

INVENTORY OF SUSTAINABILITY RELATED COURSES

University of Amsterdam
Academic Year 2020-2021, Semester 1





Introduction

The UvA Green Office is publishing its semi-annual guide on sustainability related courses offered at the UvA for the first semester of the academic year 2020-2021. This guide was made by members of the UvA Green Office who are students from different fields and tried to find as many sustainability related courses as possible. The course names include links to their respective websites in the UvA Course Catalogue where more information can be found. Additionally, we included the amount of obtainable credits for the courses, the blocks the courses are taught in, and their language. The guide is structured based on the format of the UvA Course Catalogue, which also served as the basis for the provided course descriptions, mostly relying on the information stated in the category "Content".

The selection of courses in this guide is based on search terms centered around "Sustainability" and "Climate Change", in English and Dutch. However, if they were only very briefly mentioned in enumerations together with other topics or societal challenges, we did not always add them to this guide. In general, we were stricter in the selection for departments that offered many sustainability related courses, and less strict if only very few were offered.

Disclaimer

This guide might not include all sustainability related courses offered at the UvA. While we tried our best to find as many as possible, there might be courses which used different terms to describe their content and thus, were not found in our search.

Additionally, due to the exceptional circumstances of 2020, the official UvA Course Catalogue was released very late and the time to publish this guide, as well as the number of available Green Office members, were limited.

This guide is just a supplement to the official UvA course catalogue which should always be referred to as the official source of information. We do not guarantee that all information in this guide is correct and are not liable for any mistakes.

For any feedback or suggestions, please contact: resedu.uvagreenoffice@gmail.com



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Amsterdam University College

Big Questions in Time 6EC, Block 1 & 2, English

The course looks at time from an interdisciplinary perspective. Many of the problems society faces are in some way related to time. Sustainability, for example, is closely intertwined with different perspectives of time, and yields different solutions depending on the time scale used. Population increase, or depletion of resources for example, can be viewed at the human time scale, which already has a different reality for students and teachers. Climate change compels us to think about notions of finiteness or even the end of time, on which cultures around the world have a different take. Rapid technological advancements, including innovations to counteract current environmental destruction, affect our material base and thus how we perceive time.

Climate Sciences: Past and Present 6EC, Block 1 & 2, English

The climate of the past 3 million years is characterized by the waxing and waning of polar ice sheets. What are the rates and magnitudes of these changes in relation to the ongoing climate change? Quantitative approaches are more and more important to mechanistically understand the processes leading to and resulting from Climate Change. A basic knowledge of modern climate systems is a prerequisite for studying the climate of the past. The concept for the course is based on the interplay of the different spheres: hydro-, cryo-, atmo-, bio- and geo-sphere. The "sphere thinking" enables the dynamics to govern and not static principles. Specialized topics will be selected where the students will become "the specialist".

Environmental Law and Policy 6EC, Block 1 & 2, English

There are very few issues that affect our daily lives, our future and that of the planet as profoundly and as visibly as environmental degradation. This course will explore law and policy approaches designed to address contemporary environmental challenges in a multi-level context, with a particular focus to the level of the European Union (EU) and its Member States. We will examine how the unique and complex nature and framing of environmental 'problems' affects the way governments and non-governmental actors, respectively and collaboratively, respond to the environmental challenges. This course will provide students with interdisciplinary, multi-perspective knowledge and critical insight into how modern societies respond to environmental threats.

Global Environmental Governance 6EC, Block 1 & 2, English

This course critically examines the past, present and future of global environmental governance (GEG) and international environmental law. Environmental degradation is one of the most critical and urgent challenges faced by modern society and, among other environmental problems, it is a 'global' issue. Given the closed, interconnected

ecosystem on Earth, and given 'globalization' of contemporary society, most local conditions ultimately affect the global. But this dynamic also applies vice versa: environmental problems tend to manifest themselves in local impacts and conflicts. The increasingly global nature of most environmental problems would seem to demand global responses, yet the local dimensions may require different approaches and actors. This course will critically reflect on the evolution of such (global) responses in international law, international relations, politics, and global governance, as well as the more recent emergence of local, transnational, non-state and sub-state governance initiatives.

Introduction to Environmental Sciences 6EC, Block 1 & 2, English

Environmental science, as a discipline, combines aspects of the physical and biological sciences with issues from the social and political sciences. In this course, we will explore the concept of sustainability and how it relates to us, the scientific principles and concepts governing natural systems, human population and resource use, how to sustain the biodiversity of the earth, and how we use our resources. Important features of the course include systems thinking and critical reflection. The aim of this course is to provide students with the fundamental ideas and concepts in the field of environmental sciences and with several analytical tools needed for a considered reflection on the nature of environmental problems and its possible solutions.

System Earth 6EC, Block 1 & 2, English

In the first part of this interdisciplinary course we will study the characteristics of and interactions between the major Earth compartments: solid earth, atmosphere, biosphere, ocean, cryosphere. We will focus on their large-scale dynamical behavior and the role of feedbacks and associated timescales, like the global atmospheric circulation and ocean circulation. In the second part of the course we will study the biogeochemical cycles of carbon and nitrogen within and between these spheres. These and other cycles involve both biological, physical, geological and chemical processes and transformations. Both the natural and the human perturbed cycles will receive attention. Understanding the carbon cycle is crucial in assessing climate change, while the perturbation of the nitrogen cycle is implicated in many different environmental problems.

