

Minor Sustainability

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Full period of this minor:	period 1 & 2, possibility to add on period 3
ECTS credits in total of this minor:	25 ECTS (possibility to add on 5 ECTS - which totals to 30 ECTS)
Maximum number of participants:	60 (first come, first serve but with the condition to have an even spread among programmes)

Minor description:

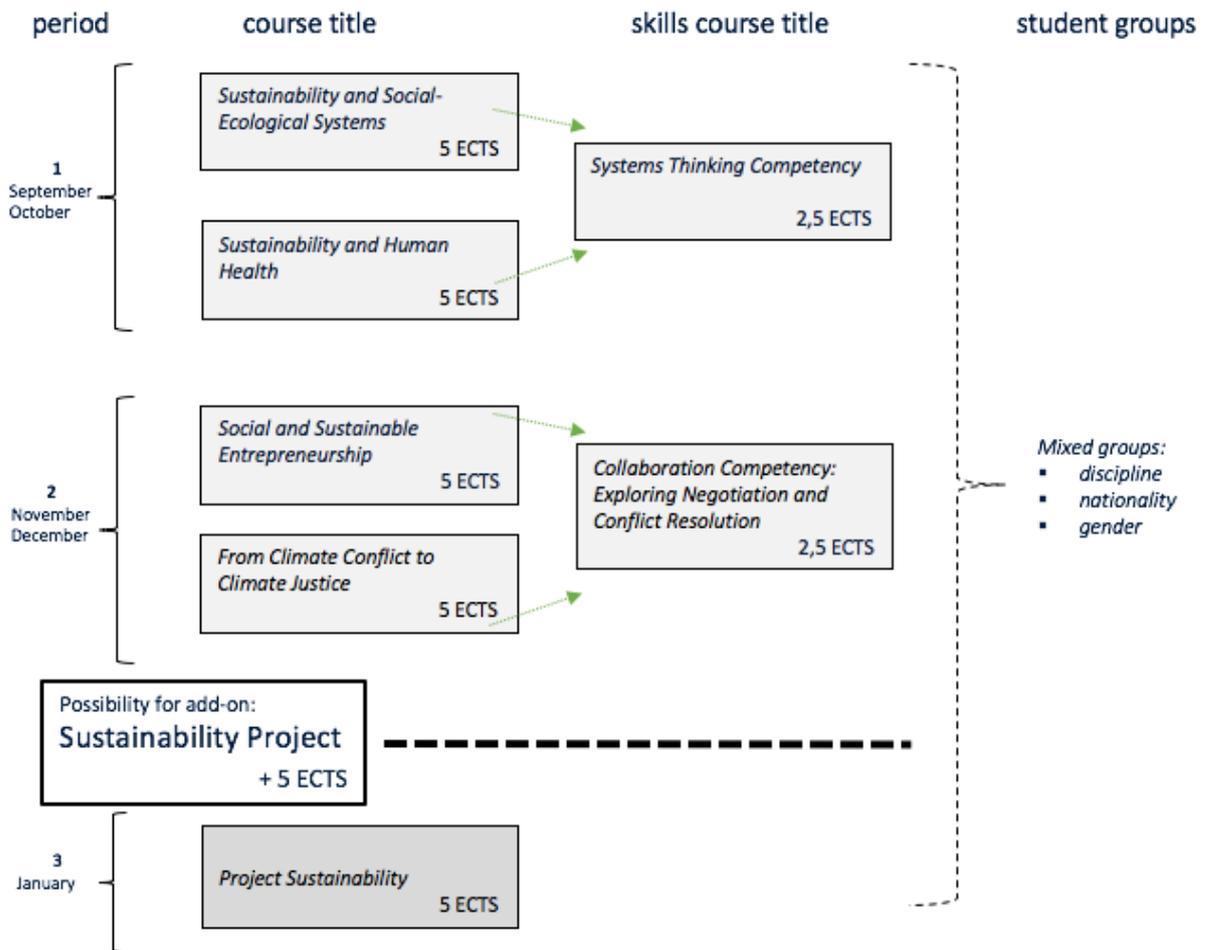
Sustainable development - development that meets human needs while conserving Earth's life support systems - has emerged as one of the key concepts of our contemporary world. It is inextricably linked to today's grand challenges, including climate change, environmental degradation, inequality, peace and justice. Challenges relating to sustainable development affect all of us and often transcend temporal scales and boundaries, including geographical, sectoral and cultural and generational ones.

