Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Proposal for a new online/highly blended Master's course in Global Challenges for Sustainability (under CHARM EU)

Course Title	Master in Global Challenges for Sustainability
Course Group	PG Taught
Has CHARM funding been secured?	Yes
Proposed degree award/exit award title	Master of Science in Global Challenges for Sustainability (MSc)
Award type/Level of NFQ	Level 7 of European EQF level; Level 9 in Ireland; Major Award/Joint
Institutional partners for the joint award (Addendum to align with EA 1.1 Status)	University of Barcelona Trinity College Dublin Utrecht University Eötvös Loránd University University of Montpellier
ECTS Credit volume and value of student effort hours per 1 ECTS	90 EC 1 EC = 25-30 student effort hours
Award level on FQ-EHEA (Addendum to align with EA)	Second cycle; Master's level
ISCED field of study (Addendum to align with Dutch Agency)	No field of study as this Master's is multidisciplinary Code 9999 can be used if needed.

Duration and mode of delivery/attendance	1 year full-time[1] ☒ 2 years part-time[2] ☒	Blended The percentage of online to face to face (on-campus) teaching will vary depending on the module.
Indicate the chosen assessment model for SITS	The assessment model is defined in the Assessment section within the document	
Course start date	September 2021	
Likely cessation of course	To run until 2023 and in next academic year it will be reviewed.	
Will the course go ahead without CHARM funding?	CHARM funding has been confirmed for the duration of the Master's delivery period	
Closing date for applications for the proposed regular entry	31/07/2021	
Names of primary assessor/secondary assessor for admission	Admissions Board of the Alliance with members of each University	
Min/max number of EU and non-EU fee-paying applicants[3]	Minimum EU 23	Maximum EU 100
	Minimum non-EU 0	Maximum non-EU 20
Space requirements and extra space costs	No new space required	
School ownership of the course/name of head of School	To be confirmed in September 2020	
Name of the Faculty and the Discipline (where relevant)	To be confirmed in September 2020	
Other Institutions proposing the course and names of their representatives in each partnering country	Universitat de Barcelona (UB) (Coordinator) Trinity College Dublin (TCD) (Co-Coordinator) Utrecht University (UU) (Participant) Eötvös Loránd University (ELTE) (Participant) University of Montpellier (UM) (Participant)	

[1] Students can select two durations to complete the full time Master's; 12 months or 18 months. The Master's is planned for being completed in 18-months track, but students can choose an intensive 12-month track. Students will decide on which track they wish to take during registration.

[2] The 2 years part time is a Trinity specific designation to classify the 18-month duration option.

[3] The maximum aggregate number of students across EU and Non-EU admissions will be 100 and the minimum is 25. See the Consortium Addendum for more information.

Director(s) of Teaching and Learning (Postgraduate) in School(s) proposing the course	To be confirmed in September 2020
Name of First Course Director	To be confirmed in September 2020
Name of Course Coordinator (only if different to Course Director)	To be confirmed in September 2020
Name of Progression Manager in Trinity	To be confirmed in September 2020
Date of approval by the School Executive owning the course	To be confirmed in September 2020
Dates of approval by each Alliance university	07/10/2020 UB 06/10/2020 UU 12/10/2020 ELTE 27/09/2020 UM
Date of financial approval by the Faculty Dean	To be confirmed in September 2020
Date of consideration by the Graduate Studies Committee in Trinity	5/11/2020
Date of consideration by the University Council in Trinity	1/20/2021
Names of 5 proposed panellists for evaluation of course proposal and their contacts	See appendix

A web-based narrative for the course with interactive links for the Academic Registry

The Master's in Global Challenges for Sustainability, commencing in 2021, is aimed at graduates of any discipline seeking to acquire advanced knowledge of sustainability by addressing global societal challenges (e.g. Sustainable Development Goals (SDGs) and the Green Deal), developing challenge analysis skills, and extending their capabilities to address and develop solutions for complex problems. Delivered full-time over 18 months with the option of an accelerated 12 month programme, the 90 EC Master's is comprised of 30 EC Preparatory Phase modules on sustainability, social innovation and transdisciplinary research; 30 EC Flexible Phase transdisciplinary modules related to Water, Food or Life and Health; and a 30 EC Capstone on a sustainability challenge in collaboration with extra academic actors (i.e. business, community and society). This overall structure will attract high quality graduates from diverse relevant backgrounds who intend to work in sustainable policy and communication roles, social innovation and action either within existing companies (intrapreneurship) or via generation of new enterprises (entrepreneurship), and academic research in this area.

Contents

List of Tables

1. Introduction – rationale for proposing the new course

a) Purpose of the new course and detailed market analysis as evidence for its demand

The CHARM-EU (Challenge-driven, Accessible, Research-based, Mobile European University) Master's in Global Challenges for Sustainability is a pillar proposal of the CHARM-EU Alliance, co-financed by the European Commission[4] to explore the future European Higher Education landscape by 2030. CHARM-EU has been funded to test and experiment a specific innovative model to achieve the objectives of the European Education Area.

