CHARM-EU

CHallenge-driven
Accessible
Research-based
Mobile
European
University

Co-funded by the
Erasmus+ Programme
of the European Union

CHARM-EU Master's
Global Challenges for Sustainability

Master's module structure

an overview of the first CHARM-EU prototype

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Trinity College Dublin
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The University of Dublin
Utrecht University
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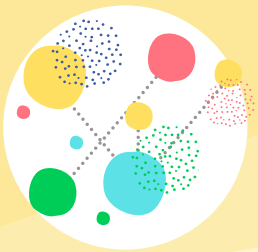
CHARM-EU 3 phases programme structure

An innovative three-phased structure aligned with CHARM-EU pedagogical principles, with gradual acquisition of knowledge, skills and competencies and flexibility of choice. More details about the programme structure and content of the modules can be found here.

PHASE 1
Preparatory



The aim of the preparation phase is **to ensure all students receive a common grounding** (regardless of location or modality) in key skills and content required for the challenges ahead of them.

Modules in this phase concentrate on **transversal skill development** to prepare students for a transdisciplinary learning approach in the following phases.

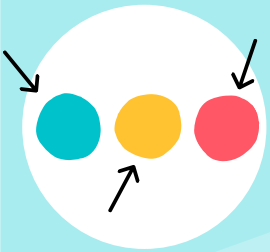
PHASE 1 MODULES

M1 Social innovation

M2 Sustainability

M3 Transdisciplinary Research

PHASE 2
Flexible



The aim of this phase is to provide students with **multiple options for learning within CHARM-EU related themes**.
Students are required to select one theme containing multiple modules, and participate in modules within that theme.

Modules are **grouped into relevant themes** related to CHARM-EU programme content guidelines.

PHASE 2 MODULES

THEME FOOD

M1 The Food-Health-Environment Nexus
M2 Food Systems and their Transformations
M3 Socially Just and Sustainable Food Systems

THEME WATER

M1 Extremes in the Water Cycle and Their Complex Consequences
M2 Adaptation Measures and Strategies in Water Management
M3 Resilient Cities: Water in Urban Environments

THEME LIFE and HEALTH

M1 Health Systems and Policies
M2 Health Challenges
M3 Healthy Lives and Wellbeing

PHASE 3
Capstone

The aims of this phase include **synthesis of prior learning**, refinement of skills, development of personal attributes, preparation of students for future careers, facilitation of academic and extra-academic linkages, and quality assurance of graduates via **a final challenge-driven project**.

Students practically **apply their knowledge and competencies** through **experimental learning** (i.e. real-life challenges).

PHASE 3 MODULES

M1 Capstone

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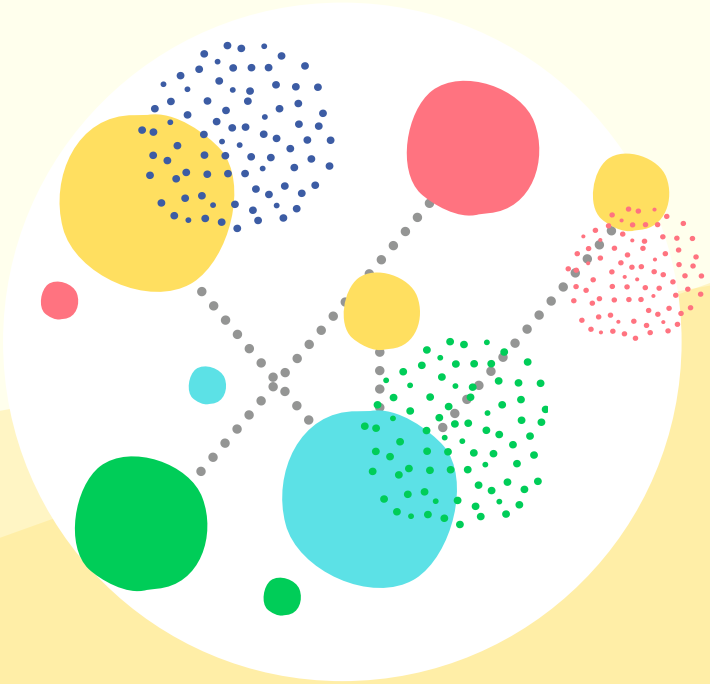
Phase 1 Preparatory (30 ECTS)



Entry requirements: In accordance with the admission requirements
Academic Year: 2022-2023
Start date: September 2022
Modules: Social innovation, Sustainability, Transdisciplinary research
Assessment: High-stake phase-level decision at the end of the phase of the e-portfolio (0% – 100%).
Organisation of the modules: In parallel
In the Virtual Learning Environment (VLE) more details about the modules can be found in the module descriptors.

