

# Curriculum for the Programme “International Joint Master’s Programme in Sustainable Development”

Approved by the Senate of the University of Graz, Austria on 24 June 2008  
Approved by the Senate of Ca’ Foscari University Venice, Italy on 18 March 2008  
Approved by the Senate of the University of Leipzig, Germany on \_\_\_\_  
Approved by the Board of Utrecht University, Netherlands on 18 December 2008

## Introductory Section

Since the global environmental conferences in Rio de Janeiro in 1992 and Johannesburg in 2002 sustainable development – i.e. development that is environmentally accountable – has become an internationally recognised principle that many nations are now committed to achieve. The main ways they are doing so are, for instance, by recycling materials, using natural resources prudently, making consumption patterns more environmentally accountable, stimulating corporate social responsibility, and paying attention to the quality of the built environment. Sustainable development is the expression of a desire to attune economic and social development to the carrying capacity of the physical environment everywhere, now and in the future.

The issue of sustainable development has high priority on the international political and scientific agenda. It is also a cross-boundary issue, since any problem derived from the relation between the environment and development will not stop at a country’s borders. The concept of ‘sustainable development’ has far-reaching significance. There is an international obligation to carefully weigh the benefits of economic and social development against the costs to the environment. A suitable way to address this question is to present it to talented students in an international setting. The master’s programme in Sustainable Development is a prime example of a program where sustainability issues are approached from an inter-disciplinary perspective. The focus is set on applying the competences to the question of sustainable development and the needs and possibilities of societal transformation. It combines the strengths and specializations in teaching and top research of six partner universities, thereby offering the students a program recognized in the countries of the consortium partners and the possibility of going on to PhD-studies as well as increasing the employability in the private, public and semi-public sector.

## § 1 General Regulations

The curriculum for the master’s programme has been designed jointly by six partner universities, i.e. University of Graz, Ca’ Foscari University Venice, Leipzig University, Utrecht University, Basel University, and Hiroshima University under the auspices of the University of Graz, Austria.

### (1) Status of Co-operation Partners

The following six universities have jointly developed an “International Joint Master’s Programme in Sustainable Development”

- **Karl-Franzens-University Graz** (Austria, coordinating university), represented by Ao.Univ.-Prof. Alfred Posch (academic representative), Institute of Systems Sciences, Innovation and Sustainable Research, Universitätsstraße 15 G/II, A-8010 Graz,
- **Ca’ Foscari University Venice** (Italy), represented by Prof. Gabriele Zanetto (academic representative), Scienze Ambientali, Dorsoduro 2137 – 30123 Venezia,
- **Leipzig University** (Germany), represented by Prof. Robert Holländer (academic representative), Faculty of Economics and Business Management, Institute for Infrastructure and Resources Management, Marschnerstrasse 31, 04109 Leipzig,

- **Utrecht University** (the Netherlands), represented by Prof.dr. Peter Driessen (academic representative), director of the master's programme Sustainable Development, Faculty of Geosciences, P.O. Box 80115, 3508 TC Utrecht.
- **Basel University** (Switzerland), represented by Prof. Dr. phil. Paul Burger (academic representative), Program Sustainability Research, Department for Social Sciences and Philosophy, Klingelbergstrasse 50, CH-4056 Basel,
- **Hiroshima University** (Japan), represented by Prof. Takao Yamashita (academic representative), Graduate School for International Development and Cooperation, 1-5-1 Kagamiyama, Higashi-Hiroshima, 739-8529.

### (1.1) Consortium

Of the six partners involved in developing the programme the following four universities constitute the “consortium”

- **Karl-Franzens-University Graz** (Austria), legal representative: Ao. Univ.-Prof. Dr. Roberta Maierhofer, Vice Rector for International Relations,
  - **Ca' Foscari University Venice** (Italy), legal representative: Prof. Pier Francesco Ghetti, Rector,
  - **Leipzig University** (Germany), legal representative: Prof. Dr. iur. Franz Häuser, Rector,
  - **Utrecht University** (the Netherlands), legal representative: Ms Yvonne C.M.T. van Rooy, LLM President,
- commonly conferring a joint degree.

The rights connected with these degrees will be acquired from each of the participating states.

(Compare Cooperation Contract, § 2)

### (1.2) Mobility Partners

The following universities are partners in terms of mobility

- **Basel University** (Switzerland), legal representative: Prof. Dr. phil. Ueli Mäder, Dean of the *Philosophisch-Historischen Fakultät*,
- **Hiroshima University** (Japan), legal representative: Prof. President Toshimasa Asahara.

For details refer to the contracts between the mobility universities and the consortium.

(Compare Cooperation Contract, § 2)

## (2) Aim of the International Joint Master's Programme in Sustainable Development

The mission of the International Joint Master's Programme in Sustainable Development is to provide an international and interdisciplinary master's programme of highest quality which enables participants to substantially contribute to the challenge of the transition of society towards sustainability. The master's programme places a strong emphasis on research as well as on intervention strategies, promotes the capability for scientific work, and in particular a methodically correct approach to problem solving, especially in inter- and transdisciplinary settings.

The master's programme prepares students for a Ph.D. study, ultimately leading to professions in scientific research. The societal orientation of the master's programme makes it also a good starting point for positions that do not directly involve scientific research. Graduates might find employment in the private sector, the public sector (EU, national, regional, and local government), consultancy firms, and NGOs. In the course of their career, the graduates should be able to fill managerial positions, notably with respect to the integration of knowledge and policy and in the field of change management (particularly of complex processes of societal change).

## **(2.1) Educational Goals:**

According to the Dublin Descriptors the Master's degree will be awarded to students who

- understand the dynamics, complexity and interaction between natural, social and economic processes and systems in regard of sustainable development
- are able to analyse topics within the field of sustainable development by taking into consideration different disciplinary perspectives
- have comprehensive competences in a scientific perspective
- know and are able to use adequate working methods and instruments for scientific research and application
- are able to apply their knowledge and scientific skills in inter- and trans-disciplinary teams on complex issues, possess the according social skills, such as writing, debating, conflict management, teamwork, project management and thus will be able to make a substantial contribution to the transition to a sustainable society
- are able to do independent scientific research and put the results of a scientific investigation in the form of a scientific article or a similar kind of publication

## **(2.2) Scientific Perspectives**

Different specialisation perspectives are offered by the partner universities. Within each perspective, the allocation to the perspective and thus the possible specialisation of the students depends on their specific undergraduate education (see track descriptions in Annex 1).

## **(2.3) Professional Fields: Relevance of the Programme for the Labour Market and further Academic Study**

Professional fields for which competences are developed are strongly determined by the specialisation track chosen definitely including the academic, private, public, and semi-public sector. Typical occupational fields for graduates are.

- Business Management
  - Consulting
  - Environmental Entrepreneurship
  - Environment, health and safety
  - Quality Management
  - Regional and urban planning
  - Innovation Management
  - International Organisations
  - Scientific Research
  - Training and (continuing) education
- (Fields above are ordered alphabetically not by priority.)

## **(3) Duration of the Programme**

Students are allocated ECTS credit points for the work done, which includes both self-study and contact hours. The master's programme comprises 120 ECTS credits, which corresponds to a minimum period of study of four semesters or two years, per the respective regulations governing the partner institutions.

At least 60 ECTS credits have to be earned at the home university. Students are required to complete at least 30 ECTS credits at one of the partner universities.

#### **(4) Academic Degree**

Students completing the “International Joint Master’s Programme in Sustainable Development” earn the master degree “Joint Master of Sustainable Development” that is equivalent to the master degree in the countries of the partner universities as follows:

Austria:	Master of Science	MSc
Germany:	Master of Science	MSc
Italy:	Laurea magistrale	LM
Netherlands:	Master of Science	MSc

##### Joint Degree (Graz, Venice, Leipzig, Utrecht)

Students earn the Joint Degree mentioned above from the universities Graz, Venice, Leipzig, Utrecht.

##### Joint Degree (Graz, Leipzig, Utrecht)

Students earn the Joint Degree mentioned above from the universities Graz, Leipzig, Utrecht, in case they do not fulfill the requirements of the Italian ministry.

#### **(5) Formal Modes of Study**

These modes of study include lectures, seminars, tutorials, practical courses and other forms, per the respective regulations governing the partner institutions.

University of Graz: Statutes of the Legal Regulations on University Studies (*Satzungsteil Studienrechtliche Bestimmungen*) §1 (3)

Ca’ Foscari University Venice: DM (Ministerial Decree) n. 270/2004; Ca’ Foscari University Regulations of Studies.

Leipzig University: Legal Regulations on Higher Education in Saxony (*Sächsisches Hochschulgesetz – SächsHG*) from June 11, 1999 (*SächsGVBl. pp. 294*), § 21 Requirements for Course Regulations and § 24 Requirements for Examination Regulations

Utrecht University: Act on Higher Education and Scientific Research, 1992; Richtlijn Onderwijs Universiteit Utrecht, 2006.

Basel University: Ordnung für das Masterstudium «Sustainable Development» an der Philosophisch-Historischen, der Philosophisch-Naturwissenschaftlichen und der Wirtschaftswissenschaftlichen Fakultät der Universität Basel Vom Universitätsrat genehmigt am 22. September 2005.

Hiroshima University: School Education Law, National Standards for the Establishment of Universities, National Standards for the Establishment of Graduate Schools, Hiroshima University General Rules.

#### **(6) Limitation of Places in Courses**

Limitations on the number of participants in the individual types of classes may apply for educational and/or safety reasons, and shall be determined per the respective regulations governing the partner institutions.

#### **(7) Teaching and Learning Methods**

In addition to regular classes at the partner universities, jointly prepared forms of supplementary teaching (e.g. summer or winter schools, intensive programmes) can be used to complete the Joint Programme and may be counted towards the 30 ECTS credits requirement.

## **(8) Target Group and Admission**

The target group for the participation in the “International Joint Master’s Programme in Sustainable Development” are highly qualified and motivated students interested in the issue of sustainable development and especially the international dimension of sustainability issues. Moreover, they should be willing and able to analyse and evaluate complex processes from the interdisciplinary perspective.

Any student who is interested in taking the master’s program has to go through an admission procedure (Compare Cooperation Contract, § 5). The Selection Committee plays a key role in that procedure. The deadlines for submitting applications for admission are announced each year on the programme website ([www.jointdegree.eu](http://www.jointdegree.eu)).

### *General conditions for admission*

Sustainable development is an inter-disciplinary field, and research on that subject requires a interdisciplinary attitude. For this reason, the International Joint Master’s Programme in Sustainable Development welcomes individuals holding an academic degree of at least 180 ECTS credits (bachelor’s degree or equivalent programme of at least 180 ECTS) who can demonstrate their research skills, their basic knowledge of the natural and/or social sciences, and a general insight in the subject of sustainable development and intervention strategies. In the selection of the tracks students need to consider the prior knowledge as stated in the track description. A suitable preparation for natural science tracks might include courses in physics, chemistry, geology, science & innovation management, technical sciences, biology, geography, or earth sciences. And for the social science tracks, the prospective student might have had courses in business management, human geography, planning, sociology, policy sciences, law, or economics.

Graduates from different forms and fields of studies can be admitted if the completed programme is judged to be equivalent in the regular admission procedure of the university for which the student applies.

The decision will be based largely on the kind of prior education (applicants have to demonstrate research skills, basic knowledge of social and/or natural sciences and general insights in the subject of sustainable development and intervention strategies), including the student's minor or optional course profile, the personal motivation, recommendations of former teachers and English language skills.

### *English*

Because large parts of the programme, especially the specialization tracks chosen for the mobility semester, are conducted in English, the Selection Committee requires proof of the applicant’s proficiency in English. The applicant must submit an *original* and recent certificate of an IELTS (required minimum score: 6.5), a TOEFL (required minimum score: 237 on the computerized test, 580 on the paper test, 93 on the Internet test), or an EFL (required minimum grade: B). English-native-speaking applicants and those who successfully completed an English-taught bachelor programme do not have to take this test.

### *Selection results*

The decision of the Selection Committee will be send by letter to the applicant. A letter of admission remains valid for one year.

## § 2 Structure of the Programme

		<b>ECTS</b>	<b>Sem.</b>
<b>Compulsory subjects</b>	<b>Basics in Sustainable Development</b>	<b>30 ECTS</b>	<b>1</b>
<b>Restricted electives</b>	<b>Tracks (can be chosen from following)</b>	<b>30 ECTS</b>	<b>2</b>
	<ul style="list-style-type: none"> <li>○ Climate &amp; Environmental Change (Graz)</li> <li>○ Energy &amp; Resources (Utrecht)</li> <li>○ <i>Env. Evaluation and Management (Venice, Italian only)</i></li> <li>○ Environmental Policy and Management (Utrecht)</li> <li>○ Environmental Technology (Leipzig)</li> <li>○ Integrated Coastal Zone Management (Venice)</li> <li>○ Intl. and Europ. Env. Law (Utrecht)</li> <li>○ Land use &amp; Biodiversity (Utrecht)</li> <li>○ <i>Marine Environment (Venice, Italian only)</i></li> <li>○ Renewable Resources (Graz)</li> <li>○ Resources Management (Leipzig)</li> <li>○ Sustainability: The Social Dimension (Basel)</li> <li>○ Sustainable Business Management (Graz)</li> <li>○ Sust. Dev. Science &amp; Technology (Hiroshima)</li> <li>○ Sust. Urban &amp; Regional Development (Graz)</li> <li>○ <i>Technologies and Control of the Environment (Venice, Italian only)</i></li> <li>○ <i>Terrestrial Environment (Venice, Italian only)</i></li> </ul>		
<b>Compuls. Subj. + Electives</b>	<b>Integration Module and further specialisation</b>	<b>30 ECTS</b>	<b>3</b>
<b>Master's thesis module</b>		<b>30 ECTS</b>	<b>4</b>
	Master's thesis		
	Presentation and Defence		
		<b>120 ECTS</b>	

### (1) Basics in Sustainable Development

See table in annex 1

### (2) Tracks

See tables in annex 1

### (3) Integration Module

See table in annex 1

### (4) Master's theses module

The master theses module comprises 30 ECTS. The thesis reflects the student's capacity for independent study and research and should be written in English. The thesis must include a short summary both in English and in the local language of the home institution per the respective regulations governing the partner institutions.

