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1. **Course Staff**  
1.1 Lecturer in charge  
Dr. Regina Betz,  
Room 140,  
John Goodsell Building,  
Tel.: 02/938-53354,  
Fax.: 02/93136337,  
r.betz@unsw.edu.au  
Specific consultation hours will be determined at the first lecture.

1.2 Communication with Staff  
You should feel free to approach (by email or phone) your lecturer about any matter related to the subject. She will indicate when she is available to see you outside class times, and may be approached at the end of classes for short questions.

2. **Information About the Course**  
2.1 Teaching Times and Locations  
There will be 14 lectures, each of 2 hours duration, followed by a one hour tutorial.  
Lecture: Thursday from 2 pm – 4 pm; starting 28th of July 2005  
Tutorial: 4 pm to 5 pm; starting 28th of July 2005  
The lectures and tutorials will take place in Room D10-G03, which is close to the Fig Tree Theatre / Mail Room.

2.2 Units of Credit  
This course is valid 6 UOC.

2.3 Relationship of this course to other course offerings  
The course is requiring basic knowledge in microeconomics and might have some overlapping and synergies with course ECON 2109 "economics of natural resources".

3. **Course Aims and Outcomes**  
3.1 Course Aims  
This course aims to deepening the economic thinking regarding local and global environmental problems such as climate change and air pollution and expanding your knowledge on economic solutions of handling such problems. It will include basic theoretical economic concepts for pollution control and methods of how to value environmental damages. In addition, the advantages and disadvantages of market based instruments (such as emissions trading schemes) compared to non-market approaches (e.g. taxes and standards) are discussed. Finally, the course will give insights into the application of economic instruments in current use and how the political process is impacting on the theoretically "optimal design" of these instruments.
In addition, the course is designed with the following aims in mind:

(1) to foster your analytical and critical thinking,
(2) to enhance learning by doing,
(3) to improve your team working skills,
(4) to enable you to critically reflect on achievements,
(5) to develop your problem-solving strategies and decision-making abilities.

3.2 Student Learning Outcomes

In successfully completing this course you will be able to critically appraise the strengths and weaknesses of economic approaches to environmental problems proposing solutions to these problems by applying economic instruments. You will learn to critically assess economic assumptions and analyse complex systems as well as practice the functioning of market instruments through computer based experiments. In addition you will gain soft skills about collaborating in a group, planning a project, writing a report as well as presenting your results orally.

3.3 Teaching Strategies

The above mentioned aims are achieved through different teaching strategies and techniques which will be included in the lecture and/or tutorial:

- During lectures the relevant content (e.g. economic theory and approaches) will be explained and discussed. Additional reading suggestions will be given on WebCT and you will be encouraged to read original versions of articles of famous economists. Quizzes at the beginning of the lecture will be undertaken to monitor the understanding of previous lecture.
- During tutorials theory will be applied on practical problems in order to enhance the understanding of the approaches. Role plays and experiments will be used to enhance learning by doing as well as new techniques as mind mapping and reflective journals are introduced to foster reflection.
- In order to enhance your problem-solving, communication and conflict resolution skills you will have to form groups of 3-5 and choose an own project topic. Usually, topics will be related to practical environmental problems, where different solutions have to be discussed and decision-making techniques such as cost benefits analysis are applied. Thus, critical thinking and independent as well as team based learning will be enhanced. In addition, project work will enable you to develop your research knowledge and soft skills e.g. how to search for literature, how to write a report and how to present results.
- Critical and analytical thinking abilities will be assessed by assignments, the mid term test and final exam as well as through debates in class.
4. STUDENT RESPONSIBILITIES AND CONDUCT

4.1 Workload
It is expected that you will spend at least ten hours per week studying this course. This time should be made up of reading, research, project work, working on exercises and problems, and attending classes. In periods where you need to complete assignments or prepare for examinations, the workload may be greater.

Over-commitment has been a cause of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities.

