

M.Sc. (Eng.) in Environmental Management
1st Semester Guidelines

Autumn 2008

Theme: Environmental Management in a Company Perspective

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<http://www.lsn.aau.dk/planogmiljo/em7/>

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Introduction

Welcome to Aalborg University

Dear Student of Environmental Management and Sustainable Energy Planning and Management

Welcome to our two M.Sc. programmes. The present guidelines are for both programmes which are similar in most aspects, apart from the projects and some of the courses.

Some of you will be guest students for one or two semesters and some of you will follow the entire study programme for four semesters. The M.Sc. programmes are located at Fibigerstræde 13, also hosting other engineering students and parts of a Master's programme in land surveying. Most of the lecturers and supervisors at the programme have their offices in Fibigerstræde 13 as well. Furthermore, you will get to know Fredrik Bajers Vej 5, where you will find the International Office.

The M.Sc. programmes have a duration of four semesters, the first semester focuses on basic concepts within Environmental Management and Sustainable Energy Planning and Management with an emphasis on the operational level or company level. The second semester offers an institutional and societal perspective on Environmental Management and Sustainable Energy Planning and Management, with emphasis on policy & institutions.

During the third semester, the students may spend three months as a trainee in a company abroad or in Denmark or by studying at a foreign university. Students can also choose to stay at Aalborg University and use the semester to make a comprehensive project report as there will be no courses besides project work. This option is recommended students with limited experience in making projects. The fourth and final semester of the M.Sc. programmes is devoted to the preparation of a comprehensive Master's Thesis.

We look forward to an interesting and fruitful co-operation,

Mikkel Thrane and Poul Alberg Østergaard
Coordinators, August 2008

1. Studying at Aalborg University - a different experience

For those of you coming from abroad, studying at Aalborg University will be a new experience, because the teaching methods are different from those of most other universities.

First of all, we have less course work and more project work compared to other universities. Each semester, the main part of the study programme is thus devoted to project work.

Secondly, projects normally take their starting points in actual real-life environmental or energy problems. These problems are identified, analysed and solved in the projects in a work process including e.g. collection of empirical material through interviews and consulting books and the application of theories and methods learned during lectures.

Thirdly, projects are normally prepared in groups usually of three to six students, who work together throughout the period, under the supervision of a teacher. The topic of the project is chosen by the students themselves in co-operation with their supervisor. To prepare the project, each group has their own group room with some facilities.

The main aim of the course work is to give students a broader understanding of environmental management and energy planning, as well as to present theories and concepts that can support the project work. The main learning process, however, will be during the project work described above.

We know from experience that it takes some time to fully comprehend our way of teaching and to get used to the unusual high degree of freedom that our students are given as a motivating force. It will be a challenge for you and it will - hopefully - enrich your education. It will certainly be a busy autumn requiring you to organise your time well and co-ordinate the many activities.

1.1 Important dates of the semester

September 2 nd	Start of semester – Start of mini project
September 15 th	Hand in mini project
September 16 th	Present mini project
September 22 nd	Group formation – Start of the main project
November 13 th	Status seminar
November 27 th	Exam: Research methodology
December 2 nd	Semester evaluation
January 5 th	Hand in main project
January 9 th	Exam: Feasibility Studies
January 12 th	Re-exam: Research Methodology
January 12 th -30 th	Main project exams
January 26 th	Re-exam: Feasibility Studies

Regarding Christmas; there are no lectures between Christmas and New Year but it is customary that some students work on their projects during this period. Other students on the other hand, take the opportunity to go on holiday to their home countries. Extensive absence has in some cases created tension in the groups, so we advise that the groups well before Christmas and well before anyone starts arranging plane tickets discuss what is an acceptable holiday.

1.2 Checklist of things to do and things not to do

- Check your Aalborg University e-mail daily or more often - *you will receive most information this way*
- Live in or around Aalborg - *it is not possible to study here and live in the other end of the country*
- Be punctual when attending lectures and having meetings - *being late is considered rude to lecturers and fellow students alike*
- Be careful not to plagiarize - *carefully read the section on this issue in these guidelines*
- The absence of lectures on the schedule means group work - *decide in the group what time to appear when doing group work*
- Do not go on holiday during the semester - *your group is relying on you*
- Put mobile phones on silent mode during lectures and meetings. Refrain from taking calls during lectures and meetings. Make a group policy on the use of mobile phones.
- Everybody attends meetings with supervisor and lectures
- Read the literature for lectures before the lectures
- Participate actively during lectures and meetings with questions and comments

2. The semester according to the curriculum

The first semester of the programmes encompasses a number of courses and two projects. This chapter describes the formal requirements to the first semester according to the official curriculum, which is otherwise only available in Danish (see Kandidatuddannelsen i Plan og Miljø).

The semester has two main parts

- A project unit – which includes project work (a mini project and a study project) as well as a number of so-called ‘project related’ courses. These courses are evaluated through the project exam.
- A study unit – which contains so-called ‘study related’ courses. Such courses are evaluated in separate exams.

2.1 The Curriculum’s description of the 1st semester Project Unit

Themes for EM

Environmental Management in a Company Perspective.

Professional Focuses for EM:

- Preparation of suggestions to environmental management improvements at a company or within a project.

Objectives of the Project Unit:

By the end of the semester, the students of EM should

- possess basic knowledge of environmental management/energy planning at company or project level
- be able to analyse and assess the relevant environmental or energy problems and their consequences in the specific case
- be able to understand and apply relevant economic, sociological and engineer-based methods of analyses
- be able to prepare specific plans for environmental or energy improvements under consideration of, how the suggestions could be realised in the relevant company or project and considering the relations to the relevant actors
- be able to communicate the result of the study project to selected target group

Contents of the Study Project:

The study project takes a point of departure in a specific environmental management/energy & environment problem in an actual company or project. An analysis of existing technical, economic, and organisational aspects in relation to the contents and extent of relevant environmental management or energy & environmental issues is performed. On this background a specific plan for solving the problems must be elaborated, taking into consideration the implementation of the plan as well as the consequences of its realisation. On this background, the study project discusses how the company or project should implement an environmental management or energy policy in agreement with demands and expectations from the surrounding society. The project must be presented in English.

Courses:

Project related courses: Supporting the project work, courses could be given within the following fields: Corporate Environmental Management, Organisation Theory, and other courses.

Not included in the project unit are the ‘study related’ courses Research Methodology (2 ECTS)

and Feasibility Studies (2 ECTS). These courses are examined separately.

Size of project unit: 26 ECTS

Examination

Oral individual examination, which takes its point of departure in the study project, and gives individual grades in accordance with the Danish 7-grade scale. The examiner will be from the Department/AAU.

3. Guidelines for the Project Unit

The official objectives and requirements found in the curriculum are implemented as described in this section starting with the mini project period and proceeding to the study project, which is to form the largest part of the semester.