#### *The importance of a master's thesis*

The master's thesis plays a central role in the master's programme. It is the most important part of the master's study. It is the proof of the student's mastery and academic development to a sufficient level. The thesis certifies that the graduates are qualified. It also guarantees that the final attainment levels of the master's have been met.

The master's thesis provides essential training. It involves a large number of academic activities: formulating a research objective and a research question after surveying the literature; sorting, interpreting, and synthesizing information; collecting/analyzing measurements/observations; and presenting verbal/written reports on the findings.

### *Master's thesis topic*

Students must determine their master's thesis topic in consultation with a supervisor according to the regulations at the respective home university. Students have to write a proposal (including problem description, research goals and questions, research methods, theoretical perspective, expected outcomes, time schedule, bibliography) that has to be approved by the supervisor and a second reader (member of staff at a partner university selected by the supervisor).

It must be possible to finish the thesis within 6 months after the agreed starting time.

### *Internship*

A research project generally takes place within one of the partner universities or at another research institute. Furthermore, students are offered the opportunity to carry out their MSc thesis research during an internship. They may be placed, for instance, in governmental organizations, research organizations, consultancy firms, NGOs, or companies.

At the start of the internship, the preconditions and content of the internship are clearly laid out. These arrangements are agreed upon by the student, the supervising instructor (person that will also be the academic supervisor of the master's thesis), and the host mentor (person of the internship organization that takes care of the student) in order to ensure that the internship will be a meaningful and enjoyable period for all parties. The reciprocal rights and duties should be arranged in an internship contract. Any arrangements between the student and the internship organization must be approved beforehand by the thesis supervisor.

Trainees are supervised by staff from both on of the partner universities and the host organization. On behalf of the host organization, supervision is provided by an internship mentor. This individual is primarily involved in the daily supervision (familiarizing the student with the organization, its working methods, objectives, and environment) as well as supervision at a more personal level (coaching). The main task of the university staff member is to monitor the scientific aspects of the research (its aim, research questions, methodology, content, and theoretical aspects).

The value of the thesis resulting from a research internship is equal to that of a 'normal' MSc thesis and thus must satisfy the same quality criteria.

### *Assessment*

The rules on the assessment of the master thesis are laid down in the course catalogue of the master's programme. The final master's thesis is assessed by at least two staff members: the supervisor and a second reader (member of staff at a partner university selected by the advisor). The judgment of any other (external) supervisors who might be involved will be taken into consideration. In case of an internship, the university supervisor consults the internship mentor about the quality of the work done at the host organization.

If the supervisors and the second reader do not reach a consensus on the final grade, or if the student contests their decision, the final assessment is brought before the General Programme Board. The Board makes a binding decision on the final evaluation of the thesis.

If a student fails, s/he has to start the master's thesis module again.

## **§ 3 Assessment**

### **Assessment types, procedures and methods**

Student achievement is assessed by a variety of methods including examination and written and oral work per the respective regulations governing the partner institutions. Criteria must be identified for students in the syllabus distributed at the beginning of a course.

### **Grading systems**

Every university will use its own grading system. A conversion table will be provided (Annex 2).

All consortium partners will provide a grade point average for students at the end of their studies.

## **Auditing and Evaluation**

In order to maintain quality assurance across all aspects of the programme the members of each institution of the consortium will be asked regularly to monitor and audit samples of syllabi and student work from across the consortium. This will be one of the tasks of the annual meeting of representatives. The General Programme Board is responsible for the overall management and quality assurance of the programme. Results of the quality assurance procedures have to be discussed by the General Programme Board once a year. (Compare annex 3 for the quality assurance procedures of all partner universities.)

The evaluation of courses will concentrate on objectives, content, didactic presentation and examination.

## **§ 4 Obligatory Study Abroad**

Students are advised to spend the specialisation track in the 2<sup>nd</sup> semester at a partner university, when all partner universities offer at least one track in English. Students can also apply to spend the 3<sup>rd</sup> or 4<sup>th</sup> semester abroad, where it cannot be guaranteed that tracks are offered in English. When applying for the programme students will need to list their specialisation tracks in order of preference. If the specialisation track (in 2<sup>nd</sup> semester) is at the home university, students have to specify where they want to spend the obligatory semester (3<sup>rd</sup> or 4<sup>th</sup>) abroad and explain the motivation for that choice.

Places are allocated by the General Programme Board according to available resources.

It is assumed that the general and specific university academic entrance requirements are satisfied upon nomination by the home institution.

## **§ 5 Additional Study Abroad**

Students may spend an additional study period at any of the partner universities, whether for a semester of registered coursework or for a short period of study for research reasons. Financial subsidies can be applied for through existing mobility programmes and grants. However, resources are limited.

## **§ 6 Coming into Effect of the Curriculum**

The present curriculum comes into effect at the six partner universities mentioned above according to their commitment at the beginning of the academic year 2008/2009 following its approval by the respective responsible authorities.

## Annex 1 – Descriptions of Modules and Tracks

<b>Title</b>	<b>Basics in Sustainable Development (30 ECTS)</b>
<b>University offering the module</b>	<b>University of Graz / Austria</b>
<b>Learning Objectives</b>	<p>After having taken this module, students will:</p> <ul style="list-style-type: none"> <li>• have obtained a good overview of the concept of sustainable development from local to global processes and its history and of various ways to operationalize it;</li> <li>• are capable to recognize key sustainable development issues and make an integral and critical assessment of available options</li> <li>• have obtained knowledge of and skills in policy analysis and policy evaluation</li> </ul> <p>have obtained basic knowledge in different relevant scientific disciplines like chemistry, biology, geology, ecology; understand their contributions to the field of sustainable development; and possess the ability to integrate these;</p>
<b>List of courses offered under the header of “Basics in SD” per university</b>	<p>Environment and Sustainable Development (3 ECTS, 2 ch)  Environmental Policy (3 ECTS, 2 ch)</p> <p>Chemistry*: a) General Chemistry I (3 ECTS, 2 ch)  and: General Chemistry II (3 ECTS, 2 ch) or  b) advanced: Pharmacognosy (6 ECTS, 4 ch)</p> <p>Biology*: a) Introduction into biology (6 ECTS, 4 ch) or  b) Zoology – behaviour, neuro- sense physiology (4 ECTS, 3 ch) and: Bio- and genetic engineering in plants and fungi (2 ECTS, 1 ch)</p> <p>Geo Sciences*: a) Introduction to Physical Geography (6 ECTS, 4 ch)  or: b) Development of Litho- and Biosphere (6 ECTS, 4 ch)</p> <p>Ecology*: Molecular ecology of micro organisms (2 ECTS, 1.5 ch)  Eco-physiology of animals (2 ECTS, 1 ch)  a) General ecology for environmental systems sciences (2 ECTS, 2 ch)  or: b) Terrestrial large scale eco-systems (2 ECTS, 2 ch)</p> <p>* In case students have already had classes in their prior education in the specific field at a comparable level, they are requested to select more sophisticated classes appropriate to their prior knowledge. The proposed classes need to be approved in advance by the curriculum commission.</p>
<b>Teaching Methods</b>	primarily lectures and discussions
<b>Modes of Assessment</b>	primarily written exams, some individual assignments
<b>Presumed prior knowledge</b>	-
<b>Offered in (winter/summer semester)</b>	each winter semester

ch-contact hours

<b>Title</b>	<b>Basics in Sustainable Development (30 ECTS)</b>
<b>University offering the module</b>	<b>Ca'Foscari University Venice / Italy</b>
<b>Learning Objectives</b>	<p>After having taken this module, students will have obtained:</p> <ul style="list-style-type: none"> <li>• A clear overview of the concept of sustainable development and its history;</li> <li>• A basic understanding of the dynamics, complexity and interaction between natural, social and economic processes and systems in regard of sustainable development on different scales</li> <li>• A understanding of the contributions from the social, economic and natural scientific disciplines;</li> <li>• The capability to recognize key sustainable development issues</li> <li>• Knowledge of and insights into governance of sustainable development</li> <li>• Knowledge of policy analysis and policy evaluation</li> </ul>
<b>List of courses offered under the header of “Basics in SD” per university</b>	<p>Science of complexity: mathematics (6 ECTS)  Evaluation and management of sustainability (6 ECTS)  Climatology and meteorology (6 ECTS)  Environmental application of GIS (6 ECTS)  Environmental Management Systems and Environmental Impact Assessment I (6 ECTS)</p>
<b>Teaching Methods</b>	<p>Lectures  Tutorials  software packages in computer laboratory  Group projects, carried out by small groups.</p>
<b>Modes of Assessment</b>	<p>Individual and group assessment during the course or written/oral exam at the end of the course.</p>
<b>Presumed prior knowledge</b>	<p>1) Basic knowledge of calculus  2) None  3) Elementary knowledge of geology  4) None  5) None</p>
<b>Offered in (winter/summer semester)</b>	<p>Semester 1  Periods/Slots as indicated in detailed description:  September/December</p>

<b>Title</b>	<b>Basics in Sustainable Development (30 ECTS)</b>
<b>University offering the module</b>	<b>Leipzig University / Germany</b>
<b>Learning Objectives</b>	<p>After having taken this module, students will have obtained:</p> <ul style="list-style-type: none"> <li>• A clear overview of the concept of sustainable development and its history;</li> <li>• A basic understanding of the dynamics, complexity and interaction between natural, social and economic processes and systems in regard of sustainable development on different scales</li> <li>• A understanding of the contributions from the social, economic and natural scientific disciplines;</li> <li>• The capability to recognize key sustainable development issues</li> <li>• Knowledge of and insights into governance of sustainable development</li> <li>• Knowledge of policy analysis and policy evaluation</li> </ul>
<b>List of courses offered under the header of “Basics in SD” per university</b>	<p>The block aims to create a common knowledge basis among the students in the field of sustainable development for the following tracks and modules by providing the students modules in the economic, social and environmental dimensions of sustainability. In accordance with their disciplinary backgrounds the students select two modules (10 + 10 CP) in dimensions complementary to their prior knowledge in order to achieve a fundamental theoretical and methodological understanding in all dimensions of sustainability and of the interdependencies between them. The selected modules have to be approved by the programme coordinator. Due to the non-consecutive and interdisciplinary character of the programme the alignment of the knowledge standards is of particular importance. In addition to the basics in economic, social and natural sciences the students gain competence in the governance of sustainable development from local to global levels including policy analysis (10 ECTS).</p> <p>The students have to choose two of the following modules:</p> <ul style="list-style-type: none"> <li>○ Basics in economic sciences (10 ECTS)</li> <li>○ Basics in social sciences (10 ECTS)</li> <li>○ Basics in natural sciences (10 ECTS)</li> </ul> <p>Obligatory for all students:</p> <ul style="list-style-type: none"> <li>○ Governance of sustainable development (10 ECTS)</li> </ul>
<b>Teaching Methods</b>	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Tutorials</li> <li>▪ Seminars</li> <li>▪ Discussions</li> <li>▪ Excursions</li> </ul>
<b>Modes of Assessment</b>	<p>In accordance with the respective module descriptions the performance of students will be assessed based on:</p> <ul style="list-style-type: none"> <li>▪ Written or oral exams in the end of a course</li> <li>▪ Seminar papers</li> <li>▪ Individual assignments</li> </ul>
<b>Presumed prior knowledge</b>	<p>None for the modules.</p> <p>The presumed prior knowledge for few restricted elective courses included in the modules is defined in the module descriptions and respective study regulations.</p>
<b>Offered in (winter/summer semester)</b>	<p>Semester 1</p> <p>Each winter semester</p>

