School of Business, Economics and Law
UNIVERSITY OF GOTHENBURG

Programme Syllabus
for
Master of Science in Environmental Management and Economics

120 credits (ECTS)

Second Cycle

Established by the Faculty Board of the School of Business, Economics and Law, University of Gothenburg on February 1, 2008.

1. Decision and Guidelines

The study programme for the Master of Science in Environmental Management and Economics, 120 Higher Education Credits (equals 120 ECTS), was established by the Faculty Board of the School of Business, Economics and Law, February 1, 2008. The programme syllabus applies as from autumn term of 2008.

2. General Objectives

Second cycle education shall according to the Swedish Higher Education Act (HEA) build on knowledge that students acquire in first cycle education or corresponding knowledge (see Appendix 1, HEA, ch. 1:9) The general objectives for a Degree of Master (Two Years) are stated in Appendix 2, the Higher Education Ordinance (see Appendix 1).

The overall learning objectives are to develop students'

1. ability to make independent and critical assessments,
2. ability to identify and solve problems,
3. students' skills in searching and evaluating scientific information in environmental management and economics,
4. skills in exchanging information with people without any specific knowledge in the field of environmental management and economics,
5. skills in integrating and using the knowledge obtained from the programme
6. skills in understanding and analysing complex problems,
7. necessary qualifications for a professional career in environmental management and economics or continued studies in a PhD programme in environmental management and economics.

3. Programme Specific Objectives (learning outcomes)

After successfully completing the programme the student should be able to;

- apply insights from theory in order to understand observed behaviour and policies relating to environmental issues. Moreover, they should understand the theories sufficiently well in order to understand their limitations. More specifically, they should be able to:
    a. Analyze individual and group behaviour at various institutions such as the household, organizations, companies or the market.
    b. Become an expert in one of the areas environmental analysis, environmental planning, or sustainable management.
- apply methodological techniques appropriate for decision making in business, government, and other organizations. More specifically, they should be able to:
    c. Identify, assess and gather the necessary information.
    d. Employ relevant qualitative and quantitative methods and interpret the results.
    e. Understand what we can learn from the results, as well as understand what we cannot learn, i.e. the limitations of the analysis.

- effectively communicate the results of their analysis. More specifically, they should be able to :
    f. Write clear, concise and well-disposed reports.
    g. Present the results orally in a clear and convincing way
    h. Participate constructively in discussions

4. Organisation

The programme is managed by a programme leader in cooperation with a programme committee appointed by the Faculty Board.

5. Programme Disposition and Content

Year 1

Autumn Term		Spring Term	
Period 1	Period 2	Period 3	Period 4
Management of Social Dilemmas in Theory and Practice, 15 ECTS	Sustainable landscapes, 7.5 ECTS	Coursename/elective course X ECTS	Coursename/elective course X ECTS
	Sustainable strategies, 7.5 ECTS	Coursename/elective course X ECTS	Coursename/elective course X ECTS

Year 2

Autumn Term		Spring Term	
Period 1	Period 2	Period 3	Period 4
Coursename/elective course X ECTS	Coursename /elective course X ECTS	Degree Project, 30 ECTS	
Coursename/elective course X ECTS	Coursename/elective course X ECTS		

The programme covers four academic terms of full-time study (120 ECTS credits) including three terms of courses (90 ECTS credits) and one term of thesis writing (Degree Project 30 ECTS credits). The programme comprises core courses, including methods, elective courses and degree project. Core courses are specific for the programme and include courses in methods with the emphasis on quantitative and qualitative analysis. Elective courses can be selected from other master programmes or available second cycle courses either at University of Gothenburg or at one of our partner universities. The specific content of the programme will vary with the specialization chosen. In addition, there are a large number of elective courses available. The student will be provided with suggested electives for different specializations.

Sustainable Development is today an overall goal for policy in Sweden and in the European Union. There is an increasing demand for knowledge of; the causes of environmental problems; the relationship between human activities and environmental problems; and the appropriate measures to deal with environmental problems. The two-year Master of Science Programme in Environmental Management and Economics is

designed to provide students with top quality skills in these areas in order to meet the demands from private companies as well as from the public sectors, both in Sweden and in the international arena.

The Master of Science education implies an additional step compared to bachelor educations in Environmental Sciences. It provides both a deeper analytical education in general as well as better opportunities to specialize and achieve practically useful skills. In a knowledge-based society, a bachelor's degree is often not sufficient to compete for the most attractive jobs, but requires a good Masters degree. The Master courses aim to impart deeper knowledge and understanding, including awareness about current state and future trends of environmental problems. Relevant measures of how to address these problems and prevailing obstacles to achieve a sustainable society. The programme includes in depth studies of the theoretical background as well as empirical applications, and multidisciplinary case studies to critically analyze current problems.

