ClimBEco courses 2020

From Research to Policy for Sustainable Development

18-20 February, 31 March, 1-2 April 2020
University of Gothenburg
The aim of this course is to enhance the participants' understanding of research-policy linkages and to increase their capabilities to communicate their research findings to different stakeholders, in order to create impact for sustainable development. The aim is also to increase the awareness of how the political environment impacts on research, its utilisation and applicability in policy work. The course aims to increase the understanding for the importance of using target oriented communication and networking tools to support messages deliverance and the continuation of complex societal discussions.

From CO_2 in situ measurements to carbon balance maps as a tool to support national carbon accounting

9-13 March 2020
Lund University
The course aims at introducing the concept of assessing the carbon balance of a geographical region from in situ measurements and how the results can be used as a tool to support national carbon accounting. The course will focus on the user perspective and different ways of upscaling the carbon dioxide exchange to assess the carbon budget of a larger region (e.g. Sweden). This will include scientific motivation of the different types of analyses that are used in the different steps to assess the (terrestrial) carbon balance and knowledge about their uncertainties and limitations. An important part of the course is the need for transparency in the data used and how to handle uncertainty in in research results.

Introduction to R

7–9 October 2020
Lund University
This course's aim is to provide a basic introduction to R, preparing students for additional R courses within ClimBEco and GENECO. The course will use a combination of brief lectures and tutorials where the students will work on prepared problems. We will cover: basic R commands, basic data manipulation in R (different data structures), import and export of data, plotting commands, functions for data summary and manipulation (e.g. computing means, variances, maxima, minima, and apply-functions) and – time permitting – basic statistics. Course leader is Johan Lindström (MERGE). The course is a collaboration between the research schools ClimBEco and GENECO. The course is mainly for students enrolled in ClimBEco and GENECO, and then at the faculty of science at Lund University. Students from outside Lund University, and not within any affiliations mentioned above, are welcome to apply but will be charged.

Plant-atmosphere interactions in a changing climate (online course)

12–16 October 2020
University of Gothenburg
This course deals with the responses of plants (mostly crops and forests) to global environmental change factors such as rising CO2, warming, tropospheric ozone, and nitrogen deposition. Main emphasis is on ecophysiological plant responses and how they affect ecosystem processes such as productivity, carbon balance and water cycling. The representation of plants and vegetation in ecosystem and climate models will also be covered to some extent. The course content will suit PhD students with emphasis on plant ecology/ecophysiology as well as those with a broader interest in land– atmosphere interactions and modelling.

Global environmental governance today – actors, institutions, complexity (online course)

19–23 October 2020
Lund University
The course frames this dilemma of global environmental governance as a problem of human interaction. It starts from the premise that, in addition to natural and physical barriers, there are severe social and political barriers that often stand in the way of an effective management of transboundary environmental threats. In other words: political processes and actors are not only the target of scientific advice (science for politics), but part of the problem – and hence objects of examination (science of politics), e.g. due to underlying constellations of power and interests or behavioural norms.

ClimBEco courses 2019

Land use greenhouse gas emissions - IPCC guidelines, UNFCCC reporting, global and EU policy

28 January - 1 February 2019
University of Gothenburg
This course digs into EF's on soil emissions of CO2, CH4 and N2O, mostly for agricultural and forest systems. Biogeochemical processes generating GHG's and how data is generated by measurements. Global climate negotiations (COP) and UNFCCC reporting will be touched upon, as well as how IPCC is organized and the IPCC guidelines on national GHG reporting. We also touch on that land use emissions cannot any longer be ignored in international negotiations on GHG mitigation. Why also the National Contributions for reduction on GHG emissions after the Paris agreement also include land use emissions as well included into EU policy. We will have a look at the discourse and practice.

An introduction Structural Equation Modeling for Ecology and Evolutionary Biology

11-15 February 2019
Lund University
The aim of this course is to familiarize oneself with the basic techniques of SEM using the 'lavaan' package in R.

META-ANALYSIS using R

18-22 February 2019
Lund University
The course is a collaboration between ClimBEco and GENECO

Artic in a changing climate

4-29 March - Lecture week 11-15 March 2019
University of Gothenburg
The course will give graduate students a broad holistic knowledge about the Arctic and how systems are affected by the ongoing climate change and potentially feed back to the climate system. Lectures and seminars will cover several disciplines within Science (e.g. Atmosphere, Cryosphere, Terrestrial Ecology, Marine issues and Climate modelling) and aims to create a stimulating forum for graduate students with issues that force them to broaden their perspective from their own doctoral research.