Theme course: Climate and Energy 6EC, Block 1 & 2, English

The first part of this theme course is shared with "Climate and Sustainability" and is focused on how and why the climate is currently changing and what this means for society at large. Topics include the carbon cycle, the Earth's energy balance, and causes and impacts of climate change. The second part is focused on various ways of producing usable forms of energy, to better understand how we can mitigate climate change. Topics include the current energy system, the transition to a low carbon energy system, and providing continuous electricity with intermittent renewable resources.

Theme Course: Climate and Sustainability 6EC, Block 1 & 2, English

The first part of this theme course is shared with “Climate and Energy” and is focused on how and why the climate is currently changing and what this means for society at large. Topics include the carbon cycle, the Earth’s energy balance, and causes and impacts of climate change. The second part is focused on the transition to a more sustainable society. Topics include the current energy system, the transition to a low carbon energy system, and sustainable development. Examples of questions to be addressed are the following: What economic, ethical, social and political considerations are at stake in this transition? How would continuing climate change be expected to impact different aspects of life? What options do we have to deal with the challenges of climate change?

Amsterdam Graduate Law School

Omgevingsrecht 6EC, Block 2, Dutch

De nadruk bij dit vak ligt op de bestudering van de samenhang tussen de belangrijkste deelterreinen van het omgevingsrecht: het milieurecht, het ruimtelijk bestuursrecht, inclusief bouwrecht en het natuurbeschermingsrecht. Het omgevingsrecht is van groot belang bij gebiedsontwikkeling. Denk aan de aanleg van windmolenparken, de uitbreiding van vliegvelden en de verbreding van (spoor)wegen. Ook bij kleinere projecten, zoals het oprichten van een bedrijf, het bouwen van een bouwwerk of het organiseren van een festival, is het omgevingsrecht een bepalende factor. De verschillende (tegenstrijdige) aspecten die bij dergelijke projecten kunnen spelen, worden door diverse omgevingsrechtelijke wettelijke regelingen gereguleerd. Een belangrijke factor is bovendien dat het Europese milieu- en natuurbeschermingsrecht veel eisen stelt aan onze fysieke leefomgeving en zo randvoorwaarden stelt aan het nationale omgevingsrecht

College of Social Sciences

Cities and Change 6EC, Block 1, English

Cities are at the forefront of change. To understand cities as places and drivers of social (and environmental) change, the course introduces the most common perspectives on 'the city', as well as some critical perspectives. Important themes include: the historical origins of cities; the political and ideological functions of cities; the city as creative center; the economic significance of cities, the globalization of cities and the implications of continuous urban growth for environmental issues. The course employs perspectives from history, geography, architecture, the arts, humanities, sociology, anthropology, and political science. Along the way, you will be introduced to a number of basic concepts from the field of urban studies and understand the development of urbanity as a historical, contextual process.

City Power: cities as actors in the global political economy 12EC, Block 1 & 2, English

Today, cities are the most important strategic sites, not only in managing the world economy but also in dealing with such diverse issues like inequality and poverty, climate change, migration and international terrorism. Environmental problems are a good example: in terms of causes and effects, cities are among the most important actors but they are also at the forefront in pragmatically finding solutions ... and they increasingly do so, using modern policy practices as benchmarking and mutual learning. The United Nations speaks of the 'urbanisation of humanity' and many believe that cities can tackle today's many and multi-faceted problems far better than states. States are constrained in their capacity to act by socially constructed 'realities' like sovereignty and power politics and often make suboptimal compromises. Cities are centres of innovation and knowledge and can make effective decisions more quickly - and closer to the citizens.

Contemporary challenges in governance: Knowledge, Power and Democracy in a Fragmented Society 6EC, Block 1, English

We live in interesting times: while society is increasingly fragmented, and power is dispersed among a wide variety of actors, among them governments, multinationals, NGOs and citizens - which seriously impacts the possibilities of effective governance - the challenges that mark our day and age are progressively complex. Policy responses to these challenges are still often dominantly conventional, assuming an unquestioned cooperation of actors and a predictability of the future. In this course, we will explore the apparent 'mismatch' between 21st century societal challenges and governing approaches and associated institutions as they developed in the 19th and 20th century. We zoom in on knowledge production (uncertainty and ambiguity), power (authority, legitimacy) and participation (identity and community; the (mis)match between representative democracy and interactive forms of policy making) and discuss options

to move from conventional public management towards governance approaches that allow for the necessary flexibility and adaptability.

Framing and supporting societal transformations toward sustainability 12EC, Block 1 & 2, English

The Paris COP 21 Sustainable Development Goals have accelerated an unprecedented amount of technical innovations (circular design, energy neutral building, renewable energy technologies), social innovations (divestment, sharing economy, social entrepreneurship), as well as life-style practices (vegetarianism, ecotourism, low-impact lifestyles, sustainable clothing).

These developments run parallel to the growing scientific and public interest in large-scale societal transformation toward sustainability. 'Sustainability transitions research', the main focus of this course, connects theories and models for governance of sustainability transitions with actual transformation in various sections of society.

Green Economy and Society 6EC, Block 2, English

From Green New Deal to Nitrogen Pollution Policy and from Sustainable Business to Circular Economy, the contemporary political debate and decision-making on sustainability issues involves both continuous evolution of and experimentation with new policies, policy ideas and governance designs, as well as continuous conflict over and contestation of such policies, ideas and designs.