This Alliance and project is coordinated by the University of Barcelona, with Trinity College Dublin as coordinator of the Master's, Utrecht University, the University of Eötvös Loránd Budapest, and the University of Montpellier as participants. CHARM-EU will offer learning experiences based on a **transdisciplinary approach**[5] to program and curricula design combining the best European traditions in structuring curriculum through Knowledge Creating Teams (KCTs), with a flexible, skill oriented modular structure and mobility at its core. The purpose and the design of this Master's program responds to requests from the European Commission for a transdisciplinary, challenge-driven, student self-directed program, focusing on sustainability challenges European countries and the world are facing.

The proposed flexible award is delivered in a blended format by the five Alliance institutions and targeted at a multidisciplinary audience who wish to develop and build expertise on sustainability, transdisciplinarity and solutions to global challenges. These global challenges relate to multiple EU sustainability initiatives such as the Green Deal, and the Sustainable Development Goals (SDGs), a universal call to action to end poverty, protect the planet and improve the lives and prospects of global citizens. Transdisciplinarity can critically address these complex, multi-faceted, and wicked challenges where a single discipline alone cannot.

The overall content and structure of the proposed Master's, with input and teaching from extra academic actors (i.e. business, community and society), is original and innovative. It aims to attract high quality students from multidisciplinary backgrounds seeking to work in sustainability in a transdisciplinary context, social innovation and action within new or existing businesses, or move into academic research.

This Master's is designed to enhance student mobility, and transnational and intercultural learning experiences, in a course delivered across and between the five CHARM-EU Alliance members. The CHARM-EU learning experience aligns with the educational goals of the European Universities Initiative by making best use of innovative pedagogies in the Alliance institutions, supporting knowledge in cross-disciplinary and intercultural teams, and striving to make the knowledge square (education, research, innovation and service to society) a reality.

[4] https://ec.europa.eu/education/education-in-the-eu/european-education-area/european-universities initiative en

[5] CHARM-EU programmes are uniquely transdisciplinary and challenge-driven. For the purposes of this document, we employ the definitions of mutli-, inter-, and transdisciplinarity as defined by the League of European Research Universities (LERU): Multidisciplinarity refers mainly to a sequential analysis of a problem by disciplinary experts with few interactions between them. Growing interactions and efforts to integrate disciplinary insights lead to interdisciplinarity, with a scientific added value for the involved disciplines. Finally, in transdisciplinarity, interactions are extended outside academia to solve problems of societal importance through integration of knowledge from different actors. Further explanation of these terms is contained in the glossary.

A distinguishing feature of this Master's course is its flexible delivery paradigm. This delivery paradigm aims to foster the development of European identity and values, leverage the potential of transnational and intercultural teaching and learning, and ensure integrated models of mobility, including virtual exchange opportunities. Modules will be delivered by inter-institutional teaching teams in a carefully designed manner that integrates face-to-face (on campus) and online teaching and learning for students from across the Alliance into a dynamic and interactive classroom community, and that have mobility (face-to-face, virtual and blended) as a norm, embedded in the curriculum design, to help the acquisition of the learning outcomes.

b) Market analysis[6]

The initial market demands for this Master's programme has been directed by the European Commission for European Universities, and programme design has responded to their requirements[7]. They requested, among other characteristics: first, a challenge-based learning approach that prepares future graduates with skills needed to face current and future challenges while considering the SDGs; and second, critical thinkers and better European citizens, learning in a multicultural environment, and significantly increasing student and staff mobility. Part of the learning outcomes have been designed to accomplish this, in addition to the mobility (face-to-face and online) embedded in the curricula. The Master's programme also addresses and integrates other key EU initiatives, such as Horizon Europe, the Green Deal, the Digital Education Action Plan, and the Renewed Agenda for Higher Education. The cooperation of five European universities in one Master's program integrating different cultures and European values, are inherent in the approach to develop all modules of the course with all CHARM-EU partners actively involved is new and unique.

CHARM-EU has explored the market for a Master's of this nature through engagement with students, dialogue with extra academic actors, and analysis of the wider higher education market. This analysis suggests that a proposed Master in Global Challenges for Sustainability would be well received by both potential students and future employers.

A student needs analysis was conducted in October 2019 to gather the views of 22 students from each Alliance institution on the goals of CHARM-EU programme[8]. The analysis of feedback from the sessions highlighted four major themes that students regarded as being important to the success of the Master's, and their own future careers. Students noted how sustainable and global themes within the programme would promote a beneficial societal impact. The real-world, challenge-based curriculum design rated highly, and students recognized that it would promote deeper understanding of learning content. A culturally diverse CHARM-EU programme was identified as important for strengthening and promoting European identity, valuable for cultural exchange, intercultural competencies, and improving equality of opportunity. Students were also generally positive about the use of business and civil society in a CHARM-EU course; providing networking opportunities and real-world scenarios was noted as important for their C.V. and future employability.