3.1 The mini project period

The semester starts with a mini project period running from 2 September to 16 September 2008. During this period, mini projects are conducted in pre-fixed groups, a special course titled 'Environmental problem solving' course is being held, and some of the other courses of the semester also have some of their first lectures. The introduction period ends with a presentation and discussion of the mini project.

The objective of the introduction period is threefold, i.e.

- to mix the students, in order for them to get a chance to choose their own groups for the more extensive study project forming the remainder of the semester
- to introduce the problem based learning model
- to understand and examine environmental and energy problems and issues related to textile products or water resources

The physical outcome of the mini project is a report of an expected maximum of 10,000 characters – corresponding to 6 to 10 pages - having:

- A front-page stating at least title of project, names of the participants in the group, name of the supervisor, study programme (EM, month/year)
- An introduction that starts with a broad overview of problems within the field chosen (textile industry or water resources). This should lead up to the specific research question which shall henceforth govern the structure and contents of the mini-project. In order to have a clear and well-structured report, you must have one central research question to guide your work. The introduction could also be seen as the place where you argue that there is a problem which is worthwhile investigating further.
- A description of the approach applied to answer the research question ("methodology")
- Analyses
- Results/conclusions

For inspiration, environmental problems for textile products include the use of dyes, colours and other chemicals in the processing of organic as well as inorganic fibres, a noteworthy energy consumption, the use of pesticides in cotton-cultivation, emission of wastes to the environment, human hazards from chemicals and many more.

Relevant issues and problems with water resources include scarcity and availability of resources, purification of ground or surface water for domestic use, the energy intensive desalination process, and damming rivers for power and irrigation.

Examples of research questions for mini projects include:

- What are the major *environmental hotspots* in textile production in India and what could be done to prevent or reduce these impacts?
- What are the potentials and barriers for promoting *cleaner production practices in Malaysia* through environmental *policies and regulation*?
- How can the *energy consumption* in typical Chinese textile dyeing processes be reduced?

- How is it possible to reduce the amount of *dyestuffs and chemicals* in textile dying companies in Germany?
- What are the barriers and potentials for *substitutions* of hazardous dyes and chemicals in textile dying companies / or in primary production (e.g. growing cotton)?
- What are the potentials of water savings at Aalborg University and how can these be implemented?
- How can the impacts on the aquatic environment from desalination plants be minimized?
- How can you produce adequate amounts of desalinated water in an energy-wise way?
- What are the barriers and potentials of using desalinated water for irrigation and humans in the Middle East thereby re-establishing a reasonable flow in the River Jordan and securing the Dead Sea?
- What role can pumped hydro storages play in the integration of fluctuating renewable energy sources?

Time is very constrained (however so is the size of the report you have to turn in) so it is strongly advised to make a credible time schedule and adhere to it.

Each group will be assigned a supervisor who will support you in your process. We emphasize that the supervisors' expectations of the mini projects naturally reflect the time available.

The mini-project must be handed in on Monday, September 15 at 12 noon at the very latest to Allis by e-mail (allis@plan.aau.dk). The mini-projects will be placed on a website accessible for students and supervisors alike.

On Tuesday September 16th at 12:30 the group has to give a presentation of its project using PowerPoint. The presentation takes place in front of half of the students of the semester and these group's respective supervisors. The duration of the group's presentation is max 15 minutes and should contain at least your research question, your approach to the problem and the main findings. All members of the group shall participate in the presentation. The presentation is followed by questions and feedback from supervisor(s) and from the other students (see below). The students are assessed "passed" or "failed" based on the report and the presentation.

In addition to preparing for the groups own presentation, each group must also thoroughly read and prepare a few questions and/or feedback to the report of another group. Which group this should be will be indicated on the website where the reports will be placed.

3.2 The Study project (main report)

After the introduction period, the study project will start. As mentioned in the Curriculum, the study project takes its point of departure in a specific energy or environmental management problem in an actual company or project. The problem is in this context understood in broad terms including e.g. environmental, energy, social issues as well as economic aspects.

The project unit includes the study project and the project related courses evaluated through the project.

The study project is conducted and presented in English.

Working in groups

The study projects are performed in groups in the time additional to the course activities. The time used and the structure of the group is a collective decision in the group. Each group is appointed a supervisor, who will support and supervise the group, but the level and the contents of the project are responsibilities of the group. The supervisor acts as a consultant and not as a traditional lecturer.

The Group Formation Process

The students have to form a study group and choose a topic for their project work. You will be assisted in this process at the *Group formation process* Monday September 22nd 2008 at 8.30. The essence of the seminar is to find a number of groups of four to six students with an appropriate project theme each.

You can prepare yourself by first of all going through the proposals that the coordinators send out beforehand (they are purposely vaguely phrased) and see whether there is something there that you wish to work with. You can also use it for inspiration for developing your entirely own ideas.

So consider ideas and also discuss your ideas with other students; you have to be able to get a certain number to follow you to get over the threshold to form a group.

At the seminar, the coordinators will go through our proposals and you will be given a chance to present your ideas. We will then run through them and write the ones that have generated some interest on the blackboard.

Then we will discuss the ones on the blackboard in a bit more detail - see the possibilities and limitations of each of the proposals. After that everybody will join at the blackboard and start writing your names under the project titles that you find interesting. You can put your name under more than one project at this stage. It should be added that you should not be influenced by the appearance of what appears to you as a suitable number of names already listed under a project. If too many names are listed, then two groups might be formed

Slowly we will then manage to narrow it down so that in the end we have a number of suitably sized groups each with a good project theme.

There is one essential rule: No group is final until all students are in a group. This also means that it is forbidden to encircle a cluster of people or otherwise indicate finality.

The contents of the study project

The study project addresses the theme “Environmental Management in a Company Perspective” or Sustainable Energy Planning and Management in a Company perspective”. In advance case companies have been selected for the study groups to consider. These cases will be introduced shortly after the beginning of the semester and at the Group Formation Process.

The study project takes its point of departure in an analysis of existing environmental problems or challenges of the company. These problems must be analysed in relation to the technical, economic, and organisational aspects of the problem. On this background a number of relevant problems can be described, of which some are of a more technical and managerial nature and others of a more economic and strategic nature. Based on the analysis of the problems, one question - the so-called research question – is identified. This should govern the structure and contents of the report. When considering whether to include a certain analysis or a certain aspect in the report for instance, the group may ask themselves the question of whether this is pertinent in order to answer the research question, A methodology for answering the research question must be outlined and adhered to.

Then follows the mixture of empirical data gathering and analyses used for answering the research question. Since the research questions of this semester treats solving an existing problem in an industry, the report should include a specific plan for solving the problems, taking into consideration the implementation of the plan as well as the consequences of its realisation and its agreement with demands and expectations from the surrounding society.

The main report should always contain:

- An introduction that starts with a broad overview of problems within the field chosen. This should lead up to the specific research question which shall henceforth govern the structure and contents of the project report. In order to have a clear and well-structured report, you must have one central research question to guide your work.
- Theoretical and methodological considerations. Theories and methods used should be explained, and it should be argued, why these theories and methods are applicable, including their strengths and weaknesses, seen in relation to the chosen subject.
- Appropriate empirical data gathering
- Appropriate analyses and discussions
- A conclusion

A report from a group of three to six students is typically 60-90 pages including appendixes. A well-structured and well-edited report will be appreciated, and reports should not exceed 90 pages (including appendixes), where one page corresponds to maximum 2600 characters.