<b>Title</b>	<b>Basics in Sustainable Development (30 ECTS)</b>
<b>University offering the module</b>	<b>Utrecht University / The Netherlands</b>
<b>Learning Objectives</b>	<p>After having taken this module, students:</p> <ul style="list-style-type: none"> <li>• Are able to analyse the issue of sustainable development from a natural science and social science perspective,</li> <li>• Have obtained a good overview of the concept of sustainable development from local to global processes and its history and of various ways to operationalize it</li> <li>• Are capable to recognize key sustainable development issues and make an integral and critical assessment of available options</li> <li>• Have obtained a good overview of the main debates on governance for sustainable development</li> <li>• Are able to engage in a scientific debate on the issue of sustainable development</li> <li>• Have obtained knowledge of and skills in policy analysis and policy evaluation</li> </ul>
<b>Courses</b>	<ul style="list-style-type: none"> <li>• Sustainable Development; An Integrated Systems Approach (7,5 ECTS)</li> <li>• The Sustainability Challenge A (7,5 ECTS)</li> <li>• Development Theories (7,5 ECTS)</li> <li>• One of the following courses: <ul style="list-style-type: none"> <li>- The Sustainability Challenge B (7,5 ECTS)</li> <li>- Energy Conversion and Technologies (7,5 ECTS)</li> <li>- Themes in Land Use and Biodiversity (7,5 ECTS)</li> </ul> </li> </ul>
<b>Teaching Methods</b>	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Tutorials</li> <li>▪ Practical training</li> <li>▪ Simulation games</li> <li>▪ Assignments</li> </ul>
<b>Modes of Assessment</b>	<ul style="list-style-type: none"> <li>▪ Written and oral exams</li> <li>▪ Individual and group assignments</li> <li>▪ Papers and reports</li> <li>▪ Presentations</li> <li>▪ Process evaluation</li> </ul>
<b>Presumed prior knowledge</b>	A bachelor's degree or equivalent in one of the natural or social sciences
<b>Offered in (winter/summer semester)</b>	Semester 1 Each winter semester

<b>Title of Track</b>	<b>Climate and Environmental Change (CEC) (30 ECTS)</b>
<b>University offering the track</b>	<b>University of Graz / Austria</b>
<b>Learning Objectives</b>	<p>After having taken this track, students will</p> <ul style="list-style-type: none"> <li>- have depth knowledge in “Climate and Environmental Change”</li> <li>- have the qualification to obtain, analyse, interpret and evaluate geo-spatial climatic and environmental phenomena with respect to the cause, processes, structures and future developments,</li> <li>- possess an understanding of the coherences of the different factors which influence the processes of climate and environmental change,</li> <li>- have deep knowledge in climatology and environmental basics and theories,</li> <li>- are able to solve scientific tasks within an interdisciplinary approach,</li> <li>- succeed in self-contained scientific elaborations of defined themes in the field of environmental and climate research</li> </ul>
<b>Courses</b>	<ol style="list-style-type: none"> <li>1. Special Climate Geography (4 ECTS, 2 ch)</li> <li>2. Geographic Seminar (Physical Geography or Climatology) (6 ECTS, 2 ch)</li> <li>3. Selected Topics of Environmental Physics/Meteorology and Physical Climatology (8 ECTS, 4 ch)</li> <li>4. Selected Topics of Physical Geography/Landscape Ecology (8 ECTS, 4 ch)</li> <li>5. Changing Landscapes and/or Geo-Spatial-Technologies (4 ECTS, 2 ch)</li> </ol>
	<p>Lectures will offer a comprehensive content in regard to climate and environmental change. The know-how transfers results from lecturing. Discussions and questions during the lecture are possible and even desired.</p> <p>In seminars (SE) an individual paper on a given research question and its presentation will be assessed. In practical lessons (PK, UE) theories, methods and tools will be trained within an applied student project.</p>
<b>Modes of Assessment</b>	<p>Lectures will have an oral or a written exam.</p> <p>Seminars will have an overall assessment in terms of a course with continuous class participation based on talk (technical and formal coping), discussion agility, written form (abstract and discussion record). Practical lessons will be evaluated with individual or group oral and written reports. Excursions (EX) include scientific approaches in the field to clarify and deepen indoor lesson knowledge and will be evaluated with oral examinations or written reports.</p>
<b>Presumed prior knowledge</b>	<p>Students that choose this track should possess some basic understanding of the approaches, methods and tools of “climate and natural environment”.</p>
<b>Offered in (winter/summer semester)</b>	SS 09 and following.

ch – contact hour

<b>Title of Track</b>	<b>Energy &amp; Resources (30 ECTS)</b>
<b>University offering the track</b>	<b>Utrecht University / The Netherlands</b>
<b>Short description</b>	<p>Well-functioning energy and material systems are critical for the functioning of society. Due to the ongoing growth of the population and the economy, various resources such as energy and water are becoming increasingly scarce. As a result of scarcity, political tensions rise and there is heightened concern about supply security. In addition, market liberalization is having a strong influence on the energy sector. However, the predominant challenge to energy and material systems is how to attain sustainability. The problem of climate change has been added to the list of existing problems; these include resource depletion; local air quality in many cities of the world; acidification; and large-scale hazards. One way to pursue sustainable development is by using renewable energy and materials; another way is by making more efficient use of energy and materials. These two topics are core elements of the research program at the Copernicus Institute.</p> <p>Research on life-cycle energy assessment took off in the 1970s. Since then, this field has been enriched with various methods to analyze complex energy and materials systems, to determine the potential of technological options, and to analyze the impact of energy policies. Life-cycle assessment is now widely accepted as a method to measure environmental impacts. Some of the main challenges lying ahead are the following: the analysis of energy and material systems on a continental and global scale; the quantitative impact of energy and resource policies; and the analysis of long-term transitions and the associated social changes.</p>
<b>Learning Objectives</b>	<p>The graduates are able to:</p> <ul style="list-style-type: none"> <li>▪ build on a thorough (natural-science based) knowledge of how society uses and produces energy and materials and of the consequences for people, the economy, the environment, and future generations,</li> <li>▪ approach issues of energy and materials from an interdisciplinary angle, bringing in elements of natural science, social science, and economics,</li> <li>▪ conduct independent research on energy and material systems at various scales (micro, regional, national, and international),</li> <li>▪ design strategies to make energy and material systems sustainable and to place those solutions in a natural-science and societal context.</li> </ul>
<b>Courses</b>	<ul style="list-style-type: none"> <li>▪ Energy Modelling and Economics (7,5 ECTS)</li> <li>▪ Research Methods E&amp;R (7,5 ECTS)</li> <li>▪ Research Project E&amp;R (15 ECTS)</li> </ul>
<b>Teaching Methods</b>	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Tutorials</li> <li>▪ Projects</li> <li>▪ Practical training</li> <li>▪ Simulation games</li> <li>▪ Assignments</li> </ul>
<b>Modes of Assessment</b>	<ul style="list-style-type: none"> <li>▪ Written and oral exams</li> <li>▪ Individual and group assignments</li> <li>▪ Papers and reports</li> <li>▪ Presentations</li> <li>▪ Process evaluation</li> </ul>

<b>Presumed prior knowledge</b>	A bachelor degree in Environmental Sciences, Chemistry, Physics of Earth Sciences proving: <ul style="list-style-type: none"><li>▪ Sufficient and relevant knowledge, insights and skills in the field of science</li><li>▪ general insights in the problems of sustainable development</li><li>▪ some basic insights into energy streams in society and energy problems</li></ul>
<b>Offered in (winter/summer semester)</b>	Semester 2

<b>Title of Track</b>	<b>Environmental evaluation and management (30 ECTS)</b>
<b>University offering the track</b>	<b>Ca' Foscari University Venice / Italy</b>
<b>Learning Objectives</b>	<p>The main learning objectives are:</p> <ul style="list-style-type: none"> <li>○ To develop the ability of thinking at a system scale, by analysing and evaluating the relationships between economics tools, technologies, planning and legal instruments in the improvement of environmental quality.</li> <li>○ On the basis of the above objective, to contribute to the definition of appropriate policies, actions, and initiatives to improve the environmental quality.</li> <li>○ To develop the capability to operate in the market of environmental services.</li> </ul>
<b>Courses</b>	<p>Valutazione e gestione della sostenibilità ambientale I: concetti e metodi (6 ECTS)</p> <p>Valutazione e gestione della sostenibilità ambientale II: strumenti (6 ECTS)</p> <p>Metodi quantitativi per la valutazione ambientale I: modelli statistici (6 ECTS)</p> <p>Metodi quantitativi per la valutazione ambientale II: modelli dinamici (6 ECTS)</p> <p>Analisi economica del territorio e valutazione ambientale (12 ECTS)</p> <p>Ecotossicologia (6 ECTS)</p>
<b>Teaching Methods</b>	<p>Lectures.</p> <p>Tutorials.</p> <p>Computer hands-on session.</p> <p>Group exercise, performed in small groups.</p>
<b>Modes of Assessment</b>	Individual and group assessments during the course or written/oral exam at the end of the course
<b>Presumed prior knowledge</b>	Basic elements of calculus, chemistry, geology and ecology
<b>Offered in (winter/summer semester)</b>	5 course of 7 in the period February / June. To be defined yet.

<b>Title of Track</b>	<b>Environmental Policy &amp; Management (30 ECTS)</b>
<b>University offering the track</b>	<b>Utrecht University / The Netherlands</b>
<b>Short description</b>	<p>Environmental Policy &amp; Management is a track for social-science graduates. The courses are focused on the scientific analysis of the complex changes accompanying the pursuit of a sustainable society. The curriculum is rooted in the social sciences, combining knowledge from policy science, sociology, law, urban planning, human geography, and institutional economics. Particular attention is devoted to governance for sustainable development. ‘Governance’ means the ability to create organizational, procedural, and moral frameworks that allow the parties involved (the state, business, and civil society) to move forward on issues of sustainability. Students are trained to analyze such processes of change by applying relevant social-science theories. The track is closely linked to ongoing research at the Copernicus Institute. The central research question is how (new) societal arrangements influence social activities, processes, and structures that could make sustainable development more feasible. Governance refers to a specific process or style of governing in which the point of departure is a plurality of governing actors and a blurring of the lines that separate the public from the private actors. Governing refers to regulatory styles of steering; governance, in contrast, refers to steering in new social arrangements. Sustainable development implies a need for the organization of cooperative learning processes among the representatives of the state, the market, and civil society. Through deliberations, organized discourse, and the introduction of new arrangements for collaboration, the participants opt to define a common ground for action and eventually share their specific problem-solving capacities.</p>
<b>Learning Objectives</b>	<p>The graduates are able to:</p> <ul style="list-style-type: none"> <li>▪ analyse and explain sustainability issues in the context of social, economic, cultural, and political processes – issues such as the internationalization of politics and the economy, the changing relations between the state, the market, and civil society, the unequal distribution of wealth, and the individualization of social life,</li> <li>▪ integrate insights and approaches drawn from different social science disciplines in the framework of an analysis of sustainability issues and to design policy aimed at sustainable development,</li> <li>▪ analyse the policy that has been enforced thus far on sustainable development (that is, analyse policy in the form of deliberate intervention strategies that are targeted towards social change at the micro, meso, and macro level), and to evaluate that policy in terms of various criteria derived from environmental and policy science (such as efficiency, effectiveness, equity, contingency, legitimacy),</li> <li>▪ design new strategies for intervention to promote sustainable development, and to supervise and evaluate them; in particular, to be familiar with methods of interactive policy implementation,</li> <li>▪ develop and carry out scientific research in an independent and creative way with respect to the societal aspects of sustainability issues and the solutions that can be reached through policy.</li> </ul>

<b>Courses</b>	<ul style="list-style-type: none"> <li>▪ Policy Analysis for Sustainable Development(7,5 ECTS)</li> <li>▪ International Environmental Governance (7,5 ECTS)</li> <li>▪ Interactive Planning of Sustainability (7,5 ECTS)</li> <li>▪ Research Methodology Planning and Management (7,5 ECTS)</li> </ul>
<b>Teaching Methods</b>	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Tutorials</li> <li>▪ Practical training</li> <li>▪ Simulation games</li> <li>▪ Assignments</li> </ul>
<b>Modes of Assessment</b>	<ul style="list-style-type: none"> <li>▪ Written and oral exams</li> <li>▪ Individual and group assignments</li> <li>▪ Papers and reports</li> <li>▪ Presentations</li> <li>▪ Process evaluation</li> </ul>
<b>Presumed prior knowledge</b>	<p>A bachelor degree in Environmental Studies, Environmental Sciences, Innovation Management, Human Geography and Planning, Sociology, Public Administration, Law or Economics proving:</p> <ul style="list-style-type: none"> <li>▪ sufficient and relevant knowledge, insights and skills in the field of social sciences and</li> <li>▪ general insights in the problems of sustainable development</li> </ul>
<b>Offered in (winter/summer semester)</b>	Semester 2

<b>Title of Track</b>	<b>Environmental Technology (30 ECTS)</b>
<b>University offering the track</b>	<b>Leipzig University / Germany</b>
<b>Learning Objectives</b>	<p>The track aims to develop a fundamental understanding of the end-of-pipe and cleaner production technologies for pollution prevention and reduction and of the municipal environmental infrastructure. First, primary environmental pollutants, their dispersion and effect mechanisms in the environment as well as the basics in sampling and analyses will be outlined. Second, the technologies for air pollution abatement and safety engineering are presented. Subsequently, attention is given to industrial applications for water and wastewater treatment as well as waste recycling and treatment. The last part of the track concentrates on the provision and operation of municipal environmental infrastructures including water networks, sewage systems and energy production and supply networks. Besides the technical aspects legal requirements applying to these supply and treatment technologies are presented. The theoretical knowledge provided in the lectures will be deepened by means of application oriented seminars and excursions.</p> <p>After the completion of this track the students will possess competences and skills to operate and evaluate technological and infrastructural solutions for environmental protection at the firm and municipal levels.</p>
<b>Courses</b>	<ol style="list-style-type: none"> <li>1. Air pollution technology and safety engineering (10 ECTS)</li> <li>2. Water, wastewater and waste treatment (10 ECTS)</li> <li>3. Municipal infrastructure: provision and operation (10 ECTS)</li> </ol>
<b>Teaching Methods</b>	<p>Methods used in each course comprise:</p> <ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Excursions</li> <li>▪ Seminar in the form of group or individual assignment</li> <li>▪ Self-study</li> </ul>
<b>Modes of Assessment</b>	<p>In each course the performance of students will be assessed based on:</p> <ul style="list-style-type: none"> <li>▪ A seminar paper (individually or in a team)</li> <li>▪ A presentation of the seminar results (individually or in a team)</li> <li>▪ An exam covering the whole content of each course (written or oral)</li> </ul>
<b>Presumed prior knowledge</b>	<p>Students that take this track should possess basic knowledge in and understanding of technology and environmental sciences including chemistry and physics as well as of the concept of sustainable development.</p>
<b>Offered in (winter/summer semester)</b>	Each summer semester