Ecosystem Modelling with LPJ-GUESS

13-17 May 2019
Lund University
LPJ-GUESS is a leading terrestrial ecosystem modelling framework, offering state-of-the-art descriptions of vegetation dynamics and terrestrial biogeochemical cycling. It is a key component of the research we conduct in MERGE and BECC. This ClimBEco course will give graduate students a broad but practical introduction to terrestrial ecosystem modelling with LPJ-GUESS, but also provide specific help to students intending or wishing to apply LPJ-GUESS to their own PhD thesis topics.

First Steps in Biosphere-Atmosphere Modelling

10-20 June 2019
Lund University
During the course, everyone will program an atmospheric boundary layer model with chemistry and aerosol dynamics, including: equations of flow for the atmospheric boundary layer with the first order turbulence closure, 1-dimensional column model + numerical solution, emissions of biogenic volatile organic compounds (BVOCs) from vegetation, modelling of chemical kinetics by systems of differential equations, deposition of aerosols and numerical solutions for aerosol formation and growth. The model will be coded in Fortran 95.

Science communication and role in society

23-27 September
Lund University
Communicating Science is a course for PhD students and postdocs that want to reach out with their research.

Interdisciplinarity in environmental research

1-3 October
Lund University
This course gives an introduction in how interdisciplinary environmental research can be conducted. As a

research area, environmental science is based on the notion that complex environmental problems typically demand an interdisciplinary approach to be holistically understood and potentially solved. In this context, interdisciplinarity denotes both collaborative efforts between scientific disciplines and between scientists and a variety of societal actors. During the course we will revise why interdisciplinary research across these dimensions is needed and how it can be pursued.

Global environmental governance today – Actors, institutions, complexity

7-11 October
Lund University
During the global climate conference in Paris, countries around the world subscribed to staying below an average warming of 2°C and submitted targets to reduce their carbon footprint. But how effective will these targets be, and how will recent changes in government, in the US and elsewhere, influence the probability of meeting them? Are economic growth, political interest and human development compatible with environmental conservation? And is scientific knowledge about the state of the environment enough to mobilize a change in behavior?

Risk, Uncertainty and Decision Theory

8-9 October, University of Gothenburg
5-6 November, Lund University
7-8 November, Conference in Copenhagen
We make a number of decisions every day. These decisions are based on conscious or unconscious analysis, as well as assessments of risks and uncertainties. We are often unaware of how we make these decisions, and how we compare alternatives. Individuals, as well as society, sometimes make decisions to be on the safe side, whereas in other cases chose to take a risk. The course focuses on a number of issues: How can risk be assessed? Can risk be quantified? How do risk assessments affect decision and policy making? What role does risk communication and media play? How do individuals perceive risks and risk management? Risk, uncertainty, and decision analysis implies systematic efforts to understand the consequences of decisions.

Biodiversity and ecosystem services in agriculture, forestry and urban environments

18-22 November
Lund University
Human wellbeing is tightly linked to biodiversity and ecosystem services, and their management is a major societal challenge. This is an exciting, multi-faceted field of research. How can we take into account the different functions and services? What are the relevant scales for ecological processes and do they match management scales? How do we account for the value of ecosystem services?

ClimBEco courses 2018

Interdisciplinarity in Environmental Research

26-28 February 2018
Lund University
This course gives an introduction in how interdisciplinary environmental research can be conducted. As a research area, environmental science is based on the notion that complex environmental problems typically demand an interdisciplinary approach to be holistically understood and potentially solved. In this context, interdisciplinarity denotes both collaborative efforts between scientific disciplines and between scientists and a variety of societal actors. During the course we will revise why interdisciplinary research across these dimensions is needed and how it can be pursued.

From Research to Policy for Sustainable Development

26-28 February, 27-29 March 2018
University of Gothenburg
The aim of this course is to enhance the participants' understanding of research-policy linkages and to increase their capabilities to communicate their research findings to different stakeholders, in order to create impact for sustainable development. The aim is also to increase the awareness of how the political environment impacts on research, its utilisation and applicability in policy work. The course aims to increase the understanding for the importance of using target oriented communication and networking tools to support messages deliverance and the continuation of complex societal discussions.