In order to inspire the project groups in their search for interesting companies and topics to work with, the following list displays a host of different projects. These projects have been carried out by other projects groups on the preceding 1st semesters from 1999 to 2006.

100% renewable energy plan for Western Denmark. This project assessed the energy demand in Western Denmark and evaluated the available resources and constructed a mix of resources that could adequately supply the required needs in a sustainable way.

Biomethanol – production of a sustainable fuel. This project evaluated the potentials for bio-ethanol production and the impacts on the use of bio-resources

Feasibility of the Second Scrapping Programme in Northern Jutland. Case Study of Aalborg Østhavn. This project analysed a Danish scrapping programme for old wind turbines and analysed whether wind turbine owners would have sufficient incentive to participate in the programme.

EMS at AKV-Langholt – improvements to an existing system. This project is concerned with an already implemented EMS at AKV. Two elements are analysed in the EMS. Has the present EMS improved the environmental performance? Which benefits and barriers facing AKV, at the organisational, technological and external level does the EMS lead to?

Environmental Management system at Sæby Fiskeindustri A/S. In this project, an environmental management system for Sæby Fiskeindustri A/S is created, using a life cycle approach. The company's environmental performance and environmental statements are evaluated. Then an EMS is developed and an LCA screening is conducted, in order to locate hot spots on the supplier side.

Development of a green account – A case study in AKV-Langholt AMBA. The purpose of this project is to make a Green Account for AKV-Langholt. It analyses, how the Green Account can be implemented in the existing EMS. Another focus area in the project is also, how AKV-Langholt can

involve the whole organisation in the work of making and implementing a Green Account.

An energy plan for the nursery garden company “Kietaviskiu Gausa”. The goal of the project is an energy plan for the nursery garden company “Kietaviskiu Gausa”. The main problem for the company, is a too big expenditure for energy, mainly for heat. This project analyses several different scenarios on, how to solve that problem, not only from the economical, but also from an environmental and social point of view.

Reconstruction of the district heating in Olaine, Latvia. This project deals with current situation in Olaine. A town close to the capital of Riga with 13.000 inhabitants. People in Latvia suffer from the general development in the Latvian energy sector, characterised by a transition to a market economy.

Options for the owners of an old wind turbine in Denmark. This project analysed an existing old wind turbine and made recommendations to the owners on whether to extend the life time of the wind turbine, sell the location concession to a second party or use the location concession and invest in a new.

Reducing the heat price for Vaarst-Fjellerad district heating consumers. Small scale CHP-based district heating plants are facing problems with uncompetitive prices for their consumers compared to individual heating solutions. This project analysed whether a small-scale CHP plants could optimise its performance on the electricity market and thereby generating a greater income thus enabling a lowered heat price.

Notice that there is a library of old reports available at the semester website (direct link <http://www.lsn.aau.dk/intranet/planogmiljo/Projektbibliotek/index.php?nt=41>). The reports available here may also be perused for inspiration.

3.3 Methods of teaching and practicalities

The project work is made in groups of four to six students. The groups decide on the topic to write about in co-operation with a supervisor. Their choice must however be within the project theme of the semester and the specific goals of the Curriculum (Studieordning). The project work offers each student an opportunity to gain deeper insight into subjects of his/her choice by working with students from different cultural backgrounds and learning traditions. Project groups must therefore be formed on the basis of common interest.

It is common that during the project work, you run into problems of various kinds and it is therefore valuable to receive “feedback” and comments from other students and teachers, in addition to your regular meetings with your supervisors. We will therefore arrange a **Methodology and Status Seminar on Thursday, November 13th** so that you can present your project to others and comment on the project work of the other students.

The final project will be due for submission on Monday, January 5th, 2008 at 12 o'clock noon at the secretariat.

In addition to submitting the report in hard-copy to Allis Hansen on January 5th 2008, you are required to submit the report electronically - preferably as a pdf-file. If however you are unable to generate this, a word file will suffice though the subsequent generation of a pdf-file may affect your lay-out. Regardless of file format however, everything must be kept in one single file - i.e. including all chapters, appendices, preface, summary etc.

Please name the file in accordance with this template:

"2007 EM7 Andersen et al.pdf" (for reports with more than two authors – i.e. most reports)
"2006 EM9 Robert Mensah Filson.pdf"

or for the rare cases where projects are confidential
"2004 EM10 Martin Kæseler & Jakobi Pedersen CONFIDENTIAL.pdf"

The electronic submissions are to be mailed to Allis Hansen as attachments.

Examinations will then take place in weeks 3, 4 and 5 (12th to 30th January 2009). The exam will resemble the defence of the mini project though without the presence of other students and somewhat longer. The supervisors will discuss the exam with you

Furthermore, the *Semester Evaluation* will take place on Tuesday, December 2nd 2008 from 10.00 to 12.00. This is your evaluation of the courses and the projects – i.e. your constructive criticism and valuable feedback to the lecturers and supervisors.

3.4 Important guidelines concerning plagiarism and proper referencing

The use of the internet makes it is very easy to find sources and good texts describing issues relevant to your projects. Unfortunately, the internet also facilitates the misuse of such sources as everything can be copied directly into your own documents. This, however, is illegal plagiarism; it is seriously condemned and must at all costs be avoided.

Naturally, the same applies to sources in print.

Generally, you should not use another author's phrases unless there is a specific reason for doing so. In this case, the phrases *must* be clearly marked in the report using italics and/or quotation marks combined with a reference to the author. Failure to do so is plagiarism. Even if you did not intend to cheat.

We have adapted an Oxford University rule of thumb saying that "if six or more consecutive words are the same as the source", then it must be marked as a quotation as described above and clearly referenced. Additionally – and again inspired by Oxford University - "fewer than 6 words should also be quoted when you borrow a particularly apt or striking phrase"

Paraphrasing of other authors' work must also be properly referenced. Failure to do so is plagiarism. Even if you did not intend to cheat.

It is not even acceptable to present another author's *idea* without referring to the author. Failure to do so is plagiarism. In fact, making such references merely demonstrates that you are a well read student who knows the area of study.

Diagrams, figures, tables, photos and other graphical representations not made by yourself must also be properly referenced. Failure to do so is plagiarism

Plagiarism is utterly unacceptable and will lead to the rejection of the report and expulsion of the student from Aalborg University if discovered in a submitted report.

The extensive use of properly referenced quotes from single sources - ~third of a page and up - on the grounds that "*they write it better than we are able to*" is *not* plagiarism and hence not illegal. However, it is poor judgement, considered poor student work and hence generally renders a poor impression.

The extensive use of properly referenced quotes from single sources may of course be relevant under special circumstances, such as if you wish to discuss an EU directive, in which case, devoting e.g. a full page to the actual text may be appropriate.