4.2 Attendance
Since the tutorial is building on the lectures your regular and punctual attendance at both lectures and seminars is expected in this course. University regulations indicate that if students attend less than eighty per cent of scheduled classes they may be refused final assessment.

4.3 General Conduct and Behaviour
You are expected to conduct yourself with consideration and respect for the needs of your fellow students and teaching staff. Conduct which unduly disrupts or interferes with a class, such as ringing or talking on mobile phones, is not acceptable and you may be asked to leave the class. More information on student conduct is available at: www.my.unsw.edu.au

4.4 Keeping informed
You should take note of all announcements made in lectures, tutorials or on the course web site (WebCT). From time to time, the University will send important announcements to your university e-mail address without providing you with a paper copy. You will be deemed to have received this information.

5. LEARNING ASSESSMENT

5.1 Formal Requirements
In order to pass this course, you must:
- achieve a composite mark of at least 50; and
- make a satisfactory attempt at all assessment tasks (see below).

5.2 Assessment Details
You will be assessed throughout the session: e.g. through your performance at the experiment, assignments, in the mid-term test and the final exam as well as the project work. The final mark will consist of the following elements and %:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid term test</td>
<td>7.5%</td>
</tr>
<tr>
<td>Assignments (each 2.5%)</td>
<td>5%</td>
</tr>
<tr>
<td>Performance at experimental economics session</td>
<td>2.5 %</td>
</tr>
<tr>
<td>Oral participation including reflection and quizzes</td>
<td>5 %</td>
</tr>
<tr>
<td>Project: final report, midterm and final presentations</td>
<td>30 %</td>
</tr>
<tr>
<td>Final examination:</td>
<td>50 %</td>
</tr>
<tr>
<td>Total</td>
<td>100 %</td>
</tr>
</tbody>
</table>
The final examination will be held in the University examination period (November) and will be of 2 hours duration. The final exam will cover the entire course. Further details will be discussed in the last lecture.

5.3 Assignment Submission Procedure

Assignments will be handed out at the lecture and have to be submitted at the following lecture (in paper).

5.4 Late Submission

Late submission of assignments or the project report will have an negative impact on the mark.

5.5 Special Consideration and Supplementary examinations

- Applications for special consideration (including supplementary examinations) must go through UNSW Central administration (within 3 working days of the assessment to which it refers) – applications will not be accepted by teaching staff;
- Applying for special consideration does not automatically mean that you will be granted additional assessment or that you will be awarded an amended result;
- If you are making an application for special consideration (through UNSW Central Administration) please notify your Lecturer in Charge;
- Please note: a register of applications for Special Consideration is maintained. History of previous applications for Special Consideration is taken into account when considering each case.

5.6 Assignment Format

You will work collaboratively in small groups (three to five) on a project in which you will examine an environmental problem. The projects will focus on an economic question (e.g. analysis of an economic instrument, costs and benefits, willingness to pay). The topics will be chosen by each group and be discussed in the first tutorial. Each of the teams will present their project idea and plan (about a 10 minute presentation + discussion). In addition to learning about the content of your project you will be learning about and reflecting on how to work effectively as a group. Your group work skills and effectiveness of your team are going to influence the quality of your report and will therefore effect your assessment. The final project report should be handed in at the end of the final lecture (week 14). Two hardcopies and an electronic copy (in Word) of the final report should be submitted. The final report should consist of 4,000 words per person (e.g. a group of 4 should have about 16,000 words). Guidelines for the format and structure of the final report and quoting will be handed out at the beginning of the course.

Assessment: Beside the content formal criteria e.g. report structure, quoting, reflective journal and project planning will be assessed. A peer group assessment will be undertaken in order to make individual contributions transparent.