Handling environmental problems today requires not only specialized skills but also the capability of collaborating between traditional disciplines. University of Gothenburg has a wide variety of researchers, and teachers with experience from both traditional disciplinary research as well as from multi-disciplinary research. Within the University, and also at Chalmers University of Technology there are a large number of potential courses for students specializing in the environmental field. Each course at the master level requires previous fulfilled courses to grant access, which requires careful choices from the student in order to render possible and desirable sequence of course choices.

The first semester comprises three recommended courses in Environmental management and economics, starting with *Management of Social Dilemmas in Theory and Practice,* which deals with problems and analysis of common resources like the atmosphere and fish. Laboratory and field experiments that are useful research methods in most social science disciplines are introduced. The course, *Sustainable landscapes - Interactions between environment and human activities*, deals with the interaction between the environment and humans, both in a short and in a long time perspective, as well as in global and local perspectives. Further, students analyze the historical interplay between economic development, environmental impact, and welfare. *Sustainable strategies* is a course where students learn about the design of sustainable corporate strategies. Special attention is given to the acknowledgement of long term decisions at a strategic level, their economic consequences and the role that different stakeholders play.

During this first semester it is desirable that the student gets started in defining the theme of their master thesis, which will enable them to choose the most appropriate core courses in Environmental Management and Economics, as well as methodological and elective courses for their second and third semester. These courses provide necessary knowledge in relevant environmental management and economics issues and enable students to master techniques to address research questions, respectively. In addition, the student can choose elective courses from this programme or from other master programmes at University of Gothenburg, Chalmers University of Technology or at any suitable foreign university, given fulfilled admission requirements.

During the fourth semester students complete the programme by writing and defending their master thesis. The thesis is usually co-written.

The Environmental Management and Economics programme is designed to train decision-makers, those who provide them with expert advice, and those who aim at influencing the policy through the political process. There are various ways to specialization and we stress the need for the student to define theme of their master thesis at earliest possible stage of the programme in order to choose the most appropriate courses for their education. Below we provide three subheadings to outline potential ways of specializing. However, we stress that there is much individual freedom to choose courses in order to obtain a tailor-made and unique education within the programme.

Environmental Analysis
Environmental Analysts will acquire the ability to analyze and assess policy decisions, to seek an understanding of stakes involved, to recognize the roles of technical, social and political information, identify sources of potential conflict, and understand when negotiation and communication strategies can enhance implement ability. Further, they will analyze what restrains and enables environmental action and how individuals, organizations, public authorities and corporate interests are acting, collaborating and competing, which are determinant factor when searching for successful environmental solutions.

For the environmental analyst important topics are sustainable development, public goods and externalities, valuation of nonmarket goods and services, the intertemporal allocation of natural resources, the study of collective action, interest group behavior, evolution and operation of local, domestic and international environmental institutions. Quantitative and analytical tools are essential components of the analysts' skills, including areas like; regression analysis, risk analysis, conflict resolution, environmental impact assessment, and cost-benefit analysis.

Environmental Planning
Current environmental problems and the need for sustainable development across all sectors and at all levels of society are multifaceted and complex. Environmental planners focus on three important aspects in order to professionally and effectively influence and control unsustainable relationships between human activities and the environment: i) The increased need for the integration of knowledge, of both in-depth disciplinary and multi-disciplinary approaches, when analyzing the sustainability of certain patterns of production, distribution, and consumption; ii) The role of a careful, systematic and participatory planning as a central mean to integrate various processes and measures that could enable a sustainable development today and in the future. iii) The importance of scale and a spatial dimension – local, regional, global – when focusing on environmental problems.

Within Environmental Planning a pluralistic methodological perspective is advanced including both qualitative and quantitative techniques. Necessary tools for the environmental planner include interview and participatory appraisal techniques, statistical analysis and geographical information systems.

Sustainable Management
Corporations, public administration and non-governmental organizations are connected to each other and embedded in the general development of the society. Sustainable Management focuses on both theoretical and practical understanding of how the market, business, organizations and managers contribute to the environmental situation, both as sources of problems and solutions. The change and development of companies and organizations from environmental points of view is analyzed. The aim is to give theoretical and applied knowledge of strategies, forces and current approaches to management of environmental development and changes in organizations, be it companies, public administration or non-governmental organizations.

Other aspects of sustainable management include knowledge that can contribute to a wider understanding of how environmental issues are integrated in organizations such as how they communicate their environmental work, how strategic environmental management is conducted, how environmental issues are integrated in accounting and how transfer of environmental knowledge between units is organized. It can also contribute to an understanding of decision-making regarding e.g. large investments that will affect the society for decades.

