Stockholm University

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Fredrik Oldsjö
fredrik.oldsjo@su.se

Proposals from Stockholm University for CIVIS Hub 1 Activities

Stockholm University has distributed the call for proposals for Hub 1 activities to all departments at the university. All proposals have been discussed with the Deputy Vice Presidents for Human Science, Astri Muren and Elisabeth Wåghäll Nivre, and the Deputy Vice President for Science, Henrik Cederquist. The following departments are willing to offer courses during Spring or Autumn semesters 2021:

Department of Humanities and Social Science Education

- Climate Education and Communication 7,5 ECTS (new course)

Department of Philosophy

- Global Ethics, 7.5 ECTS, BA-level

Department of Political Science

- Environmental Politics, 7.5 ECTS, BA-level

Department of Environmental Science

- Climate Change Solutions, 7.5 ECTS, BA-level
- Environmental Risk Management, 7.5 ECTS, MA-level
- Large Scale Challenges to the Climate and the Environment, 15 ECTS, MA-level

Department of Materials and Environmental Chemistry

- Analytical Chemistry, 30 ECTS

Department of Mathematics and Science Education

- Education in Science in Socio-Scientific Issues and Sustainable development (new course). *Template not available yet, will be supplemented at later stage.*
- New Narratives, Play and Imagination in Education – in the Realm of Anthropocene (new course)

Stockholm University

Department of Physical Geography

- Applied Environmental Modelling, 15 ECTS, MA-level
- International Environmental Issues, 15 ECTS, MA-level
- Local to Global - Water Vulnerability and Resilience, 15 ECTS, MA-level
- Quaternary Climate and Environmental Reconstructions, 15 ECTS, MA-level
- Permafrost - Interactions with Ecosystems and Hydrology, 7.5 ECTS, MA-level
- Glaciology, 7.5 ECTS, MA-level
- Tellus I - Physical Geography, 15 ECTS, BA-level
- Climate Model Simulations, 7.5 ECTS, MA-level

Stockholm Resilience Centre and Department of Biology Education

- Introduction to Sustainability Science, 7.5 ECTS, MA-level
- Social-Ecological Systems: Challenges and Approaches, 15 ECTS, MA-level
- Systems Theory and Resilience Thinking, 15 ECTS, MA-level.

Remarks and comments

The courses are briefly described in the attached templates, one for each course. Please use the bookmark function for overview.

Most of the proposals are existing courses offered at Stockholm University. In order to find out the possibilities for academic collaborations with colleagues at other CIVIS member universities in these courses, more time and coordination support is needed.

Most of the existing courses proposed here are, normally, campus courses. However, during last spring and coming autumn semesters 2020 all education at Stockholm University is adapted to on-line learning, due to COVID-19. This means that many of the courses may be offered for virtual mobility. This possibility must be discussed with the departments responsible for the courses.

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: New course on **Climate Education and Communication,** 7.5 ECTS

Participant universities: Stockholm University

Participant academics

Professor and coordinator, Cecilia Lundholm, Stockholm University, Department of Humanities and Social Science Education
E-mail: cecilia.lundholm@hsd.su.se

Professor Peter Davies, Stockholm University, Department of Humanities and Social Science Education
E-mail: P.davies.1@bham.ac.uk

PhD, senior lecturer, Caroline Ignell, Stockholm University, Department of Education
E-mail: caroline.ignell@edu.su.se

Professor Alasdair Skelton, Stockholm University, Department of Geological Science
E-mail: alasdair.skelton@geo.su.se

Kind of activity

Individual courses
x Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days

Capacity (total # of participants)
Max 30 participants

Brief description of the activity (Aims and Scopes, content, etc.)
This is a joint educational activity between the Department of Humanities and Social Science Education, Department of Geological Sciences and Department of Education.

This distance and on line course builds on research findings highlighting a need to understand climate change from multiple perspectives, which enables citizen action and develops professional competence. The course is of value to students who wish to better understand the problems and solutions of climate change from multiple perspectives, and use this knowledge in education and communication in various contexts (science, workplace, museums, media).