[6] Supplemental market analysis documentation is available as a separate attached document.

[7] Information on the Erasmus+ European Universities Call is available here: https://eacea.ec.europa.eu/erasmus-plus/funding/key-action2-european-universities-2019_en

[8] This is available in the market analysis supplement.

Estimating global demand for sustainability and transdisciplinary courses can be challenging as courses because these topics are frequently part of a larger programme. However, in 2018 a UNESCO study reported that 70% of university students would like to see sustainable development incorporated and promoted through all courses, and 81% reporting sustainable development as something they would like to learn more about[9]. Graduates with transdisciplinary competencies has also been reported as being a key requirement by multinational employers and an area of future skills demand[10]. This growing demand can also be identified through the provision of massive open online sustainability courses (i.e. MOOCs). The top-ranked sustainability related course on Coursera ('Introduction to Sustainability' module at the University of Illinois at Urbana-Champaign) has had almost 83,000 learners; 'The Sustainable Development Goals – A global, transdisciplinary vision for the future' at the University of Copenhagen has seen some 36,000 learners, and 'The Age of Sustainable Development' at Columbia University has seen 93,000 learners.

CHARM-EU has engaged with extra academic actors through an online Business and Society Information Session, held in July 2020 and attended by 23 participants from a broad range of organisations (e.g. Multinational, SME, NGO). This session described the overall curriculum approach, programme structure, graduate attributes and skills, and the rationale for a transdisciplinary, challenge-based learning approach to programme design. Survey feedback from participants described how competencies addressed in the Master's were deemed essential yet absent in their fields for graduate employability and managing global challenges. Knowledge, skills and competencies noted as valuable by participants, such as inter/transdisciplinary communication, critical thinking, sustainability and rigor, are strongly integrated within the Master's learning objectives and module aims. In addition, the transition to a more sustainable world will have implications on the global labour market and will potentially create millions of jobs in a diverse range of industries. Many international organisations have reported a steady increase in the green labour market as sustainability initiatives and policies progress[11].

A broad market analysis identified 52 Master's level programmes globally that address sustainability in some way, from discipline specific science and engineering Master's with a sustainability component, to programmes focused solely on sustainable development[12]. A more detailed analysis showed that of these, only a small subset (n=15) contained aspects of challenge-based learning. Even fewer (n=9) claimed to approach the coursework in a transdisciplinary fashion and indeed many appeared to confuse the concepts of interdisciplinarity, multidisciplinarity and transdisciplinarity. None of the courses identified combined the concepts of sustainability, challenge-based learning and transdisciplinarity into a single programme.

Academic interest in sustainability is growing, and Scimago journal classification currently lists 144 sustainability related journals. In the period since January 2016, when the SDGs were first introduced, the Scopus journal database shows a near doubling in the number of related academic papers with 22,621 sustainability related papers published in 2019 alone. This suggests an academic need for graduates in this area. There is also a clear public interest and consumer appetite for the SDGs, with Google Trends data showing a 700% increase in interest since their introduction.

[9] https://sustainability.nus.org.uk/resources/student-perceptions-of-sustainability-in-higher-education-an-international-survey

[10] https://www.iftf.org/fileadmin/user_upload/downloads/wfi/ACTF_IFTF_FutureSkills-report.pdf

[11] https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_732214.pdf and https://www.ilo.org/global/publications/books/WCMS_628654/lang--en/index.htm

[12] This analysis is available in the market analysis supplementary materials.

Market analysis was also employed for deciding on the Master's title, using a short survey to CHARM-EU student representatives, online research in different environments, and an analysis using Google AdWords Keyword Tool to verify the impact of words used. Another alternative considered was **"Global challenges for people and planet"** but analysis suggested that there would be competition from other Master's using the term Global Challenges. We compared *Global Challenges* and *Global Solutions* in Google Trends Keywords Search to find out which of the two options where the most searched (see Supplemental Market Analysis materials). In the past 12 months *Global Solutions* has had increased interest over time while *Global Challenges* is decreasing – this might be an interesting point from the marketing perspective. However, that said, we believe we should not removed the word 'challenge' which is a strong trait of CHARM-EU and indeed, one idea would be to create a strong strapline with Challenges and Sustainability that should be part of the Master's promotional material.