<b>Title of Track</b>	<b>Integrated Coastal Zone Management (30 ECTS)</b>
<b>University offering the track</b>	<b>Ca' Foscari University Venice / Italy</b>
<b>Learning Objectives</b>	<p>The main learning objectives are:</p> <p>To develop the ability of thinking at a system scale;</p> <p>To achieve a clear understanding of the key physical, chemical and biological processes which govern the environmental dynamics in coastal zones.</p> <p>To gain a comprehensive view of the impacts of human activities on coastal ecosystems, in order to be able to frame management problems within appropriate conceptual models, such as DPSIR (Drivers –Pressure-State-Impact-Responses).</p> <p>To identify key issues, such as the main conflicts among users of the coastal zone, and select appropriate policies for the sustainable development of the main economic activities.</p>
<b>Courses</b>	<p>Integrated Coastal Zone Management: introduction and social and economical issues (12 ECTS )</p> <p>Coastal geomorphology (6 ECTS)</p> <p>Marine chemistry and pollution control (6 ECTS)</p> <p>Sustainable use of biotic resources (6 ECTS)</p>
<b>Teaching Methods</b>	<p>Lectures.</p> <p>Tutorials.</p> <p>Computer hands-on session.</p> <p>Group exercise, performed in small groups.</p>
<b>Modes of Assessment</b>	Individual and group assessments during the course or written/oral exam at the end of the course
<b>Presumed prior knowledge</b>	Basic elements of calculus, chemistry, geology and ecology
<b>Offered in (winter/summer semester)</b>	February/ June

<b>Title of Track</b>	<b>International &amp; European Environmental Law (30 ECTS)</b>
<b>University offering the track</b>	<b>Utrecht University / The Netherlands</b>
<b>Short description</b>	The track International and European Environmental Law integrates a legal and social science approach on the management of a sustainable development. Students will learn to critically analyse and evaluate the, sometimes limited, usefulness of international and European law as steering-instrument. They will also learn about how the international, European and national legal systems interrelate. They will do this from a multidisciplinary perspective, combining approaches from law, policy studies and ecology. You will explore to what extent law serves, but sometimes even hinders environmental policy. Particular attention will be paid to the legal instruments on all levels protecting the world against the results of climate change. The track is for environmental science graduates interested in environmental legal issues and all law graduates interested in the environment.
<b>Learning Objectives</b>	The graduates are able to: <ul style="list-style-type: none"> <li>▪ analyse and explicitly state the possibilities and restrictions of the diverse international and European legal instruments related to sustainability issues;</li> <li>▪ explain the relationship between legal and other social instruments and integrate legal and other social instruments into an analytical framework for a policy focused on sustainable development;</li> <li>▪ develop strategies for contributing international and European legal instruments to solve certain environmental problems, also in relation to other social instruments;</li> <li>▪ design and carry out creative and innovative research on subjects</li> </ul>
<b>Courses</b>	<ul style="list-style-type: none"> <li>▪ European Environmental Law (7,5 ECTS)</li> <li>▪ International Environmental Governance (7,5 ECTS)</li> <li>▪ International Environmental Law (7,5 ECTS)</li> <li>▪ Climate Change and Law (7,5 ECTS)</li> </ul>
<b>Teaching Methods</b>	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Seminars</li> <li>▪ Tutorials</li> <li>▪ Practical training</li> <li>▪ Simulation games</li> <li>▪ Assignments</li> </ul>
<b>Modes of Assessment</b>	<ul style="list-style-type: none"> <li>▪ Written and oral exams</li> <li>▪ Individual and group assignments</li> <li>▪ Papers and reports</li> <li>▪ Presentations</li> <li>▪ Process evaluation</li> </ul>
<b>Presumed prior knowledge</b>	A bachelor degree in Law, Public Administration, Sociology, Planning or Environmental Studies proving: <ul style="list-style-type: none"> <li>▪ sufficient and relevant knowledge, insights and skills in the field of social sciences and law</li> <li>▪ general insights in the problems of sustainable development</li> </ul>
<b>Offered in (winter/summer semester)</b>	Semester 2

<b>Title of Track</b>	<b>Land Use, Environment &amp; Biodiversity (30 ECTS)</b>
<b>University offering the track</b>	<b>Utrecht University / The Netherlands</b>
<b>Short description</b>	<p>The track Land Use, Environment &amp; Biodiversity is a multi-disciplinary natural-science program concerned with the interaction between land use and the quality of the physical and biotic environment. The multi-disciplinary character shows up as the integration of knowledge from the fields of physical geography, hydrology, soil science, landscape ecology, mathematics, physics, and chemistry. At the start of the program, students will analyze the primary drivers of changes in land use. They will analyze how such change affects physical/chemical processes in the soil, water, and atmosphere. Thus, they will study the consequences for environmental processes such as climate change, environmental pollution, and fragmentation. They will gain insight in how these environmental processes affect the quality and functioning of ecosystems and biodiversity. They will also consider interventions designed to counteract these adverse effects. In this phase, students are trained to analyze the interrelationships between land use, environment, and biodiversity. They are taught to formulate research questions and hypotheses on the basis of scientific literature. They also practice scientific communication skills by making an oral report, presenting a poster, and serving as a discussant. Students will also learn to develop and apply mathematical and simulation models. Modeling has become one of the most important tools for analyzing environmental and ecosystem processes, for determining the causes of deterioration, and for simulating the effects of intervention strategies. In preparation for their master's thesis, the students will also take a course in which a full research cycle is addressed on a specific subject. This will include the analysis of a problem, the statement of a research problematic and derivation of hypotheses, the acquisition and analysis of data, and the formulation of conclusions, culminating in a discussion of the findings.</p>
<b>Learning Objectives</b>	<p><i>The graduates:</i></p> <ul style="list-style-type: none"> <li>▪ have insight in processes determining the interrelations between land use, environment, and biodiversity,</li> <li>▪ have insight in recent theories and developments in scientific research concerning land use, environment, and biodiversity,</li> <li>▪ are familiar with a number of important research methods, including methods to investigate effects of land use on environment and biodiversity, to model processes in ecosystems, and to evaluate the sustainability of scenarios for future land use,</li> <li>▪ are able to identify scientific problems related to developments in society and to translate them into a research design,</li> <li>▪ are able to conduct research in an independent and creative manner on a sustainable relation between land use and the quality of the environment and ecosystems.</li> </ul>
<b>Courses</b>	<ul style="list-style-type: none"> <li>▪ Ecosystem Modelling (7,5 ECTS)</li> <li>▪ Environmental Geochemistry (7,5 ECTS) or Coastal and River Modelling (7,5 ECTS) or elective (7,5 ECTS)</li> <li>▪ Research Project LEB (15 ECTS)</li> </ul>

<b>Teaching Methods</b>	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Tutorials</li> <li>▪ Practical training</li> <li>▪ Simulation games</li> <li>▪ Assignments</li> </ul>
<b>Modes of Assessment</b>	<ul style="list-style-type: none"> <li>▪ Written and oral exams</li> <li>▪ Individual and group assignments</li> <li>▪ Papers and reports</li> <li>▪ Presentations</li> <li>▪ Co-references</li> <li>▪ Process evaluation</li> </ul>
<b>Presumed prior knowledge</b>	<p>A bachelor degree in Environmental Sciences, Chemistry, Biology, Physics, Innovation Management or Earth Sciences proving:</p> <ul style="list-style-type: none"> <li>▪ sufficient and relevant knowledge, insights and skills in the field of science and</li> <li>▪ general insights in the problems of sustainable development</li> </ul>
<b>Offered in (winter/summer semester)</b>	Semester 2

<b>Title of Track</b>	<b>Marine and Coastal Environment (30 ECTS)</b>
<b>University offering the track</b>	<b>Ca' Foscari University Venice / Italy</b>
<b>Learning Objectives</b>	<p>The main learning objectives are:</p> <ul style="list-style-type: none"> <li>○ To develop the ability of thinking at a system scale;</li> <li>○ To achieve a clear understanding of the key physical, ecological, chemical and biological processes which govern the environmental dynamics in coastal and marine areas.</li> <li>○ To gain a comprehensive view of the impacts of human activities on coastal and marine ecosystems, in order to develop appropriate management policies and tools.</li> <li>○ To evaluate and assess the different approaches to the sustainable management of coastal and marine resources</li> </ul>
<b>Courses</b>	<p>Biologia marina (6 ECTS)          Chimica del Mare (6 ECTS)          ICZM: aspetti socio-economici (6 ECTS)          ICZM: gestione risorse biotiche (6 ECTS)          Geomorfologia e sedimentologia dei sistemi costieri (6 ECTS)          Ecologia degli ambienti di transizione (6 ECTS)          Ecotossicologia (6 ECTS)</p>
<b>Teaching Methods</b>	<p>Lectures.          Tutorials.          Computer hands-on session.          Group exercise, performed in small groups.</p>
<b>Modes of Assessment</b>	<p>Individual and group assessments during the course or written/oral exam at the end of the course</p>
<b>Presumed prior knowledge</b>	<p>Basic elements of calculus, chemistry, geology and ecology</p>
<b>Offered in (winter/summer semester)</b>	<p>5 course of 7 in the period February / June. To be defined yet</p>

<b>Title of Track</b>	<b>Renewable Resources (30 ECTS)</b>
<b>University offering the track</b>	<b>University of Graz / Austria</b>
<b>Learning Objectives</b>	<p>The module 'Renewable Resources' educates and qualifies students</p> <ul style="list-style-type: none"> <li>• in understanding as well variety and environmental background as genuine performance of renewable resources on molecular and technological level</li> <li>• in understanding socio-economical aspects, impacts and consequences correlated with renewable resources</li> <li>• in ecological footprint models and correlated sustainability concepts</li> <li>• by getting in touch with pilot-type and industrial technology for renewable resources</li> <li>• by obtaining laboratory-scale hands-on-experience working with selected renewable resources</li> <li>• as going-to-be experts in research oriented cooperation with local KFUG-research groups working on renewable resource topics.</li> </ul>
<b>Courses</b>	<ol style="list-style-type: none"> <li>1. Renewable Resources - Chemistry and Technology I - Basics and genuine qualities of Renewable Resources (2 ECTS, 1.33 ch)</li> <li>2. Renewable Resources - Chemistry and Technology 2 - Technological Aspects, of Renewable Resources (2 ECTS, 1.33 ch)</li> <li>3. Renewable Resources (Molecular characteristics and technological material qualities, influence of environmental and ecological conditions, optional processing approaches (2 ECTS, 2 ch)</li> <li>4. Lab Course Renewable Resources - Practical approach to selected renewable resources: - proteins / biocatalysis - oils / fats / lipids - polysaccharides - functional compounds / natural dyes (5 ECTS, 5 ch)</li> <li>5. Seminary Renewable Resources - Preparation and supporting activities to Lab Course Renewabel Resources (1 ECTS, 1 ch)</li> <li>6. Liquid Biofuels (1 ECTS, 1 ch)</li> <li>7. Biobased Compounds (1 ECTS, 0.66 ch)</li> <li>8. Polysaccharides (1 ECTS, 1 ch)</li> <li>9. Biotechnology (3 ECTS, 2 ch)</li> <li>10. Energy and Sustainable Development (4 ECTS, 2 ch)</li> <li>11. Project Laboratory Renewable Resources - participating in laboratory works and research activities (8 ECTS, 8 ch)</li> </ol>
<b>Teaching Methods</b>	classes, seminaries, laboratory courses, excursions; discussion in small groups;
<b>Modes of Assessment</b>	<p><b>lectures:</b> written / oral examination</p> <p><b>seminaries:</b> quality of individual contribution and tasks</p> <p><b>lab course:</b> quality of individual performance</p>
<b>Presumed prior knowledge</b>	Bachelor in a Natural Science or Technological Discipline; evident basic education in chemistry;
<b>Offered in (winter/summer semester)</b>	not yet fixed, however within 1-3 semester; most lab courses will be offered as well in winter as in summer;

ch – contact hour

<b>Title of Track</b>	<b>Resources Management (30 ECTS)</b>
<b>University offering the track</b>	<b>Leipzig University / Germany</b>
<b>Learning Objectives</b>	<p>The track aims to develop a comprehensive understanding of the management of natural resources including water, energy and soil and land area. First, the fundamental objectives and principles of resources management will be elaborated. Second, different legal, policy and economic instruments at the local, national and European levels for the management of natural resources will be outlined. Next, characteristic resource conflicts will be highlighted and methods and procedures for their evaluation and prognosis presented. Special attention is given to public participation. Subsequently, the appropriate decision making criteria for conflict situations will be discussed. The implementation of the theories and concepts presented in the lectures will be demonstrated by means of current best practices and the students will apply the gained knowledge in tutorials and practical seminars.</p> <p>After the completion of this track the students will possess competences and skills to prepare and bring about complex decisions on the management of natural resources and to communicate them.</p>
<b>Courses</b>	<ol style="list-style-type: none"> <li>1. Water resources management (10 ECTS)</li> <li>2. Energy management (10 ECTS)</li> <li>3. Soil and land area management (7 ECTS)</li> <li>4. Environmental economics (3 ECTS)</li> </ol>
<b>Teaching Methods</b>	<ul style="list-style-type: none"> <li>▪ Courses 1 and 2: lectures, tutorials and a seminar in the form of a group or individual assignment and self-study</li> <li>▪ Course 3: lectures and a seminar in the form of a group or individual assignment and self-study</li> <li>▪ Course 4: lectures and self-study</li> </ul>
<b>Modes of Assessment</b>	<p>The performance of students in courses 1, 2 and 3 will be assessed based on:</p> <ul style="list-style-type: none"> <li>▪ A seminar paper (individually or in a team)</li> <li>▪ A presentation of the seminar results (individually or in a team)</li> <li>▪ An exam covering the whole content of each course (written or oral)</li> </ul> <p>The performance of students in course 4 will be assessed based on:</p> <ul style="list-style-type: none"> <li>▪ An exam covering the whole content of each course (written or oral)</li> </ul>
<b>Presumed prior knowledge</b>	Students that take this track should possess basic knowledge in and understanding of the theories, approaches and methods of microeconomics, environmental sciences as well as of the concept of sustainable development.
<b>Offered in (winter/summer semester)</b>	Each summer semester