Bayesian Analysis and Decision theory

13-14 March, 20-21 March, 10-11 April 2018
Lund University
Bayesian methods are used for inference, modelling of complex data, model calibration, and integration of multiple sources of information, combination of data with expert knowledge, risk and decision analysis. This is a course which mixes theory and literature seminars with hands-on exercises on Bayesian analysis to learn, predict, quantify uncertainty and make decisions.
The course will be open for anyone who has basic knowledge in probability theory or statistics. Experience in R will be an advantage for the hands on exercises. Methods will be presented in settings where they are applied using simple examples from the field of environmental and risk management. The purpose with the applied focus is to give students basic skills to use these methods, understand what they can be used for, and stimulate the student’s curiosity in learning more about them at a more foundational level.

Particles and Health

23-26 April, 2018, 21-25 May 2018
Lund University
The aim of the course is to mediate knowledge of how particles may affect human health. Particles of different origin such as atmospheric, indoor, workplace aerosols and engineered nanoparticles will be covered. The participants will learn how to assess exposures and effects of particles as well as relationships between particle properties and toxicological effects. The course will provide insight into the latest research in the field through lectures given by leading invited researchers.

Introduction to R

2-4 May 2018
Lund University
This course aim is to providing a basic introduction to R, preparing students for other courses within ClimBEco and GENECO. The course will use combination of brief lectures and tutorials where the students will work on prepared problems. We will cover: basic R commands, basic data manipulation in R (different data structures), import and export of data, plotting commands, functions for data summary and manipulation (e.g. computing means, variances, maxima, minima, and apply-functions) and – time permitting – basic statistics.

High-Dimensional Data Analysis in Ecology and Evolutionary Biology Using R

28 May - 1 June 2018
Lund University
The course “Introduction to R” is organized particularly for students registered for the second course but is open for anyone interested. Participants can choose to take Part 1, 2 or both.

Introduction to Systems Thinking, Systems Analysis and System Dynamics: The Role of Systems Science in Sustainability Science

14-18 May, 2018
Lund University
The overall objective of the course is to develop the student's capacity to make a systemic analysis of complex dynamic issues by applying systems science with respect to sustainability criteria.

Advancing the Transition to Bioeconomy – A Systems Approach

11-15 June, 2018
Lund University
The overall aim of the course is to develop competencies necessary for PhD students to i) adopt a systems approach for identifying and assessing the full range of challenges and opportunities in transition to bioeconomy; and ii) lead the way in innovative transdisciplinary research for bioeconomy. The course consists of four themes covering the entire biomass value chain.

Spatial analysis in Economics and the Environment

23-25 June 2018
University of Gothenburg
All economic activities have a spatial dimension, which is particularly relevant in the interface between the economy and the environment. However this dimension is rarely taken into account when designing economic policies. This course aims to expose students to spatial methods of analysis and provide an overview of how these methods can be used to improve economic policy advice. It will make available the most recent methodologies when it comes to the application of remote sensing and other data sources for economic analysis of environmental problems. The course consists of two parts. The first part of the course addresses ways to model spatial heterogeneity and dynamics along with examples of how these methods can be applied to e.g. policies for fisheries and urban expansion. The second part of the course presents more applied empirical methods for incorporating space in economic studies using tools like Google Earth Engine.

Global Environmental Governance Today - Actors, Institutions, Complexity

22-26 October 2018
Lund University
The course frames the dilemma of global environmental governance as a problem of human interaction. It starts from the premise that, in addition to natural and physical barriers, there are severe social and political barriers that often stand in the way of an effective management of transboundary environmental threats. In other words: political processes and actors are not only the target of scientific advice (science for politics), but part of the problem – and hence objects of examination (science of politics), e.g. of underlying constellations of power and interests or behavioural norms. Based on concepts and theories of political science, the course seeks to provide Ph.D. students from different disciplines with an understanding of the current state of global environmental governance, its underlying causes and possible response options.

Global Elemental Cycles

5-9 November 2018
Lund University
The primary purpose of the course is to provide students with an advanced understanding of biogeochemical cycles, their drivers and global change in ecosystems. Detailed knowledge of specific elemental cycles with the transformations and movement of chemical substances will be taught in an integrated perspective. In addition, the emphasis will be on coupling biogeochemical cycles of different elements, the role of microbial drivers and the course will stress the multi-disciplinary nature of environmental change. The course is tailored to enhance the professional competence of Ph.D. students from a range of disciplines, such as physical geography, biology, geology, oceanography and ecology to develop knowledge of processes that effect planet Earth in the past, the present and the future. The course will be an intensive course covering one week. The course includes lectures, student presentations, an excursion and a modeling session.

Applied Land Remote Sensing

8-12 October 2018
Lund University
The aim of this course is to provide students with skills in applied (optical) remote sensing with focus on applications regarding vegetation in terrestrial environments.