The rationale for offering the proposed Master's is to address European Union requirements and this growing interest and urgent need by harnessing the Alliance members' expertise to produce graduates who are appropriately trained to deal with the enormous global challenges we face today.

c) Unique selling points of the CHARM-EU Master's

The unique selling points of the proposed Master's are:

- It offers a first mover advantage in providing a transdisciplinary, challenge-based programme that addresses the pressing need for sustainability.
- It is situated within an Alliance of existing and well-established universities that has to date produced 2,415 bilateral co-authored publications. It represents a unique opportunity to strengthen links between institutions and adopt a new approach to cooperation mechanisms.
- It constitutes a unique training model that employs innovative pedagogical approaches and mechanisms to engage staff and students of diverse backgrounds to facilitate, foster and enhance the links between education, research and innovation. The Master's is part of the new model CHARM-EU is testing to scale in the future.
- It draws flexibly from a pool of academic staff located within five highly ranked universities who have the critical mass in research and expertise to co-teach unique transdisciplinary content.
- It actively engages an Expanded Network of expert extra-academic actors from professional organisations highly active within related fields. This increases the potential for the professional development and employability of graduates.
- It is a programme with inclusivity, diversity and mobility at its core, designed to foster collaboration and openness between the academy, society and global industry in order to reconcile humanity with the planet.

i. Addendum to align with EA 2.4 Regulated Professions and 2.2 Disciplinary field

The proposed accreditation of this Master's does not align to a regulated profession or disciplinary field, as it is understood in some countries. Due to its transdisciplinary focus, it requires the involvement of academic teachers, students and extra-academic actors from a wide range of disciplines and professions, some of which are regulated professions. Although the Master's does not lead to an accredited profession it strongly supports student employability, industry-specific competencies, inter cultural communication, and academic career progression. The Master's supports student employability through identifying multiple career pathways, aligning learning outcomes to industry, business and civil society stakeholder

needs, and fostering of a broad industry-ready skillset. Four potential post-graduate student pathways (i.e. fields of employment) have been identified; sustainable policy and communication roles, social innovation and action either within existing companies (intrapreneurship) or via generation of new enterprises (entrepreneurship), managers in companies that need skilled employees who can manage complexity from a sustainability perspective, or progress to a further academic pathway. These pathways are reinforced by consulting with business sand civil society in learning outcome development, ensuring relevant critical multidisciplinary skillsets are addressed and aligned, and additionally, bringing them as partners as challenge suppliers and supervisors in the Capstone phase.

Leveraging the Alliance's academic expertise will help students foster and develop multiple transversal competencies including innovation and entrepreneurship, sustainability, policy development, and research skills. These competencies are not only present within the learning outcomes but are reinforced through student engagement in authentic challenges, with extra-academic actors, throughout the programme. Presenting outlets for these theoretical, practical and applied competencies throughout the programme will ultimately provide broader options for student employability. These competencies have been aligned with level 7 EQF specifications.

d) Relationship of the proposed course to institutional strategic plans

Each CHARM-EU university has identified the CHARM-EU Alliance and proposed Master's programme as key institutional strategic goals. These goals include increasing educational innovation, broadening internationalisation and institutional partnerships, boasting mobility (students, academic staff and non-academic staff), strengthening global reach, embracing transdisciplinarity, solving global challenges, generating skills, capacity and knowledge related to Green Deal, SDGs and Horizon Europe etc…, facilitating mobile and flexible learning, and combining best teaching, learning and research practices. This institutional Alliance strongly supports the proposed Master's as part of key strategic drivers.

Trinity College Dublin (TCD): CHARM-EU is a key strategic goal for Trinity College Dublin as detailed in its current strategic plan (goals 5.8[13] and 6.6[14]). The University's global relations strategy speaks to increasing partnerships on the European stage with a focus on building dual/joint degrees and has increased ambitions for enabling student mobility as well as increasing and strengthening the global reach and impact of our research, education and innovation. However, there is even greater strategic value in cooperating collectively to promote a more culturally and linguistically diverse, inclusive and accessible student community. Working with like-minded research-intensive innovative universities across research led interdisciplinary programmes, such as the proposed Master's, will deliver a more internationalised skills and attribute based innovative education which contributes to the knowledge ecosystem of the future. Trinity believes that through the Alliance we can better strengthen our community, activate talents, build valuable partnerships, create more impactful research, enable engagement with wider society and become a most productive place in which to invent, work, learn, live and contribute to a more pleuristic, just and sustainable local and global society.