This phase is made of 3 mandatory modules:

Social innovation

advanced understanding of the creative, communicative and innovation processes that drive sustainability transformations

Sustainability

critically discuss the concepts of sustainability and sustainable development, analyse and evaluate complex sustainability challenges and develop inter- and transdisciplinary skills to design solutions for these challenges

Transdisciplinary Research

challenges of integrating different disciplinary and transdisciplinary approaches and research methodologies, of ethical and judicious data creation, discovery and utilization

Social innovation Module

This module aims to develop in students the knowledge, skills and tools **to turn ideas into action** through an advanced understanding of the creative, communicative and innovation processes that drive sustainability transformations.

The module will include workshops, lectures and seminars on:

Social innovation and intra/entrepreneurship

- Design Thinking
- Practice-Led Research
- Change management
- Business modelling
- Market research
- Inclusivity, Diversity and Integration
- Ethics
- Citizenship and Human Rights
- Stakeholder engagement and perspectives gathering

Patterns of change in culture, identity and communication: written, verbal, digital

- Communication Theory and Dialogue
- Gender Perspectives
- European languages
- Negotiation and Facilitation
- Diplomacy

21st century skills/competencies

- Problem Solving
- Project management
- Pitching
- Critical thinking
- Media/Digital literacy
- Data Literacy
- Creativity
- Team and collaborative work
- Entrepreneurship

Sustainability Module

After this module, students will be able to:

1. **Critically discuss the concepts of sustainability** and sustainable development as they are constructed and represented within multiple disciplines and by different societal actors.
2. **Acquire a systems perspective** to analyse and evaluate complex sustainability challenges and develop inter- and transdisciplinary skills to design solutions for these challenges.

The module will include workshops, lectures and seminars on:

- The various, sometimes contradicting, objectives and challenges of the Sustainable Development Goals (SDGs)
- Relations between sustainable development, economic growth (including degrowth), poverty and inequality
- Importance and challenges of cross-sectoral approaches to sustainability challenges
- Linkages between (post-)colonialism, development cooperation and sustainable development
- Governance, law and economics around sustainability
- Geopolitics in sustainability governance, including the role of Europe and North-South relations
- Economic implications of sustainability challenges, including (challenges of) the economic valuation of natural capital
- The role of international organizations, states, businesses, civil society, marginalized groups and scientists in sustainability challenges
- Explaining people's individual and collective (un)sustainable behaviour
- Participation of stakeholders in addressing sustainability challenges

Transdisciplinary Research Module

Students will develop an advanced understanding of transdisciplinarity to enable them to work in a transdisciplinary/multidisciplinary/interdisciplinary teams.

They will be **able to demonstrate a critical appreciation of the challenges of integrating different disciplinary and transdisciplinary approaches** and research methodologies, of ethical and judicious data creation, discovery and utilisation (including storing, processing and analysing data) and assess for specific complex challenges how to master data as a tool for problem identification and solution building.

The module will include workshops, lectures and seminars on:

- The concepts, including the history, of epistemic dependence, inter-/transdisciplinarity, boundary work, boundary objects, trading zones, unity /plurality of science.
- The concepts, including the history, of reproducibility, exploratory research vs theory-testing, simulation, scientific models, scientific representations.
- The basic knowledge to identify and formulate research questions, critically analyse and review the bibliography and metrics, analyse and evaluate qualitative and quantitative data, and the impact and outcomes of the research study.
- Different positivist and constructivist perspectives on science, the concept of trust in transdisciplinary research, and how success/crisis influences stakeholders.