<b>Title of Track</b>	<b>Sustainability: The Social Dimension (30 ECTS)</b>
<b>University offering the track</b>	<b>University of Basel / Switzerland</b>
<b>Learning Objectives</b>	<p>Students</p> <ul style="list-style-type: none"> <li>◆ know social and societal driving forces for (un)sustainable development and conflicts arising from these;</li> <li>◆ are familiar with key concepts of the societies' structurization and are able to apply them to options for action at the disposal of individual and institutional agents;</li> <li>◆ know how to apply qualitative methods of analysing sustainability issues, in particular in the case of conducting evaluations and performing agent- and scenario analyses.</li> </ul>
<b>Courses</b>	<ol style="list-style-type: none"> <li>1. Sustainability assessment: Indicator Systems (3 or 8 ECTS)</li> <li>2. Qualitative system and scenario analysis (3 or 8 ECTS)</li> <li>3. Environmental ethics and intergenerational justice (3 or 8 ECTS)</li> <li>4. The sustainability discourse in society (3 or 8 ECTS)</li> <li>5. Actor theories (3 or 8 ECTS)</li> <li>6. Social Theories (3 or 8 ECTS)</li> <li>7. International resource conflicts (3 or 8 ECTS)</li> <li>8. Research colloquium (1 ECTS)</li> </ol>
<b>Teaching Methods</b>	Most courses offered are seminars, requiring students' active participation (presentations, case studies, discussions).
<b>Modes of Assessment</b>	<p>Attending a seminar with 3 ECTS: oral presentation and written essay (15'000 signs).</p> <p>Attending a seminar with 8 ECTS: oral presentation with extended abstract and seminar paper (45-50'000 signs).</p> <p>Attending a colloquium: oral presentation.</p>
<b>Presumed prior knowledge</b>	<p>At least 20 ECTS in theories and methods of social sciences (sociology, political sciences, anthropology, etc.).</p> <p>Passive German language skills ("understanding") are recommended.</p>
<b>Offered in (winter/summer semester)</b>	<p>Each spring semester</p> <p>The courses offered may vary from one spring semester to another. Additional courses may be attended upon request and availability. Students are expected to write 3 seminar papers (hence to choose at least three courses with 8 ECTS out of seven).</p>

<b>Title of Track</b>	<b>Sustainable Business Management (30 ECTS)</b>
<b>University offering the track</b>	<b>University of Graz / Austria</b>
<b>Learning Objectives</b>	<p>After having taken this module, students will</p> <ul style="list-style-type: none"> <li>- possess in depth knowledge in sustainable business management, with focus on environmental management systems,</li> <li>- gain an understanding of complex relations between economic and ecological aspects of management,</li> <li>- be able to develop and implement sustainability and environmental programmes in organizations</li> <li>- be able to critically analyse and reflect different approaches and concepts within this field</li> <li>- be able to apply their competences in team work and project oriented tasks, also within international settings</li> </ul>
<b>Courses</b>	<ol style="list-style-type: none"> <li>1. Sustainability Entrepreneurship (4 ECTS, 2 ch)</li> <li>2. Integrated Management Systems (4 ECTS, 2 ch)</li> <li>3. Sustainable Product Development (4 ECTS, 2 ch)</li> <li>4. Eco-Controlling (4 ECTS, 2 ch)</li> <li>5. Energy and Sustainable Development (4 ECTS, 2 ch)</li> <li>6. Environmental-economic Practical Exercise (6 ECTS, 4 ch)</li> <li>7. Seminar Sustainability and Environm. Mgt. (4 ECTS, 2 ch)</li> </ol>
<b>Teaching Methods</b>	Lecture, discussions, student presentations, practical exercises, individual assignments, and group work
<b>Modes of Assessment</b>	In courses 1 to 5 there will be individual and/or group assignments as well as exams that cover the whole content of the course. In the environmental-economic practical exercise, group papers and presentations will build the main basis for assessment, individual assignments and small exams might be added. In the seminar, an individual paper on a given research question and its presentation will be assessed.
<b>Presumed prior knowledge</b>	Students that take this track should possess basic understanding of the approaches, methods and tools of business management, especially in the fields of controlling, costing, profitability analysis, etc., as well as of the concept of sustainable development. This presumed prior knowledge can be proven by a bachelor degree in business management or similar, or by adequate courses and/or practical work experience.
<b>Offered in (winter/summer semester)</b>	each summer semester

ch – contact hour

<b>Title of Track</b>	<b>Sustainable Development Science and Technology (30 ECTS)</b>
<b>University offering the track</b>	<b>Hiroshima University, Japan</b>
<b>Learning Objectives</b>	<p>This module gives students international cooperation and sustainable development studies in the fields of</p> <ul style="list-style-type: none"> <li>• Ecosystem Science,</li> <li>• Environment Monitoring,</li> <li>• Transportation &amp; Urban Engineering,</li> <li>• Marine Engineering,</li> <li>• Regional Environment Simulator and Environmental and Resource Economics</li> </ul>
<b>Courses</b>	<ol style="list-style-type: none"> <li>1. Environmental Management Technology (2=6 ECTS)</li> <li>2. Development Technology (4=12 ECTS )</li> <li>3. Environment Simulator (2=6 ECTS)</li> <li>4. Management and Conservation of Ecosystems (2=6 ECTS)</li> <li>5. Marine Hydrodynamics (2=6 ECTS)</li> <li>6. Transportation Planning (2=6 ECTS)</li> <li>7. Transportation Engineering (2=6 ECTS)</li> <li>8. Global Environmental Policies (2=6 ECTS)</li> </ol> <ul style="list-style-type: none"> <li>• All courses are optional</li> <li>• 1 credit at Hiroshima University is equivalent to 3 ECTS.</li> </ul>
<b>Teaching Methods</b>	<ul style="list-style-type: none"> <li>• 2 credits course(equivalent to 6 ECTS) consists of 15 classes (90min. each, including exercise)</li> <li>• All classes are provided in English</li> </ul>
<b>Modes of Assessment</b>	<p>Evaluation will be done by reports and/or examinations rating as;</p> <p>A(100-80%), B(79-70 %), C(69-60%), D(below 59%; failure)</p>
<b>Presumed prior knowledge</b>	<p>Students who take this track are recommended to have fundamental knowledge of</p> <ul style="list-style-type: none"> <li>• Mathematics (Calculus, Statistics)</li> <li>• Sciences (Biology, Chemistry, Ecology, Physics, Geology)</li> <li>• Economics (Micro and Macro)</li> </ul>
<b>Offered in (winter/summer semester)</b>	summer semester

<b>Title of Track</b>	<b>Sustainable Urban and Regional Development (30 ECTS)</b>
<b>University offering the track</b>	<b>University of Graz / Austria</b>
<b>Learning Objectives</b>	<p>After having taken this track, students will</p> <ul style="list-style-type: none"> <li>- have depth knowledge in “Sustainable Urban and Regional Development” ,</li> <li>- possess an understanding of the coherences of the different factors which influence the processes of Regional Development,</li> <li>- gain basic and specific knowledge of Technical English in content and terminology of Human Geography in general and Sustainable Urban and Regional Development in specific,</li> <li>- succeed in self-contained scientific elaborations of defined themes in the field of Regional Development,</li> <li>- gain an introduction into political-geographical conflicts and a description of spatial-based local and regional conflicts as well as initiatives from the political-geographical point of view with a discussion of theories and</li> <li>- in practical lectures (seminars and practical courses) the students will learn how to act in a real geographical field of development processes together with all involved actors what leads to a higher potential of personal social competence.</li> </ul>
<b>Courses</b>	<ol style="list-style-type: none"> <li>1. Selected Topics of Spatial Development and Regional Planning. (10 ECTS, 5 ch)</li> <li>2. Technical English in Human Geography. (4 ECTS, 2 ch)</li> <li>3. Sustainable Tourism. (4 ECTS, 2 ch)</li> <li>4. Selected topics of Spatial Areal Management (4 ECTS, 2 ch)</li> <li>5. Regional Development Seminars (8 ECTS, 4 ch)</li> </ol>
<b>Teaching Methods</b>	<p>In the lectures 1 to 5 there will be offered a comprehensive content in regard to sustainable urban and regional development. The know-how transfers results from lecturing. Discussions and questions during the lecture are possible and even desired. In courses 6 to 7 the interactive component (discussion, presentation) is important.</p>
<b>Modes of Assessment</b>	<p>In courses 1 to 5 there will be an oral individual or a written group exam.</p> <p>In courses 6 to 7 a written research paper, an executive summary, the oral presentation (45 min.) and the quality of the scientific discussion will be assessed.</p>
<b>Presumed prior knowledge</b>	<p>Students that choose this track should possess some basic understanding of the approaches, methods and tools of “Sustainable Urban and Regional Development”.</p>
<b>Offered in (winter/summer semester)</b>	SS 09 and following

ch – contact hour

<b>Title of Track</b>	<b>Technology and control of the environment (30 ECTS)</b>
<b>University offering the track</b>	<b>Ca' Foscari University Venice / Italy</b>
<b>Learning Objectives</b>	<p>The main learning objectives are:</p> <ul style="list-style-type: none"> <li>○ To develop the ability of thinking at environmental problems in terms of monitoring systems and technological approaches.</li> <li>○ To develop strong technical capabilities in monitoring systems and in technological design.</li> <li>○ To develop the capability to operate in the market of environmental technologies and services.</li> </ul>
<b>Courses</b>	<p>Metodologie chimiche-analitiche per il controllo ambientale I (6 ECTS)            Chemiometria II (6 ECTS)            Processi trattamento rifiuti, reflui ed emissioni gassose I (6 ECTS)            Impianti chimici e biochimici I (6 ECTS)            Ecologia microbica e biotecnologie ambientali I (6 ECTS)            Ecologia microbica e biotecnologie ambientali II (6 ECTS)            Chimica dell'atmosfera (6 ECTS)</p>
<b>Teaching Methods</b>	<p>Lectures.            Tutorials.            Computer hands-on session.            Group exercise, performed in small groups.</p>
<b>Modes of Assessment</b>	<p>Individual and group assessments during the course or written/oral exam at the end of the course</p>
<b>Presumed prior knowledge</b>	<p>Basic elements of calculus, chemistry, geology and ecology</p>
<b>Offered in (winter/summer semester)</b>	<p>5 course of 7 in the period February / June. To be defined yet.</p>

<b>Title of Track</b>	<b>Terrestrial environment (30 ECTS)</b>
<b>University offering the track</b>	<b>Ca' Foscari University Venice / Italy</b>
<b>Learning Objectives</b>	<p>The main learning objectives are:</p> <ul style="list-style-type: none"> <li>○ To develop the ability of thinking at a system scale, by analysing and evaluating the relationships between biosphere, geosphere, hydrosphere, and atmosphere.</li> <li>○ To achieve a clear understanding of the role human societies play in the modification of terrestrial ecosystems.</li> <li>○ To develop appropriate management policies and tools.</li> <li>○ To evaluate and assess the different approaches to the sustainable management of terrestrial resources</li> </ul>
<b>Courses</b>	<p>Geobotanica e scienza della vegetazione I (6 ECTS)  Pedologia applicata ad ecologia del paesaggio I-II (6 ECTS)  Scienza del suolo (6 ECTS)  Idrogeologia e idrologia I (6 ECTS)  Ecologia delle acque dolci II (6 ECTS)  Politica dell'ambiente (6 ECTS)  Climatologia e Meteorologia (6 ECTS)</p>
<b>Teaching Methods</b>	<p>Lectures.  Tutorials.  Computer hands-on session.  Group exercise, performed in small groups.</p>
<b>Modes of Assessment</b>	<p>Individual and group assessments during the course or written/oral exam at the end of the course</p>
<b>Presumed prior knowledge</b>	<p>Basic elements of calculus, chemistry, geology and ecology</p>
<b>Offered in (winter/summer semester)</b>	<p>5 course of 7 in the period February / June. To be defined yet.</p>

