> Theoretical basics in aquatic ecology, short historical overview, physical, chemical and biological characterisation of lakes and rivers; production biology, analysis and control of eutrophication processes, indicators of water quality, freshwater fisheries; application and evaluation of physical, chemical and biological methods in water analysis.
Aim of module	The students are able to apply sets of multidisciplinary methods to assess the quality of environmental systems. They are capable to define measures to protect certain species or to

	improve the quality of the entire environment under consideration.
Media	Class room: lecture assisted by computer/light projector and black board; practical session: use of laptops for calculations and modelling, common IT-technologies in use for documentation and presentation
Literature	<p><u>General Ecology</u></p> <ul style="list-style-type: none"> ○ Krebs, C.J., (1998): Ecological Methodology, Benjamin Cummings ○ Pringle, Laurence. City and Suburb: Exploring an Ecosystem (Macmillan, 1975). ○ Sabin, Francene. Ecosystems and Food Chains (Troll, 1985). ○ Selsam, M.E. How Animals Live Together, rev. ed. (Morrow, 1979). ○ Billington, E.T. Understanding Ecology, rev. ed. (Warne, 1971). ○ Sharpe, G.W. Interpreting the Environment, 2nd ed. (Wiley, 1982). <p>Other literature to be announced later</p>
Prerequisites	-
Previous knowledge	-
Associated to module	-
Minimal / maximal number of participants	25
Assessment / assignment	<p>Homework (written elaboration, paper or manuscript, approx. 15 pages) or written examination on the topics as considered in all the lectures of the module.</p> <p>Precondition: protocol and public presentation (with discussion and written elaboration).</p>
Assessment criteria	Scientific quality and soundness of the homework; 50 % of the total number of points must be achieved in order to successfully pass a written examination.

Module title	Processes in Environmental Systems
Module code	ENV03
Faculty / department	Faculty V, ICBM
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Environmental Science
Kind of module	Compulsory
Semester / Length of term	1st term of programme / 1 semester
Allocation to other degree programmes	Master Marine Environmental Science
Mode of teaching	Lectures on environmental chemistry and environmental physics
Language	English
Person in charge	Prof. Dr. Wolff
Lecturer	Dr. Scholz-Böttcher Prof. Dr. Wolff
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (6 EC)
Credit-points / ECTS	6 EC
Content of module	<p><u>LE (3 EC) Environmental Chemistry:</u> In this lecture, a deepened knowledge over organic and inorganic-chemical aspects of the environmental sciences within the terrestrial and marine range, with special consideration of environmental scientifically important processes in atmosphere, soil and waters, is obtained. The extent of the anthropogenic over coinage of natural ecological systems on the basis of exemplary examples.</p> <p><u>LE (3 EC) Environmental Physics:</u> Discussion of models for special environmental systems (e.g. ocean, navy biology, carbon cycle, climate), sensitivity of environmental systems in relation to the variation of environmental parameters (e.g. global warming), coupling of biological and chemical processes with physical transportation processes, coupling ocean atmosphere, introduction to the modelling of environmental systems, comparison of the analysis of environmental systems on the basis of models of different complexity (conceptionally, middle complexity, comprehensively).</p>
Aim of module	The students gain a deepened knowledge over organic, inorganic-chemical, and physical-analytic aspects of the environmental sciences within the terrestrial and marine range. They can judge the anthropogenic over coinage of natural ecological systems. They can understand, evaluate, and use models for processes within the environmental range. They know modern research issues from the environmental sciences and can discuss and apply them. They learned how to investigate environmental systems by examples.
Media	Class room: lecture assisted by computer/light projector and black board, common IT-technologies in use for documentation and presentation
Literature	<ul style="list-style-type: none"> ○ Manahan, S.E. (2004): Environmental Chemistry, Taylor & Francis ○ Schwarzenbach, R.P. et al. (2002): Environmental Organic Chemistry, Wiley & Sons
Prerequisites	-

Previous knowledge	-
Associated to module	-
Minimal / maximal number of participants	25
Assessment / assignment	Homework (written elaboration, paper or manuscript, approx. 15 pages) or written examination on the topics as considered in all the lectures of the module (max. 2 hours) Precondition: protocol and public presentation (with discussion and written elaboration).
Assessment criteria	Scientific quality and soundness of the homework; 50 % of the total number of points must be achieved in order to successfully pass a written examination.