Core courses in Master of Environmental Management and Economics
The initial courses *Management of Social Dilemmas in Theory and Practice*, 15 credit points, *Sustainable landscapes. Interactions between Environment and human activities*, 7,5 credit points, and *Sustainable strategies*, 7,5 credit points, together with the concluding *Master thesis* of 30 credit points, leaves 60 credit points to be chosen. Minimum 30 credit points should be from the core courses listed below, including a minimum of 7.5 credit points of methodological courses. In addition, maximum 30 credit points of optional courses can be chosen in agreement with teachers and thesis supervisors.

Core courses in Environmental Management and Economics
- Business and Managerial Ethics, 7.5 ECTS
- Economic Policy and Individual Behaviour, 7.5 ECTS
- Environmental Economics – International Issues, 7.5 ECTS
- Environmental effects and conflicts in long-run economic development, 7.5 ECTS
- Environmental Management Systems, 7.5 ECTS
- Livelihoods in the Global South, 7.5 ECTS
- Organizing Sustainable Societies, 7.5 ECTS
- Project Management for Sustainable Development, 15 ECTS
- The Quality of Government in a Comparative Perspective, 15 ECTS
- Strategic Environmental Assessment, 15 ECTS
- Sustainable Marketing Management, 7.5 ECTS
- Sustainable Mobility- Drivers, Limits, Responses, 7.5 ECTS

- Methodological courses; Econometrics 7.5 ECTS, Qualitative methods in management and economics 7.5 ECTS, Quantitative methods in management and economics 7.5 ECTS, Science in theory and practice 7.5 ECTS, or corresponding.

Elective courses in Environmental Management and Economics

- Environmental Policy Instruments, 7.5 ECTS
- Environmental System Analysis, 7.5 ECTS
- International Environmental Conventions 15 ECTS
- Life Cycle Assessment, 7.5 ECTS
- Miljörätt *(in Swedish),* 15 ECTS

6. Tuition and Examination

The tuition is in English throughout the programme. Courses will include lectures, seminars and case studies. The students will also work together in small groups, according to educational principles such as problem-based learning, experiential learning and action learning. Group reports will be assessed and graded individually, as will individual term papers and individually written exams.

The courses will be examined separately. Each course is graded Pass with Distinction (väl godkänd, VG), Pass (godkänd, G) or Fail (underkänd, U). Grades are translated with a set model where the grades of each grading scale correspond to the following intervals in the ECTS scale:

Pass with Distinction (väl godkänd, VG)	A-B
Pass (godkänd, G)	C-E
Fail (underkänd, U)	FX-F

A student has the right to be examined a maximum of five times for each course.

7. Admission Requirements and Selection Process

General Admission Requirements

The applicant must hold the minimum of a Bachelors degree (i.e. the equivalent of 180 ECTS credits at an accredited university). The applicant's university education must include a minimum of 90 ECTS credits in a major subject and a thesis, term paper or equivalent proof of proficiency in academic writing, a minimum of 15 ECTS credits in Statistics as well as the programme specific entrance requirements, or equal qualification as assessed by the Graduate School.

English Proficiency Requirements

The applicant must prove English proficiency by one of the following:

- TOEFL IBT (internet based)
- TOEFL (computer based)
- TOEFL (paper based)
- IELTS

For information about required test results, please see admission information on Graduate School´s webpage: www.handels.gu.se/gs

This requirement does not apply to students with a Bachelors Degree, based upon at least 3 years of full-time studies, from an education with English as the only language of instruction (with the exception of applicants with a Bachelors Degree from Pakistan or Bangladesh), or to students having passed English level B at the Swedish Upper Secondary School.

Programme Specific Entrance Requirements
The applicant's university education must include one of the following major subjects (a minimum of 90 ECTS credits): Environmental Science, Business Administation, Economics, Human Geography, Law, Economic History, Political Science or Human Ecology.

The admission requirements listed above apply for admission to the programme. For continued studies within the programme individual courses have specific requirements, as provided in each course outline.

Selection Process
The selection process is based on the number of ECTS credit equivalents. The minimum number of credits required is 180 ECTS credits. Ranking of applicants is based on the interval up to and including 210 ECTS credits.

Should the situation arise that a group ties due to equal qualifications, selection is made according to the applicant's first choice of programme. If this process does not resolve the tie, a final selection is made by ballot.

8. Degree Certificate and Degree Title
Upon completion (receiving a minimum grade of Pass) of all the courses and the degree project, and fulfilment of the requirements given above, students will receive a Degree of Master of Science (Two Years) in Environmental Management and Economics.

9. Programme Evaluation
All courses in the programme will be anonymously evaluated by the students after completion. Electronic evaluations are available for each course and must be performed online through "Kursportalen". The results of the evaluation will be communicated to the students and will function as a guide for the development of the course and of the programme.