University of Barcelona (UB): The University of Barcelona, as coordinator of the Alliance, has CHARM-EU at the core of its actions for the upcoming years. The Alliance reinforces many actions in the four lines of the Strategic Plan 2030 (Teaching Future Generations, Progressing in Knowledge, Creating a Global

[13] 5.8 Build the teaching programmes and research projects of the CHARM-EU Alliance around the grand challenge of "Reconciling Humanity with the Planet" (https://www.tcd.ie/strategy/)
[14] 6.6 Deliver a model for the future European University through CHARM-EU. (https://www.tcd.ie/strategy/)

University, Leading the Committed Society) and goes beyond the actions identified. Bringing transdisciplinarity, interculturality and social impact to programmes and to further research and innovation has become an important vector to transform the University for future challenges. UB is one of the largest and most representative universities in the country, ranked among the highest positions in Spain and internationally. These conditions allow for a great diversity of programs in practically all fields of knowledge, but its size occasionally leads to excessive specialization that may run against cross-disciplinarity teaching and learning. Progress has been made to overcome this hurdle with the development of double multidisciplinary degrees. The CHARM-EU mission and vision, approved by the highest governing body of the university, will allow a qualitative leap in the focus of our offerings. We believe that the design of the Master's will help our university to take these steps forward and benefit from joint experiences with the other Alliance partners. UB has a main goal to be an inclusive and international university that preserves European culture and builds on European values and citizenship aiming to develop sustainable solutions for the SDG and other challenges faced by global citizens and increase its social impact in collaboration with the other universities of the alliance.

Utrecht University (UU): Utrecht University's strategic mission is to contribute to a better world, by focusing our research on solving major global challenges, and equipping our graduates with the knowledge and skills necessary to make a substantial contribution to society. Our collaborative culture fosters innovation, new insights and societal impact. With the CHARM-EU Alliance and the proposed Master's we are exploring new ways to fulfil our contribution to society and make our education more inclusive and better accessible for a wider European audience. For example, UU strengths in teaching and learning through the combination of existing approaches such as transdisciplinary, social constructivism, elements of the Utrecht Education Model, design thinking, and educational technologies scaffold this Master's. In addition, developing a teaching and learning strategy that not only prepares students to tackle the complex problems associated with the Sustainable Development Goals, but also fosters students' transversal skills to enhance their employability across all sectors. With CHARM-EU we found a group of institutions with comparable aims and goals with complementary expertise needed for the development, implementation and delivery of the Master's.

Eötvös Loránd University (ELTE): In terms of student and staff numbers, quality of education and research, and international relations, ELTE is the most prestigious public higher education institution in Hungary, operating continuously since 1635. One of its main strategic principles is to find suitable ways of creative innovation while preserving its 400-year-long traditions. Using opportunities such as the proposed Master's, the university can significantly develop the range of means in reaching that purpose. In addition, by taking part in the proposed Master's, ELTE is seeking new opportunities to accelerate the progress of internationalisation by opening the university for a wider audience. Meanwhile, the university, operating in its new function as part of a new European university, would provide a unique example in terms of harmonizing joint study programmes and facilitating mobilities. ELTE may also initiate the Hungarian national legislation towards reforms that would drive Hungary in the direction of developing a more flexible, open, sustainable and competitive higher education.

University of Montpellier (UM): The University of Montpellier has decided to join the Alliance and collaborate in the proposed Master's to stand for a "European University" in order to contribute strengthening European values and the feeling of pertinence to Europe. Such a decision to join forces will help the UM to address the strategic challenges that the University has committed itself with, with particular emphasis on the generation of capacities, skills and knowledge to reach societal and environmental goals and achieve the Agenda 2030 for Sustainable Development. This Master's contributes to the UM international ambition, i.e. to strengthen its attractiveness while consolidating a hub of world-wide relations and projecting itself beyond Europe through the design and the

implementation of international high education and research infrastructures in its specific areas of excellence.

e) Addendum to align with EA 1.2 Joint design and delivery and 1.3 Cooperation agreement

CHARM-EU has a Grant Agreement with the European Commission from 1st of November 2019 to 31st of October 2022 and a Consortium Agreement signed in December 2019, that regulates the governance during the project period. This is the period that covers the current edition of the Master's, and different aspects of the project management. As the Master's will last until February 2023, an extension to the Consortium Agreement will be signed.

The implementation of the Master's requires a specific addendum and process for Trinity approval. This specific addendum is aligned with this proposal and regulates:

- The characteristics of the Master's (duration, structure, award obtained by graduates and diploma supplement, etc.), and refers to this proposal for details,
- The course governance balanced between the partners and is composed of an Academic Board, Admissions Board, Examination Board, Council and Rectors Assembly. The Examinations Board integrates an External Examiner not related to any of the Alliance institutions.
- The responsibilities of the partner universities and the administration organisation.
- The fees and financial management.
- The quality management.
- Recruitment processes
- Registration process.
- Rules and regulations including CHARM-EU qualifications framework and equivalences for future recognition.
- Marketing.
- Other legal provisions.

f) Course learning outcomes at the programme level (Alignment with EA 2.1 Level [ESG 1.2])

The programme has considered and embedded in the specific learning outcomes for the Master's level the following Dublin Descriptors:

- Have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with the first cycle, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context.
- Can apply their knowledge and understanding, and problem-solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.
- Have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements.