Module title	Systems of the environment: Aquatic systems
Module code	ENV04
Faculty / department	Faculty V, ICBM
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Environmental Science
Kind of module	Compulsory
Semester / Length of term	2nd term of programme / 1 semester
Allocation to other degree programmes	Master Marine Environmental Science
Mode of teaching	Lectures on water protection Seminars on aquatic chemical ecology Excursions (2 days)
Language	English
Person in charge	Dr. Harder
Lecturer	Dr. Harder Prof. Dr. Simon
Workload	Hours of presence: 58 hours, self studies: 122 hours
Kind of lesson	LE (3 EC), SE (1 EC), TR (2 EC)
Credit-points / ECTS	6 EC
Content of module	<p><u>LE (3 EC) Water Protection:</u> General limnological principles, disturbances of natural waters, eutrophication, phosphorus and nitrogen load of natural waters, saprobial pollution index, acidification of waters, hygienic load, potable water supply and preparation, waste-water clarification, hormonal effective substances; Implications for the requirements of the European Union water framework guideline.</p> <p><u>SE (1 EC) Aquatic Chemical Ecology:</u> Chemical signal materials, settlement of marine surfaces by bacteria and larval organisms, chemical settlement signals of benthic invertebrates, evaluation of the ecological and technological consequences of the surface settlement, natural defence strategies against Epibiosis (Natural antifouling), Bio fouling, Antifouling (navy biotechnology), communication of bacteria in bio films, controlling of the reproduction of marine organisms by chemical messenger materials, methods of the isolation and characterisation of biologically active marine natural substances, current trends in the marine natural substance research. The material will be supposed by student lectures from current articles of scientific magazines regenerating</p> <p><u>Excursions (2 EC):</u> Studying knowledge of environmental systems locally to mediate. Here, sampling can be accomplished in the field, ship excursion ions, inspections by companies, which work within the environmental range, etc..</p>
Aim of module	The students know how to use their deepened knowledge of biological aspects of the environmental sciences within the terrestrial and marine range. They understand environmental scientifically important biological and biogeochemical processes in atmosphere, soil and waters and can the anthropogenic over coinage of natural ecological systems judge. They can handle the principles of the limnology and the requirements to the water protection. They know modern research beginnings from the environmental sciences and can

	discuss these. They learned environmental systems and approaches for their investigation exemplary on-site.
Media	Class room: lecture assisted by computer/light projector and black board, common IT-technologies in use for documentation and presentation
Literature	<ul style="list-style-type: none"> ○ Moss, B. (1998): Ecology of Fresh Waters, Blackwell ○ David, K.(1959): Ground Water Hydrology. Wiley & Sons
Prerequisites	-
Previous knowledge	-
Associated to module	-
Minimal / maximal number of participants	25
Assessment / assignment	<p>a) Homework (written elaboration, paper or manuscript, approximately 15 pages) or written examination on the topics as considered in all the lectures of the module (1.5 hours) and</p> <p>b) presentation (with discussion and written elaboration, approx. 20 minutes)</p> <p>Precondition: written report on excursions</p>
Assessment criteria	Test or homework and presentation are considered equally. 50 % of the total number of points must be achieved in order to successfully pass a written examination.

Module title	Environmental Information Systems
Module code	ENV05
Faculty / department	Faculty II, Department of Computing Science
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Environmental Science
Kind of module	Compulsory
Semester / Length of term	2nd term of programme / 1 semester
Allocation to other degree programmes	Diplom Computing Science Bachelor und Master Computing Science Master Environmental Modelling
Mode of teaching	Lectures and practical sessions on environmental information systems
Language	English
Person in charge	Dr. Vogel
Lecturer	Prof. Dr. Sonnenschein Dr. Vogel
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (4 EC), PR (2 EC)
Credit-points / ECTS	6 EC
Content of module	<p>Environmental information systems make information available about the condition of the environment for administrative bodies and public processes, enterprises or interested citizens. The collection, storage and evaluation of these information is also interesting from the computer science side.</p> <p>In the framework of the lecture, the individual steps of processing environmental information will be examined, i.e. problems of the data acquisition and preparation will be regarded, data structures and data base concepts for efficient access to (usually) spatial data will be discussed. Procedures for data analysis and for the subsequent treatment of data as well as the concept of meta data for the support of the mining of data will be brought up for discussion. A special aspect here is an operational environmental information systems for supply chain analyses. In the exercise, we will deal with the problems introduced in the lecture and we will also test an geo-information-system GIS.</p>
Aim of module	The students possess an overview of the steps and important aspects of the processing of environmental information and know how to use them. In particular they can use methods for the storage of spatial data as well as a set of analysis methods (spatial, discrete) environmental information. They tested usual data structures and selected analysis techniques for environmental data on the basis of small examples practically.
Media	Class room: lecture assisted by computer/light projector and black board; practical session: use of laptops and work stations for calculations, data mining and modelling, common IT-technologies in use for spatial analysis and visualisation (ArcGIS) documentation and presentation
Literature	<ul style="list-style-type: none"> ○ Günther, O.: Environmental Information Systems ○ Witten, I.H. and Frank, E. (2005): Data Mining, Elsevier ○ Other literature to be announced later
Prerequisites	-
Previous knowledge	Recommended is some knowledge on algorithm and data bases or information systems prior to entering the module
Associated to module	-

Minimal / maximal number of participants	20/40
Assessment / assignment	Oral examination (20 min.) Precondition: Self studies with weekly work on exercises (40 % of the exercises must be meaningful)
Assessment criteria	Quality of oral examination.