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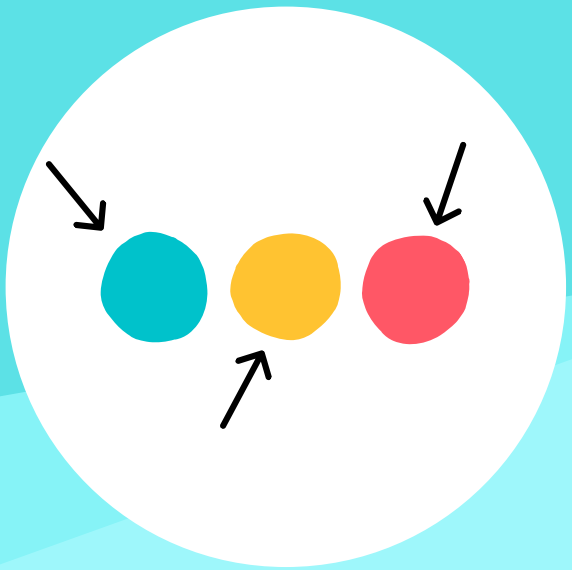
Phase 2 Flexible (30 ECTS)



Entry requirements: Completion of phase 1 with a minimum score of 50% or above or completion of phase 1 with a score between 35 % and 50% with a remediation plan approved by the phase 1 coordinator.
Academic Year: 2023
Start date and end date: February 2023
Themes: Food, Water, Life & Health
Assessment: High-stake phase-level decision at the end of the phase of the e-portfolio at the end of the phase (0% – 100%).

This phase is made of 3 different themes, each one is made of 3 modules. Student's are meant to choose one theme.

THEME FOOD

Modules:

- M1 | The Food-Health-Environment Nexus
- M2 | Food Systems and their Transformations
- M3 | Socially Just and Sustainable Food Systems

THEME WATER

Modules:

- M1 | Extremes in the Water Cycle and their Complex Consequences
- M2 | Adaptation Measures and Strategies in Water Management
- M3 | Resilient Cities: Water in Urban Environments

THEME LIFE and HEALTH

Modules:

- M1 | Health Systems and Policies
- M2 | Health Challenges
- M3 | Healthy Lives and Wellbeing

The Food-Health-Environment Nexus

This module explores the social, economic and environmental drivers and consequences for (human and ecosystem) health and social justice associated with food systems.

After this module, students will be able to:

1. **Reflect on the multifaceted nature of the food-health- environment-inequality nexus** taking into consideration influence from cultures, energy and society.
2. **Describe the impact of food and its interdependencies** as a result of social, cultural, historical, environmental, economic, medical and political factors.
3. **Systematically analyse the connections between food and different health impacts** (human health and ecosystem health); with health, poverty, and climate change; and the links with social and environmental dimensions of sustainability.

The module will include workshops, lectures and seminars on:

- Food and diets: the importance of culture
- Diets, nutritional requirements and health
- Interactions between food and other sectors, in particular health, environment and social justice
- Food related nexus
- Food inequalities and insecurity and their causes
- Access to resources and food insecurity
- Special topic: the future of meat (environment, culture, technology, marketing and product development).
- Food waste
- Nutritionism
- Food and children
- Obesity and fatness
- Microbiome, Health and Dietary manipulation (including implication in disease development); the gut-brain axis (Microbiome and Behavioural modifications; CNS disorders)
- Food hygiene and safety, food traceability, food allergens
- The concept of health, both physical and mental (spiritual) and how it is shaped by food, including a gender perspective
- Religious perspectives and food consumption: an honest mind in a (healthy?) body
- Cooking and eating as characteristics of human identity, taking into account anthropology and religion
- Food as pleasure and civilisation: European gastronomy, an historical perspective

Food Systems and their Transformations

This module focuses on policies and actions that are required to transform socially just and sustainable food systems.
It enables students to develop the tools to (co- and/or re-)design policy and social actions to achieve sustainable transformations of food systems.

After this module, students will be able to **(co-)design and monitor research and policy/social actions** to promote socially just and sustainable food systems transformations.