<b>Title</b>	<b>Integration Module (30 ECTS)</b>
<b>University offering the module</b>	<b>University of Graz / Austria</b>
<b>Learning Objectives</b>	<p>After having taken this module, students</p> <ul style="list-style-type: none"> <li>○ are able to apply their knowledge and scientific skills in inter- and trans-disciplinary teams on complex issues,</li> <li>○ possess the according social skills, such as teamwork, conflict management, project management</li> <li>○ have obtained basic formal knowledge in fields like (Geo)Informatics, Statistics, Systems Sciences, Chemistry, etc.</li> <li>○ have broadened their competences in relevant fields of natural and social sciences, especially in those areas that they have not chosen for specialisation</li> </ul>
<b>List of courses offered under the header of “Integration Module” per university</b>	<p>Inter- and transdisciplinary case study (10 ECTS, 6 ch)  Methods for inter- and transdisciplinary problem solving (2 ECTS, 2 ch)  Training in social competences for inter- and transdisciplinary problem solving (1 ECTS, 2 ch)</p> <p>either: Qualitative Systems Sciences (2 ECTS, 2 ch)  Seminar on Qualitative Systems Sciences (3 ECTS, 2 ch)  or: Quantitative Systems Sciences (2 ECTS, 2 ch)  Seminar on Quantitative Systems Sciences (3 ECTS, 2 ch)</p> <p>free electives (12 ECTS) recommended to choose courses from specialisation tracks or systems sciences</p>
<b>Teaching Methods</b>	<p>In the interdisciplinary practical exercise: self-responsible student group works supported by teachers in order to work inter- and transdisciplinarily on a given leading question  Further, lectures, discussions, student presentations, training units, individual assignments,</p>
<b>Modes of Assessment</b>	<p>In the interdisciplinary practical exercise, the outcome of self-responsible student group works will be assessed.  Further, exams, individual papers and other individual or group assignment,</p>
<b>Presumed prior knowledge</b>	<p>Students should have finished the basic module as well as their chosen specialisation module.</p>
<b>Offered in (winter/summer semester)</b>	each winter semester

ch – contact hour

<b>Title</b>	<b>Integration Module (30 ECTS)</b>
<b>University offering the module</b>	<b>Ca' Foscari University Venice / Italy</b>
<b>Learning Objectives</b>	<p>After having taken this module, students</p> <ul style="list-style-type: none"> <li>• are able to apply their knowledge and scientific skills in inter- and trans-disciplinary teams on complex issues,</li> <li>• possess the according social skills, such as writing, debating, conflict management, teamwork, project management</li> <li>• make an integral and critical assessment of available options for sustainable development</li> <li>• possess further specialized knowledge and/or skills related to the topic</li> </ul>
<b>List of courses offered under the header of “Integration Module” per university</b>	<p>Science of complexity: physics (6 ECTS)  Environmental Management Systems and Environmental Impact Assessment II (6 ECTS)  Ecology of transitional waters (6 ECTS)  Marine biology (6 ECTS)  Inter- or transdisciplinary case study (6 ECTS)</p>
<b>Teaching Methods</b>	<p>Lectures  Tutorials  Discussions  Classes in computer laboratory  Group exercise  Practical activities</p>
<b>Modes of Assessment</b>	<p>Individual and group assessments during the course or written/oral exam at the end of the course  In the interdisciplinary practical exercise, the outcome of self-responsible student group works will be assessed.</p>
<b>Presumed prior knowledge</b>	<p>Students should have finished the basic module as well as their chosen specialisation module.</p>
<b>Offered in (winter/summer semester)</b>	<p>Semester 3  each winter semester</p>

<b>Title</b>	<b>Integration Module (30 ECTS)</b>
<b>University offering the module</b>	<b>Leipzig University / Germany</b>
<b>Learning Objectives</b>	<p>After having taken this module, students</p> <ul style="list-style-type: none"> <li>• are able to apply their knowledge and scientific skills in inter- and trans-disciplinary teams on complex issues,</li> <li>• possess the according social skills, such as writing, debating, conflict management, teamwork, project management</li> <li>• make an integral and critical assessment of available options for sustainable development</li> <li>• possess further specialized knowledge and/or skills related to the topic</li> </ul>
<b>List of courses offered under the header of “Integration” per university</b>	<p>Obligatory for all students: 1. Project management and communication skills (5 ECTS)</p> <p>Students can choose one of the following three alternatives:</p> <ul style="list-style-type: none"> <li>▪ Inter- or transdisciplinary case study on a current topic as team work (10 ECTS)</li> <li>▪ Internship (employer organized individually with the support of IIRM and has to be approved by IIRM) (10 ECTS)</li> <li>▪ Research assistance in a research project at IIRM (10 ECTS)</li> </ul>
<b>Teaching Methods</b>	<ul style="list-style-type: none"> <li>▪ Course 1: seminars</li> <li>▪ Inter- or transdisciplinary case study: a seminar, presentations and project/ research work in a group on a given topic</li> <li>▪ Internship or research assistance: independent working under professional supervision</li> </ul>
<b>Modes of Assessment</b>	<p>The performance of students in course 1 will be assessed based on:</p> <ul style="list-style-type: none"> <li>▪ A project plan and its presentation</li> </ul> <p>The performance of students in the inter- or transdisciplinary case study will be assessed based on:</p> <ul style="list-style-type: none"> <li>▪ A project report or research paper (in a team)</li> <li>▪ Presentations of the project or research results (in a team)</li> </ul> <p>The internship or research assistance completed by students will be assessed based on:</p> <ul style="list-style-type: none"> <li>▪ An internship or research report</li> <li>▪ A presentation on the completed internship or research assistance</li> </ul>
<b>Presumed prior knowledge</b>	Students that take this module should have completed the block “Basics in Sustainable Development” and their specialization track.
<b>Offered in (winter/summer semester)</b>	Semester 3 Each winter semester

<b>Title</b>	<b>Integration and Specialisation (30 ECTS)</b>
<b>University offering the module</b>	<b>Utrecht University / The Netherlands</b>
<b>Learning Objectives</b>	<p>After having taken this module, students:</p> <ul style="list-style-type: none"> <li>• Are able to apply their knowledge and scientific skills in interdisciplinary teams on complex issues</li> <li>• Possess the according social skills, such as teamwork and project management</li> <li>• Have broadened their competences in relevant fields of natural and social sciences, especially in those areas that they have not chosen for specialisation, or</li> <li>• Have finished their research proposal for the master thesis</li> </ul>
<b>Courses</b>	<ul style="list-style-type: none"> <li>• The Sustainability Outlook (7,5 ECTS)</li> <li>• One of the following courses (7,5 ECTS) <ul style="list-style-type: none"> <li>○ Project Management</li> <li>○ Development Theory</li> <li>○ Energy and Resources Policies</li> <li>○ Status of International Law and Organisation in the National Legal Order</li> <li>○ Qualitative Research Methods</li> </ul> </li> <li>• Electives (15 Ects) or master thesis (15 Ects)</li> </ul>
<b>Teaching Methods</b>	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Tutorials</li> <li>▪ Practical training</li> <li>▪ Simulation games</li> <li>▪ Assignments</li> </ul>
<b>Modes of Assessment</b>	<ul style="list-style-type: none"> <li>▪ Written and oral exams</li> <li>▪ Individual and group assignments</li> <li>▪ Papers and reports</li> <li>▪ Presentations</li> <li>▪ Process evaluation</li> </ul>
<b>Presumed prior knowledge</b>	Basics in Sustainable Development
<b>Offered in (winter/summer semester)</b>	Semester 3 Each winter semester

<b>Title</b>	<b>Master Module in Sustainable Development (30 ECTS)</b>
<b>University offering the module</b>	<b>All consortium partners: University of Graz / Austria, Ca'Foscari University Venice / Italy, Leipzig University / Germany, Utrecht University / The Netherlands</b>
<b>Learning Objectives</b>	The master's thesis is a research project in which the student will learn to conduct independent research, whereby methods are developed and/or applied to a problem related to sustainable development. The research should be relevant from both a scientific point of view (it should expand the body of scientific knowledge) and a societal point of view (it should produce knowledge that can contribute to a better understanding or the solution of a problem). Learning-by-doing is part of the project. The student is encouraged to attend conferences and seminars etc. that are relevant or related to the research work. All or part of the research work can be done as an internship. The student delivers two outputs: (a) a thesis, and (b) an oral presentation of the results of the thesis research.
<b>Master Thesis Module includes</b>	The master theses module comprises 30 ECTS. The thesis reflects the student's capacity for independent study and research and should be written in English. The thesis must include a short summary both in English and in the local language of the home institution per the respective regulations governing the partner institutions. If the respective home university allows students to enlarge their master thesis module, they need approval of the General Programme Board to enlarge the master thesis module to 45 ECTS including electives relating to the thesis.
<b>Teaching Methods</b>	The master's thesis module involves a large number of academic activities: <ul style="list-style-type: none"> <li>▪ formulating a research objective and question after surveying the literature</li> <li>▪ sorting, interpreting and synthesizing information</li> <li>▪ collecting/analyzing measurements/observations</li> <li>▪ presenting verbal/written reports on the findings.</li> </ul>
<b>Modes of Assessment</b>	The final master's thesis is assessed by at least two staff members: the supervisor and a second reader (member of staff at a partner university selected by the advisor). The judgment of any other (external) supervisors who might be involved will be taken into consideration. If the supervisors and the second reader do not reach a consensus on the final grade, or if the student contests their decision, the final assessment is brought before the General Programme Board. The GMB makes a binding decision on the final evaluation of the thesis. If a student fails, s/he has to start the master's thesis module again.
<b>Presumed prior knowledge</b>	Before starting the research students have to successfully finish the Basics in Sustainable Development (semester 1) and the specific track (semester 2).
<b>Offered in (winter/summer semester)</b>	each summer semester

## ANNEX 2: Grading systems

The international grading system is used for the assessment of the workload achieved by the students.

ECTS Grade	Definition (D)	Definition (E)	Equivalent Graz	Equivalent Leipzig	Equivalent Venice	Equivalent Utrecht	Equivalent Basel	Equivalent Hiroshima
<b>A</b>	ausgezeichnete Leistungen und nur wenige unbedeutende Fehler	outstanding performance with only minor errors	(1) sehr gut	ausgezeichnet (1,0)	30 - 28	10 – 8.5	6	A
<b>B</b>	überdurchschnittliche Leistungen, aber einige Fehler	above the average standard but with some errors	(2) gut	sehr gut (1,1-1,5)	27 - 26	8.0 – 7.5	5.5	A
<b>C</b>	insgesamt gute und solide Arbeit, jedoch mit einigen grundlegenden Fehlern	generally sound work with a number of notable errors	(3) befriedigend	gut (1,6-2,5)	25 - 24	7.0	5	B
<b>D</b>	mittelmäßig, jedoch deutliche Mängel	fair but with significant shortcomings	(4) genügend	befriedigend (2,6-3,5)	23 - 21	6.5	4.5	C
<b>E</b>	die gezeigten Leistungen entsprechen den Mindestanforderungen	performance meets the minimum criteria	(4) genügend	ausreichend (3,6-4,0)	20 - 18	6.0 – 5.5	4	No Equivalent
<b>F</b>	es sind erhebliche Verbesserungen erforderlich, nicht bestanden	considerable further work is required, failed	(5) nicht genügend	mangelhaft (4,1-)		5 - 4 - 3 - 2 - 1	<4	D

System used as absolute system according to wording used above

## Annex 3 – Quality Assurance

### 1.1. Current Quality Assurance Measures at the University of Graz

#### 1.1.1. Appointment and habilitation procedure

Appointment and habilitation procedures are formal and strictly regulated and see to it that the best candidate is found for a professorship<sup>1</sup>, which means that the teaching qualification (*venia docendi*) for a subject is only given to persons<sup>2</sup> who have the relevant high professional and didactic capabilities.<sup>3</sup>

Thus, appointment<sup>4</sup> and habilitation procedures can be regarded as “classical” quality assurance measures at universities and have been an integral part of higher education for many decades.

A by-law on this matter is in the works.

#### 1.1.2. Strategy Development Process 2000-2003, Development Plan 2005-2010

In 2000, the University of Graz started a comprehensive strategy development process<sup>5</sup> which was characterized by high transparency, openness, and the involvement of university members from all organizational levels. The targeted objectives were linked to quality criteria, not least in order to slowly make those involved acquainted with Quality Management.

Internal performance agreements were already concluded between the individual organizational units and the university management in 2002 with the goal of increasing commitment to the development plans. The main focus of these agreements was the further development of innovative areas. The initial agreements were understood as good will contracts (for trying out and above all getting acquainted with the instrument) and not as a means of control.