ClimBEco courses 2017

ClimBEco Introductory Course 2017

13-15 February 2017
Lund Universtiy
The main goal of the course is to introduce how various types of scientific knowledge can be integrated. You will reflect upon your own research fields as well as learn from ongoing interdisciplinary projects.

From Research to Policy for Sustainable Development

21 - 23 February and 14 - 16 March 2017
University of Gothenburg
The aim of this course is to enhance the participants' understanding of research-policy linkages and to increase their capabilities to communicate their research findings to different stakeholders, in order to create impact for sustainable development.

Communicating Science

13-17 March 2017
Lund University
Communicating Science is a course for PhD students and postdocs that want to reach out with their research.

Workshop on Bayesian Networks in risk assessment and decision making

28-29 March 2017
Lund University
This workshop aims to introduce Bayesian (Belief) Networks to students and researchers. We will provide a theoretical background together with hands-on exercises from risk and impact assessments and decision making.

Seminar on Methodological Pluralism: Which research methods can/should be used for studying biodiversity and ecosystem services in a changing climate?

31 March 2017
Lund University
The objective of this seminar on methodological pluralism is to bring the broader group of BECC junior and senior scholars together in discussions about the strengths and weaknesses of various methods, methodologies and approaches that we use in our research.

Introduction to Systems Thinking, Systems Analysis and System Dynamics: The Role of Systems Science in Sustainability Science

3 - 7 April 2017
Lund University
The overall objective of the course is to develop the student's capacity to make a systemic analysis of complex dynamic issues by applying systems science with respect to sustainability criteria. The course consists of two parts, in which the students will be introduced to conceptual modeling and systems analysis (week 1) and system dynamics modeling and integrated scenario analysis (week 2).

Workshop on Comparative ecology of tropical and temperate pollination

20-21 April 2017
Lund University
The aim of this workshop is to identify and discuss (i) comparative stressors that endanger bee populations in tropical and temperate regions and (ii) methods and designs that can be used to study pollination systems and its effects on yield quantity and quality, independently from region and climate. In addition, we are open to discuss possible research interests/topics and field projects about pollination ecology to be performed in the Western Ghats of India.

Writing for change

24-28 April 2017
Lund University
Writing well is essential to develop and share knowledge with researchers and the public, especially for critical issues like sustainability and global change, but writing skills are rarely taught to early-career scholars. Taking this course will help early-career researchers to 1) write better academic papers that will get noticed by more people, 2) structure and convey powerful academic arguments supported by reasoning and evidence, 3) explain your

research better to advisors, grant agencies, journalists, and your grandma, and 4) write for a broader audience, such as local newspapers, university magazines, commercial magazines and websites, as well as your own blog or lab pages.

Advancing the Transition to Bioeconomy: A Systems Approach

8-12 May 2017
Lund University
The overall aim of the course is to develop competencies necessary for PhD students to i) adopt a systems approach for identifying and assessing the full range of challenges and opportunities in transition to bioeconomy; and ii) lead the way in innovative transdisciplinary research for bioeconomy. The course consists of four themes covering the entire biomass value chain.

Greenhouse gases GHG - biogeochemistry and measurement techniques in ecosystems and landscapes

4-8 September 2017
University of Gothenburg
Methane and carbon dioxide emissions are caused by numerous biogeochemical processes with spatial and temporal variability. Greenhouse gas (GHG) measurement techniques such as: chamber measurement in form of manual, automated (steady) and intelligent robot sampling, landscape eddy flux towering and various laser-instruments using 13C/12C will be studied as hands-on during the course.

Biodiversity and ecosystem services in agriculture, forestry and urban environments

2-6 October 2017
Lund University (Stensoffa)
Human wellbeing is tightly linked to biodiversity and ecosystem services, and their management is a major societal challenge. This is an exciting, multi-faceted field of research. How can we take into account the different functions and services? What are the relevant scales for ecological processes and do they match management scales? How do we account for the value of ecosystem services? In this course, we take a decidedly interdisciplinary perspective, drawing on community and landscape ecology, environmental management, governance and environmental economics to explore these question with leading researchers.