Module title	Environmental Economics and Environmental Politics
Module code	SES01
Faculty / department	Faculty II
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Sustainability Economics
Kind of module	Compulsory
Semester / Length of term	1st or 2nd term of programme / 1 semester
Allocation to other degree programmes	Master Environmental Modelling
Mode of teaching	Lectures on environmental economics and environmental politics
Language	English
Person in charge	Prof. Dr. Ebert
Lecturer	Prof. Dr. Ebert Prof. Dr. Welsch
Workload	Hours of presence: 42 hours, self studies: 138 hours
Kind of lesson	LE (6 EC)
Credit-points / ECTS	6 EC
Content of module	<p>This module treats the economic theory of the environment. It examines environmental problems and environmental policy with the methods of macroeconomics. The following contents are pointed out and the students know how to handle them:</p> <ul style="list-style-type: none"> ○ Market failure ○ External effects ○ Property rights ○ Economic analysis of ecological damage ○ Approaches and instruments of the environmental policy ○ Environmental-economic evaluation and target setting ○ International environmental problems ○ Extensions, special aspects of environmental economics.
Aim of module	<p>Students are able to compile the economic structures, which are behind many problems in the environmental range. They can develop solution types in the discussion. They are able, incentives, as them different participants are offered, to consider and openly put. On the basis of current problem situations the studying order over</p> <ul style="list-style-type: none"> ○ Understanding of the fundamental problem definitions and connections, ○ Understanding of the relevant concepts, ○ Understanding of the behaviour of typical participants, ○ Control of the usual concept, ○ Ability for the estimate of environmental economic problems.
Media	Class room: lecture assisted by computer/light projector and black board
Literature	<ul style="list-style-type: none"> ○ Barry, J. (2002): International encyclopedia of environmental politics ○ Bateman, .J. (2003): Applied environmental economics
Prerequisites	-
Previous knowledge	Microeconomics
Associated to module	Resource and Energy Economics
Minimal / maximal number of participants	5/50

Assessment / assignment	Written examination on the topics of the lecture (2 hours)
Assessment criteria	50 % of the total number of points must be achieved in order to successfully pass a written examination.

Module title	Economics of Resources and the Energy Sector
Module code	SES02
Faculty / department	Faculty II
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Sustainability Economics
Kind of module	Compulsory
Semester / Length of term	1st or 2nd term of programme / 1 semester
Allocation to other degree programmes	Master Environmental Modelling
Mode of teaching	Lectures on economics of resources and the energy sector
Language	English
Person in charge	Prof. Dr. Welsch
Lecturer	Prof. Dr. Welsch
Workload	Hours of presence: 42 hours, self studies: 138 hours
Kind of lesson	LE (6 EC)
Credit-points / ECTS	6 EC
Content of module	<p>The module treats the economic theory of the use of natural resources from a normative and positive view as well as the analysis of resources markets, in particular energy markets. After a classification of relevant problems into the context of the environmental and resources economics and an introduction to typologies of natural resources, on the one hand models of non-renewable resources (e.g. minerals, fossil primary energy carriers) become prominent issues and on the other hand renewable resources (e.g. forest, fishery) are treated. Fair use (in the case not renewable) and/or lasting use (in the case of renewable resources) are considered from normative view. From a positive view on functioning, resource markets and the problem by market failure is received. Particularly with energy markets is dealt, whereby questions of the different kinds of regulation have special weight. In exercises in particular current questions (e.g. oil price, markets for line-bound energies) are lit up. This sums up to the following schedule:</p> <ul style="list-style-type: none"> ○ Introduction to the topic, ○ Non-regenerative resources (efficient use, inter-temporal justice, to inter-temporal market balance), ○ Regenerate-cash resources (efficient use in steady state, lastingness, market balance), ○ Sources of energy and power markets, ○ Energy and overall economy, ○ Energy and environment, ○ Accompanying exercises.
Aim of module	On the basis of current problem situations the students exhibit and know how to handle the Understanding of the fundamental problem definitions, the Understanding of the relevant concepts, control of the analysis method and basic knowledge of the respective markets, in particular energy markets.
Media	Class room: lecture assisted by computer/light projector and black board
Literature	<ul style="list-style-type: none"> ○ Young, O.R. (1981): Natural resources and the state: the political economy of resource management, Berkeley ○ Banks, F.E. (2000): Energy economics
Prerequisites	None

Previous knowledge	Microeconomics
Associated to module	Environmental Economics
Minimal / maximal number of participants	5-50
Assessment / assignment	Written examination on the topics of the lecture (2 hours)
Assessment criteria	50 % of the total number of points must be achieved in order to successfully pass a written examination.

Module title	International Sustainability Management
Module code	SES03
Faculty / department	Faculty II
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Sustainability Economics
Kind of module	Compulsory
Semester / Length of term	1st term of programme / 1 semester
Allocation to other degree programmes	Master of Sustainability Economics and Management
Mode of teaching	Lectures and seminars on international sustainability management
Language	English
Person in charge	Prof. Dr. Siebenhüner
Lecturer	Prof. Dr. Siebenhüner
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (3 EC), SE (3 EC)
Credit-points / ECTS	6 EC
Content of module	Teaching basic knowledge of the international sustainability policy, resulting challenges for enterprises and relevant instruments: <ul style="list-style-type: none"> ○ Sustainability: Basic concepts, strategies ○ Domestic and international challenges for business ○ Business case for sustainable development ○ Integrative concepts of sustainable corporations ○ Sustainable strategies ○ Management instruments ○ Best practice in sustainable corporate strategies based on lessons learnt from case studies
Aim of module	Students learn how to use a set of tools and strategies relevant for their professional/scientific career in sustainable management of sensitive socio-economic processes.
Media	Class room: lecture and presentations of students assisted by computer/light projector and black board; practical session: use of laptops for calculations and modelling, common IT-technologies in use for documentation
Literature	<ul style="list-style-type: none"> ○ Charter, M. and Tischner, U. (Eds.) (2000): Sustainable Solutions, Developing Products and Services for the Future, Greenleaf Publishing, Sheffield ○ Board on Sustainable Development of the National Research Council (1999): Our Common Journey: A Transition Toward Sustainability, National Academy Press, Washington D.C. ○ Dyllick, T. and Hockerts, K. (2002): Beyond the Business Case for Corporate Sustainability, Business Strategy and the Environment, p. 130-141. ○ Gladwin, T., et al. (1995): Shifting paradigms for sustainable development: Implications for management theory and research, Academy of Management Review, 20: 874 - 907. ○ Hart, S.L. (1997): Strategies for a sustainable world, Harvard Business Review, p. 67-76. ○ Holliday, C.O., et al. (2002): Walking the Talk. The Business Case for Sustainable Development, Greenleaf Publishing, Sheffield ○ Hutchinson, A. and Hutchinson, F. (1997):