If in doubt, please consult your supervisor.

Several reference systems exist. Use one system consequently throughout the whole report and throughout the entire process *including drafts*. Sloppy reference methodology in the preparation of drafts will cause problems in the writing of your final report. You will most likely forget that parts of your text are in fact quotations – and these parts will be considered plagiarism in your submitted report. Below is a link to a description of the Chicago style (successor of Harvard) which we recommend you to use. <http://wwlib.murdoch.edu.au/find/citation/chicago.html>

4. Guidelines for Courses

4.1 Lectures

In line with the educational approach at Aalborg University, we expect active participation from students in all teaching activities. Ordinary lectures will be offered in all the courses, but they will be combined with intensive class discussions and case analysis. Part of the course work will be offered in co-operation with other study programmes at Aalborg University. Some lectures are evaluated through individual examination (Study related courses) and some are evaluated through the project work (Project related courses). This means that you need to prove in the project that you have learned something from these courses.

The study project is supported by a number of courses. Generally speaking the semester consists of 10 ECTS of course work and 20 ECTS of study project (of which 2 ECTS are devoted to the introduction period and the mini project undertaken there). The 10 ECTS of courses consists of the following

Study related courses:

The following courses are not included in the project unit and are hence evaluated separately. The students are examined either orally or in writing in these two courses

- Research Methodology (2 ECTS)
- Feasibility studies (2 ECTS)

For students without prior knowledge of economic theory an optional short introductory course on Fundamental Investment Theory and Excel is given before the course in Feasibility studies will start (see Optional courses below). It is of paramount importance that you take FIT Excel if you have forgotten all your economic theory.

Project related courses:

The following courses are included in the project unit and support the study project. These courses are evaluated through the project work unless otherwise specified.

- Organisation Theory (1 ECTS)
- Environmental Problem Solving (1 ECTS)
- Corporate Environmental Management (CEM) (EM; 2 ECTS)
- Life Cycle Assessment (LCA) (EM; 1 ECTS)
- Introduction to Energy Systems (IES) (1 ECTS)
- Sustainable Energy System Analysis (SESA) (2 ECTS)
- Fundamental Investment Theory and Excel (FIT Excel) (1 ECTS)

Notice that this course does not count in terms of securing the required 30 ECTS for the semester.

If some students at EM want to follow courses in energy planning it is always possible. However, if you want to get documentation that you have followed other courses than suggested, you will need to arrange it with one of the semester coordinators.

The contents and purpose of the courses are presented in the following also encompassing a schedule for the individual courses and the literature used.

5. Study Related Courses

Feasibility Studies

Credits: 2 ECTS

Lecturers: Associate Professor Poul Alberg Østergaard (PAØ) (course responsible)
Professor Frede Hvelplund (FH)
Professor Petter Næss (PN)

Objectives: After the course the participants should be able to understand the interaction between public regulation, innovation and socio-economic feasibility studies. And the participant should be able to conduct a feasibility study and make use of the study in design of public regulation and public strategies of technological innovation. The course aims at establishing a coherent understanding of how to use socio-economic feasibility studies as a tool in establishing a suitable allocation of limited resources in the society and to use such information in the design of public regulation. In the course a number of tools and methods for socio-economic feasibility studies will be introduced and used in exercises. This includes employment and balance of payment analysis and externality assessments. The course furthermore includes game theory and analyses of the character and direction of technological change. All tools and methods are treated with special reference to the design and use of public regulation to promote or stem particular effects of particular strategies or projects.

Readings: Please see semester website

Programme:

1st Lecture: *Feasibility Studies, Innovation and Public Regulation* (FH)

2nd Lecture: *Sunk Costs, Time prioritisation and Public regulation* (FH)

3rd Lecture: *Employment and import analysis* (PAØ)

4th Lecture: *Externalities, Feasibility studies and Public regulation* (FH)

5th Lecture: *Technological Innovation and Public Regulation* (FH)

6th Lecture: *Questions and discussions* (PAØ)

7th Lecture: *Cost-benefit analyses of transportation investments: a critique* (PN)

8th Lecture: *Game theory* (PAØ)

9th Lecture: *Danish Water Treatment Action Plan* (PAØ)

10th Lecture: *Group presentation of final exercise* (PAØ)

Evaluation: The course is evaluated through an oral or written test with the presence of an examiner from the Department/AAU. The evaluation is concluded with a “passed” or “not passed”.

Research Methodology

Credits: 2 ECTS

Objectives of the course

The course introduces a range of research methods, approaches to research and ways of carrying out data analysis. The purpose of the course is to provide basic understanding of the choices, problems and opportunities that researchers are faced with in the process of planning and carrying out research. The lectures will introduce various examples of fixed, flexible and mixed research methods, and students will get involved in practical exercises, some of which will be based on computer-assisted data analyses of quantitative as well as qualitative data. During the course, students will be expected to take an active part in group work and collective presentations.

Lecturers:

Niels Mejlgaard	(NM)	E-mail: nielsm@plan.aau.dk (Course responsible)
Brian Vad Mathiesen	(BVM)	E-mail: bvm@plan.aau.dk
Georges Garabeth Salgi	(GGS)	E-mail: georges@plan.aau.dk
Bent Flyvbjerg	(BF)	E-mail: flyvbjerg@plan.aau.dk
Andrew Jamison	(AJ)	E-mail: andy@plan.aau.dk

Readings:

Please see the semester website.

Course schedule:

Part I: Introduction

1. Research methodology: introduction to course contents and central issues (NM)

Part II: Fixed designs

2. Introduction to survey research: approaches and procedures (NM)

3. Analyzing and presenting survey data using SPSS (NM)

Part III: Flexible designs

4. Interviewing and focus groups: approaches and procedures (NM)

5. Analyzing and presenting qualitative data (NM)

Part IV: Mixed methods

6. Action- or change-oriented research (AJ)

7. Case study research (BF)

Part V: 'Future' oriented research

8. Forecast and foresight methodology (BVM & GGS)

9. Scenario planning (BVM & GGS)

Part VI: Evaluation

10. Course evaluation using deliberative polling (NM)

Evaluation: Two hours individual written exam; passed / not passed. All teaching materials, notes etc. can be used during exam. Computers can be used although certain limits of application may be imposed. Date: Nov. 27th, 2008. Venue: to be announced later.

6. Project Related Courses

There are seven Project Related Courses; three in common for EM and energy planning, two separate for energy planning and two separate for EM students. The courses are listed in this order here in the guidelines

Environmental Problem Solving (FSA)

Credits: 1 ECTS

Lecturers: Mikkel Thrane (MT) (course responsible), Poul Alberg Østergaard (PAØ), Xiangyun Du (XD)

Objectives: The aim of the course is to provide an introduction to the historical development of environmental problems and problem-solving. Another aim is to give the students insight in problem-based learning (PBL), group/project work and learning in a new culture. The course provides the students with concepts and tools to analyse and prevent environmental impacts – focusing on the company level, as well as knowledge about historical trends and developments in environmental debates, and movements during recent decades.