Global Environmental Governance Today - Actors, Institution, Complexity

16-20 October 2017
Lund University
The course frames the dilemma of global environmental governance as a problem of human interaction. It starts from the premise that, in addition to natural and physical barriers, there are severe social and political barriers that often stand in the way of an effective management of transboundary environmental threats. In other words: political processes and actors are not only the target of scientific advice (science for politics), but part of the problem – and hence objects of examination (science of politics), e.g. of underlying constellations of power and interests or behavioural norms. Based on concepts and theories of political science, the course seeks to provide Ph.D. students from different disciplines with an understanding of the current state of global environmental governance, its underlying causes and possible response options.

Chemistry and Climate Change

Autumn 2017 - Autumn 2018
University of Gothenburg
(Weekly moderated discussions)
This is a specialized course that will utilize a reading seminar/peer-review format to revisit the state-of-the-knowledge regarding certain topical themes in atmospheric chemistry and climate. In addition to the scientific focus the course will utilize several short readings and discussion to illuminate important themes for young career climate scientists. First, issues of gender bias (balance) and career development. A second important theme will be relating fundamental process driven studies to global climate in a self-consistent manner.

ClimBEco courses 2016

Applied land remote sensing

1-5 February 2016
Lund University
The aim of this course is to provide students with skills in applied remote sensing with focus on applications regarding vegetation in terrestrial environments. We will try to adjust course contents to the actual interests and background skills of the applicants.

Research to Policy for Sustainable Development

Part 1: 23-25 February 2016
Part 2: 5-7 April 2016
University of Gothenburg
The aim of this course is to enhance the participants' understanding of research-policy linkages and to increase their capabilities to communicate their research findings to different stakeholders, in order to create impact for sustainable development.

Science communication

14-18 March 2016
Lund University
A PhD level course to develop the skills needed to be an effective science communicator.

Linear Regression Using R

21 March - 12 April 2016
Lund University
A PhD level course describing how to analyse linear dependencies in data using linear regression. Basic tools for model selection and validation as well as hypothesis testing will be covered.

Plant–Atmosphere Interactions in a Changing Climate

12-16 September 2016
University of Gothenburg
Ongoing environmental change has profound impacts on plants in terrestrial ecosystems around the world, with important implications for ecosystem services such as food security, forest production, biodiversity, livelihood in low-income regions, and the regulation of biogeochemical cycles, hydrology and climate. This course deals with the responses of plants to global environmental change factors such as rising CO2, warming, tropospheric ozone, and nitrogen deposition. Main emphasis is on ecophysiological plant responses and how they affect ecosystem processes such as productivity, carbon balance and water cycling. The representation of plants and vegetation in ecosystem and climate models will also be covered to some extent. The course content will suit PhD students with emphasis on plant ecology/ecophysiology as well as those with a broader interest in land–atmosphere interactions and modelling.

Risk uncertainty and Decision making

13-14 October 2016, Lund University
13-16 November 2016, University of Gothenburg
The aim of the course is to give a deeper understanding of the theoretical perspectives and methods in risk research within different disciplines, and tools for interdisciplinary risk research. The course contains lectures and seminars. The lectures will cover different theoretical perspectives within different disciplines. The participants will in seminars get a chance to collaborate on questions requiring an interdisciplinary approach.

ClimBEco courses 2015

Geobiosphere processes in the Arctic Permafrost environment

26 February – 20 August 2015
Lund University + 2 weeks field course to Svalbard 22 June-3 July 2015
The Department of Physical Geography and Ecosystem Science will together with ClimBEco arrange a PhD course that consist of a number of lectures and a two weeks field trip to Svalbard.
Topics covered include: Climate change in the Arctic, Permafrost, Arctic ecosystems, Carbon cycle, Glacial history, Sea ice/land interaction, Air pollutants, Carbon stocks, Herbivory, Migrating birds

From Research to Policy for Sustainable Development

3-5 February + 3-5 March 2015
University of Gothenburg
Research has an important role to play in the transition to a more sustainable society. This PhD-course aims at enhancing the PhD students' understanding of research-policy linkages and to increase the capabilities of the PhD-students to communicate their research findings to different stakeholders. The course has been developed upon a request from the research school ClimBEco for a course on research-policy linkages that combines theory with practice. The course is also open for PhD-students outside ClimBEco.

Introduction to Systems Thinking, Systems Analysis and System Dynamics: The Role of Systems Science in Sustainability Science

23-27 February 2015
Lund University
The overall objective of the course is to develop the student's capacity to make a systemic analysis of complex dynamic issues by applying systems science with respect to sustainability criteria.

Communicating Science

16-20 March 2015
Lund University
A PhD level course to develop the skills needed to be an effective science communicator.

Linear Regression using R

23 March - 15 April 2015
Lund University
A PhD level course describing how to analyse linear dependencies in data using linear regression. Basic tools for model selection and validation as well as hypothesis testing will be covered.