These theories consider international, transnational and national institutions as the main forces in addressing sustainability problems. Whereas traditionally, (inter-)state institutions were their main focus, more recently the crucial roles of institutions in the realms of market, civil society and science have also been recognized. The course will analyze how sustainability problems and associated processes of globalization are being dealt with in this complex institutional setting.

Graduate School of Social Sciences

Advanced Environmental Geography:

Governance for Sustainability 12EC, Block 1 & 2, English

Environmental geography, with its focus on human-ecosystem interactions in a spatial-temporal perspective, is well placed to shed light on the daunting environmental challenges of our times. These challenges can only be tackled by understanding, analysing and addressing their underlying driving factors, which can operate at local through to global levels. Such factors can be located in institutions, such as agreements, markets, trade relations, and governance structures, but also in discourses, local customs and changing geo-political contexts. Similarly, the impacts of global change can manifest themselves at multiple levels of governance, and may occur far away, in time and space, from the causes of these problems. Such challenges call for multi-level, polycentric, adaptive forms of governance. The issues discussed in this course have a strong North-South dimension, as well as an upstream-downstream (water) and transnational dimension (climate).

Climate Proof Development of Cities and Strategic Planning 6EC, Block 1, English

One of the key issues cities have to deal with for the foreseeable future is Climate Change. The increase in green house gasses has impacted the climate in many regions in the world. While some places might get hotter and other colder, it is clear that weather events are becoming more extreme in a lot of cities around the world. Two concrete examples are that there will be more events of extreme rainfall and more periods of extreme temperatures and drought. This leads to the paradoxical situation that cities need to prepare for an excess of water as well as a lack thereof. Combined with a situation in democratic societies where increasingly a variety of stakeholders have influence in the governance process and there is a lot of uncertainty, these challenges require strategic planning in order to adequately adapt to these challenges.

Consumerism, Culture and Commerce 12EC, Block 1 & 2, English

Consumer society is in crisis, or so it seems. Retail chains are closing because shopping has lost its appeal and online stores are offering cheaper alternatives. Our obsession with buying ever more stuff, is identified as one of the culprits of climate change. People wonder if consuming more also makes us happier. At the same time, however, some argue that consumption addresses a number of key social needs. Consumerism has created new forms of enchantment. Questions which will be addressed in this course are: what role does consumption play in the formation of lifestyles and subcultures? How effective can ethical or sustainable consumption be in addressing climate change or exploitation of labor?

Transnational Politics 6EC, Block 1, English

Transnational politics may be understood as politics that 'transcend' the confines of the formal political institutions of the state that crystallised in the 19th and 20th century. We will illuminate what constitutes transnational politics with three perspectives. The first perspective focuses on how political decision-making processes that take place at municipal, provincial or national level are informed, transformed or reinforced by transnational issues and by the transnational interests or identities of the actors engaged in decision-making. The second perspective focuses on transnational or 'global' governance arrangements, like inter-governmental organizations (IGOs) and transnational private regulation. The third perspective focuses on world politics: this considers how the growing significance of transnational issues (i.e. migration and refugees, sustainability), and transnational actors (i.e. NGOs, MNCs, terrorists) transforms 'world order', traditionally conceived of as constituted by interactions among state actors. One of the themes of the course is sustainability and climate change.

Energy and geopolitical economy in Eurasia 9EC, Block 2 & 3, English

To introduce the basic theoretical, and empirical aspects of the geopolitical economy of energy by focusing mainly on the EU and China. The course focuses on two policy areas:

[I] The study of energy supply security policies (oil/gas) of the main energy consuming, import-dependent, countries and regions, e.g. China, the EU, the USA, Japan and India. Currently, all of these get supplies from the main resource-rich countries located in the Middle East, Russia, Central-Eurasia, the Caspian Region, Latin-America and Africa.

[II] The study of energy-efficiency and alternatives to fossil-fuel-based energy from renewable sources, which is an end in itself, but also contributes to energy security and sustainable development.

Environment, Development and Conflict 6EC, Block 2, English

This is an elective concerning the interface of social and economic development as it occurs in the global South as well as in the challenges emerging from environmental problems occurring at different scale levels. The course pays special attention to social conflicts, governance processes and the possibilities of achieving win-win solutions. This course analyses environmental issues that are critical to developing countries in Africa, Asia and Latin America from natural resource, right to development, livelihood and governance perspectives. It highlights local and national - and sometimes international - dimensions of the issues at hand, enquiring into the relationship between the environment and the development process, changes in resource access, and adaptations to global and local environmental change.

Governing transitions for global sustainable development 9EC, Block 2 & 3, English

Since the early 1980s, the issue of sustainable development has become a linking pin in International Relations (IR) as well as Public Administration (PA). Meanwhile, issue areas such as industrial production and consumption, the distribution of resources, and the pressure on local environments are increasingly (re)formulated in terms of transitional sustainable trajectories and associated discourses.

The main challenges in governing those transitional trajectories relate to (a) 'breaking through' entrenched economic and political interests that gain from the present (industrial) system, and (b) envisioning, designing, and implementing governance styles that support mutual reinforcing of social and economic goals (such as economic welfare, environmental quality, and earning capacity).

Sustainable and Inclusive Economics 6EC, Block 2, English

This course entails a study of the economic literature on sustainable and inclusive economics and is specifically designed to accommodate both economists and non-economists. The objective of the course is to gain a thorough understanding of the new economic theories, concepts, and approaches for addressing current global challenges, starting from comprehensive frameworks such as 'wellbeing economics' and the 'doughnut economy'. A specific objective of the course is to familiarize students with a wide range of economic methods and techniques and know how to interpret results of economic models and analysis.