- Can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.
- Have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.

All Programme Learning Outcomes (PLOs), module aims and Module Learning Outcomes (MLOs) were developed in workshops by academic teachers and extra-academic actors. These workshops were designed by CHARM-EU teaching and learning facilitators from the five universities and followed best practice in curriculum design for FQ-EHEA Master's level, national qualifications frameworks, and alignment with the Dublin Descriptors. The standards and quality designed by our teaching and learning facilitators reflected EHEA quality assurance standards and guidelines.

On successful completion of this programme students should possess a solid theoretical and practical background in the areas of sustainability, transdisciplinarity, and challenge-based solutions.

- PLO1. Critically analyse and evaluate the concept of sustainability as it is constructed and represented within multiple disciplines and by extra-academic actors. Reflect upon these to understand the relevant ethical issues and the role of active citizenship, in particular within a European context.
- PLO2. In collaboration with extra-academic actors, investigate and evaluate complex societal challenges from diverse stakeholder and intercultural perspectives (including gender) to creatively identify, select and devise robust, adaptable, ethical solutions using a range of methodologies, theoretical frameworks and data analysis tools.
- PLO3. Rigorously assess and integrate different disciplinary and transdisciplinary knowledge and research methodologies to connect research questions, data and findings to their challenges.
- PLO4. Demonstrate expertise in the identification and application of the latest technological tools to source, analyse, handle, use and communicate complex bodies of data ethically.
- PLO5. Formulate an advanced understanding of transdisciplinarity and demonstrate expertise in the facilitative, communicative, reflexive and collaborative skills to support its practice.
- PLO6. Communicate effectively on complex issues that aim for behavioural change, interpreting and connecting complex challenges to diverse stakeholder, disciplinary and intercultural perspectives that encompass global and European citizenship.
- PLO7. Acquire advanced competency within a range of transversal skills such as teamwork, communication, problem solving, creative thinking, entrepreneurialism, innovation, digital skills and a life-long learning disposition.

Demonstrated attainment of PLO1-7 are required to achieve the Master's award.

i. Addendum to align with EA 2.3 Achievement [ESG 1.2]

Graduates of the proposed Master's will demonstrate their achievement of the learning objectives both within the course itself by creating actionable solutions to challenge-based scenarios, and post-graduation as leaders and innovators in solving global challenges. The use of a three phased course structure, moving from transversal and sustainability competencies in Phase 1, thematic areas related to sustainability in

Phase 2, and a Capstone[15] in Phase 3, will allow students to achieve the learning outcomes in a gradual, progressive and supported means. These learning outcomes have been rigorously developed using academic teachers and extra-academic actors representing multiple disciplines from each of the Alliance members through Knowledge Creating Teams (KCTs), ensuring their achievement is research-based, relevant to business and civil society stakeholders, skills focused, and solutions oriented. Developing learning outcomes via this approach has rigorously addressed constructive alignment of all learning outcomes to teaching methods, learning activities, and assessment across and within each module. This alignment will further engender student achievement by supporting relevant, integrated, personalised, and achievable learning outcomes.

The proposed Master's will demonstrate the achievement of its learning outcomes through this process of a gradual three phased course structure, rigorous constructive alignment, and thorough multi-stakeholder transdisciplinary pedagogical development.

2. Course structure (Alignment with EA 3.0 Study Program)

a) Relationship of the proposed course to the existing postgraduate courses in partner institutions

TCD: The Trinity College MSc/PG Dip in Sustainable Energy in the School of Engineering, and the MSc in Development Practice in the School of Natural Sciences are noted as ostensible competitors to the proposed CHARM-EU programme due to their focus on applied sustainability. The CHARM-EU Master's differs from these programmes in several important and innovative aspects, including the flexible three phased course structure, integrated mobility experiences, broader content focus, overall transdisciplinary purpose and challenge-based outcomes. While sustainability is central to the existing programmes, the newly proposed programmes' focus on the SDGs elevates and broadens the remit of CHARM-EU to address an urgent and global need to "Reconcile Humanity with the Planet". The preparatory phase of the Master's will concentrate on transversal skill development to better prepare students for a transdisciplinary approach in addressing the flexible phase themes of 'Food', 'Water', 'Life and Health' and the final challenge-based Capstone. These themes have been identified as carrying currency with prospective students and industry alike and offer graduates a chance to make a meaningful impact on these so-called "wicked" challenges.