Other assignments

Details of other assignment formats will be given in lectures and tutorials.
6. ACADEMIC HONESTY AND PLAGIARISM

The University regards plagiarism as a form of academic misconduct, and has very strict rules regarding plagiarism. For full information regarding policies, penalties and information to help you avoid plagiarism see: http://www.lc.unsw.edu.au/plagiarism/index.html

Plagiarism is the presentation of the thoughts or work of another as one’s own.* Examples include:

- direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person’s work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor: and,
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed;†

Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does not amount to plagiarism.

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The Learning Centre website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at: www.lc.unsw.edu.au/plagiarism

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle
† Adapted with kind permission from the University of Melbourne.
7. STUDENT RESOURCES

7.1 Course Resources

Important resources for this course are:

- Main Textbook: Perman, Roger / McGilvray, James / Common, Michael 2003, Natural Resource and Environmental Economics, 3rd edition, Pearson Education Limited, Essex. You can buy this book at the UNSW bookshop and one copy will be available from the open reserve section at the library.

- Recommended Internet site: http://homepages.strath.ac.uk/%7Ehbs96107/enviro7.html

- Outlines, slides and additional reading materials for each lecture may be posted on WebCT. The outlines on WebCT are in no way a substitute for lecture attendance.

7.2 Other Resources, Support and Information

The University and the Faculty provide a wide range of support services for you, including:

- **Learning and study support**
  - FCE Education Development Unit (http://education.fce.unsw.edu.au)
  - UNSW Learning Centre (http://www.lc.unsw.edu.au)
  - EdTec – WebCT information (http://www.edtec.unsw.edu.au)

- **Counselling support** - http://www.counselling.unsw.edu.au

- **Library training and support services** - http://info.library.unsw.edu.au

- **Disability Support Services** – For those of you who have a disability that requires some adjustment in your teaching or learning environment are encouraged to discuss your study needs with the Course Coordinator or the Equity Officer (http://www.equity.unsw.edu.au/disabil.html). Early notification is essential to enable any necessary adjustments to be made.

In addition, it is important that all of you are familiar with University policies and procedures in relation to such issues as:

- **Examination procedures** and advice concerning illness or misadventure - https://my.unsw.edu.au/student/academiclife/assessment/examinations/examinationsrules.html


8. CONTINUAL COURSE IMPROVEMENT

Each year feedback is sought from you and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW’s Course and Teaching Evaluation and Improvement (CATEI) Process (http://www.ltu.unsw.edu.au/ref4-5-1_catei_process.cfm) is one of the ways in which your evaluative feedback is gathered. Significant changes to courses and programs within the School are communicated to subsequent cohorts of students. However, during the session there will be informal discussions on course improvements and you are encouraged to come and talk to your lecture.
9. Course Schedule

(1) The market economy and the environment - 28.7.2005
Lecture: The economy and the environment are complex interdependent systems. In the market economy households buy goods and services and supply labour and capital to firms, and firms produce goods and services which they supply to households. There is thus a circular flow. To assess the national economic performance of a country usually the gross domestic product is used. How does it reflect environmental impacts of economic growth?
Perman, Roger / McGilvray, James / Common, Michael 2003: Chapter 2 & 19
Tutorial: Brainstorming and discussion of project ideas.

(2) Externalities and the optimal level of pollution - 4.8.2005
The market system is usually leading to an optimal allocation since it brings demand and supply together and reveals the equilibrium price. This is only valid for goods where property rights are clearly defined under the assumptions of perfect information and perfect competition. Since environmental goods are public goods rather than private goods the market mechanism fails. In order to internalize the externalities governments have to intervene.
Perman, Roger / McGilvray, James / Common, Michael 2003: Chapter 5
Tutorial: Library visit and special introduction in literature review for projects.

(3) Cost benefit analysis (CBA) and Environment - 11.8.2005
Government investment decisions are often based on benefits and costs to society not to private investors. How do economists measure such benefits and costs of non private goods? Which rate of discounting should be used?
Perman, Roger / McGilvray, James / Common, Michael 2003: Chapter 11
Tutorial: Exercises on CBA and project planning.