The Anthropology of the Future 6EC, Block 2, English

Time has long been an object of investigation in Anthropology. Studies have focused on the past, on experiences of time, and on different modalities of time. The future, however, has only recently become a topic of research. Anthropologists are thinking through how the future might be studied and some are even contemplating whether and what role anthropologists should play in helping society think through and respond to the future, an issue made all the more pressing given global warming and climate change. The Anthropology of the future is a new and exciting field that we will explore together.



Urban Perspectives - Diversity and Sustainability 6EC, Block 2, English

Cities are the sites at which most social issues and trends, from social conflict to the expression of individual and group identity, are manifested. Cities even work as the condition of possibility for many phenomena -- take, for example, cultural diversity or fashion and subculture. This part of the Urban Perspectives series titled Diversity and Sustainability, helps students to identify a productive intersection of their primary interest with the urban dimension: how, for example, human mobility is expressed in the city; what changes in work regimes and work types are intertwined with urbanization?

College of Economics and Business

Corporate Social Responsibility 6EC, Block 2, English

Companies are dealing with societal and environmental issues as a result of pressures exerted by customers, shareholders, regulatory authorities and non-governmental organisations. This course examines how firms have reacted to these demands from stakeholders and how sustainable management and corporate social responsibility have developed. It explores the factors that influence the integration of societal and environmental concerns in corporate strategies and the practical implications of this process. Corporate social responsibility is addressed from an international business and strategic management perspective. Especially in international business companies are confronted with differences in legislation, ethical standards and management practices. It is important to manage these issues from an ethical viewpoint and to avoid any risk of negatively influencing the reputation of the company. There are also potential competitive advantages for companies in marketing green products, saving environmental costs and, more generally, in developing sustainable business models.

Environmental Economics 6EC, Block 2, English

This course will review studies that present human influences on the environment and will discuss economic theories that help to understand these environmental changes. The topics that will be covered include: public goods and externalities, Malthus and carrying capacity, steady state economics, a broader perspective on cost benefit analysis (e.g. intertemporal welfare economics and valuing the environment), theories of optimal resource extraction for both renewable resources and non-renewable resources, policy instruments - such as Pigouvian taxes and depletion quotas - and private sector responses, including the Jevons paradox.

Graduate School of Business

Business Strategy and Sustainability 6EC, Block 1, English

Students will learn how theoretical insights from different fields of management and the social sciences can be applied to analyse how firms deal with social and environmental issues. The purpose is to gain a deeper understanding of theories students are acquainted with, become familiar with new theoretical approaches, and apply them to social/environmental issues. In addition, students will learn how to empirically analyse problems in the fields of corporate sustainability and corporate social responsibility (CSR).

Sustainability, Circularity and Business 5EC, Block 2, English

This course examines the broad roles that businesses can play in sustainability and circularity. We will first explore the history and background developments related to these concepts and ways of thinking, both at the level of global institutions and local manifestations. We evaluate the relevant existing theories and models and the key actors that are involved in societal transformations. Systems thinking will be a key lens through which we will examine how sustainability and circularity (can) permeate organizations, industries, and fields. Incorporating transdisciplinary perspectives across business and management, technology studies, policy approaches and social sciences will be key to linking current efforts to systems thinking. We adopt a strategic and business model lens to evaluate these themes at the organizational level.

Sustainable and Ethical Marketing 6EC, Block 2, English

The world is moving faster than ever. Environmental, social, technological, demographic and political developments pose new challenges for society, and demand critical actions from corporations, nonprofit organisations, the government, and individual actors. Marketing has often been perceived as part of the problem rather than the solution to issues like pollution, (plastic) waste, resource depletion, obesity, food waste, human rights abuses, unsafe products and privacy concerns. Notable examples are the Volkswagen 'Dieselgate' and Facebook's data privacy scandal. However, markets are also part of a global system that facilitates exchanges and co-creates value. This course aims to understand how marketing can be a force for social change.

College of Sciences

Palaeoecology 6EC, Block 1, English

The Palaeoecology course will provide you with a wide range of insights into how information about ecology and ecological change in the past can be obtained. To understand the ecology of the past we will also explore mechanisms related to past climatic change, physical processes in the landscape, and human activity. We will focus on the Quaternary period (last 2.6 million years), and evidence for past ecological change will be looked at over a range of timescales (from multi-millennial to annual). We will also explore spatial patterns of ecological change from local to global scales. Over the course of the lectures, practicals, discussions, and fieldwork, we hope that you will gain a new perspective on ecological change that places the world you see around you today into a clearer context.

Artificial Photosynthesis and Solar Fuels 6EC, Block 2, English

The energy problem (impending shortage of fossil fuels, and the disadvantages associated with these fuels) is one of the major challenges of current science. As is known, plants can very efficiently convert sunlight into (and store as) chemical energy, and this has inspired researchers to make chemical energy from light themselves. Work is currently underway worldwide to solve the following problem: make a cheap, environmentally friendly molecular system that makes hydrogen + oxygen from water + light. The solutions that have been devised up to now are usually not efficient enough (too little hydrogen per photon), too expensive, or bad for the environment, and often all three at the same time. In this course, the student will try to come up with a solution himself. The knowledge required for this can be acquired during the lectures, including on the basis of recent articles.