During the course the student will work with a mini-project in pre-fixed groups. The mini projects will concern environmental problems and solutions related to the textile sector or water resources.

The exam will take place in the last lecture in the form of project presentations and discussions.

1. Course Initiation - PAØ and MT

2. Adapting to a new culture and learning environment – XD

3. Problem-based learning and practical information - MT

4. Environmental Problem Solving - MT

5. Presentation, discussion and evaluation of mini projects – (MT, PAØ and supervisors)

Evaluation: This course will be evaluated through the mini-projects

Organisation Theory

Credits: 1 ECTS

Lecturer: Associate Professor Lars Bo Henriksen

Objectives: The purpose of the course is to introduce central theories, debates and concepts of organisation theory, with a special emphasis on historical and methodological aspects of organisational analysis and thereby give the students insight into and knowledge of organisation theory and organisational analysis. In addition, we will discuss ways of analysing organisations.

Readings: Jaffe, David: Organisation theory: Tension and change.
Mintzberg: Structure in fives
Henriksen et.al.: Dimensions of Change

Programme:

1st Lecture: *Introduction. Taylorism and bureaucracy. Stakeholder analysis, SWAT analysis.*

2nd Lecture: *Human relations, organisation and technology. Organisation analysis continued.*

3rd Lecture: *Organisation culture and network theory. Organisation analysis continued.*

4th Lecture: *Organisation structure. Organisation analysis continued.*

5th Lecture: *Organisation, change and reality. Theory and methods. Organisation analysis continued.*

Evaluation: This course will be evaluated through the project evaluation

Fundamental Investment Theory and Excel (FIT Excel) (FSA)

Length 1 ECTS (note; does not count in the 30 ECTS semester requirement)

Lecturers: Associate Professor Poul Alberg Østergaard (PAØ) (Course responsible)
PhD Student Georges Salgi (GS)

Preconditions for participation: None. **This course or equal qualifications are a precondition for Feasibility Studies** (see page 16). If you are in doubt of whether you need this course, please contact Associate Professor, Poul Alberg Østergaard, poul@plan.aau.dk

Objectives: The objectives of this course are to supply students without prior experience with basic economic calculations or analyses with the tools required for working on the assignments in the course “Feasibility Studies”. The course includes mainly calculations of interest rates, compound interest, annuities, pay-back-periods, present value and basis comparisons of different investment options. And the course also introduces Cost-Benefit Analysis. The main weight is put on the students' active work on assignments.
The second objective of the course is to introduce the students to spreadsheets in the form of MS Excel and enable the students to perform economic as well as simple technical analyses using spreadsheets.

Readings: *Fundamental Investment Theory* by Karl Emil Serup/Henrik Lund and *Cost-Benefit Analysis and the Environment*, Chapter 4 from the book *Introduction to Environmental Economics* by Nick Hanley, Jason F. Shogren & Ben White. Oxford University Press 2001.

Additional readings:

Abdulezer, Loren. Excel Best Practices for Business. Wiley Pub., 2004. (Available online on campus via Ebrary - <http://site.ebrary.com/lib/aalborguniv>)

Programme:

1st Lecture: *Introduction to calculations with interest rates and present value* (PAØ)

2nd Lecture: *Compound interest, annuities, pay-back-periods, present value and basis comparisons of different investment options. Time prioritisation and Cost-Benefit Analysis* (PAØ)

3rd Lecture: Introduction to Excel (what are spreadsheets, where to use them, referencing, drag and drop, naming cells) (GS)

4th lecture. Using large data sets (manoeuvring in large spreadsheets, conditional selection of cells, conditional formatting of cells) (GS)

5th lecture Presentation of outputs and other options (Diagrams, problem solver, macros, non Microsoft spreadsheets) (GS)

Evaluation: This course is evaluated through attendance

Introduction to Energy Systems (IES)

Credits: 1 ECTS

Lecturers: Associate Professor Poul Alberg Østergaard (PAØ)
Associate Professor Bernd Möller (BM) (course responsible)

Precondition for participation: None.

The course is obligatory for energy planning students

Objectives: To provide students without prior experience with basic knowledge of the components in national energy systems and the methodology of energy system analysis required for participation in the course "Sustainable Energy Systems Analysis". The implementation of a potential future energy system based on renewable energy requires considerable investments in energy plants such as for example CHP units, biomass combustion units, wind power plants and solar collectors. As sustainable energy systems have to deal with seasonal and diurnal fluctuations of wind power and solar energy, intelligent operation modes are required. The course introduces basic knowledge of the components of energy systems and the methodology of energy system analysis. Participants will be made familiar with energy end-use, heat and power production and renewable energy sources. The course introduces the basic understanding of energy system analysis and integrated resource planning.

Readings: Please see semester website

Programme:

1st Lecture: *Energy Conversion Technologies* (PAØ)

2nd Lecture: *Energy End Use* (BM)

3rd Lecture: *Renewable Energy Technologies* (BM)

4th Lecture: *Visual Impact Analysis of Renewable Energy Plants* (BM)

5th Lecture: *Energy System Analysis* (PAØ)

Evaluation: This course will be evaluated through the project evaluation

Sustainable Energy Systems Analysis (SESA)

Credits: 2 ECTS

Lecturers: Associate Professor Poul Alberg Østergaard (PAØ) (course responsible)
Ext Associate Professor Anders N. Andersen (ANA)
External Lecturer Mads V. Sørensen, EMD (MVS)

Precondition for participation: Basic sustainable energy system analysis skills as found in the course *Introduction to Energy Systems* or similar qualifications.
The course is obligatory for energy planning students

Objectives: To provide students with knowledge and practical experience of technical, environmental and economic analyses performed on sustainable energy systems. To make the participants acquainted with general technological energy system concepts, with the perspective to learn how to perform investment strategies for energy plants, and to operate these plants optimally. The course is conducted as a combination of lectures and computer workshops. A case study is introduced and used as a starting point for the different exercises and analyses. The course will include two main aspects of the analysis of sustainable energy systems: the technical setup of energy systems and their technical, environmental and economic optimisation. Potential future energy technologies are presented, and methodologies and tools for operation and investment analysis of potential investments are introduced and used in exercises.