The module will include workshops, lectures and seminars on:

- Evaluate (development) interventions for food and nutrition security, hunger and famine in developing countries, including from a historical/post-colonial perspective
- Assess to what extent and how the water-health-food- inequality nexus is reflected in different governance systems and social actions.
- Assess regulatory frameworks (including (legal/customary) rights) that influence the availability and access to food and related resources
- National and international policies and regulations around food safety, dietary recommendations and their political, economic, health and environmental implications
- Evaluating different solutions to sustainability challenges, including government-based interventions (e.g. taxes, subsidies, regulations, etc.), market-based interventions (e.g. fair trade/eco-labelling, payment for ecosystem services, etc.), business interventions (e.g. food innovations/biotechnology), civil society interventions (e.g. food projects/programs) and social movements (e.g. veganism movements).

Socially Just and Sustainable Food Systems

This module facilitates students to develop the tools to explain and evaluate food systems, i.e. the way people and social groups organise themselves to access and consume food, and how their transformation may affect the future of humanity and the planet.

After this module, students will be able to:

1. **Describe a food systems perspective** to evaluate food- related sustainability challenges and transformations.
2. **Identify and evaluate food systems transformations and their consequences** in terms of different dimensions of sustainable development at different levels, from local to global.
3. **Analyse the public health, environmental and social consequences** of food production and consumption in a transdisciplinary fashion.

The module will include workshops, lectures and seminars on:

- History of food and nutrition insecurity, hunger and famine from a systems perspective
- Food system: definition and approaches
- Food processing, consumption & dietary patterns, including product development, manufacturing, nutritional and sensory quality, storage, packaging engineering, marketing, advertising and distribution
- The role of food producers, retailers, consumers, etc. along the entire value chain
- Sustainable agricultural practices around the world (organic agriculture, nature-inclusive agriculture, agroecology, agroforestry, permaculture, etc.)
- Specific food industries, Big Food e.g. Nestle, Pepsi-Co, Kraft-Heinz; Danone (infant formula)
- The banana: production, distribution and consumption
- Food and conflict

Extremes in the Water Cycle and Their Complex Consequences

After this module, students will be able to **identify, calculate and analyse past and present extremes in the water cycle and interpret their evolution under global changes**.

They will be able to assess the social, political, economic, cultural, environmental and biophysical consequences of water hazards and identify the complex challenges that impacted communities and various stakeholders face.

Students will also be able to **collaboratively develop and apply strategies** to debate with the public or imagine and construct playful forms of civic engagement.

The module will include workshops, lectures and seminars on:

- Nature, water, climate and earth sciences (ecology, ecophysiology, biodiversity, hydrology, cryology, climatology, meteorology, geophysics, hydrogeology, oceanology)
- Water economics, policy, legislation
- Land management and resilience of territories
- Water hydraulics & engineering
- Participatory sciences
- Anthropological approaches in risks management
- Mathematics applied in the field (handling of uncertainties, statistical analyses, models)

Adaptation Measures and Strategies in Water Management

In this module, the student will learn about the global importance of water adaptation strategies and integrated management of water in a safe, sustainable and equal manner.

After this module, the student will be able to relate natural, social, economic and legal issues to water management and formulate their interdependence.
Graduates can creatively think about and find potential interventions and measures to water quality and quantity challenges in a trans/interdisciplinary team.

The module will include workshops, lectures and seminars on:

- Anthropological approaches to water sustainability
- Environmental earth sciences
- Managed Aquifer Recharge (MAR) techniques
- Virtual water (green, blue and grey water)
- Water chemistry & treatment
- Water economics and policy (including degrowth water economics)
- Water footprint
- Water hydraulics & engineering

Resilient Cities: Water in Urban Environments

Students will be able to recognise the **challenges of supplying urban centres with water** in different geographical and social contexts.

They will also be capable of identifying the main water needs of the urban populations and consider the technical, ecosystem, legal, social and historical aspects to provide present and future urban communities with sustainable and safe water resources.