Biodiversity & Global Change 6EC, Block 2, English

Biodiversity contributes to the proper functioning of ecosystems and is essential for a sustainable future of our earth. It also contributes to food production, biotechnology, and medicine, and is therefore of fundamental importance for our human well-being. However, biodiversity has changed dramatically, both in the geological past as well as more recently due to the impacts of modern humans. The resulting environmental changes (both natural and human-driven) take place at different spatial and temporal scales, but the mechanisms and processes driving biodiversity change are often poorly understood. The course concentrates on patterns and processes of biological diversity at species, population and ecosystem levels, and presents examples of how biodiversity has changed in the past, how it is currently changing due to human influence, and how the future of biodiversity can be predicted.



Green and Industrial Chemistry 6EC, Block 2, English

This course contains important principles of industrial chemistry and green chemistry. The course will start with the industrial chemistry part, which describes the application of chemical principles in chemical industries. The concepts that will be introduced in this course are kinetics, mass and energy balance, application of mass balance to the design of reactors, various type of reactors and their design and economic aspects. The principles of green chemistry serve as a conceptual framework to guide the design, manufacture, use, and recycling or disposal of chemical products in an economically, environmentally, and socially responsible way. However, to advance green chemistry, a significant change must occur in how the next generation of scientists are trained. This is the guiding objective of this course for the green chemistry part.

Graduate School of Sciences

Green Chemistry 6EC, Block 1, English

Sustainability and Green Chemistry focuses on 12 principles. Aspects like atom efficiency, chemical waste and manufacturing processes will be highlighted as well as catalysis, solvents, biomass, solar energy, alternative feedstock, energy consumption, and safety, all in the context of chemical sustainability. Important ingredients in the course are student presentations on these topics, and assignments on selected topics. In response to the global threat imposed by resource scarcity and climate change, circular economy is highly regarded as a way to secure a sustainable future and to enable businesses and society to thrive. Circular economy aims to extend the inherent value of materials embodied in a product, rather than waste it and chemistry is crucial for achieving this. While the well-known Green Chemistry principles focus on optimizing and sustaining linear processes, circular chemistry moves beyond value extension and aims at making chemical processes and production cycles truly circular.

SfES Project 6EC, Block 1, 2 & 3, English

SfES project consist of a physics literature thesis, an experimental physics project or a combination of the two within or outside a research laboratory targeting renewable energy or sustainability. The project may take place in the same laboratory as the research internship but the topic may not overlap with that of the research internship. The course aims at acquiring a broader perspective on SfES research themes within physics research laboratories or within organizations outside academia targeting renewable energy and sustainability. For the latter, the application of knowledge from sfes-physics courses is mandatory.

Graduate School of Humanities

Film Research Seminar I 6EC, Block 1, English

Seminar: How to Save the World: or, Ecology and Cinema

The emphasis in my seminar is to study how cinematic works, mostly fiction films but also documentaries, not only reflect our current environmental and ecological conditions, but suggest solutions through imaginative exploration. Indeed, what do we mean by words such as the 'environment' and 'ecology' and how do we develop conceptual frameworks to explore the relationship between cinematic art, aesthetics and politics? Titles for fields of practice such as 'ecocriticism' and 'eco-philosophy' have both emerged from literary studies. Yet these terms are now undergoing compelling transformations in the study of cinema and its related media environments.

Socio-Environmental Changes in Latin America: Power, Participation and Governance 6EC, Block 2, English

Latin America holds large reserves of renewable and non-renewable resources and is a major global supplier of energy, metals, foodstuffs and environmental services. Historically the countries in the region have faced challenges in managing their natural resources in a sustainable, productive and equitable way. More recently, the region started to experience a new wave of right-wing governments who are explicitly moving away from social policies, human rights and the environmental conservation agenda. At the local level, conflicts often materialize from unequal access and control over land, water, forests and other resources, due to the growing tension between large-scale rural development and indigenous and non-indigenous peasant livelihoods and their small-scale local management. Other conflicts occur when central governments and/or multinational companies ignore socio-environmental demands from civil society and criminalize activists.

Iedereen een Mercedes. Over de moderne wereld van de consumptiesamenleving 6 EC, Block 2, Dutch

De huidige samenleving is de welvarendste uit de hele geschiedenis. Niet alleen leven er meer mensen dan ooit tevoren in welvaart, voor het eerst in de geschiedenis zijn welvaart en consumptie ook een reëel doel dat regeringen en burgers zich overal ter wereld kunnen stellen. Dat is pas ongeveer een halve eeuw het geval. De moderne welvaartssamenleving en consumptiecultuur behoren tot de grootste veranderingen in de geschiedenis. Tot halverwege de twintigste eeuw vormden schaarste, beperking en productie de normale situatie voor bijna iedereen. In menig opzicht staat de auto centraal in de moderne consumptiesamenleving. Hoe is het moderne leven door de auto veranderd? Hoe is het denken over automobilititeit en natuur en milieu veranderd?