Readings: Please see semester website

Programme:

1st Lecture: *Introduction to Wind Turbine Analysis (WindPRO)* (PAØ/MVS)

2nd Lecture: *Introduction to optimal operation of CHP and tri-generation plants* (ANA)

3rd Lecture: *Study tour I – Wind turbine and CHP plant* (PAØ/ANA)

4th Lecture: *Modelling Energy Plants* (ANA)

5th Lecture: *Calculating yearly Production from Wind Turbines using WindPRO* (PAØ/MVS)

6th Lecture: *Investment Analysis* (ANA)

7th Lecture: *Analysing electric grids using energyPRO GRID* (PAØ)

8th Lecture: *Implementation of Danish CHP regulation into EnergyPRO* (ANA)

9th Lecture: *Study tour II* (PAØ/ANA)

10th Lecture: *Conclusion of the Course* (PAØ/ANA)

Evaluation: This course will be evaluated through the project evaluation

Corporate Environmental Management (CEM)

Credits : 2 ECTS

Lecturers: Associate Professor Tine Herreborg Jørgensen (THJ) (course responsible)
Ph.d.-student Mette Mosgaard (MM)
Assistant Professor Ole Busck (OB)

Objectives: The aim of this course is to provide the students with an understanding of the managerial and strategic implications of the environmental challenge facing businesses operating on international markets. The course will focus on environmental management in a company perspective. The course will explain various management philosophies and tools that firms can apply in order to measure, assess and communicate environmental performance and thus enhance competitiveness. The environmental implications will be analysed and discussed from theoretical as well as empirical perspectives. The first five lectures focus narrowly on theoretical and empirical perspectives of Environmental Management. The second five lectures focus on wider aspects related to environmental management such as product-oriented focus in environmental management and the integration of different management systems.

Readings: Please see semester website

Programme:

1st Lecture: *Corporate Strategy, Competitiveness and Environment* (THJ)

2nd Lecture: *Introduction to Environmental Management Systems* (THJ)

3rd Lecture: *Implementation of Environmental Management Systems* (THJ)

4th Lecture: *Initial Environmental Review – Environmental Management Accounting* (MM)

5th Lecture: *Environmental (and social) Reporting* (THJ)

6th Lecture: *Occupational Health and Safety Management Systems* (THJ)

7th Lecture: *Integrated Management Systems* (THJ)

8th Lecture: *Corporate Social Responsibility* (MM)

9th Lecture: *Employee Participation* (OB)

10th Lecture: *Product-oriented Environmental Management and Life Cycle Management* (MM)

Evaluation: This course will be evaluated through the project evaluation

Life Cycle Assessment (LCA) (FSA)

Credits: 1 ECTS

Lecturers: Associate Professor Mikkel Thrane (course responsible)
Assistant Professor Jannick Schmidt

Objectives: To give a comprehensive introduction to the LCA methodology. The course will enable the student to carry out LCAs in practice, to understand the methodology, and to interpret and reflect on the results from a LCA. The practical part (the exercises) is carried out in the latest version of the LCA software SimaPro 7.1.

Readings: ISO 14040 (2006): Environmental management - Life cycle assessment -Principles and framework, International Standard Organization (ISO), Geneva

ISO 14044 (2006): Environmental management - Life cycle assessment -Requirements and guidelines, International Standard Organization (ISO), Geneva

Thrane M and Schmidt J H (2007): *Life Cycle Assessment (LCA)*. In Kørnov L, Remmen A, Lund H, and Thrane M (2007): *Tools for Sustainable Development*. Aalborg Universitetsforlag, Aalborg, Denmark (in press)

Schmidt J H and Thrane M (2007): *LCA case study of pickled herring*. In Kørnov L, Remmen A, Lund H, and Thrane M (2007): *Tools for Sustainable Development*. Aalborg Universitetsforlag, Aalborg, Denmark (in press)

Wenzel, H., M. Hauschild and L. Alting (1997): *Environmental Assessment of Products*, Chapman & Hall, London

Programme: The course introduces the ISO standards 14040 and 14044 on LCA. The specific calculations in the LCA (the life cycle impact assessment - LCIA) take point of departure in the Danish EDIP method. Three lectures are reserved for the ISO standards and EDIP. The last part of the course is reserved for more critical aspects of the LCAs, including interpretation, possible utilization, alternative system boundaries, and allocation principles (2 lectures). For Danish students from 6th semester, it should be stressed that the course corresponds to the LCA part of the “Værktøjer i Planlægningen” previously offered, and that participation is relevant only for the purpose of repetition.

1st Lecture: *Introduction to life cycle thinking (LCT) and the life cycle assessment tool (LCA)* (MT)

2nd Lecture: *The ISO standards and main aspects of carrying out an LCA* (MT)

3rd Lecture: *Major challenges of LCA, e.g. system delimitation and co-product allocation* (JS)

4th Lecture: *Life cycle impact assessment - LCIA (Characterization, Normalization and Weighting)* (JS)

5th Lecture: *Application of LCA in different contexts and future development tendencies* (MT)

Evaluation: This course will be evaluated through the project evaluation

7. Guest Lectures

Guest lectures

Anders Plejdrup Houmøller

General Manager Denmark, Nord Pool Spot AS

Time: Late November 2008 (to be settled later)

Theme: The working of the Nord Pool Electricity markets

Readings: The Nordic Power Exchange Nord Pool and the Nordic Model for a Liberalised power market by Anders Houmøller (available on the website under Guest Lectures)

Prof. Donald Huisingh

Retired Senior Scientist in Sustainable Development & Editor-in-Chief of the Journal of Cleaner Production, Institute for a Secure and Sustainable Environment, University of Tennessee

Time: Friday 5th September 2008 at 08.30-13.30 in room 51, Fib. 13

Theme: Workshop about Cleaner Production. Fun Factory simulation with playdough.

Prof. Liu, Beijing Normal University

Time: Friday 19th September 2008 at 12.30-14.30 in room 51, Fib. 13

Theme: Water environment health in Beijing + the general situation concerning water resources and water resource planning in China.

8. Academic and administrative staff in the 1st semester

Academic Co-ordinators:

Poul Alberg Østergaard, Associate Professor poul@plan.aau.dk Room 102, Fib. 13
Mikkel Thrane, Associate Professor thrane@plan.aau.dk Room 106, Fib. 13

Lecturers:

Anders N. Andersen, Associate Professor ana@plan.aau.dk EMD, NOVI
Andrew Jamison, Professor andy@plan.aau.dk Room 80, Fib. 13
Bernd Möller, Associate Professor berndm@plan.aau.dk Room 120, Fib. 13
Brian Vad Mathiesen PhD-Student bvm@plan.aau.dk Room 81, Fib. 13
Frede Hvelplund, Professor hvelplund@plan.aau.dk Room 118, Fib. 13
Georges Garabeth Salgi, PhD-Student georges@plan.aau.dk Room 81, Fib. 13
Jannick Schmidt, Assistant Professor jannick@plan.aau.dk Room 106, Fib. 13
Lars Bo Henriksen, Associate Professor lbh@plan.aau.dk Room 20b, Fib. 13
Mette Mosgaard, PhD-Student mette@plan.aau.dk Room 67, Fib. 13
Mikkel Thrane, Associate Professor thrane@plan.aau.dk Room 106, Fib. 13
Ole Busck, Assistant Professor oleb@plan.aau.dk Room 88, Fib. 13
Petter Næss, Professor petter@plan.aau.dk Room 27, Fib. 13
Poul Alberg Østergaard, Associate Professor poul@plan.aau.dk Room 102, Fib. 13
Tine H. Jørgensen, Associate Professor tine@plan.aau.dk Room 73, Fib. 13
Niels Mejlgaard, Associate Professor nielsm@plan.aau.dk Room 80, Fib. 13
Xiangyun Du, Assistant Professor xiangyun@plan.aau.dk Room 40, Fib. 13
Bent Flyvbjerg, Professor flyvbjerg@plan.aau.dk Room 25, Fib. 13

External Lecturer:

Mads V. Sørensen mvs@emd.dk EMD, NOVI

Secretarial Office:

Allis Hansen, Secretary allis@plan.aau.dk Room 71a, Fib. 13
Office hours: Monday - Friday from 10.30 -12.30

International Office:

Susanne Sørensen Fredrik Bajers Vej 5

If you have any questions regarding academic matters, please contact Associate Professor Mikkel Thrane, or Associate Professor Poul Alberg Østergaard.