	<p>Environmental Business Management: Sustainable Development in the New Millennium. London</p> <ul style="list-style-type: none"> ○ Shrivastava, P. and Hart, S.L. (1995): Creating sustainable corporations, Business Strategy and the Environment, p. 154-165
Prerequisites	-
Previous knowledge	-
Associated to module	-
Minimal / maximal number of participants	15/50
Assessment / assignment	Presentation (with discussion and written elaboration, approx. 20 min and 15 pages)
Assessment criteria	Quality of written elaboration (75 %) and presentation (25 %)

Module title	Corporate Social Responsibility
Module code	SES04
Faculty / department	Faculty II
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Sustainability Economics
Kind of module	Compulsory
Semester / Length of term	2nd term of programme / 1 semester
Allocation to other degree programmes	Master of Sustainability Economics and Management
Mode of teaching	Lectures und exercises on corporate social responsibilities
Language	English
Person in charge	Prof. Dr. Pfriederich
Lecturer	Lautermann Dr. Beschoner
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (3 EC), EX (3 EC)
Credit-points / ECTS	6 EC
Content of module	Technically the existing conceptions and beginnings are learned, analytic are the strategic motives seized by enterprises for Corporate Social Responsibility will over the consideration of social and moral aspects find interdisciplinary learning best and bad practices exemplary learning are made possible through to case studies and the argument with.
Aim of module	The students are able to apply the following contents competently: <ul style="list-style-type: none"> ○ Theoretical clarifying and demarcation corporate social responsibility, corporate citizenship and ethical business ○ Social background and regulation factors of responsible business policy of a company ○ Codifying of Good Corporate Governance ○ Rating and ethics management in enterprise-political practice
Media	Class room: lecture assisted by computer/light projector and black board; practical session: use of laptops for calculations and information mining; common IT-technologies in use for documentation and presentation
Literature	<ul style="list-style-type: none"> ○ Kakabadse, A., Morsing, M. (Ed.) (2006): Corporate social responsibility: reconciling aspiration with application, Basingstoke ○ Zadek, S. (2001): The Civil Corporation – the new economy of Corporate Citizenship, Earthscan Publications, London ○ Jonker, J. (2006): Management models for corporate social responsibility, Springer
Prerequisites	-
Previous knowledge	-
Associated to module	-
Minimal / maximal number of participants	-
Assessment / assignment	Presentation (with discussion and written elaboration, approx. 20 min and 15 pages)
Assessment criteria	Quality of written elaboration (75 %) and presentation (25 %)

Module title	Politics of the Environment and Sustainability
Module code	SES05
Faculty / department	Faculty II
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Sustainability Economics
Kind of module	Compulsory
Semester / Length of term	1st term of programme / 1 semester
Allocation to other degree programmes	Master of Sustainability Economics and Management
Mode of teaching	Lectures and seminars on politics of the environment and sustainability
Language	English
Person in charge	Prof. Dr. Müller
Lecturer	Prof. Dr. Müller
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (3 EC), SE (3 EC)
Credit-points / ECTS	6 EC
Content of module	Teaching basic knowledge of the national and European environmental and sustainability policy, its historical development, the central principles, instruments, participants and strategies.
Aim of module	Successful students know about the development directions of the German and the European environmental and sustainability policy. They are aware of the principles of the environmental and sustainability policy on different administrative levels. Students have a sound knowledge about instruments of the environmental and sustainability policies in an international comparison. They are familiar with new governance mechanism and the stake holders and participants of the environmental and sustainability policies (governments, industry, media, science, non-governmental organisations etc.).
Media	Class room: lecture assisted by computer/light projector and black board; tical session: use of laptops for calculations and modelling, common IT-technologies in use for documentation and presentation
Literature	<ul style="list-style-type: none"> ○ EEA, European Environment Agency (2002): Late lessons from early warnings. Environmental Issue Report No. 22., Kopenhagen: EEA. ○ Jänicke, M. (1997) : National Environmental Policies. Heidelberg u.a.: Springer. ○ Jordan, A. (2004): Environmental Policy in the European Union: Actors, Institutions and Processes, Earthscan, London
Prerequisites	-
Previous knowledge	-
Associated to module	-
Minimal / maximal number of participants	-
Assessment / assignment	Presentation (with discussion and written elaboration, approx. 20 min and 15 pages)
Assessment criteria	Quality of written elaboration (75 %) and presentation (25 %)