Aims and scopes
This activity aims to offer a course including a science perspective, challenges and ways of communicating climate change, and, solutions from economic, legislative and political perspectives.

Second, we will document experiences from the course for future and further quality development on both form (teaching methods for distance education) and content (natural science and multiple social science disciplines).

Content
The course includes natural science and social science content (communication, education, economics, geoscience, law and politics).

Scheduled time (if flexible, please write "flexible")
April-May 2021

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc.)
This activity is multidisciplinary and will bring together scholars from natural science and multiple social science disciplines (educational science and economics) to develop a course together. This kind of collaboration – across disciplines and faculties – is innovative in the context of climate change education and important for finding ways where universities play an important part in meeting climate change and developing citizen action.

This activity aligns with the vision of CIVIS to "unite efforts and experiences to develop a European University with strong links to its local social and geographical environment and an orientation toward global challenges. It will contribute to the social, cultural and economic dynamism at both a local and global scale".

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Global Ethics**, 7.5 ECTS, BA-level

Participant universities:

Participant academics (indicating university, department, e-mail):
Department of Philosophy, Stockholm University, including the Stockholm Centre for the ethics of war and peace
Present teachers: Torbjörn Tännsjö, Åsa Burman (asa.burman@philosophy.su.se), Romy Eskens, William Bülow

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
□X Other (please elaborate): Summer course of 7.5 hp

Capacity (total # of participants): About 50

Brief description of the activity (Aims and Scopes, content, etc): Lectures and seminars on global ethical problems (i.e. problems that require cooperation across borders to be solved) such as poverty, climate change, and war and peace. Questions discussed are: What moral responsibility, if any, do we have for global poverty and climate change? Does it matter how I as an individual act? Are there any viable global solutions to these problems, such as a world government? These and related questions are discussed systematically in this course.

Scheduled time (if flexible, please write “flexible”): During the summer term preferably in the beginning of the summer 2021

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): The course offers different perspectives on the ethical dimension of climate change, e.g. who should bear the costs of climate change?

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Environmental Politics**, 7.5 ECTS, BA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail):
Department of Political Science at Stockholm University.
Contact person: Magnus Reitberger, Director of Studies: magnus.reitberger@statsvet.su.se.

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Campus course including seminars

Capacity (total # of participants): 2-5 CIVIS students

Brief description of the activity (Aims and Scopes, content, etc):
Problems like air pollution or poor water quality, decreasing biodiversity and climate change have provoked the establishment of a broad range of institutions and policies around the globe, from the local to the international level. However, why are some countries better at protecting their environments than others? How do environmental policies spread among countries? How can jointly used environmental resources be managed in a sustainable fashion? What is the role of international cooperation and individual citizens in protecting the global environment?

The aim of the course is to give an introduction to the foundations and variety of contemporary research on environmental politics. The course will examine basic concepts and different traditions in this field of research. It combines theoretical and empirical contributions on environmental politics and policy from a comparative and international perspective. The course literature contains classical texts as well as recent advances in the study of environmental politics. Topics to be addressed include the theory of ecological modernization, the discussion on regulatory 'races to the bottom', explanations why some states act as environmental pioneers, the measurement of environmental performance and the influence of social movements and green interest groups.

Learning outcomes

After the course, students are expected to:

- have gained a critical understanding of key concepts in environmental politics;
- be able to give an overview of mayor issues and debates in environmental politics;
- be able to identify key findings and results from empirical studies in environmental politics;
- have gained an understanding of common methods and analytical models in environmental politics.

Scheduled time (if flexible, please write “flexible”): March-April or October-November

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): ……

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Climate Change Solutions**, 7.5 ECTS, BA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail):
Department of Environmental Science at Stockholm University. The course involves academics from several departments at the university.
Contact person: Course coordinator Prof. Örjan Gustavsson, Orjan.Gustafsson@aces.su.se.

Kind of activity:

Individual courses
X Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Flipped classroom, mixed online and campus, part-time 50 %.