The strategy development process took place over a period of three years (up to 2003). The new Development Plan of the University of Graz was adopted in July 2005.<sup>6</sup> The objectives worked out from 2000 to 2003 were adapted to the current formal frameworks of the University Act 2002 (*UG 2002*) and were reprioritized in part, although they still correspond to the results of the strategy development process 2000 - 2003.

#### 1.1.3. Course evaluation

According to the statutes of the University of Graz, all required courses must be evaluated at least once every three years by participating students. The course evaluation is offered as a service to the teaching staff and is also possible on a voluntary basis. As a rule the results are analyzed and passed on to the teachers within two weeks after the survey, which makes it possible for them to already take

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<sup>1</sup> See section 98f, University Act 2002 (*UG 2002*) for more detailed information on the appointment procedure.

<sup>2</sup> Cf. *Mitteilungsblatt* (information newsletter) of the University of Graz of April 15, 2005 (= Implementation of Habilitation Procedures)

<sup>3</sup> Cf. Pellert (2005)

<sup>4</sup> Cf. for example the summary in: Schmitt, Arnhold, Rude (2004) 23-26.

<sup>5</sup> Cf. Zechlin (2002a), Zechlin (2002b), and Zechlin (2003).

<sup>6</sup> Cf. University of Graz (2005).

them into consideration during the semester. The protection of confidence is strictly observed for the results, although the Deans of Studies and Vice Rectors can take a look at the evaluation and take consequent action.

The teaching evaluation is being revised at the moment. So far the survey has been understood in the sense of a customer satisfaction analysis, but in the future a special emphasis should be placed on the learning outcomes and their relevance to the students' careers.

#### 1.1.4. Curriculum development

In 2004, the University of Graz redrafted the internal approval process for the conception of new courses on the basis of the *UG 2002*.<sup>7</sup> A peer review process can also be commissioned by the Senate as part of this approval process.<sup>8</sup>

Both the respective Dean of Studies and the Rectorate's statements on how the financial costs will be covered as well as a verification of the legal admissibility of the new curricula by the Rectorate are integral parts of quality assurance.

The University of Graz has decided not to have individual courses of study accredited because it wants to create and ensure standardized curriculum development, doesn't want to face the increasingly difficult problem of finding experts, and last, but not least, for financial reasons. As an alternative to this, the University of Graz will take part in the "Process Quality for Teaching and Studying" project carried out by ACQUIN. The plan is to achieve university-wide quality goals and to create a quality culture by developing accredited, standardized and optimized curriculum design processes.<sup>9</sup>

An important document in advance of the ACQUIN project is the working out of a *Manual for Curriculum Development of Bachelor's and Master's Programs*: Here authors from the administration together with the Deans and the Senate have summed up all the processes necessary for curriculum development in one document. A draft is currently available and it will be discussed in more detail and agreed on in an evaluation process.

#### 1.1.5. External research evaluation

According to prevailing practice, the University of Graz introduced an area-wide external peer review process for the evaluation of its research work and defined the evaluation of all the faculties as a strategic project in the development plan.<sup>10</sup> This is also a continuation of a project that began in 2001 for the evaluation of the Faculty of Natural Sciences and the Catholic-Theological Faculty. "This evaluation is part of the university's quality management system and contributes to quality and service assurance in a national and international context."<sup>11</sup>

The peers' recommendations are implemented via internal target agreements.

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<sup>7</sup> See the leaflet for the Curricular Committee at [www.uni-graz.at/senat/downloads/merkblatt/cuko\\_zeitplaene\\_050919.pdf](http://www.uni-graz.at/senat/downloads/merkblatt/cuko_zeitplaene_050919.pdf)

<sup>8</sup> Section 10 (7) Legal Regulations on University Studies at the University of Graz <http://www.uni-graz.at/zvwww/gesetze/satzung-ug02-06.html>

<sup>9</sup> <http://www.acquin.org/acquincms/index/Prozessakkreditierung>

<sup>10</sup> University of Graz (2005) 36-39.

<sup>11</sup> Section 1, paragraph 1 *Mitteilungsblatt* (information newsletter) of the University of Graz of August 4, 2004.

The basis of the research evaluation are guidelines which are oriented towards existing international standards and were developed in-house. Part of the evaluation also deals with certain research-oriented services. Joint implementation workshops serve to define research fields and objectives.

#### 1.1.6. Research documentation

The strategy for research documentation (FODOK) is to present research work in a transparent way to all those interested (a research tool for those within and without the university). It is also a source system for the (research) data for the research evaluation.

FODOK will also be integrated into the forthcoming Business Information Tool UNIGRAZ Online.

#### 1.1.7. Good academic practice

The University of Graz is committed to the principles of good academic practice so that the research work produced meets international standards. These principles commit academics to observe legal and ethical rules and norms, to document and critically examine scholarly results, to observe strict honesty, and to prevent and avoid academic misconduct, among others.<sup>12</sup>

#### 1.1.8. Internal reporting

The University of Graz establishes a comprehensive reporting system with the goal of providing key data from all the core areas of the university (research, teaching, continuing education and training, and the administration) for the different management levels. In this context, extensive data quality assurance measures have been taken for the university's own data warehouse since 2004. This and the fact that management decisions are mostly made with the aid of key data made available to those responsible, already guarantee very high data quality.

#### 1.1.9. Services/Administration

A project was carried out in the services area for the optimization of the university's service facilities from 1999 to 2000.

The innovation prize is a successful initiative. Since 2004, it has called upon students to bring problems such as the organization of the studies to light and to work out creative solutions. The best projects are awarded the prize and are then implemented.

In addition, the implementation of SAP in both the financial and personnel areas has led to the documentation of the processes and a plan to meet quality standards.

The current implementation of Campus Online at the University of Graz is just one more opportunity taken by the university to re-organize or electronically provide all kinds of processes to be able to provide better and higher-quality services in the future in the area of student administration, for example.

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<sup>12</sup> By-law "Principles for Assuring Good Academic Practice and Preventing Misconduct in the Academy". In the *Mitteilungsblatt* (information newsletter) of the University of Graz of March 24, 2004.

#### 1.1.10. Graduates and labor market analyses

Surveys and analyses of graduates are carried out as part of Strategic Project 14<sup>13</sup>. Labor market analyses and surveys will play an important part in the future, especially in the context of the development of new curricula. The use of such instruments is intended to examine the career entry and change phases of graduates more closely.

#### 1.1.11. Internal revision

The Rectorate entrusted the Department of Service and Quality Management with the establishment of the Internal Revision (IR) at the University of Graz, which began in 2005. Its object is the entire range of the university's activities.

Internal Revision, as in most companies, plays an advisory role at the University of Graz. It always keeps quality standards in mind that will have to be observed in the future as part of its investigation of fraudulent actions or during routine examinations of drafts of alternative models.

#### 1.1.12. Taking part in university rankings

Another quality assurance measure is the University of Graz' regular participation in different university rankings (e.g. the CHE university ranking).

The University of Graz is not afraid of being compared to other Austrian and international universities and is also willing to discuss the results in detail and to take appropriate steps if necessary.

**KFU (ed.) (2005):** Karl-Franzens-Universität Graz Rahmenstrategie Entwicklungsplan 2005 – 2010

**Pellert, Ada (2004):** Leitfragen Berufungen anlässlich der internationalen Anhörung am 6. und 7. Mai 2004, Köln

**Schmitt, Tassilo; Arnhold, Nina; Rüde, Magnus (2004):** Berufungsverfahren im Internationalen Vergleich. (=CHE (ed.) Arbeitspapier Nr.53)

**Zechlin, Lothar (ed.) (2002a):** Kursbuch Strategische Entwicklung der Universität Graz Band 1: Ziele und Prozesse; Graz

**Zechlin, Lothar (ed.) (2002b):** Kursbuch Strategische Entwicklung der Universität Graz Band 2: Leistungen und Projekte; Graz

**Zechlin, Lothar (ed.) (2003):** Kursbuch Strategische Entwicklung der Universität Graz Entwicklungsplanungen 2003/2004; Graz

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<sup>13</sup> University of Graz (2005) 64-66.



## **Università Ca' Foscari di Venezia**

### **Overview of the Quality Assurance System**

#### **Evaluation policies**

Ca' Foscari has been one of the first Italian universities to institute an internal evaluation unit (Nucleo di Valutazione di Ateneo). Recently, there has been an effort to better integrate the evaluation activities with the decision making process. This has implied attempts at interacting more with the governing bodies of Ca' Foscari, especially with the Academic Senate, while trying to preserve the autonomy of the evaluation activity.

Since 2006, one of the vice-rectors is also appointed to take care of the University Quality System.

#### **Appointment procedures**

Appointment procedures are formal and strictly regulated by the national law. Every call for professorship positions is open to the international community. Appointment committees are elected for each position within the national scientific community of the same area, and only one out of five members of the committee may belong to the University offering the position. After three years, a different committee, selected by the National University Council (CUN), evaluates the scientific and didactic activities, and makes the position a permanent one. This appointment procedure can be regarded as a "classical" quality assurance method.

#### **Participation to National Quality Assurance Projects**

In the academic years 2001/2002/2003, Ca' Foscari participated to the national project CampusOne, specifically addressed to degree courses in order to sustain and disseminate technological educational and innovation. The main objectives of the project were:

- Didactic management, as a set of functions and services, which working alongside the university's own resources, facilitate relations with students, the verification of the effectiveness of the teaching, and dialogue with bodies outside the university and within the labour market
- Quality evaluation, based on a control methodology that in analyzing and evaluating the quality of the teaching of the curriculum courses, adopts the standpoint of attributing credits to the various study curricula.
- Establishing links between academic studies and the professions through internships, language and IT courses, as well as through regular on-going relations with businesses, economic agents and local authorities in order to bring the university into closer contact with society, the requirements of the labour market and corporate culture
- Communication, using activities and instruments suitable for doing justice to the new physiognomy of the university, as also its objectives and results, in order to encourage a constant dialogue with students designed to keep them well-informed and to guide their academic development and cultural growth throughout all the entire course of studies.

#### **Course Evaluation**

According with the national law, all required courses are evaluated every year by participating students. As a rule, the results are analyzed by the Faculty Dean and passed on to the teachers in order to give them useful hints to improve their courses.

## **Application of a shared model of evaluation of the educational services provided**

The evaluation framework used within the CampusOne project has been further applied to support the quality assurance of all the Ca' Foscari degree programs: since 2004, all study programs are required to produce a self-evaluation report, which is evaluated through an audit system by the Internal Evaluation Unit.

## **Didactic Managers**

Since 2002, we introduced in each Faculty a new professional figure, the didactic manager (MD) who oversees the processes and organisation of the academic programs. The MD does not have teaching duties: he liaises with the teaching staff, to promote improvements in the services and extend relations with the external world, and he/she oversees relations with students, the head office concerned with academic courses or the presidential offices of the faculties and the territory.

## **Research Evaluation**

Ca' Foscari participated to the first national Research Evaluation Process, managed by CIVR (National Committee for Evaluation of Research), by selecting the best scientific works produced in the years 2001-'03. The results of the peer-to-peer evaluation of the 136 publications selected by the University were very positive, and put Ca' Foscari in the top ranking of the medium-size Italian Universities (see [www.civr.it](http://www.civr.it)).

## **Graduates and labour market analyses**

Ca' Foscari is part of the AlmaLaurea National Consortium, that takes care of tracking the follow-up of graduates, by interviewing them year after year with respect to their employment status. This provides measures to assess the employability of Ca' Foscari graduates in each discipline.

## **Strategy Development Plan 2007-2009**

In 2007, the University starts a comprehensive strategy development process, according with the national law. The strategy development process takes place over a period of three years (up to 2009). The main focuses are the development of degree courses, student services, research, appointment and increasing internationalization. The target objectives have to be linked to quantitative and qualitative criteria.

## **Services/Administration**

Since 2005, Ca' Foscari started a project about the evaluation of the administrative activities (MIP - progetto Good Practices), which involves 26 universities. The focus of the project is to measure the efficacy and effectiveness of the administrative action, creating university rankings and highlighting virtuous behaviours of the academic system.

## Quality Assurance Mechanisms at the University of Leipzig

### 1. Bonn Model for University Evaluation

The "Regulation on Study Evaluation" (Lehrevaluationsordnung) released by the Senate in June 2005 forms the framework for the quality assurance of study programs and conditions at the University of Leipzig. According to this regulation the minimum of two courses per each professor have to be evaluated by students annually.

In order to meet the current requirements for study and university evaluation (i.e. the available time and personnel resources as well as the pursuance of high quality programs) University of Leipzig replaced the traditional "Paper-Pencil-Procedure" for the quality assessment through the so-called „Bonn Model for University Evaluation“ (Bonner Modell zur Hochschulevaluation) in 2005. This model was developed in the framework of a study reform by the Center for Evaluation and Methods at the University of Bonn from 2000 to 2005. In the framework of a cooperation contract the Center also carries out the evaluation at University of Leipzig. The body responsible for the implementation of the evaluation at the University of Leipzig is the Evaluation Office working under the supervision of the Vice-Rector for Teaching and Studies. The Bonn evaluation model consists of several modules that are all conducted online. The combination of several modules provides an extensive insight into the quality of tasks carried out at a university. At the University of Leipzig following standardized modules are applied:

- 1.1 Course and module evaluation
- 1.2 Evaluation of study conditions
- 1.3 Graduate survey
- 1.4 Scientific staff survey

#### *1.1 Course and module evaluation*

The Bonn model enables the evaluation of study programs both at the course and module levels. The aim of the course and module evaluation is to assess whether the course content and their combination into modules provide the students with the anticipated knowledge and skills and hence, whether the learning objectives are achieved at the course and module levels. The course and module evaluations are carried out at the University of Leipzig each semester in the end of lecture periods.