For practical matters concerning your studies, contact the secretariat (room 71a).

On extra-curricular matters please contact Susanne Sørensen at the International Office.

9. Facilities

Computer Facilities

Facilities such as computers and printers are located at Fibigerstræde 13 (Fib. 13) room 49 and Fibigerstræde 11 (Fib. 11) room 39. These facilities give access to various programmes, printers, e-mail and full access to the Internet as well as the University Library System.

Information regarding username and password will be given to you shortly after the start of the programme.

The University Bookshop

The University bookshop is located at Fibigerstræde 15. All *textbooks* prescribed for the courses in this programme are available at the bookshop.

The Library

The main library is located at Langagervej 2. Your student card will work as your library card.

Other Facilities

Copying Service: A photocopy card for using the photo copying machines all over Campus can be bought at the University Bookshop. Price for 100 copies is about DKK. 50.00.

Printing: You will be charged for printing, which means that 100 copy card units gives you 90 print units.

Mail: Mailboxes for Environmental Management/Sustainable Energy Planning and Management students can be found in the corridor, Fib. 13, next to the secretariat. The boxes will be clearly marked with your name. Please check this box regularly.

E-mail: Important messages will be sent to your university e-mail address, which is given to you along with your user name and password. Please check your e-mails daily.

Notice Board: A notice board, clearly marked "*Environmental Management/Sustainable Energy Planning and Management*" is to be found in Fib.13, next door to room 71a. On this board, different information can and will be posted. Please check it every day.

Website: Readings, course information, schedule etc. will be available from the 1st semester website: <http://www.lsn.aau.dk/planogmiljo/em7/>
Please check this website daily.

Group Rooms: The group rooms available for you will be posted on the notice board.

Please do not hesitate to contact Allis Hansen at the secretariat, if you have any further questions.

10. Schedule 1st semester 2008

Week	Mon. 1.9	Tues. 2.9	Wed. 3.9	Thurs. 4.9	Fri. 5.9
36		EPS (1) (PAØ + MT) 9.00-12.00 Room 007, Fib. 10	8.30-12.00 Group work	EPS (3) (MT) 8.30-12.00 Room 007, Fib. 10	Donald Huisingh Workshop 8.30-13.30 Room 51, Fib. 13
		EPS (2) (XD) 12.30-16.00 Room 007, Fib. 10	12.30-16.00 Group work	FIT (1) (PAØ) 12.30-16.00 Room 007, Fib. 10	14.00 Meeting between students and staff Room 51, Fib. 13

Week	Mon. 8.9	Tues. 9.9	Wed. 10.9	Thurs. 11.9	Fri. 12.9
37	FIT (2) (PAØ) 8.30-12.00 Room 007, Fib.10	FS (1) (FH) 8.30-12.00 Room 007, Fib.10	8.30-12.00 Group work	8.30-12.00 Group work	8.30-12.00 Group work
	EPS (4) (MT) 12.30-16.00 Room 007, Fib.10	CEM (1) (THJ) 12.30-16.00 Room 007, Fib.10	12.30-16.00 Group work	RM (1) (NM), 12.30-16.00 Room 007, Fib.10	12.30-16.00 Group work

Week	Mon. 15.9	Tues. 16.9	Wed. 17.9	Thurs. 18.9	Fri. 19.9
38	8.30-12.00 Group work 12.00 hand in mini projects to Allis	FS (2) (FH) 8.30-12.00, Room 007, Fib.10	IES (1) (PAØ) 08.30-12.00 Room 007, Fib.10	8.30-12.00 Group work	CEM (2) (THJ) 08.30-12.00 Room 51, Fib. 13
	12.30-16.00 Group work	EPS (5) (MT, PAØ and supervisors) Presentation of mini projects 12.30-16.00 Room 1 and 3, Fib. 11	12.30-16.00 Group work	RM (2) (NM), 12.30-16.00, Room 007, Fib.10	12.30-14.30 Guest lecture: Professor Liu, Beijing Normal University. Subject: Water Environment health in Beijing Room 51, Fib. 13

Week	Mon. 22.9	Tues. 23.9	Wed. 24.9	Thurs. 25.9	Fri. 26.9
39	Group formation (PAØ, MT) 8.30-12.00 Room 007, Fib.10	FS (3) (PAØ) 8.30-12.00, Room 007, Fib.10	IES (3) BM 8.30-12.00 Room 007, Fib.10	LCA (1) (MT) 8.30-12.00 Room 007, Fib. 10	IES (4) (BM) 8.30-12.00 Room 007, Fib.10
	IES (2) (BM) 12.30-16.00 Room 007, Fib.10	CEM (3) (MM) 12.30-16.00 Room 007, Fib.10	Group work 12.30-16.00	RM (3) (NM), 12.30-16.00, Room 49, Fib. 13 and room 51, Fib. 13	12.30-16.00 Group work

Week	Mon. 29.9	Tues. 30.9	Wed. 1.10	Thurs. 2.10	Fri. 3.10
40	OT (1) (LBH) 8.30-12.00 Room 007, Fib.10	FS (4) (FH) 8.30-12.00, Room 007, Fib.10	8.30-12.00 Group work	LCA (2) (MT) 8.30-12.00 Room 49, Fib. 13	SESA (1) (PAØ/MVS) 8.30-12.00 Room 51, Fib. 13
	IES (5) (PAØ) 12.30-16.00 Room 007, Fib.10	CEM (4) (THJ) 12.30-16.00 Room 007, Fib.10	Group work 12.30-16.00	RM (4) (NM), 12.30-16.00, Room 007, Fib.10	SESA (2) (ANA) 12.30-16.00 Room 49 Fib. 13

Week	Mon. 6.10	Tues. 7.10	Wed. 8.10	Thurs. 9.10	Fri. 10.10
41	8.30-12.00 Group work	FS (5) (FH) 8.30-12.00, Room 007, Fib.10	LCA (3) (JS) 08.30-12.00 Room 49, Fib. 13	SESA (4) (ANA) 08.30-12.00 Room 39, Fib. 11	LCA (4) (JS) 08.30-12.00 Room 49, Fib. 13
	SESA (3) (PAØ/ANA) Study tour I – wind turbine and CHP plant	CEM (5) (THJ) 12.30-16.00 Room 007, Fib.10	Group work 12.30-16.00	RM (5) (NM), 12.30-16.00 Room 49, Fib. 13 and room 51, Fib. 13	12.30-16.00 Group work