Capacity (total # of participants): Not yet defined.

Brief description of the activity (Aims and Scopes, content, etc):
The course Climate Change Solutions is a new collaboration spanning across faculties at Stockholm University, coordinated by the department of Environmental Science, in close collaboration with other departments in the Bolin Centre for Climate Research such as the departments of Geological Sciences, Physical Geography, Meteorology, the Stockholm Resilience Centre (SRC, and others in BIG), and with equally contributing instructors from the Humanities and Social Sciences, including from departments of Political Science, Law, the Institute for International Economic Studies (IIES), Philosophy, Economic History and International Relations, Archeology and Classical Studies, and English. The course is developed in close collaboration with the University of California system, where it was first launched.

The course Climate Change Solutions targets actions and solutions to reach climate neutrality. The course covers:

- The climate system and climate change
- Natural science, socio-economic and political causes of the ongoing climate change

- The effects of climate change on the earth system and on society from the perspectives of natural science, socio-economy and politics.
- Local and global activities and solutions to reach a climate neutral and sustainable society and analyses of both positive and negative co-effects of proposed activities
- The responsibilities of the individual and of society for justice and equality in relation to environmental issues
- Analysis of various political activities to mitigate greenhouse gas emissions and of political steering of the technological development toward a sustainable energy supply

Link to course site here.

Scheduled time (if flexible, please write “flexible”): Existing course is offered Sept-Nov, 50 % of full-time studies.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc):

The course brings up a suite of possible actions to counteract the causes of human-affected (anthropogenic) climate change. The driving forces and possibilities to mitigate climate-affecting emissions through political steering, technical solutions, socio-economic changes and in other areas will be discussed.

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Environmental Risk Management**, 7.5 ECTS, MA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail):
Department of Environmental Science at Stockholm University.
Contact person: Course coordinator Prof. Magnus Breitholtz, Magnus.Breitholtz@aces.su.se.

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Campus course, 7.5 ECTS, 50 % of full time.

Capacity (total # of participants): Not yet defined.

Brief description of the activity (Aims and Scopes, content, etc):
During this course, the students will reflect on decision-making processes relevant for the risk management of four major environmental challenges: climate, air pollution and health, chemicals, and water management.

For each environmental challenge there will be an overview of the risk management processes on a national, regional, and global level, with focus on how scientific data are used to inform those processes. The course will introduce how regulatory decisions are made within the EU and other authoritative bodies and stakeholders, as well as general principles for decision-making such as the precautionary principle and the substitution principle. During the course, invited lecturers will provide different perspectives of risk management decision-making. The course will also include aspects of risk communication and science policy interactions, such as how scientific data should be communicated in order to effectively inform decision-making.

Link to course site here.

Scheduled time (if flexible, please write “flexible”): Existing course is offered Sep-Oct, 50 % of full-time studies.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc):

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Large Scale Challenges to the Climate and the Environment**, 15 ECTS, MA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail):
Department of environmental Science at Stockholm University.

Contact person: Course coordinator Jana Weiss, Jana.Weiss@aces.su.se.

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Campus course

Capacity (total # of participants): Not yet defined.

Brief description of the activity (Aims and Scopes, content, etc):

This course is the common starting point for the two Master Programmes in Environmental Science. The course explores the composition and function of the environment, and how natural environmental systems are perturbed by anthropogenic disturbances.

The course consists of three course units:

- Global Challenges (3.5 ECTS): This unit will give the students an overview of global environmental challenges and the impact on the natural environmental system from society. The students will become familiar with several basic concepts like biogeochemical cycles, the hydrological cycle, and large-scale energy balances. In addition, this unit introduces ethical and philosophical issues in human-environmental interactions.

- The Environmental System (8 ECTS): This unit will give the students an overview/review of the large-scale perturbations such as: contaminated water

systems; air pollution; land use and land cover change and terrestrial ecosystems; climate change; contamination from synthetic chemicals; effects on ecosystems, organisms and human health. These perturbations will be evaluated from four perspectives: observed effects (problem description), sources, dispersion, and actions to be taken.