Moving to an integrated approach and understanding of sustainable development is necessary but challenging. This minor is an exploration of that ideal – by offering a selection of courses that explores the topic from various angles, in a multi- and interdisciplinary way. In this pursuit, the environmental, social, economic, and institutional dimensions of sustainable development are addressed and, where relevant, illustrated with real-world sustainability problems and the Sustainable Development Goals.

This minor has been built by teaching and research staff of all faculties at Maastricht University with various academic backgrounds. The minor is composed of a unique collection of courses, including skills modules in which students develop their competencies for sustainable development. The minor also provides an optional research project on sustainability. The minor is accessible to all UM students and aims for a unique cross-faculty learning experience.



Minor Sustainability 25 ECTS



Course name: **Sustainability and Social-Ecological Systems**

Course code: EBC2187

Course Period: 1

ECTS credits of this course: 5

Full course description:

Central to the pursuit of sustainable development is the integrated consideration of economic, social and environmental aspects. However, traditional scientific paradigms are based on reductionist thinking, which tries to understand things by taking them apart. In sustainability science, systems thinking is key to address the complex and interdependent nature of our coupled social-ecological systems.

Many people recognize the need to transition to a sustainable and resilient society, but this requires new ways of thinking about and addressing complex problems. Widespread adoption of systems thinking is believed to be a precondition for making real progress towards sustainability, but few understand its' importance. Systems thinking is a process for understanding the interrelationships among the key components of a system.

This course will introduce students to systems thinking and how it can be applied to understand sustainability problems and challenges of coupled social-ecological systems. Students will also become acquainted with (quantitative) sustainability impact assessment. After familiarizing themselves with key concepts, students will explore systems thinking across two areas:

- Earth systems and coupled social-ecological systems: Students will explore biogeochemical cycles; climate systems feedbacks and climate tipping points; interlinkages between the climate systems and our food systems; resilience and adaptive sustainable food systems.
- Rethinking production systems: Students will explore the transition to a biobased and circular economy through topics like materials from renewable resources, renewable energy systems, plastic waste scenarios, design for recycling, circularity concepts and energy in the built environment.

Course objectives:

Students are able to...

- understand key terms, concepts and principles related to (social-ecological) systems-thinking;
- understand the complexities of (coupled) social-ecological systems;
- apply system's thinking to key sustainability challenges, such as climate change, sustainable food systems and biobased/circular production systems;
- reflect on the potential of interdisciplinary knowledge and understanding in the pursuit of sustainable social-ecological systems.

Intended assessment methods: assignment; final paper; final presentation

Prerequisites: None

Course name: **Sustainability and Human Health**

Course code: EBC2188

Course Period: 1

ECTS credits of this course: 5

Full course description:

Our health is (or should be) a key component in the sustainable development debate. For example, the first principle of the seminal 1992 United Nations Rio Declaration on Environment and Development states that “Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature”. Similarly, the World Health Organization argues that ‘sustainable development cannot be achieved when there is a high prevalence of debilitating illnesses, and population health cannot be maintained without ecologically sustainable development’. Throughout the course, students will reflect on the (central) role of human health in the sustainable development debate.

In the past the exploitation of the environment has benefited our health, for example by increasing food production to feed billions of people. However, the exploitation and contamination of the environment is now beginning to threaten our health. Hence, the same natural systems that have benefited us for so long (by providing key ecosystem services in support of our wellbeing), are now suffering from the consequences of human activities. It has, for example, been estimated that diseases caused by pollution were responsible for an estimated 9 million premature deaths in 2015—16% of all deaths worldwide. And climate change is now perceived by many as one of the key global health threats of the 21st century.

The emerging field of planetary health explicitly accounts for the importance of natural systems in terms of averted cases of disease and the potential harm that comes from human perturbations of these systems. This course will discuss how human health depends on the health of our planet and explores relevant examples of this interlinkage (e.g. pollution, climate change, zoonotic disease emergence). Next to looking at our physical health, we will also explore mental health, well-being and human behaviour in relation to sustainable development.