UU: The Utrecht University Masters programmes in Sustainable Development, Sustainable Business and Innovation, Energy Science, and Water Science Management offered by the Faculty of Geosciences as well Intercultural Communication and Applied Ethics offered by the Faculty of Humanities or Social Policy and Public health offered by the faculty of Social Sciences as diverse Masters programmes under the label Biomedical Sciences offered by the Graduate School of Life Sciences are possible competitors for the proposed CHARM-EU programme. These are interdisciplinary programmes that focus on diverse aspects of sustainability. However, the CHARM-EU Master in "Global Challenges for Sustainability" differs from these programmes in several aspects:

- The didactical approach; while challenges are being used in the courses referred to above, they are not part of the core of the programme;

[15] The term Capstone is used in CHARM-EU to denote a multifaceted assignment in the final phase of the Master's including the final thesis or dissertation as it is known in some institutional contexts.

- The more applied nature of the programme and the length of 90 ECTS;
- The broadness of the programme; while the existing UU programmes are interdisciplinary they do focus on "Water" "Health" or diverse topics of "Sustainable Development" or "Business and innovation", but these are not all combined in one broad programme aimed to approach the big challenges from all academic angles nor would they accept students from all disciplines.;
- The structure of the programme is different: The preparatory phase of the masters will concentrate on transversal skill development to better prepare students for a transdisciplinary approach in addressing the flexible phase themes of 'Food', 'Water', 'Life and Health' and the final challenge-based Capstone project;
- The programme includes insights from Humanity disciplines; as knowledge about ethics, communication/gaming is used to learn how to influence human behaviour as part of the programme

Besides the points mentioned above the overall international intercultural cooperation and international mobility (online and physical) set this programme apart from existing UU programmes.

UM: In the University of Montpellier, several postgraduate courses can be noted as competitors to the proposed CHARM-EU programme due to their focus on some elements of sustainable development and/or the multidisciplinary aspect. Such courses include the Master's of Health Engineering Project Management, Master's in Energy, Master's in Water Sciences, Master's in Water Environment Oceanography, and the upcoming (September 2021) Master's programmes in Environmental Management. Besides the international nature of the teaching which is not present in all the above mentioned Master's programmes, the CHARM-EU pilot Master's differs from these programmes in several important aspects, including the flexible three phased course structure, broader content focus, overall transdisciplinary purpose and challenge-based outcomes. In addition, while sustainability is central to the existing programmes, the newly proposed CHARM-EU programmes' focuses on all the SDGs, not on a particular topic (e.g. Water, Food, Energy, Health) and therefore elevates and broadens the remit of CHARM-EU to address an urgent and global need to "Reconcile Humanity with the Planet". The preparatory phase of the Master's will concentrate on transversal skill development to better prepare students for a transdisciplinary approach in addressing the flexible phase themes of 'Food', 'Water', 'Life and Health' which are used as exemplar training grounds and topics of activities for the final challenge-based Capstone project. These themes have been identified as carrying currency with prospective students and industry alike and offer graduates a chance to make a meaningful impact on these so-called wicked challenges. Moreover, CHARM- trained students will qualify as managers of complex problems related to global sustainability challenges and not specialist of a given domain.

ELTE: At Eötvös Loránd University (ELTE) the programmes of Human Ecology (MA) at the Faculty of Social Sciences and Environmental Science (MSc) at the Faculty of Science have some similarities with the proposed CHARM-EU programme "Master's in Global Challenges for Sustainability" due to their main focus on sustainability and environmental problems, and their multidisciplinary approach. The CHARM-EU pilot Master's, however, differs from these programmes in several innovative aspects, including its transnational and intercultural approach, the flexible three phased course structure, the mobility throughout the programme, the prominent role of the transversal skills in the Preparatory Phase, a flexible and well-combined module selection focused on the themes Food, Water and Life and Health in the Flexible Phase and the challenge-based project in the third, Capstone Phase. The CHARM-EU Master's' educational approach is challenge-based, student centred, situated learning. Students can

choose and contribute to challenge pathways as a group or individually to fulfil their professional and educational ambitions.

UB: The University of Barcelona has several Master's related to the goals and themes (including SDGs, food, water, health) which are the focus of the proposed Master's. This is quite normal, as CHARM-EU selected the fields based on the strengths of our Universities. UB provides Master's programmes on Biodiversity, Science and Integrated Management of Water, Food Research, Health Research, Development and Innovation, Ecology, Environmental Management and Restoration, Erasmus Mundus in Global Markets, Local Creativities, among others, some of them with multidisciplinary approach. However, the combination of the characteristics of the Master in Global Challenges for Sustainability, a unique combination of transdisciplinary approach, intercultural multidisciplinary participation of each of the partner universities, an innovative teaching and learning strategies, and a singular assessment focus on challenge solving achievements cannot be compared with any other current UB offering.

b) A list of modules

i. Outline of course structure

The list of proposed modules is available in Table 1. For full details of the course structure, please consult Section 3: CHARM-EU Teaching and Learning Experience.