Module title	Instruments for managing Sustainable Developments
Module code	SES06
Faculty / department	Faculty II
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Sustainability Economics
Kind of module	Compulsory
Semester / Length of term	2nd term of programme / 1 semester
Allocation to other degree programmes	Master of Sustainability Economics and Management
Mode of teaching	Lectures and seminars on instruments for managing sustainable developments
Language	English
Person in charge	Prof. Dr. Pfriem
Lecturer	Prof. Dr. Pfriem, other lecturers of the Faculty of Economics
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (3 EC), SE (3 EC)
Credit-points / ECTS	6 EC
Content of module	Teaching knowledge of operational environmental management instruments with a focus on the environmental oriented controlling (planning, control, accounting in a broader sense) of operational activities. Students have the capability to apply instruments of the sustainability management: <ul style="list-style-type: none"> ○ Sustainability management systems ○ Eco accounting ○ Eco controlling ○ Environmental information systems ○ Life-cycle assessment and management ○ Social standards ○ Environmental and social reporting.
Aim of module	After completion of the module, the students are able to adjust and combine certain methods in order to manage problems in developing and managing water basins and coastal zones.
Media	Class room: lecture assisted by computer/light projector and black board; practical session: use of relevant software (controlling); common IT-technologies in use for documentation and presentation
Literature	<ul style="list-style-type: none"> ○ Schaltegger, S. and Burritt, R. (2000): Contemporary Environmental Accounting – Issues, Concepts and Practice, Greenleaf Publishing, Sheffield.
Prerequisites	-
Previous knowledge	-
Associated to module	-
Minimal / maximal number of participants	-
Assessment / assignment	Presentation (with discussion and written elaboration, approx. 20 min and 15 pages)
Assessment criteria	Quality of written elaboration (75 %) and presentation (25 %)

Module title	Case study II
Module code	CSII
Faculty / department	Faculty V, ICBM
Degree programme	Master of Water and Coastal Management
Main focus	Initial phase: Environmental Science
Kind of module	Obligatory
Semester / Length of term	1st and 2nd term of programme / 2 semester
Allocation to other degree programmes	-
Mode of teaching	Practical sessions and seminars on variable subjects of the integrated coastal zone management.
Language	English
Person in charge	Dr. Kraft
Lecturer	Lecturers of the programme
Workload	Hours of presence: 126 hours, self studies: 54 hours
Kind of lesson	SE (2 EC), PR (4 EC)
Credit-points / ECTS	6 EC
Content of module	Contents are variable and concern current research questions, which are interdisciplinary and integrating worked on by the working groups or opened in an application context in a mechanism outside of the university. The students participate in the seminar and present first their goals of the project and subsequently their results and conclusions in two meetings.
Aim of module	The students can work on an interdisciplinary research project independently. They can understand current scientific literature and consider it in their work. They can prepare a scientific project, accomplish it, and present it in a written and oral elaboration, and defend it publicly.
Media	Class room: lecture assisted by computer/light projector and black board, common IT-technologies in use for documentation and presentation, use of eLearning platforms: 'CoastLearn' and 'COASTAL_wiki'
Literature	<ul style="list-style-type: none"> ○ Literature depending on the focal topic of the case study being regarded by the individual student. In addition to books, acts and journals, various other kinds of information have to be considered in most cases.
Prerequisites	-
Previous knowledge	-
Associated to module	-
Minimal / maximal number of participants	25
Assessment / assignment	Homework (with presentation/discussion and written elaboration, approx. 20 min and 15 pages)
Assessment criteria	Quality of homework (75 %) and presentation (25%)

Module title	Infrastructure Planning
Module code	GEM IPL
Faculty / department	RUG, Faculty of Spatial Sciences
Degree programme	Master of Water and Coastal Management
Main focus	Specialisation phase
Kind of module	Compulsory
Semester / Length of term	3rd term of programme (first part) / ½ semester
Allocation to other degree programmes	Master of Environmental and Infrastructure Planning Double degree COAST Master Cluster
Mode of teaching	Lectures on infrastructure planning
Language	English
Person in charge	Prof. dr. E.J.M.M. Arts
Lecturer	Prof. dr. E.J.M.M. Arts Dr.ir. P. Ike Prof.dr. P.H. Pellenbarg Guest lecturers
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (6 EC)
Credit-points / ECTS	6 EC
Content of module	It examines planning approaches for all types of major infrastructure (roads, railways, power plants and related power lines, pipe lines, mineral planning, treatment of waste, military areas, etc.). The central theme of this course is the relationship between spatial planning and policy planning in the separate sectors of technical infrastructure. Sectors are analysed in respect to the fields of tension between generic and specific polity, between central and decentral approaches, between regulation and deregulation, etc. The students gain insight in the relationship between the following Dutch Acts: the Physical Planning Act & the Environmental Protection Act, Environmental Impact Assessment & Strategic Environmental Assessment, the Mineral Planning Act and the Road & Rail Alignment Act, etc. in relation to the planning of major infrastructure.
Aim of module	The students get insights into the principles and developments of the Dutch/European planning system and Dutch/European planning culture procedures, legal implications and practical approaches with respect to all types of infrastructure. Furthermore, the students get insight into the development of the relationship between infrastructure planning and environmental planning, from a spatial point of view.
Media	PPT, Blackboard, Nestor, Handouts
Literature	<ul style="list-style-type: none"> ○ Linden, G. and Voogd, H. (eds.) (2004): Environmental and Infrastructure Planning, Groningen, GeoPress ○ Parkin, J. and Sharma, D. (1999): Infrastructure planning, Thomas Telford Limited, London ○ De Jong, M. and Geerlings, H. (2004): A roadmap for infrastructure appraisal, Delft: Trail ○ Other literature to be announced later
Prerequisites	CS 1, CS 2
Previous knowledge	General knowledge of infrastructure issues
Associated to module	-
Minimal / maximal number of participants	-
Assessment / assignment	Assignment and written exam
Assessment criteria	Scientific quality of written exam