Week	Mon. 13.10	Tues. 14.10	Wed. 15.10	Thurs. 16.10	Fri. 17.10
42	HOLIDAY	HOLIDAY	Group work 8.30-12.00	Group work 8.30-12.00	Group work 8.30-12.00
	HOLIDAY	HOLIDAY	Group work 12.30-16.00	Group work 12.30-16.00	Group work 12.30-16.00

Week	Mon. 20.10	Tues. 21.10	Wed. 22.10	Thurs. 23.10	Fri. 24.10
43	OT (2) (LBH) 8.30-12.00 Room 117, Fib.11	FS (6) (PAØ) 8.30-12.00, Room 007, Fib.10	FIT (3) (GS) 8.30-12.00 Room 39, Fib. 11	8.30-12.00 Group work	CEM (7) (THJ) 8.30-12.00 Room 51, Fib. 13
	12.30-16.00 Group work	CEM (6) (THJ) 12.30-16.00 Room 007, Fib.10	Group work 12.30-16.00	RM (6) (AJ), 12.30-16.00 Room 007, Fib.10	SESA (5) (PAØ/MVS) 12.30-16.00 Room 51, Fib. 13

Week	Mon. 27.10	Tues. 28.10	Wed. 29.10	Thurs. 30.10	Fri. 31.10
44	OT (3) (LBH) 8.30-12.00 Room 007, Fib.10	FS (7) (PN) 8.30-12.00, Room 007, Fib.10	8.30-12.00 Group work	SESA (6) (ANA) 8.30-12.00 Room 39, Fib. 11	SESA (7) (PAØ) 8.30-12.00 Room 51, Fib. 13
	FIT (4) (GS) 12.30-16.00 Room 49, Fib. 13	CEM (8) (MM) 12.30-16.00 Room 007, Fib.10	Group work 12.30-16.00	RM (7) (BF), 12.30-16.00, Room 51, Fib. 13	LCA (5) (MT) 12.30-16.00 Room 49, Fib. 13

Week	Mon. 3.11	Tues. 4.11	Wed. 5.11	Thurs. 6.11	Fri. 7.11
45	OT (4) (LBH) 8.30-12.00 Room 007, Fib.10	FS (8) (PAØ) 8.30-12.00, Room 007, Fib.10	SESA (8) (ANA) 8.30-12.00 Room 49, Fib. 13	OT (5) (LBH) 8.30-12.00 Room 007, Fib.10	RM (9) (Georges/Brian), 8.30-12.00 Room 007, Fib.10
	FIT (5) (GS) 12.30-16.00 Room 49, Fib. 13	CEM (9) (OB) 12.30-16.00 Room 51, Fib.13	12.30-16.00 Group work	RM (8) (Georges/Brian), 12.30-16.00, Room 007, Fib.10	12.30-16.00 Group work

Week	Mon. 10.11	Tues. 11.11	Wed. 12.11	Thurs. 13.11	Fri. 14.11
46	SESA (9) (PAØ/ANA) Study tour II Nordjyllandsvær ket	FS (9) (PAØ) 8.30-12.00, Room 007, Fib.10	8.30-12.00 Group work	Methodology and status seminar, 08.30-12.00 Room 1 and 3, Fib. 11	8.30-12.00 Group work
	12.30-16.00 Group work	12.30-16.00 Group work	12.30-16.00 Group work	RM (10) (NM), 12.30-16.00, Room 007, Fib.10	12.30-16.00 Group work

Week	Mon. 17.11	Tues. 18.11	Wed. 19.11	Thurs. 20.11	Fri. 21.11
47	8.30-12.00 Group work	FS (10) (PAØ) 8.30-12.00, Room 007, Fib.10	SESA (10) (PAØ/ANA) 8.30-12.00 Room 49, Fib. 13	8.30-12.00 Group work	8.30-12.00 Group work
	12.30-16.00 Group work	12.30-16.00 Group work	Group work 12.30-16.00	12.30-16.00 Group work	12.30-16.00 Group work

Week	Mon. 24.11	Tues. 25.11	Wed. 26.11	Thurs. 27.11	Fri. 28.11
48	Group work 8.30-12.00	Group work 8.30-12.00	Group work 8.30-12.00	RM written exam 09.00-11.00 Room 1, 3 + 115, Fib. 11 and Room 53 + 55, Fib. 13	CEM (10) (MM) 8.30-12.00 Room 51, Fib. 13
	Group work 12.30-16.00	Group work 12.30-16.00	Group work 12.30-16.00	12.30-16.00 Group work	Group work 12.30-16.00

Week	Mon. 1.12	Tues. 2.12	Wed. 3.12	Thurs. 4.12	Fri. 5.12
49	8.30-12.00 Group work	Semester evaluation 10.00-12.00 Room 51, Fib. 13	8.30 - 12.00 Group work	8.30 - 12.00 Group work	8.30 - 12.00 Group work
	12.30- 16.00 Group work	12.30- 16.00 Group work	12.30- 16.00 Group work	12.30- 16.00 Group work	12.30- 16.00 Group work

Week	Mon. 8.12	Tues. 9.12	Wed. 10.12	Thurs. 11.12	Fri. 12.12
50	8.30 - 12.00 Group work	8.30 - 12.00 Group work	8.30 - 12.00 Group work	8.30 - 12.00 Group work	8.30 - 12.00 Group work
	12.30- 16.00 Group work	12.30- 16.00 Group work	12.30- 16.00 Group work	12.30- 16.00 Group work	12.30- 16.00 Group work

Week	Mon. 15.12	Tues. 16.12	Wed. 17.12	Thurs. 18.12	Fri. 19.12
51	8.30 - 12.00 Group work	8.30 - 12.00 Group work	8.30 - 12.00 Group work	8.30 - 12.00 Group work	8.30 - 12.00 Group work
	12.30- 16.00 Group work	12.30- 16.00 Group work	12.30- 16.00 Group work	12.30- 16.00 Group work	12.30- 16.00 Group work

Week	Mon. 22.12	Tues. 23.12	Wed. 24.12	Thurs. 25.12	Fri. 26.12
52	8.30 - 12.00 Group work	8.30 - 12.00 Group work	HOLIDAY	HOLIDAY	HOLIDAY
	12.30- 16.00 Group work	12.30- 16.00 Group work	HOLIDAY	HOLIDAY	HOLIDAY

Week	Mon. 29.12	Tues. 30.12	Wed. 31.12	Thurs. 1.1	Fri. 2.1
1	HOLIDAY	HOLIDAY	HOLIDAY	HOLIDAY	8.30-12.00 Group work
	HOLIDAY	HOLIDAY	HOLIDAY	HOLIDAY	12.30-16.00 Group work

Week	Mon. 5.1	Tues. 6.1	Wed. 7.1	Thurs. 8.1	Fri. 9.1
2	Hand in project reports to Allis no later than 12 noon				