Graduate School of Informatics

Intelligent Interactive Systems 6EC, Block 1, English

This course provides a historical, technical and application overview on intelligent interactive information systems and related application domains, with an emphasis on systems and technologies in interaction with their human and social context. The course project covers a research proposal for a project on an Intelligent Interactive System of your choice. The project is done in groups of 5 and the system has to show intelligence, provide interaction, and has to be multimodal. The goal of the system should address any of those objectives: sustainability, disruptiveness, mobility or diversity. You can take inspiration from the topics during the lectures

PPLE - Politics Psychology Law Economics

Transnational Governance 6EC, Block 2, English

In light of conflict and persistent gridlock in many intergovernmental forums, transnational actors play increasingly prominent roles in the governance of a wide range of issue areas, including the environment, human rights, development, and global health. Long overlooked by mainstream International Relations (IR) theorists, NGOs, firms, transnational city networks, and public-private partnerships set regulatory standards, engage in transborder advocacy work, and provide collective goods and services in areas where the state is unwilling or unable to do so. This 'transnational turn' in IR has greatly increased the complexity of global governance, raising fundamental questions about its very nature in the 21st century. Students will learn about the history and theory of transnational relations. Students are introduced to key actors and issues in transnational governance – in particular, but not exclusively, its private variety. Topics covered during the course include: the governance of sustainability in global value chains, the provision of health services in areas of limited statehood, the effectiveness of transnational human rights advocacy, as well as the role of transnational city networks in the fight against global climate change.

Graduate School of Life and Earth Sciences

Climate Change and Environmental Ethics 12EC, Block 1, 2 & 3, English

We will zoom in on various of the ethical problems posed by climate change.

1. When we burn fossil fuels today this will primarily affect future generations. We will discuss how various moral theories break down in the intergenerational context.
2. Climate change will not only affect humans, but non-human nature as well. Do we have duties towards other sentient species? Or do we even have duties towards all life forms?
3. Climate change poses a social dilemma on a global scale. What are our individual duties to reduce our impacts? What are our collective duties? Are countries responsible for past emissions, i.e. do they have a carbon debt?

Vulnerability Assessment of Geo-ecosystems 12EC, Block 1, English

The central themes are organized around the following topics:

Island biogeography with emphasis on the role of island size, isolation, geodiversity, landform evolution, species richness and ecological habitats.

Vulnerability assessment of geo-ecological zones, with focus on the Corona Forestal and the agricultural zone: effects of land abandonment on soil recovery, soil erosion, native vegetation succession and competition with introduced plant species, ecosystem engineers, impact of forest fires, invasive species, species distribution or population modelling (SDMs) in the light of land use and climate change.

Impact of Land Use and Land Cover Change: soil recovery, native vegetation succession and competition with introduced plant species, multi-temporal remote sensing analysis, multi-criteria analysis of societal and environmental indicators for scenario development, assessing the socioeconomic drivers and impacts of land use change, erosion modelling.

Sustainable water management: hydrological stress factors in the landscape, changing socio-economic drivers and their impacts, nature conservation and restoration, sustainable irrigation, crop scenarios, suitability mapping and ecosystem service provision.

Geo-ecological response to geomorphologic processes and hazards. Slope stability and natural hazards, volcanic and hydrothermal activity in relation to soil and vegetation succession, soil animal community structure, on various substrates, (ground) water quantity and quality.

Microbial Ecology 6EC, Block 1, English

The course will first provide a brief history of the field of microbial ecology, and an outline of the general characteristics of microbes and microbial communities, and their role in the cycling of chemical elements. It will then proceed to highlight the most important methodological approaches that have been essential to recent advances in microbial ecology. These highlights will pay special attention to the rapid increasing influence of high-throughput sequencing technologies. Subsequently, several important examples will be presented regarding the role of microbial ecology in key environmental issues, including effects of global climate change, pollution and other anthropogenic pressures on ecosystems.

Energy and Climate Change; Science, Policy and Economics 6EC, Block 2, English

This course focuses on the inseparable links between energy use and climate change and, consequently, the unavoidable connection between energy and environmental policy. The entire course is truly multi-disciplinary, in the sense that the challenges associated with the subject matter of energy and climate change are simultaneously taught from a natural scientific, public policy and general economics perspective. Through an examination of this subject, this course also explores three closely-related themes that exemplify the complexity of the interaction between science and technology on the one hand and economics and public policy on the other hand: the challenges of achieving political acceptance, both nationally and internationally, of scientific consensus in the face of ever-present scientific uncertainty; the extent and the limitations of science as a driving force for public policy; and the role of technological development in influencing political choices.

Environments through Time 6EC, Block 2, English

Global environments have been extensively transformed over the last decades, and are projected to change at an accelerated rate over the coming centuries. Human-induced and natural forcing mechanisms, such as land-cover change, climate change, and population growth are the primary drivers of current environmental change. However, to understand if the observed, and projected, environmental changes are outside the normal variation of the Earth's functioning, in terms of magnitude and speed, we require a longer-term context. Landscapes, societies and climates evolve over timescales of decades to millennia, and on spatial scales of tens to thousands of kilometers. Indicators of past environmental change allow us to reconstruct many aspects of past environments, such as climates, vegetation, and human history, but to make these directly comparable with observed and projected changes, a clear understanding of timescales is required.

Geo-ecological Systems in a Changing World: Carbon, Nitrogen and Pollutants 6EC, Block 2, English

Current environmental research has to meet the challenges of climate change and other human-made impacts. The cycle of major elements and the fate of pollutants in ecosystems depend on interactions between organisms and their abiotic environment and will be affected by these environmental changes at different scales, i.e. local to global and from the molecular to the landscape level. This course will focus on matter fluxes in soils and their impacts on the atmosphere and the hydrosphere.