(4) Valuing the environment - 18.8.2005
For measuring environmental damages different methods exist which include the following approaches: option value and existence value, decision maker valuations, hedonic pricing method, contingent valuation method and travel cost method. The different methods will be discussed and their pros and cons.
Perman, Roger / McGilvray, James / Common, Michael 2003: Chapter 12
Tutorial: Exercises on valuation methods / first assignment will be handed out.

(5) Sustainable development - 25.8.2005
The term sustainable development is widely used; however, very often people have different understandings on this concept. Which definitions exist and how sustainable development is interpreted and measured will be discussed in this session.
Perman, Roger / McGilvray, James / Common, Michael 2003: Chapter 2 - 4
Tutorial: Presentation of project idea, report structure & plan (10 minutes) and discussion.
(6) Standards, taxes and subsidies · 1.9.2005
To internalize the externalities which occur to the environment governments have to intervene. There are different ways for this intervention involving market based approaches such as pollution permits or non-market approach such as taxes, standards, subsidies or voluntary agreements. The challenge is to choose the best amongst alternative of incentive systems to ensure that the right signals are set. Different criteria such as economic and dynamic efficiency will be introduced in order to assess the different approaches.
Perman, Roger / McGilvray, James / Common, Michael 2003: Chapter 6 & 7
Tutorial: Mid term test and first assignment has to be submitted.

(7) Marketable permits and voluntary agreements · 8.9.2005
Coase introduced the idea of defining and allocating property rights in order to get polluters and sufferers to bargain to reach the social optimal level of pollution. His idea is widely known as "Coase Theorem". Based on this concept the idea of marketable pollution permits has been developed. In addition to the theory of tradable quota systems applications of the instrument will be critically evaluated (e.g. US Acid Rain Programme, EU Emissions trading system) and compared to the approach of voluntary agreements.
Perman, Roger / McGilvray, James / Common, Michael 2003: Chapter 6 & 7
Tutorial: Test feedback exercises on policy instruments and mid term reflection.

(8) Experimental Economics: Environmental market experiment · 15.9.2005
Lecture and tutorial: To design well functioning environmental markets which produce an efficient outcome has been challenging as recent experiences have shown. Using experimental economics to test different design options seem therefore to become more and more important. In this class you will form pairs and be placed into a computer network based environmental market and be able to bilaterally send bids/offers to trade. Different scenarios will be tested. This class will be held by Karel Nolles (Centre for Energy and Environmental Markets).
READINGS: Selected journal papers will be placed on the subject website.

(9) Experimental Economics: Results · 22.9.2005
Lecture and tutorial: A number of Australian and international case studies and experimental results (including those conducted by the class in Week 8) will be presented and discussed. These will particularly examine the importance of matching market architecture to the nature of the traded instrument. The renewable energy market in Australia will be explained in more detail. This class will be held by Karel Nolles (Centre for Energy and Environmental Markets).
READINGS: Selected journal papers will be placed on the subject website.
Tutorial: Group discussion and analysis of the journal papers.
(10) Global externalities: Ozone, Climate Change - 6.10.2005
For global problems such as stratospheric ozone depletion and global warming, worldwide coordination is needed in order to effectively combat these problems. Since there is no "global government" which could intervene, free riding is a problem and coordination is difficult. How such processes can work under these circumstances will be discussed on the basis of the United Framework Convention of Climate Change and the Kyoto Protocol.

Perman, Roger / McGilvray, James / Common, Michael 2003: Chapter 10
Tutorial: Exercises on policy instruments / assignment 2 will be handed out.

(11) Role play: Allocating carbon allowances - 11.10.2005
Lecture and tutorial: To allocate property rights to individuals or companies is a difficult task for governments. This experience was made recently by the 25 European Union Member States which had to assign the Carbon dioxide allowances to their companies in order to start the European Emissions trading scheme on the 1st of January 2005. The role play will illustrate how difficult it is to agree on a National Allocation Plan and which conflicts of interest will come up, when companies have to agree on rules which will have major distributional effects.