- Statistical methods (3.5 ECTS): This unit will give the students tools to evaluate environmental data.

Link to course site here.

Scheduled time (if flexible, please write “flexible”): Existing course is offered Sept-Oct.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): ……

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: Analytical Chemistry

Participant universities: CIVIS

Participant academics: Stockholm University, Materials and Environmental Chemistry, leopold.ilag@mmk.su.se

Kind of activity:

Individual courses

□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days

Terms/semesters

□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
X Erasmus-term semesters (30 ECTS)

Various

□ Other (please elaborate): ……

Capacity (total # of participants): 3 participants

Brief description of the activity (Aims and Scopes, content, etc): Bioanalytical Chemistry and Chemometrics (Lectures and Lab)

Scheduled time (if flexible, please write “flexible”): January to June

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): Multidisciplinary

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: New Course **New narratives, play and imagination in science education - in the realm of Anthropocene**, 7.5 ECTS

Participant universities: Stockholm University

Participant academics (indicating university, department, e-mail):

Associate Professor Maria Andrée, Stockholm University, Department of Mathematics and Science Education
E-mail: maria.andree@mnd.su.se

Associate Professor Cecilia Caiman, Stockholm University, Department of Mathematics and Science Education
E-mail: Cecilia.caiman@mnd.su.se

Kind of activity:

Individual courses
X Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
□ Other (please elaborate): ……

Capacity (total # of participants):
Max 30 participants

Brief description of the activity (Aims and Scopes, content, etc):
Aims and scopes: This course focusses the use of pedagogy based on narratives and imagination in dealing with complex, wicked problems in the Anthropocene. The wicked problems are characterized as incomplete, often imbued with contradictory knowledge as well as interconnected with other escalating problems. The aim of this course is to investigate future-oriented narratives in the form of stories, imagination and creativity in exploring social, cultural and scientific dimensions of wicked problems related to sustainability in education.

Content: narrative imagination, creativity, play, drama, storytelling pedagogy, sustainability, wicked problems, climate futures, Anthropocene.

Scheduled time (if flexible, please write “flexible”):
October-January 2021

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc):
Developing education for sustainable development (ESD) is considered a key-issue in governmental policy. A UNESCO-recommendation to teachers is to "Practice an action-oriented transformative pedagogy that engages learners in participative, systemic, creative and innovative thinking and acting processes in the context of local communities and learners’ daily lives" (UNESCO 2017 p. 52). This course contributes to develop an understanding of future-oriented forms of ESD to address sustainability issues in education in ways that acknowledge complexities and contradictions where experimentalism have a key role.

This activity aligns with the vision of CIVIS to “unite efforts and experiences to develop a European University with strong links to its local social and geographical environment and an orientation toward global challenges. It will contribute to the social, cultural and economic dynamism at both a local and global scale”.

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Applied Environmental Modelling**, 15 ECTS, MA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail):
Department of Physical Geography at Stockholm University.
Contact person: Senior lecturer Salim Belyazid, salim.belyazid@natgeo.su.se.

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Campus course

Capacity (total # of participants): Not yet defined.

Brief description of the activity (Aims and Scopes, content, etc):
Environmental issues are complex. A systems perspective is required in order to understand today's multidisciplinary environmental problems, and to identify both long-term solutions and alternatives.

The course is founded in systems science theories (system analysis and system dynamics) and approaches problem solving with the help of conceptual and quantitative modelling, and scenario techniques focusing on natural resource management, anthropogenic environmental impact and sustainability.

Modules
- Theory for Environmental Systems Thinking and Modelling, 7.5 credits
- Practical Systems Analysis and System Dynamics, 7.5 credits

The course includes both theoretical and practical components. After taking the course it is expected that the student will be able to:

- identify, represent and analyse environmental systems and associated dynamic structures

- utilize system theoretical methods to conduct diagnostic and prognostic analyses of diverse environmental problems, including identification of sub-systems, processes, delays and non-linear behaviour
- apply conceptual modelling on practical examples
- use aggregated computer-based modelling
- apply scenario techniques, analyse and evaluate scenario assumptions and results
- analyse uncertainty, knowledge and values when assessing risks.