Course objectives:

Students are able to...

- understand what is meant with (planetary) health;
- explore how human health depends on the health of the planet by exploring relevant examples (pollution, climate change, zoonotic disease emergence);
- explore mental health, well-being and behavior in relation to sustainable development;
- reflect on the (central) role of human health in the sustainable development debate.

Intended assessment methods: presentation; written examination

Prerequisites: None

Course name: **Systems Thinking Competency**

Course code: EBS2074

Course Period: 1

ECTS credits of this course: 2,5

Full course description

A core competency for contributing to sustainable development is systems-thinking. *Systems* consist of 1) elements or parts, 2) interconnections (the way these characteristics relate to and/or feed back into each other), and 3) a function or purpose (Meadows, 2008). Systems can be simple or complex when they range across domains (environmental, economic, social, etc.) and scales (local to global). *Systems thinking* starts from an understanding of what systems are and the subsequent ability to analyze systems. A good understanding of the main facets of systems and of how systems work is of particular importance for thinking and acting in favor of sustainable development, as for instance intervention points can be identified, future trajectories anticipated, and for building transition strategies.

This skills course runs in parallel with the course Sustainability and Social-Ecological Systems. In both of these courses students will get acquainted with the core concepts of systems thinking (including system dynamics and mental models). Where this skills course clearly deviates is that students will experience and learn about the core concepts of systems thinking through in class exercises and games, and apply the concepts to a case in their present live to also understand the place of the self within a system. The focus on (in-class) exercises is intended to stimulate discovery and confirmation of the main principles underlying systems thinking theory.

Course objectives

Students are able to...

- understand the main concepts of systems thinking (including systems dynamics and mental models);
- create a systems diagram on a chosen social-environmental system;
- reflect on one's self within the (social-environmental) system;
- reflect on one's own experience with systems thinking during in-class exercises.

Intended assessment methods: attendance; final paper

Prerequisites: None

Course name: **From Climate Conflict to Climate Justice**

Course code: EBC2190

Course Period: 2

ECTS credits of this course: 5

Full course description

This course aims to provide students basic insight into core policy and law issues related to the world wide problem of climate change.

The course consists of three building blocks:

1) Attribution of Conflict

First, the scene will be set by studying the politics of climate science for assessing environmental, economic, and social consequences of climate change. In light of this, we will also study the potential conflict inducing nature of climate change.

2) Regulation to Reduce Greenhouse Gases

Second, we will delve into the international institutional and regulatory frameworks to reduce world-wide greenhouse gas emissions, we will scrutinize their ambition, and evaluate what national action is needed. In light of this, we will explore Global North-South perspectives, including discussing the greater responsibility that developed countries should take. The Paris Agreement and the European effort to become climate neutral by 2050 will be the focal points of attention.

3) Climate Justice and the Role of the Courts

Third, we will discuss climate justice through the lens of human rights. In this context, we will explore how litigation can be used by civil society in order to hold governments and companies to account for implementing effective climate policies. Some ground-breaking climate court cases will be scrutinized and critically discussed.

Course objectives

Students are able to...

- understand the politics of climate science for assessing environmental, economic, and social consequences of climate change;
- identify the international institutional mechanisms and regulatory approaches in the field of climate change, and explore the necessity for regional (EU) and national implementation;
- explain and explore what role procedural rights and litigation, including human rights claims, play or could play to combat climate change;
- critically reflect how climate conflicts could be mitigated and climate justice could be promoted, including a global North and global South perspective.

Intended assessment methods: written examination; presentation

Prerequisites: None

Course name: **Social and Sustainable Entrepreneurship**

Course code: EBC2189

Course Period: 2

ECTS credits of this course: 5

Full course description

Entrepreneurship is viewed as an important tool for tackling complex sustainable development problems and challenges. Social entrepreneurship and sustainable entrepreneurship are becoming mainstream forms of organising that span the private, public and third sector. The defining features of social and sustainable entrepreneurship are an explicit and central social and/or environmental mission, combined with innovation, creativity and earned income strategies. Well known social and sustainable enterprises that we will explore in the course include Tony's Chocolonely, Patagonia, and the Grameen Bank.