The module will include workshops, lectures and seminars on:

- Smart cities and water supply
- Urban inequalities
- Urban metabolism
- Water engineering
- Water monitoring
- Water rights
- Water sharing
- Water-management systems

Health Systems and Policies

Strategies, approaches, functioning and performance of people-centred, sustainable, accessible and resilient health systems and health policymaking at international, national and local community levels

This module's aims are:

1. **To enable students to develop and apply effective bespoke health system strategies and approaches** in the context of diverse health and disease management requirements.
2. **Students acquire knowledge for analysing and assessing** the functioning and performance of health systems and health policymaking.
3. **Students are equipped with a complex, problem-oriented approach and knowledge** required for developing strategies and interventions towards people-centred sustainable, accessible and resilient health systems at international, national and local community levels.

The module will include workshops, lectures and seminars on:

- health and illness as biological, psychological and social phenomena
- people-centred, sustainable and resilient health systems
- the role of health systems in improving health and reducing health inequalities
- socio-economic and political context of health policies and “health in all policies”
- assessment of the performance of health systems and health policies
- safety and quality in health systems

Health Challenges

Develop sustainable interventions from fundamental science discoveries to clinical and societal issues to address Global Health challenges and translate them into innovative solutions

This module's aims are:

1. **To provide the students with the knowledge and the skills to develop sustainable interventions** from fundamental science discoveries to clinical and societal issues to address Global Health challenges.
2. **To translate into innovative solutions for a specific challenge** towards achieving health benefit for all.

The module will include workshops, lectures and seminars on:

- Burden of disease
- Sustainable interventions
- Translational medicine
- Transdisciplinary collaboration
- Health problems
- Bench to bedside
- Global health
- One health
- Planetary health
- Health technology

Healthy Lives and Wellbeing

Healthy lifestyles, health promotion, disease prevention, risk factors and social, economic, cultural and environmental determinants of health and health inequalities

This module's aims are:

1. **To provide students with knowledge of the concepts of healthy lives and wellbeing**: healthy lifestyles, health promotion, disease prevention, and risk factors and for students to explain the value of inter-/ transdisciplinary perspectives to these concepts.
2. To provide students with knowledge of healthy lives and wellbeing **as social phenomena**, discourse on health and social, economic, cultural and environmental determinants of health and health inequalities and for students to explain the value of inter-/ transdisciplinary perspectives to these concepts.
3. **To enable student to recognise challenges associated with maintaining healthy lifestyles and wellbeing** within a sustainable environment and devise and implement solutions for these challenges.

The module will include workshops, lectures and seminars on:

- Healthy lifestyle
- Wellbeing
- Social, economic, cultural and environmental determinants of health
- Health risk factors
- Health interventions
- Lifespan perspective across healthy lifestyle
- Health promotion
- Health protection and disease prevention

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Phase 3 Capstone (30 ECTS)

Entry requirements: Completion of phase 1 with a minimum score of 50% and completion of phase 2 with a minimum score of 50% or completion of phase 2 with a score between 35 % and 50% with a remediation plan approved by the phase 1 coordinator
Academic Year: 2022
Start date and end date: September 2022
Modules: Social innovation, Sustainability, Transdisciplinary research
Assessment: High-stake decision at the end of the phase of the e-portfolio at the end of the phase (0% – 100%).
More information will become available at the time in the virtual learning environment.

Students will, in collaboration with extra-academic actors, investigate and evaluate complex societal challenges from a variety of intercultural and transdisciplinary perspectives.
They will creatively devise, implement and evaluate robust, adaptable, ethical and sustainable solutions for complex societal challenges.

Capstone module

This module is designed **to build on students' knowledge and prior learning gained during the previous modules of the Master programme**.

Students will, in collaboration with extra-academic actors, investigate and evaluate complex societal challenges from a variety of intercultural and transdisciplinary perspectives.

They will creatively devise, implement and evaluate **robust, adaptable, ethical and sustainable solutions** for complex societal challenges.

The module will include workshops, lectures and seminars on:

- Team formation
- Transdisciplinary collaboration
- Transdisciplinary research
- Intercultural and interdisciplinary communication
- Stakeholder engagement
- Sustainability
- Design thinking
- Problem solving
- Critical thinking
- Presenting
- Creativity
- Entrepreneurship
- Prototyping
- Personal development