Grand Challenges of Human-Ecosystem Interactions 6EC, Block 2, English

The global human population is growing exponentially and the ecological impact per capita in emerging economies is increasing which results in a huge pressure on our natural resources as well as deterioration of our ecosystems. The ever-increasing human population affects the interactions between humans and the ecosphere, for instance via climate change, ozone depletion, land-use change, over yielding, biogeochemical flows and non-sustainable management practices. We are facing grand challenges related to the identification and quantification of planetary boundaries that should not be transgressed to prevent unacceptable environmental change to our planet due to human activities. Increased human-induced pressure on our landscapes has resulted in enhanced deforestation, desertification, eutrophication, salinization of soils and habitat fragmentation and these negative effects have to be mitigated to support and sustain ecosystem services for the future.

Institute for Interdisciplinary Studies

Circular Economy 6EC, Block 1, English

During this course we will observe the linear economy and the current state of it. We will try to identify the externalities of this economy that have influences on the world around us. After looking at the status quo, we will study transition theory and will try to tackle some of the problems that currently exist in our economic system. The circular economy is one of the solutions that were presented to solve the problems in the linear economy. We will study this solution, its benefits and its flaws in detail. We will also study other proposed solutions (such as doughnut economics and the biobased economy) and will identify the differences between them. After that we will look at the changes that both governments and companies will need to make in order to make the shift towards a circular economy.

Governance and Systemic Transformation 6EC, Block 1, English

Transforming food production and consumption is a key issue for sustainable development: food production has important relations with energy and water issues, and food consumption is deeply culturally and economically embedded. How to transform food systems? This course takes two perspectives on this issue: a governance perspective and a system innovation perspective. The modernization of food production in the Netherlands and the EU will be discussed. That discussion will also be used to explore basic notions from transition studies and governance theory. We will then further deepen our understanding of governance on basis of three examples of transnational governance: the 1992 reforms in the EU's Common Agricultural Policy and their implementation in three EU countries; the contemporary Milan Urban Food Policy Pact and how it hits the ground in Jakarta,, Indonesia; and current Global Food Governance and how it hits the ground in South Africa.

Analysis IPCC Report 6EC, Block 2, Dutch

Climate change and its anthropogenic contribution are receiving a lot of attention in science, politics and the media. The Intergovernmental Panel on Climate Change (IPCC) released a report every 6 years summarizing the new developments in climate science. There are comments from various quarters about this report, which is not surprising given its major social implications.

Degrowth 6EC, Block 2 & 3, English

How is economic growth entwined with the social, environmental and financial turmoil of the past few decades? How can we have a stable and prosperous economy that does not grow—let alone one that shrinks to a sustainable level relative to existing planetary boundaries?

The predominant economic system is caught in a double bind: its expansion disrupts the natural world and fails to curb global inequities, while slowdown destabilises the inner workings of economic system itself. Many continue to hope against hope that economic growth can be decoupled from its ecological impact and will bring wealth to all. However, these perspectives trivialise the fundamental contradictions between the goals of economic profitability, environmental sustainability and social justice. To persist in denying these contradictions will end in a process of uncontrolled economic decline with serious social and ecological harm.

Honours module: Sun, Energy and Materials 6EC, Block 2 & 3, English

In nature, energy from the sun is stored in chemical bonds within glucose via photosynthesis. Burning glucose, as the fuel of life, with molecular oxygen releases a lot of energy thereby producing carbon dioxide and water as side products. Photosynthesis is the name of the reverse reaction. Can mankind copy this carbon-centered circular economy? Besides providing energy, glucose is also the building Block for the molecules of life. So artificial photosynthesis would deliver both sustainable energy and materials. Mechanistically, photosynthesis can also be considered as the oxidation of water providing molecular oxygen and hydrogen. By just mimicking this part of photosynthesis by making an 'artificial leaf' we would be able to produce molecular hydrogen from water and thus store solar energy. But these are just examples of sustainable molecular solutions for the future, will there be others?

Political Economy of Transnational Food Chains 6EC, Block 2, English

What room does the organization and regulation of transnational food production and consumption and provision leave for sustainable transitions, or should the transnational food system be considered as in impediment to sustainability?

Students are introduced to the historical and contemporary organization and regulation of transnational food production, provision and consumption. Key determinants of the shifting organization and coherence of food chains will be discussed, such as the growing concentration and specialization in food production, the role of transnational regulatory regimes, the impact of new technologies on food production, as well as global demographic trends, and climate change.

Throughout the series there is attention for the unfamiliar socio-political and ecological (climatic) dilemmas and challenges related to the coordination or governance of transnational organization of food production. The socio-political dilemmas and challenges encompass landgrabbing, the growing physical and psychological alienation between consumers and producers, growing concerns related to human health and food safety. Environmental challenges and dilemmas will cover the agro-industry's simultaneous contribution and vulnerability to global warming and biodiversity loss

World Food and Ecosystems 6EC, Block 2, English

In the course World Food and Ecosystems we will take you through the most important biomes, their basic function and structure, and their role with respect to food supply. You will also learn to apply remote sensing, genetic barcodes and various digital data to improve the analysis in a problem-solution framework. All of this information will also be used to predict biodiversity outcomes, and potential impacts of climate change on natural ecosystems and food supply.