(12) Local environmental problems in Australia - 20.10.2005
Apart of global environmental problems a lot of local environmental problems do exist. In Australia for example environmental problems such as water shortages, earth salinity and loss of biodiversity are some of the major problems.

Tutorial: Project progress is discussed and second assignment is due..

(13) Natural resources - 27.10.2005
Natural resources can be renewable or non-renewable resources. Especially common pool resources such as forests and fishes are liable to overexploitation. To use such resources in a sustainable way will need the intervention by government.

Perman, Roger / McGilvray, James / Common, Michael 2003: Chapter 14-17
Tutorial: Exercises on natural resources.

(14) Project Presentation and revision - 3.11.2005
You will present your final projects results (each presentation about 15 min.), which will be discussed in the class. In addition there will be a revision on the topics for the final exam.

Preparation week:
Dependent on your needs a question and answer session before the exam might be arranged.

Feedback on project:
Feedback on final report will be given after the exam.
### Overview of lectures and tutorials

<table>
<thead>
<tr>
<th>Date</th>
<th>Lectures</th>
<th>Textbook</th>
<th>Tutorial</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.7.2005</td>
<td>The market economy and the environment</td>
<td>chapter 2 &amp; 19</td>
<td>Brainstorming and discussion of project ideas.</td>
<td>Oral participation</td>
</tr>
<tr>
<td>4.8.2005</td>
<td>Externalities and the optimal level of pollution</td>
<td>chapter 5</td>
<td>Library introduction</td>
<td>Oral participation</td>
</tr>
<tr>
<td>11.8.2005</td>
<td>Cost benefit analysis and Environment</td>
<td>chapter 11</td>
<td>Exercises</td>
<td>Oral participation</td>
</tr>
<tr>
<td>18.8.2005</td>
<td>Valuing the environment</td>
<td>chapter 12</td>
<td>1. Assignment handed out</td>
<td>Oral participation</td>
</tr>
<tr>
<td>25.8.2005</td>
<td>Sustainable development</td>
<td>chapter 2-4</td>
<td>Presentation of project idea and plan</td>
<td>1. Assignment due (2.5%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Presentation (1 %)</td>
</tr>
<tr>
<td>1.9.2005</td>
<td>Standards, taxes and subsidies</td>
<td>chapter 6 &amp; 7</td>
<td>Test</td>
<td>Mid Term Test (7.5%)</td>
</tr>
<tr>
<td>8.9.2005</td>
<td>Marketable permits and voluntary agreements</td>
<td>chapter 6 &amp; 7</td>
<td>Test feedback, exercises and reflection</td>
<td>Oral participation</td>
</tr>
<tr>
<td>15.9.2005</td>
<td>Experimental Economics: Environmental market experiment (Karel Nolles)</td>
<td>Journal articles</td>
<td>Experiments continue</td>
<td>Performance in experiment (2.5%)</td>
</tr>
<tr>
<td>22.9.2005</td>
<td>Experimental Economics: Results (Karel Nolles)</td>
<td>Journal articles</td>
<td>Group discussion</td>
<td>Oral participation</td>
</tr>
<tr>
<td>11.10.2005</td>
<td>Role play: Allocating carbon allowances</td>
<td></td>
<td>Role play continues and reflection</td>
<td>Oral participation</td>
</tr>
<tr>
<td>20.10.2005</td>
<td>Local environmental problems in Australia</td>
<td></td>
<td>Discussion of project progress</td>
<td>2. Assignment due (2.5%)</td>
</tr>
<tr>
<td>27.10.2005</td>
<td>Natural resources</td>
<td>chapter 14-17</td>
<td>Exercises</td>
<td>Oral participation</td>
</tr>
<tr>
<td>3.11.2005</td>
<td>Project Presentation</td>
<td></td>
<td>Reflection, revision for exam</td>
<td>Final project report due (26.5 %)</td>
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</table>