Different courses and modules are registered and activated for the online evaluation by the module coordinators and lecturers via internet using the login data attained from the Evaluation Office. For the evaluation purpose the coordinators and lecturers of all disciplines are provided with the same basic online questionnaire, which they can individually supplement with a maximum of 10 additional and more specific questions. The interdisciplinary questions and the regular replications of the assessment assure the comparability of data and enable benchmarking. The students that participate in the respective courses and module receive the login data for the questionnaire via email from the Evaluation Office and fill it in online. The participation in the evaluation is always voluntary.

For the analysis the collected data is aggregated per each course and module, i.e. no data can be drawn back to a certain student. All the evaluation participants receive the evaluation report as pdf via email. Furthermore, the lecturers and students are recommended to make an appointment to discuss and analyze the evaluation results jointly. The evaluation results should support the lecturers and module coordinators in the further development of their courses and modules to guarantee the continuous improvement their quality.

### 1.2 *Evaluation of study conditions*

The evaluation of general study conditions at the University of Leipzig through present students is carried out annually. The students are asked to evaluate the content of study programs, general study conditions and their situation in research and promotion of young academics in the last two semesters. The evaluation results should especially contribute to the quality assurance at the faculties and evoke study program related optimization processes. The students addressed by the evaluation are selected randomly and receive the login data for the questionnaire (available in German and English) and the description of the evaluation process via email from the Evaluation Office. The participation in the evaluation is voluntary. For the analysis the collected data is aggregated per each discipline, i.e. no data can be drawn back to a certain student. The evaluation report for the whole university is published at the homepage of the Evaluation Office and can be entered with the login data by all the evaluation participants. The deans of the faculties receive the evaluation reports for their respective faculty via email. The interpretation of the results and the development of corresponding measures for improvement are the responsibility of the deans, the study commission and the rectorate.

### 1.3 *Graduate Survey*

The graduate survey is carried out annually and the graduates are asked to evaluate retroactively the content of their study programs, general study conditions and their situation in research and promotion of young academics at the University of Leipzig. Of special interest for the evaluation are the assessment of the career entry of the graduates and the value and benefits of the knowledge gained by them during the studies for their occupational practice. The procedures applied for the participation of the graduates in the evaluation, the survey process, the interpretation of the results and the development of measures for improvement are similar to the module "evaluation of study conditions".

### 1.4 *Scientific Staff Survey*

The scientific staff survey is carried out annually and the staff is asked to evaluate their own teaching and research conditions at the University of Leipzig. A special questionnaire enabling the evaluation of the working conditions at the University of Leipzig and the identification of potentials for improvement was developed for this purpose. The survey is addressed to all full and part time scientific staff members employed in teaching and research as well as to associate lecturers. The procedures applied for the participation of the scientific staff in the evaluation, the survey process, the interpretation of the results and the development of measures for improvement are similar to the module "evaluation of study conditions".

## **2. Reporting**

University of Leipzig runs a comprehensive reporting system on teaching/ studies and research with the goal of regular documentation of the development and performance of all the core areas of the university. The annually established reports include a study report, a research report and a rectorate report.

The establishment of study reports that used to contain the key statistical data and other relevant information about all the different study programs of the university has been stopped for the period of 2004-2007 due to the concentration of resources on carrying out the study reform and accreditation processes. Whether this quality assurance mechanism will be continued in 2008 in accordance with the Study Report Regulation is currently being negotiated with the SMWK.

The research report has been published since 1993 and contains the key information and statistical data with performance indicators about the current research activities at the different faculties, centers and interdisciplinary research institutes of the university. The first part of the report provides a summary of the research activities carried out at the different faculties and centers. Moreover, it provides an insight into the predominant interfaculty research projects, exhibitions, patent applications, workshops and conferences as well as prizes and nominations awarded to the researchers of the University of Leipzig. The second part of the report focuses on the presentation of faculty specific information including all conducted research projects and scientific publications. The report can be downloaded at [www.uni-leipzig.de/forschen](http://www.uni-leipzig.de/forschen).

The rectorate report presents a “full statement of accounts” published since 1993. It contains comprehensive data and statistical material as well as other relevant information about the development in and performance of teaching/ studies and research at the University of Leipzig in the previous study year. Moreover, it presents the efforts made by the university to increase its future attractiveness in a transparent manner.

### **3. Accreditation of study programs**

In accordance with the recommendation of the Conference of Ministers for Education University of Leipzig pursues the accreditation of its newly conceptualized bachelor and master programs through a cluster process by the ZEvA (Zentrale Evaluations- und Akkreditierungsagentur). The aim of the accreditation is to assess these programs against the quality objectives set in national and international standards. An accreditation application with information about the concept, resources, conditions and procedures of a program has/ will be submitted for all the programs. If a study program is going to be accredited the implementation of a sustainable evaluation concept has to be presented in the application. The accreditation process at the University of Leipzig is supervised by Vice-Rector for Teaching and Studies, whereas the Evaluation Office is responsible for all the organizational questions. The body responsible for the accreditation of bachelor and master programs at the federal level is the Accreditation Council. It consists of representatives of universities, states, students, practitioners and international experts and sets the minimum standards and criteria for accredited programs.

### **4. Good academic practice**

In accordance with the Statutes for the Assurance of Good Academic Practice University of Leipzig is committed to the principles of the “Commission for Self Regulation in Science”; a common initiative of the German Research Society (DFG) and the Conference of University Rectors. These principles commit academics to observe ethical norms and strict honesty, to prevent and avoid academic misconduct in order to enhance academic quality, to document the research methods applied and results achieved and to make the scientific results public among academics through publications. Furthermore the statutes of the university determine the action to be taken and the possible consequences in case of academic misconduct.

### **5. Internal revision**

There is an Internal Revision at the University of Leipzig that audits a wide range of the university's activities related to teaching and studies, research as well as administrative procedures.

## **Internal quality assurance Master's Degree program in Sustainable Development – Utrecht University**

### **Quality Assurance**

The master's program in Sustainable Development developed a Quality Management Approach when it started its first year. This approach describes the goals and actions to be taken with respect to the quality of the evaluation. Based on the requirements and guidelines set by Utrecht University, procedures are in place to monitor the quality of:

- the program: endpoints, individual courses, parts of the program (common courses and tracks), the master's thesis and internships, and the full program;
- the instructors;
- student support;
- infrastructure.

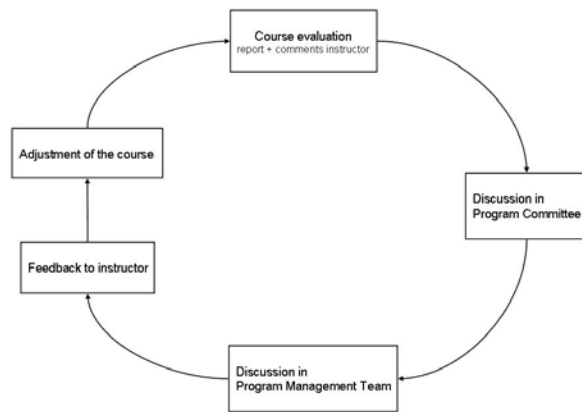
Besides, the quality management system itself is regularly evaluated. Currently, a policy document "Quality Management Approach Education Innovation and Environmental Sciences" is developed. Part of this document will be a calendar including the activities of all employees involved with the education programs.

The assurance concerning the quality of staff, student support and infrastructure is described in facet 14, 16 and 15 respectively. In this chapter the quality assurance concerning the education program will be elucidated.

### **Evaluation of courses and MSc theses**

To evaluate individual courses and theses, we use standard evaluation forms (with some space for specific questions). These forms address issues like content, organization, quality of the instructors (including their proficiency in English), goal attainment, and study load. As a general indicator, the student also gives a grade (1-10) for the course. The evaluations are covered in a report, where the instructor responds to the findings. This report is discussed in the Program Commission and then by the Board of Directors of the Program, who take the Commission's recommendations into account. Depending on their findings, consultations are started between the track coordinators and the instructors in question with respect to any changes deemed necessary (Figure 3).

### **Figure 3 Periodical cycle of internal quality management concerning the evaluation of courses**



### **Evaluation of the curriculum**

The quality of the overall program is evaluated in discussions with students and with the instructors. Several issues are usually raised at these meetings: program coherence; scientific level; adequacy of teaching methods; variance in teaching methods; level of academic teaching skills; and adequate preparation.

**Quality Assurance Measures at Hiroshima University,  
Graduate School for International Development and Cooperation (IDEC)**

1. Outline of the Evaluation of Faculty Member Activities

According to the 'Outline of Individual Evaluation of Faculty Members at Hiroshima University,' announced by the University Evaluation Committee in March 2006, IDEC has decided to evaluate faculty members in terms of the following 4 categories: 1) Education, 2) Research, 3) Contribution to Society, and 4) University Management. Furthermore, each category has the following items to be used to evaluate the activities of faculty members on the whole.

1) Education

- (1) The number of courses offered by the faculty member
- (2) The number of Ph.D. and Master's students for whom he/she acts as the academic advisor
- (3) Course evaluation by students (\*see #2 "Course Evaluation")

2) Research

- (1) The number of papers he/she has published
- (2) The books he/she has published or translated
- (3) Reports
- (4) Other research accomplishments
- (5) Fund(s) he/she has obtained from outside the University and the amount(s)
- (6) Research project he/she has been committed to
- (7) Intellectual property, such as a patents, he/she has gained
- (8) Presentation(s) at academic conferences
- (9) Awards received

3) University Management

- (1) Work experience as the Dean, or Vice Dean of IDEC, or the director of other centers.
- (2) Experience as a member or chairperson of committees in the University and in IDEC

The Dean of IDEC has the authority to review the faculty members' evaluation and suggest improvements.

(Established by the IDEC Faculty Meeting, July 2006)

2. Course Evaluation

At the end of each semester, the Internal Review and Evaluation Committee of IDEC conducts 'course evaluation questionnaires' for all courses offered at IDEC to all students who have taken each course. The outcome of the questionnaire is open to the public and is also reported to the instructors to help them improve their own courses.

(Proposed by the IDEC Internal Review and Evaluation Committee and approved by the IDEC Faculty Meeting in 2003)

3. Model Course Observation

For the purpose of improving each course, some model courses are selected to be open to all faculty members for observation.

(Proposed by the IDEC Internal Review and Evaluation Committee and approved by the IDEC Faculty Meeting in 2005)



## Annex 4 – Degree Details

**Prerequisites of the Italian Ministry to be fulfilled for the awarding of the Italian degree „Laura Magistrale“ in Sustainable Development (LM-75):**

Groups of Subjects	Minimum ECTS
<b>Group A</b>	
1. Chemistry	6
2. Biology	6
3. Earth Sciences	6
4. Ecology	6
5. Agricultural, technical und management subjects	4
6. Legal, economic and evaluation subjects	4
<b>Sub total (Group A)</b>	<b>32 ECTS</b>
<b>Group B</b>	
Electives belonging to above groups (1.-6.) in any combination.	16
<b>Total (A + B)</b>	<b>48 ECTS</b>

**This results in the following requirements based on the combinations of modules and tracks:**

- a) **Home University: Graz**  
*Mobility Semester: Venice, Leipzig, Utrecht\*, Hiroshima, Basel*
- All requirements met
  - \* for students that spend the 3<sup>rd</sup> semester in Utrecht the following condition has to be fulfilled: 4 ECTS in subjects belonging to group 5
- b) **Home University: Venice**  
*Mobility Semester: Graz, Leipzig, Utrecht, Hiroshima, Basel*
- 6 ECTS in Ecology
- c) **Home University: Utrecht**  
*Mobility Semester: Venice track Ambiente terrestre*
- 6 ECTS Chemistry
- Mobility Semester: Venice track ICZM*
- 6 ECTS Biology
  - 4 ECTS Agricultural, technical and Management subjects
- d) **Home University: Utrecht**  
*Mobility Semester: Graz (track Renewable resources )*
- 6 ECTS Biology
  - 6 ECTS Earth Sciences
- Mobility Semester: Graz (track Climate and Environmental Change)*
- 6 ECTS Biology
  - 6 ECTS Chemistry
- e) **Home University: Leipzig**  
*Students have to chose “Basics in Economics” and “Basics in natural sciences” during their 1<sup>st</sup> semester in basics in sustainable development*  
*Mobility Semester: Venice ICZM*
- All requirements met
- f) **Home University: Leipzig**  
*Students have to chose “Basics in Economics” and “Basics in natural sciences” during their 1<sup>st</sup> semester in basic in sustainable development*  
*Mobility Semester: Graz (track Renewable Resources )*
- 2 ECTS Ecology
  - 6 ECTS Earth Sciences
- Mobility Semester: Graz (track Climate and Environmental Change)*
- 6 ECTS Chemistry

***In order to receive the Italian degree, students cannot combine home university Utrecht with mobility in Leipzig and vice versa.***