Link to course site here.

Scheduled time (if flexible, please write “flexible”): Existing course is offered Sept-Oct.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): ……

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **International Environmental Issues**, 15 ECTS, MA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail):
Department of Physical Geography at Stockholm University.
Contact person: Study director Prof. Jerker Jarsjö, jerker.jarsjo@natgeo.su.se.

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Campus course.

Capacity (total # of participants): Not yet defined.

Brief description of the activity (Aims and Scopes, content, etc):

Many of our environmental problems are transboundary and require international cooperation for their mitigation or solution. The course describes the role of scientific knowledge and how scientific uncertainty and ignorance are handled in relation to environmental policy development. Examples of international environmental issues covered in the course are anthropogenic climate change, regional transboundary air pollution, the ozone hole, international fisheries and environmental security. Special attention is given to the role of EU in European and national environmental regulation.

The course is based on lectures, seminars, gaming and includes a week's excursion to Latvia.

Link to course site here.

Scheduled time (if flexible, please write "flexible"): Existing course is offered Apr-June.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): ……

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Local to Global - Water Vulnerability and Resilience**, 15 ECTS, MA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail)
Department of Physical Geography at Stockholm University.
Contact person: Senior lecturer Stefano Manzoni, stefano.manzoni@natgeo.su.se.

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Campus course.

Capacity (total # of participants): Not yet defined.

Brief description of the activity (Aims and Scopes, content, etc):

Many different environmental and societal problems are directly related to water resources. An important part of this course is problem oriented, with case study analyses of water resources and water quality. Such analyses are needed in several professions, since water-related issues are on the global agenda, e.g., in international conflict management, environmental management by governmental agencies, environmental policy, and industrial and agricultural impact assessments.

The course considers water resources and water quality, pollution spreading through surface, ground and coastal water systems, effects of water scarcity on plants and agricultural systems, as well as vulnerability and resilience of water resources. Regional analyses are also related to global water resource vulnerability and resilience.

Modules
- Theory, 1 ECTS
- Seminars and computer exercises, 1 ECTS
- Case study 1, 7 ECTS
- Case study 2, 6 ECTS

Link to course site here.

Scheduled time (if flexible, please write “flexible”): Existing course is offered Sep-Nov.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): ……

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Quaternary Climate and Environmental Reconstructions**, 15 ECTS, MA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail):
Department of Physical Geography at Stockholm University.
Contact person: Study director Prof. Jerker Jarsjö, jerker.jarsjo@natgeo.su.se.

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Campus course.

Capacity (total # of participants): Not yet defined.

Brief description of the activity (Aims and Scopes, content, etc):

The course deals with methods for biological, physical and chemical analyses of natural archives for reconstructing climate and environmental changes during the Quaternary. You will learn about qualitative as well as quantitative methods. The course covers both general principles of climate- and environmental reconstructions and selected archives which we will discuss in great detail. Apart from "hands-on" expertise on how to analyze different archives, you will also learn about the statistical treatment and interpretation of proxy data.

Scheduled time (if flexible, please write "flexible"): Existing course is offered Jan-March.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): ……

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Permafrost - Interactions with Ecosystems and Hydrology**, 7.5 ECTS, MA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail)
Department of Physical Geography at Stockholm University.
Contact person: Senior lecturer Britta Sannel, britta.sannel@natgeo.su.se.

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Campus course.

Capacity (total # of participants): Not yet defined.

Brief description of the activity (Aims and Scopes, content, etc):

This course deals with permafrost and periglacial processes, and their variation in space and time.

It focuses on how permafrost affects ecosystems, hydrology and the global carbon cycle. The course assesses how permafrost is represented in modeling, with a special emphasis on permafrost hydrology. The most recent research is reviewed.