Module title	Planning Theory 2
Module code	GEMPLANTH2
Faculty / department	RUG, Faculty of Spatial Sciences
Degree programme	Master of Water and Coastal Management
Main focus	Specialisation phase
Kind of module	Compulsory
Semester / Length of term	3rd term of programme (first part) / ½ semester
Allocation to other degree programmes	Master of Environmental and Infrastructure Planning Double degree COAST Master Cluster EIP Master Spatial Planning
Mode of teaching	Lectures on planning theory
Language	English
Person in charge	Prof. dr. G. de Roo
Lecturer	Prof. dr. G. de Roo
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (6 EC)
Credit-points / ECTS	6 EC
Content of module	This course starts with current and ongoing planning theoretical discussions, seen in the light of philosophical critique and of general scientific abstractions. These abstractions are obtained from theories such as systems theory, complexity theory, critical theory, social constructivism, game theory, discourse theory, and public choice theory. This confrontation will bring us the basic arguments on which planning is build upon and will help us to understand and critically reflect upon current decision-making models, such as the classic technical rational approaches, contingency approaches, scenario and contingency approaches, the post modern communicative approaches in planning and the so-called models for complex decision-making. Furthermore, we want to support decision-making processes in planning through object- or problem-analysis and actor analysis in complex and very complex situations.
Aim of module	The students gain more in-depth knowledge of the theoretical background of planning in such a way that the student can identify suitable existing planning and decision-making models for issues at hand and develop new models in those cases that are without suitable approaches.
Media	Lectures, Nestor, Blackboard, PPT
Literature	<ul style="list-style-type: none"> ○ Roo, G. de (2001): Environmental Planning in the Netherlands: Too Good to be True, Ashgate Publishers, Aldershot, UK ○ Allemendinger, Ph. (2002): Planning Theory, Palgrave, Houndmills, London ○ Roo, G. de and Porter G. (2004): Reader Fuzzy Planning, Faculty of Spatial Sciences, University of Groningen, Groningen, Chapters 6,7 and 8
Prerequisites	CS 1, CS 2
Previous knowledge	General knowledge of planning theory
Associated to module	
Minimal / maximal number of participants	-
Assessment / assignment	Written exam
Assessment criteria	Scientific quality of written exam

Module title	Planning Theory Tutorial
Module code	GEMEIPTHT
Faculty / department	RUG, Faculty of Spatial Sciences
Degree programme	Master of Water and Coastal Management
Main focus	Specialisation phase
Kind of module	Compulsory
Semester / Length of term	3rd term of programme (first part) / ½ semester
Allocation to other degree programmes	Master of Environmental and Infrastructure Planning Double degree COAST Master Cluster
Mode of teaching	Tutorial in planning theory
Language	English
Person in charge	Dr. J. Beaumont
Lecturer	Dr. J. Beaumont Dr. J. Woltjer
Workload	Hours of presence: 28 hours, self studies: 64 hours
Kind of lesson	TU (3 EC)
Credit-points / ECTS	3 EC
Content of module	<p>The course comprises a combination of pre-class assignments, presentations, and in-class assignments (including active participation in discussions):</p> <p>'Pre-class assignment': Every student has to write a small (max. 2 pages) essay on the chapter and article that will have been read in preparation of the session.</p> <p>'Presentation': Every session 3 students present a chapter or article. The presentation takes a maximum of 15 minutes and is supported by PowerPoint. The presentation can be based on the written assignment. In addition, the students should conclude by making a statement on the basis of the chapter or article they present. This statement can concern the relevance for planning practice and the plausibility of the theory.</p> <p>'In-class assignment': Every session students have to work in small groups on an assignment. The students in each group will prepare a short statement, which will be discussed by the whole group.</p> <p>The purpose of the sessions that comprise this tutorial is to acquaint students with one of the contemporary mainstreams in planning theory, 'Collaborative Planning'.</p>
Aim of module	The students learn how to use the collaborative planning approach. They are able to handle the communicative, interactive and institutional dimensions of this kind of planning process. They know how to take fundamental social changes, such as globalisation, individualization and fragmentation into account.
Media	PPT, Blackboard, Discussion
Literature	<ul style="list-style-type: none"> ○ Healey, P. (1997): Collaborative planning: Shaping places in fragmented societies, MacMillan Press Ltd., London ○ Other literature to be announced later
Prerequisites	CS 1, CS 2
Previous knowledge	General knowledge of spatial planning
Associated to module	Planning Theory 2
Minimal / maximal number of participants	-
Assessment / assignment	Written assignments, public presentation with discussion and written documentation (approx. 20 min and 15 pages)
Assessment criteria	Active participation, quality of assignment and presentation