Future of Food 3EC, Block3, English

In Food and the City we have come to view contemporary food practices and the consequent shaping of food places and spaces as social practices contributing to or deviating from the path to sustainability. Food and its manifold spatial manifestations is key to understanding emerging alternative niches which may eventually have a positive impact on spatial structures and institutions that are ultimately unsustainable. As the food system is enacted by the repetitive performances of everyday food practices, transitioning the food system means that we need to change the practices that constitute and reproduce them. Cities actually are uniquely positioned to help change food practices, and by doing so to enhance the transition of socio-technical regimes such as the food system. The conventional linear understanding of food chains, operating from farm to fork, does not help much in understanding how such dynamic changes may occur, spread and take effect in our food systems. In this course we challenge students to come up with contributions that aim at developing more dynamic approaches to understanding – and promoting – change in the food system and along the food chains. Taking as point of departure the recent initiative to install food councils, we call for contributions which critically assess the role of different actors, tools or practices in fostering or resisting change towards more sustainable food systems. We invite the students to make a contribution to the mapping of the regional stakeholder network and inventory a sliver of the flows of food in the region and share reflections on the appropriate management towards a sustainable food system.

Thema II: Wetenschap in Praktijk 6EC, Block 1 & 2, Dutch

Deze cursus geeft studenten de mogelijkheid hun wetenschappelijke kennis te gebruiken om reële vragen en uitdagingen van organisaties op te lossen. Alle cases zullen vallen binnen het thema Circulaire Economie.

In de eerste paar weken worden de studenten middels hoorcolleges en literatuur inhoudelijk klaargestoomd om op te treden als experts op het gebied van Circulaire Economie. Vervolgens zullen we in werkgroepen onder begeleiding van inhoudelijke experts en consultants in groepjes werken aan verschillende casussen voor bedrijven. In deze werkgroepen worden enkele consultancy vaardigheden aangeleerd en getoetst, om die vervolgens toe te passen op de casussen voor bedrijven.

Thema III: Interdisciplinair Onderzoeksproject - deel 2 6EC, Block 1, 2 & 3, Dutch

Centraal staat een reeks van werkgroepen waarin studenten gezamenlijk werken aan een voorgegeven onderzoekscasus, waardoor geleerd wordt om de literatuur over methodes van interdisciplinair onderzoek in de praktijk brengen. Studenten kiezen in deel 2 voor een onderzoeksdomein – evolutie, cognitie, duurzaamheid of vrij domein (o.v.b.) – en gaan vervolgens in kleine, interdisciplinaire teams onderzoek doen naar een zelfgekozen thema binnen het domein. Junior en senior docenten begeleiden het onderzoeksproces aan de hand van diverse werkgroepbijeenkomsten en schriftelijke opdrachten.

Klimaatverandering en Zeespiegelstijging 6EC, Block 1, Dutch

Één van de grote wereldwijde problemen van deze tijd is de verandering van het klimaat op aarde. Voor Nederland en veel andere kustgebieden zijn niet alleen de verandering van de temperatuur en het neerslagregime van belang, maar is ook de verandering van de zeespiegel ten gevolge van klimaatveranderingen belangrijk. Omdat voor een goed begrip van de algemene circulatie enig begrip van basale natuurkunde onontbeerlijk is, worden waar nodig ook de benodigde natuurkundige principes behandeld. Bij het maken van prognoses (projecties) voor het klimaat in de toekomst spelen modellen een essentiële rol. Daarom wordt duidelijk gemaakt hoe causale relaties de basis vormen voor dynamische modellen en hoe de “echte wereld” in computermodellen kan worden beschreven. Zelfgemaakte modellen worden gebruikt om de effecten van zeespiegelstijging op polders en rivieren te analyseren.

Toekomstige Uitdagingen, Innovatieve Oplossingen 6EC, Block 1 & 2, Dutch

In het vak Toekomstige Uitdagingen, Innovatieve Oplossingen, maak je een begin met het leren tackelen van ingewikkelde uitdagingen die niet vanuit een discipline kunnen worden opgelost maar in hun complexiteit dienen te worden bestudeerd. Je leert dat langs twee wegen. In de eerste plaats door je vertrouwd te maken met het systeemdenken, dat helpt om de verschillende factoren die een rol spelen bij complexe issues in onderlinge samenhang te bezien. In de tweede plaats schrijf je zelf een wetenschappelijke paper over een van de uitdagingen die jou het meest interesseert, waarbij je ook kunt proberen er oplossingen voor aan te dragen. Het systeemdenken is van doorslaggevend belang om de problemen die je onderzoekt, en de oplossingen die je aandraagt, wetenschappelijke diepgang te geven.

Toekomstperspectief voor de Aarde 6EC, Block 1 & 2, Dutch

Door ongekeerde bevolkingsgroei, uitputting van grondstoffen en hulpbronnen, en versnelde klimaatsverandering staan we op een keerpunt in ons bestaan op aarde. Een grote uitdaging waar we ons voor gesteld zien is hoe we onze leefomgeving, de planeet



aarde, zodanig kunnen inrichten dat dit een plek blijft waar wij mensen ook in de toekomst een goed bestaan kunnen leiden. Hoe kunnen wij de processen van het leven op zodanige wijze benutten dat wij er weliswaar profijt van trekken, zonder daarmee een fundamentele verstoring van ons leefmilieu teweeg te brengen of onherstelbare schade aan te richten aan natuur/ecosystemen? Om antwoorden te vinden op deze vragen, zullen we kijken hoe we op dit keerpunt beland zijn en onderzoeken in hoeverre we veranderingen al dan niet onomkeerbaar zijn.



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