Biodiversity and ecosystem functioning in agriculture and forestry

20-24 April 2015
Lund University
Worldwide changes in land-use are driven by societal needs for the provision of food and fibre and in recent decades go along with considerable losses of biodiversity. The ecosystem service concept is often used in order to improve land management and to justify nature conservation. This course will cover topics relating ecosystem functioning to relationships between services, traits of species, land-use change, economic aspects and policy decisions in agricultural and forest systems.

Bayesian Analysis and Decision Theory

17-21 August 2015
Lund University
Despite the usefulness and growing interest of Bayesian methods there is a low supply of courses in Bayesian methods in Sweden. This course contributes to fill this gap. Decision analysis is a natural application of Bayesian reasoning where making predictions and quantifying uncertainty becomes important. Decision analysis is needed to frame inference with the purpose of making predictions, which often is held back by inference focusing on the values of parameters or hypothesis testing. Learning about Bayesian methods in combination with decision analysis will give the course participants a basis to understand and work with assessment and communication of environmental and climate problems.

ClimBEco Introductory Course

24 -25 August 2015
Falsterbo kursgård, Höllviken
The aim is to give newly enrolled ClimBEco PhD-students an opportunity to network, an overview of what

ClimBEco is all about, an introduction to a practical framework for conducting interdisciplinary research, and an opportunity to initiate interdisciplinary thinking and collaboration.

Global Environmental Governance today - Actors, Institutions, Complexity

19-23 October 2015
Lund University
The course frames the dilemma of global environmental governance as a problem of human interaction. It starts from the premise that, in addition to natural and physical barriers, there are severe social and political barriers that often stand in the way of an effective management of transboundary environmental threats. In other words: political processes and actors are not only the target of scientific advice (science for politics), but part of the problem – and hence objects of examination (science of politics), e.g. of underlying constellations of power and interests or behavioural norms. Based on concepts and theories of political science, the course seeks to provide Ph.D. students from different disciplines with an understanding of the current state of global environmental governance, its underlying causes and possible response options.

Land use greenhouse gas emissions - measurements and models, compared to the IPCC guideline and reporting to the UNFCC and the Kyoto accounting

26-30 October 2015
University of Gothenburg
We will in this course dig into how EF's are based for soil emissions of CO2, CH4 and N2O, mostly for agricultural and forest systems. How data is generated by measurements and how models can be used. How are the land use emissions reported to the UNFCCC and Kyoto, The different land use sectors and accounting rules. What implications this may have on the society. What data was available and used for the production of the IPCC Guidelines? Experience will be shared from the production of the IPCC wetlands supplement.

Biogeochemistry and the rhizosphere

16-20 November 2015
University of Gothenburg
This is a Ph.D. course about priming, microbial ecology, mycorrhiza, belowground carbon and nitrogen transport and transformation, and biomarkers. Through lectures, exercises and discussions you will get i) knowledge of the concepts on microbial regulation of biogeochemical cycles, ii) understanding of mycorrhiza and other soil microbial community groups, iii) understanding of the mechanism of root exudation and 'priming' in the rhizosphere and the effect on soil physics, soil organic matter decomposition and release of CO2, iv) practical 'priming' exercise to get hands-on experience.

Late Holocene climate variability

16-20 November 2015
University of Gothenburg
Each day will consist of thematic lectures during the mornings followed by seminars and group discussions.

Introduction to Systems Thinking, Systems Analysis and System Dynamics: The Role of Systems Science in Sustainability Science"

30 November - 4 December 2015
Lund University
The overall objective of the course is to develop the student's capacity to make a systemic analysis of complex dynamic issues by applying systems science with respect to sustainability criteria.

Arctic in a Changing Climate

30 November - 4 December 2015
University of Gothenburg
The course will give graduate students a broad holistic knowledge about the Arctic and how the atmospheric, marine and terrestrial systems are affected by the ongoing climate change and potentially feed back to the climate system. Lectures and seminars will cover several disciplines (such as atmospheric sciences, ecology, oceanography, geomorphology, marine chemistry) within Science and aims to create a stimulating forum for graduate students with issues that broaden their perspective from their own doctoral research. The course will further strengthen the scientific development of graduate student within Earth System Science and students will also gain in-depth knowledge of the ecological consequences of a changing Arctic. The course will also be launched for doctoral students in the graduate school ClimBEco organized by BECC and MERGE. The course will be one full week theoretical course.