Module title	Process and Project Management
Module code	GEMPRPRMAN
Faculty / department	RUG, Faculty of Spatial Sciences
Degree programme	Master of Water and Coastal Management
Main focus	Specialisation phase
Kind of module	Compulsory
Semester / Length of term	3rd term of programme (first and second part) / 1 semester
Allocation to other degree programmes	Master of Environmental and Infrastructure Planning Double degree COAST Master Cluster Master Real Estate
Mode of teaching	Lectures on process and project management
Language	English
Person in charge	Dr. F. Niekerk
Lecturer	Dr. F. Niekerk Guest lecturers
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (6 EC)
Credit-points / ECTS	6 EC
Content of module	Process and project management is on control of complex multidisciplinary processes of spatial change and innovation. There are many types of such spatial projects and processes that need to be managed properly in order to execute successfully, such as major infrastructure, urban renovation projects, regional water management, etc.. The whole project cycle with adhering processes will be discussed, from concept through start up, initiation, execution to hand over and implementation. The emphasis will be on a comprehensive approach, where organisation, business case, plans, controls, management of risk, quality in a project environment and change control of spatial projects will get ample attention. Different process and project management methods will be discussed to get insights in the different advantages, disadvantages and applications.
Aim of module	The students are able to analyse complex spatial management issues, to formulate appropriate approaches and to apply the main methods and approaches to process- and project management in an effective and efficient way.
Media	Presentations, , flowcharts, maps and blue prints
Literature	<ul style="list-style-type: none"> o Literature to be announced later
Prerequisites	CS 1, CS 2
Previous knowledge	General knowledge in process and project management
Associated to module	-
Minimal / maximal number of participants	-
Assessment / assignment	Written assignment and written exam
Assessment criteria	Scientific quality of written assignment and written exam

Module title	Planning Research
Module code	GEMPLRSCH
Faculty / department	RUG, Faculty of Spatial Sciences
Degree programme	Master of Water and Coastal Management
Main focus	Specialisation phase
Kind of module	Compulsory
Semester / Length of term	3rd term of programme (second part) / ½ semester
Allocation to other degree programmes	Master of Environmental and Infrastructure Planning Double degree COAST Master Cluster
Mode of teaching	Lectures on planning research
Language	English
Person in charge	Dr. J. Woltjer
Lecturer	All lecturers of the faculty are involved
Workload	Hours of presence: 56 hours, self studies: 34 hours
Kind of lesson	LE (3 EC)
Credit-points / ECTS	3 EC
Content of module	Individual researchers will present their research topics and discuss approaches and findings. Students are expected to draft their thesis proposals.
Aim of module	The students acquire further research skills with ongoing research at the Faculty of Spatial Science, meeting the researchers and discussing the frontiers of research in Environmental and Infrastructure Planning. They are able to apply typical planning techniques.
Media	PPT, Handouts
Literature	<ul style="list-style-type: none"> ○ Copies of recent articles by the presenting authors
Prerequisites	CS 1, CS 2
Previous knowledge	General knowledge of spatial planning
Associated to module	Master Thesis
Minimal / maximal number of participants	-
Assessment / assignment	Master thesis proposal
Assessment criteria	Scientific quality and soundness of the proposal

Module title	International Planning Practice
Module code	GEMPLPR
Faculty / department	RUG, Faculty of Spatial Sciences
Degree programme	Master of Water and Coastal Management
Main focus	Specialisation phase
Kind of module	Compulsory
Semester / Length of term	3rd term of programme (second part) / ½ semester
Allocation to other degree programmes	Master of Environmental and Infrastructure Planning Double degree COAST Master Cluster
Mode of teaching	Lectures on international planning practice
Language	English
Person in charge	Dr. J. Woltjer
Lecturer	Dr. J. Woltjer Guest lecturers
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (6 EC)
Credit-points / ECTS	6 EC
Content of module	The course will briefly discuss the forces of globalisation and European integration that increasingly shape spatial developments and the European policies with respect to environmental and infrastructure planning. It will more extensively focus on different national practices, predominantly in Western Europe but also in the U.S.A. and Asia. The objective of this course is twofold. First, to gain insight into the effects of international developments and international governance on planning practice, in particular the effects of European integration. Second, to gain insight into the national embeddedness of planning practices, i.e. differences in planning culture, institutions, issues and approaches.
Aim of module	After completion of the course students are able to critically assess the challenges posed by internationalisation, the universal elements of different practices and the (restrictions to) transferability of approaches across borders. They are able to handle national and transnational planning practices.
Media	PPT
Literature	<ul style="list-style-type: none"> ○ Reader with recent articles
Prerequisites	CS 1, CS 2
Previous knowledge	Knowledge about planning issues from the case studies
Associated to module	-
Minimal / maximal number of participants	-
Assessment / assignment	Written exam
Assessment criteria	Quality and soundness of written exam