Scheduled time (if flexible, please write “flexible”): Existing course is offered Jan-Febr.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): ……

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Glaciology**, 7.5 ECTS, MA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail):
Department of Physical Geography at Stockholm University.
Contact person: Prof. Peter Jansson, peter.jansson@natgeo.su.se.

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Campus course.

Capacity (total # of participants): Not yet defined.

Brief description of the activity (Aims and Scopes, content, etc):

This course treats the processes that govern the dynamics of glaciers and ice sheets in time and space.

These are important because they are intimately interacting with the climate of the Earth, constitute natural archives for climate variability and are among the primary indicators for climate change. The coupling between climate and glacier dynamics is very complex and embodies both direct and indirect couplings as well as delays. In the course we lay the foundations to understand these complex interactions.

The course covers processes that control the dynamics of glaciers and ice sheets in time and space. More specifically, the course aims to examine:

- Mass balance of glaciers and ice sheets, and especially their relation to climate
- Ice mechanical processes and their importance for glacier and ice sheet dynamics
- Glacial processes, especially in relation to landscape development
- Ice sheet growth and change over time
- Glacial hydrology.

Link to course site here.

Scheduled time (if flexible, please write “flexible”): Existing course is offered Febr-March.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): ……

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Tellus I - Physical Geography**, 15 ECTS, BA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail):
Department of Physical Geography at Stockholm University.
Contact person: Prof. Margareta Hansson, margareta.hansson@natgeo.su.se.

Kind of activity:

Individual courses
X Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
□ Other (please elaborate): ……

Capacity (total # of participants): Flexible.

Brief description of the activity (Aims and Scopes, content, etc):

The course deals with hydrology, mass movements, rivers and flooding, oceans, coast lines, groundwater, the atmosphere and climate, arid regions, geomorphology, Quaternary geology and global changes.

The course is given as a distance learning course and the teaching consists of web-based teaching and independent project work.

Modules

- Hydrological Cycle, Mass Movements, Running Water, Oceans and Coasts, Groundwater (6 ECTS)
- Climate, Arid Landscapes, Glaciers and Ice Ages (6 ECTS)
- Project (3 ECTS)

Scheduled time (if flexible, please write “flexible”): Flexible.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): ……

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Climate Model Simulations**, 7.5 ECTS, MA-level

Participant universities: ……

Participant academics (indicating university, department, e-mail):
Department of Physical Geography at Stockholm University.
Contact person: Study director Prof. Jerker Jarsjö, jerker.jarsjo@natgeo.su.se.

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
X Other (please elaborate): Campus course.

Capacity (total # of participants): Not yet defined.

Brief description of the activity (Aims and Scopes, content, etc):

The course introduces knowledge about climate models and how are they used to understand the climate change due to human activity and natural variation. The students will learn the climate forcings under different climatic conditions, from past, present and future, as well as climate response to these forcings. The course includes practical exercise on spatial and temporal analysis of output from climate model simulations.

Link to course site here.

Scheduled time (if flexible, please write "flexible"): Existing course is offered May-June.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc): ……

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Introduction to Sustainability Science**
Credits: 7.5 ECTS
Course code: BL7041
Level: Master's level

Participant universities: Stockholm University

Participant academics (indicating university, department, e-mail)
Stockholm University, Department of Biology Education and Stockholm Resilience Centre
Course Leader: Jon Norberg; Stockholm Resilience Centre
Course Contact: Department of Biology Education; info.big.su.se

Kind of activity:

Individual courses
X Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
□ Erasmus-term semesters (30 ECTS)
Various
□ Other (please elaborate): ……

Capacity (total # of participants): …10……..

Brief description of the activity (Aims and Scopes, content, etc):
Sustainability science is a problem-focused trans-disciplinary research field. It draws from biology, social sciences, economics, geology and atmospheric sciences amongst others to fundamentally understand how humanity can develop activities and core values within a safe operating space of the planet.
In this course you will learn:
The challenges of the Anthropocene
How humanity can reconnect to the biosphere
To understand complex adaptive systems
The tools of management and governance
All concepts are illustrated by conceptual explanations as well as woven into the narrative of well-studied case studies.
This online course consists of a set of video and audio lectures with online quizzes for evaluation. During the course you will write 3 essays based on the content that will be graded.
Link to course site here.