This course will provide students the opportunity to learn how to apply entrepreneurship knowledge and skills to address complex social and environmental problems. This course is structured around experiential problem-based learning, providing students the opportunity to synthesise theory and practice as they develop an idea for their own social and sustainable enterprises.

Topics will include: critically case analysis; user centred-design; strategizing; measuring social and environmental impact; entrepreneurial pitching.

Course objectives

Students are able to...

- understand what is meant by social and sustainable entrepreneurship (based on theory and practice);
- critically analyse organisations engaging in social and sustainable entrepreneurship;
- identify and evaluate opportunities for social and sustainable entrepreneurship;
- conduct research in the field of social and sustainable entrepreneurship;
- develop a strategy for a social and sustainable enterprise;
- prepare and present documentation to pitch a novel enterprise idea.

Intended assessment methods: participation; facilitation; video presentation; final presentation; social/sustainable enterprise portfolio

Prerequisites: None

Course name: **Collaboration Competency: Exploring Negotiation and Conflict Resolution**

Course code: EBS2075

Course Period: 2

ECTS credits of this course: 2,5

Full course description

Sustainable development challenges facing our world today, including complex issues such as climate change and biodiversity loss, require joint and concerted action to be effectively addressed. As differences in needs, perspectives, and strategic agendas are amplified, gaining trust and shared understanding between stakeholders is a difficult task to achieve. Nonetheless, also in situations where parties seem divergent and head strong, there may be room to come to an agreement beneficial for all. Fostering the competency of collaboration is widely recognized to be of crucial importance for thinking and acting in favor of sustainable development. While various definitions exist, at the core of the competency of collaboration lies the ability to learn from others; about being empathetic and respectful to the needs, perspectives and actions of others; about dealing with conflicts and facilitating participatory and collaborative problem-solving. In this skills course, students will be acquainted with collaboration competency and its important facets (including empathy, communication, active listening, negotiating, the use of conflict and of conflict resolution), will experience and learn about these facets through in-class exercises and games, and apply techniques - for instance through negotiation and conflict resolution games - to gain insight into different perspectives, build trust, improve communication and recognize opportunities for successfully negotiated agreements.

Course objectives

Students are able to...

- understand the meaning of collaboration and its various facets;
- reflect on reactions when dealing with different perspectives and conflict situations;
- discover and apply negotiation skills through in-class exercises and games;
- reflect on one's own experience when dealing with strategies for conflict resolution during in-class exercises and games;
- engage in participatory and collaborative problem-solving for sustainable development issues.

Intended assessment methods: attendance; portfolio

Prerequisites: None

Course name: **Project Sustainability**

Course code: EBP2002

Course Period: 3

ECTS credits of this course: 5

Full course description

In *Project Sustainability*, students apply the knowledge and skills they have gathered from previous courses of the Sustainability Minor to address an actual sustainability-related issue. By use of qualitative and/or quantitative approaches and indicators, students assess the problems and conditions related to the issue at hand. Students collaborate in small (interdisciplinary) groups to select and identify a topic of their choice. The course provides example issues, but also welcome students' ideas on actual issues associated with sustainability. Groups elaborate on the identified problem, design ways of addressing it and assess the results of doing so with sustainability indicator(s). The final product of the project is a report and a presentation that describes the solution approach the students have designed.

Typically, topics that students consider are focused on a specific level within a system (e.g., individual, organizational, community, city, regional, national, global), and require considering multiple system levels simultaneously. Consequently, applying systems, multilevel, and design thinking is a crucial part of Project Sustainability.

As students will closely collaborate in this project, two core skills are developed: interdisciplinary teamwork and project management. Project Sustainability provides an opportunity to target actual sustainability issues, address them, and assess impact and conditions that lead to better sustainability conditions by students.

Course objectives

Students are able to...

- identify, understand, and apply methods of sustainability assessment targeting various units of analysis at different levels within social-environmental systems and the interactions between them;
- reflect on the suitability of sustainability assessment tools for analyzing different levels of systems;
- deepen, integrate, and apply sustainability knowledge and understanding on a chosen topic of study;
- critically reflect on the potential of interdisciplinary approaches to contribute to sustainability.

Intended assessment methods: attendance; final paper; final presentation; participation; presentation

Prerequisites: All preceding courses of the minor Sustainability