Module title	Case Study III: Environmental Planning
Module code	GEMENVPL
Faculty / department	RUG, Faculty of Spatial Sciences
Degree programme	Master of Water and Coastal Management
Main focus	Specialisation phase
Kind of module	Compulsory
Semester / Length of term	3rd term of programme (second part) / ½ semester
Allocation to other degree programmes	Master of Environmental and Infrastructure Planning Double degree COAST Master Cluster
Mode of teaching	Lectures on environmental planning
Language	English
Person in charge	Prof.dr. E.J.M.M. Arts
Lecturer	Prof.dr. E.J.M.M. Arts Dr. N. Karstkarel Dr. J. Woltjer
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	SE (2 EC), PR (4 EC)
Credit-points / ECTS	6 EC
Content of module	This course focuses on the relation concerning content between environmental policy and infrastructure planning. Legislation and issuing instructions of the day for air, noise, water, soil and ecology are a central theme, as well as environmental impact assessments (EIA) and strategic environmental assessments (SEA). The relationship between planning and environmental permission grant is also a topic of this course.
Aim of module	Students are able to recognize and adopt the principles and developments of the Dutch planning systems with respect to environmental planning.
Media	PPT
Literature	<ul style="list-style-type: none"> ○ Mitchell, B. (2002): Resource and Environmental Management, Pearson Prentice Hall, Harlow UK ○ Linden, G. and Voogd, H. (eds) (2004): Environmental and infrastructure planning, Groningen, GeoPress, Chapters 2, 4, 8, 12 ○ Reader Environmental Planning
Prerequisites	CS 1, CS 2
Previous knowledge	General knowledge in environmental planning
Associated to module	-
Minimal / maximal number of participants	-
Assessment / assignment	Active participation in a negotiation exercise Written exam
Assessment criteria	Scientific quality and soundness of the written exam

Module title	Water Management and Integrated Coastal Zone Management
Module code	GEMWATMAN
Faculty / department	RUG, Faculty of Spatial Sciences
Degree programme	Master of Water and Coastal Management
Main focus	Final phase
Kind of module	Compulsory
Semester / Length of term	3rd term of programme (first part) / ½ semester
Allocation to other degree programmes	Master of Environmental and Infrastructure Planning Double degree COAST Master Cluster
Mode of teaching	Lectures on water management and integrated coastal zone management
Language	English
Person in charge	Dr. J. Woltjer
Lecturer	Dr.J. Woltjer Guest lecturers
Workload	Hours of presence: 56 hours, self studies: 124 hours
Kind of lesson	LE (6 EC)
Credit-points / ECTS	6 EC
Content of module	A first important point of view of this course is an area-based approach. The course discusses different types of areas, in which the relationship between water management and spatial development has specific characteristics. The main water system consists of the large rivers, the main surface waters and the sea. In three different types of areas, the main water system poses important pre-conditions for spatial development: the areas along the large rivers, the coastal zone and the transition areas such as the Wadden Sea and the Southwestern-Delta. The objective is to increase the knowledge of the nexus between water management and spatial planning. More in particular it is explored how spatial planning can contribute to a water management objective.
Aim of module	The students increase their knowledge of the nexus between water management and spatial planning. They know how to apply spatial planning to a water management objective.
Media	PPT
Literature	<ul style="list-style-type: none"> ○ Linden, G. and Voogd, H. (eds) (2004): Environmental and infrastructure planning, GeoPress, Groningen ○ Other literature to be announced later
Prerequisites	CS 1, CS 2
Previous knowledge	General knowledge of water management and integrated coastal zone management
Associated to module	-
Minimal / maximal number of participants	-
Assessment / assignment	Written assignment, written exam
Assessment criteria	Scientific quality and soundness of written assignment and written exam

Module title	Master Thesis
Module code	GEMTHEIP
Faculty / department	RUG, Faculty of Spatial Sciences
Degree programme	Master of Water and Coastal Management
Main focus	Final phase
Kind of module	Compulsory
Semester / Length of term	4th term of programme (first and second part) / 1 semester
Allocation to other degree programmes	Master of Environmental and Infrastructure Planning COAST Master Cluster
Mode of teaching	Master thesis
Language	English
Person in charge	Dr.ir. P. Ike (coordinator)
Lecturer	All lecturers are involved
Workload	Hours of presence: 28 hours, self studies: 872 hours
Kind of lesson	Supervised thesis work
Credit-points / ECTS	30 EC
Content of module	<p>The last semester of the Masters Course in Environmental and Infrastructure Planning is spent on a research project, which results in a Master Thesis. It is an individual research project. In the Master Thesis, the following research stages are distinguished:</p> <ul style="list-style-type: none"> ○ The statement of the research problem / research questions ○ The theoretical background, (international) literature, secondary data and background ○ Operationalisation of the research question(s), methods of research, data-sets used ○ Results of data gathering, quality of data ○ Findings / results ○ Analysis ○ Conclusions and recommendations <p>The Master Thesis is written in English.</p>
Aim of module	The aim of the thesis is to gain practical experience in scientific research. After the successful completion of the Master Thesis, students are able to work scientifically. They understand and integrate scientific literature and can prepare and conduct scientific projects, as well as presenting the results written and oral, and defend them publicly. They have the ability to go into business for themselves as well as working scientifically.
Media	PPT (when presenting thesis to public)
Literature	<ul style="list-style-type: none"> ○ Depending on subject
Prerequisites	All other courses in Master programme
Previous knowledge	Knowledge of all other courses in Master programme
Associated to module	-
Minimal / maximal number of participants	-
Assessment / assignment	Master thesis
Assessment criteria	According to Master Protocol