Scheduled time (if flexible, please write “flexible”):
The course is a part-time course (50%) given during the period 18 January- 22 March 2021.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc):
Interdisciplinary; SDG relevant

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Social-Ecological Systems: Challenges and Approaches**
Credits: 15 ECTS
Course code: BL7028
Level: Master's level

Participant universities: Stockholm University

Participant academics (indicating university, department, e-mail)
Stockholm University, Department of Biology Education and Stockholm Resilience Centre
Course Leader: Sarah Cornell; Stockholm Resilience Centre
Course Contact: Department of Biology Education; info.big.su.se

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
X Erasmus-term semesters (30 ECTS)
Various
□ Other (please elaborate): ……

Capacity (total # of participants): …3……..

Brief description of the activity (Aims and Scopes, content, etc):
This course introduces students to the Anthropocene, the new geological era in which we live, in which humanity has become the dominant force structuring the biosphere. The course will address what this means for critical subsystems in the earth system, for humanity, and for the development of earth system governance.
This course explores alternative approaches to coupled social-ecological systems from multiple disciplinary backgrounds, for example, economics, geography and ecology. The course will also introduce current approaches to measuring and monitoring how ecosystems support human well-being.
Students will be introduced to theoretical concepts and methods for analysis, and will conduct group and individual research projects that utilise these concepts and methods.

The course consists of the following three modules:
I: Challenges of Anthropocene (4 ECTS)
II: Linking theory to research questions and design (4 ECTS)
III: Ecosystem Support of Humanity (7 ECTS)

Link to course site here.

Scheduled time (if flexible, please write “flexible”):
The course is a full-time course given during the first half of the autumn term end August-early November.

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc):
Interdisciplinary; SDG relevant; Part of the SRC Master’s programme: Social-ecological Resilience for Sustainable Development, a transdisciplinary programme.

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: **Systems Theory and Resilience Thinking**
Credits: 15 ECTS
Course code: BL8049
Level: Master's level

Participant universities: Stockholm University

Participant academics (indicating university, department, e-mail)
Stockholm University, Department of Biology Education and Stockholm Resilience Centre
Course Leader:
Course Contact: Department of Biology Education; info.big.su.se

Kind of activity:

Individual courses
□ Virtual mobility courses/modules
□ Short courses/workshops (1-2 ECTS)
□ Summer School
□ Workshops/Days
Terms/semesters
□ Erasmus research exchanges/traineeships
□ Independent projects (e.g. joint supervision of thesis work)
X Erasmus-term semesters (30 ECTS)
Various
□ Other (please elaborate): ……

Capacity (total # of participants): 3……..

Brief description of the activity (Aims and Scopes, content, etc):
This course introduces qualitative and quantitative approaches to the analysis of systems and shows how they can be applied to social-ecological systems. A particular focus will be understanding regime shifts, the reorganisation of the structure and processes shaping a social-ecological system. Regime shifts will be analysed from a theoretical and practical perspective, including the investigation of a set of case studies.
Resilience thinking uses systems concepts to understand such abrupt changes. Key resilience concepts will be introduced. Students will be introduced to theoretical concepts and methods for analysis, and will conduct group and individual research projects that utilise these concepts and methods.

The course consists of the following three modules:
- Systems Thinking (4 ECTS)
- Regime Shifts (4 ECTS)
- Resilience Thinking (7 ECTS)

Link to course site here.

Scheduled time (if flexible, please write “flexible”):
The course is a full-time course given during the second half of the autumn term early November (2021) to mid-January (2022).

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc):
The course can be studied independently, but requires a Bachelor’s degree and knowledge equivalent to the course: "Social-ecological systems: challenges and approaches" (15 ECTS).

Interdisciplinary; SDG relevant; Part of the SRC Master’s programme: Social-ecological Resilience for Sustainable Development, a transdisciplinary programme.