The Masters' programme content was designed by the CHARM-EU Knowledge Creating Team (KCT) Core Team (see Appendix: CVs of CHARM-EU teaching staff in Knowledge Creating Team Core). Each module will be led by the named Module Coordinator(s) and teaching staff will be drawn from both the KCT Core and KCT Expanded Network (Table 2). This unique approach supports the challenge-based pedagogy and uniquely transdisciplinary content of the Masters. Members of the KCT Core Teams are committed to delivering module content and will be supported by bespoke and flexible delivery from the Expanded Network.

Table 1. List of existing modules codes for shared modules (when appropriate); core and optional modules; module coordinators;; module ECTS; tings.

Module Title/ Code/ ECTS/ Core or Optional	**Phase**	**Module Coordinator**
P1CT		
1. *Social Innovation* Code: TBC 10 ECTS Core	1	Jake Byrne – TCD Jasper van Vught – UU
2. *Sustainability* Code: TBC 10 ECTS Core	1	Carole-Anne Senit – UU Patricia Cucchi – UM
3. *Transdisciplinary Research* Code: TBC 10 ECTS Core	1	Gabor Zemplén – ELTE Santiago Segui – UB
WATER		

4. *Extremes in the Water Cycle and Their Complex Consequences* Code: TBC 10 ECTS Optional	2	Valérie Borrell – UM András Vadas – ELTE
5. *Adaptation Measures and Strategies in Water Management* Code: TBC 10 ECTS TBD Optional	2	Jose F. García – UB Ádám Tóth – ELTE
6. *Resilient Cities: Water in Urban Environments* Code: TBC 10 ECTS Optional	2	Monica Serrano – UB Jasper van Vught – UU
HEALTH		
7. *Health systems and policies* Code: TBC 10 ECTS Optional	2	Nathalie Chazal – UM Éva Orosz – ELTE
8. *Health challenges* Code: TBC 10 ECTS Optional	2	Quique Bassat – UB Niels Bovenschen – UU
9. *Healthy lives and wellbeing* Code: TBC 10 ECTS Optional	2	Avelina Tortosa – UB Katalin Felvinczi – ELTE
FOOD		
10. *The Food-Health-Environment Nexus* Code: TBC 10 ECTS Optional	2	Sinéad Corr – TCD Cristina Andres Lacueva – UB
11. *Food Systems and their Transformations* Code: TBC 10 ECTS	2	Viktor G. Mihucz – ELTE Clément Bonnet – UM

Optional		
12. *Socially Just and Sustainable Food Systems* Code: TBC 10 ECTS Optional	2	Marjanneke Vijge – UU Montserrat Camps Gaset – UB
CAPSTONE		
13. *Capstone Project* Code: TBC 30 ECTS Core	3	Patricia Cucchi – UM Marjanneke Vijge – UU Jake Byrne – TCD Núria Casamitjana – UB José Jesús Reyes Nuñez – ELTE

Table 2 Knowledge Creation Team members

Name	University/Institute	Expertise/Faculty
Adam Tarcsi	Eötvös Loránd University (ELTE)	IoT & Data Innovation Lab, Informatics
Ádám Tóth	Eötvös Loránd University (ELTE)	Geology; Groundwater
Ágnes Buvár	Eötvös Loránd University (ELTE)	Consumer psychology
Ágnes Fazekas	Eötvös Loránd University (ELTE)	Higher Education
Agnes Fülöp	Eötvös Loránd University (ELTE)	Computer science, Physics, Interdisciplinarity
Ágnes Sarolta Fazekas	Eötvös Loránd University (ELTE)	Higher Education; Inclusion; Diversity; Human Rights
Alvar Agusti	University of Barcelona	Respiratory Medicine
Alyssa Carré-Mlouka	University of Montpellier	Microbiology
Amparo Cortés Lucas	University of Barcelona	Soil - Groundwater Dynamics of Pollutants
Ana Moragues Faus	University of Barcelona	Interdisciplinary: Agrifood and rural development policies; Economics and Social Sciencies, Planning and Geography
Andras Vadas	Eötvös Loránd University (ELTE)	Environmental History
Angela Bajzáth	Eötvös Loránd University (ELTE)	Higher Education

Anna Manzano	University of Barcelona	Biochemistry and Molecular Biology: Cancer Metabolism
Aonghus McNabola	Trinity College Dublin	Environmental Engineering
Arjan Wardekker	Utrecht University	Sustainable Development Goals and sustainability
Attila Varga	Eötvös Loránd University (ELTE)	Education for Sustainable Development; School Development; Environmental Psychology
Avelina Tortosa	University of Barcelona	Physiology; Cancer
Balázs Székely	Eötvös Loránd University (ELTE)	Geomorphometry
Barbara Hegyi	Eötvös Loránd University (ELTE)	Informatics, Entrepreneurship
Brais Martínez López	University of Montpellier	Process modelling and simulation
Brian Dermody	Utrecht University, Copernicus Institute of Sustainable Development	Sustainable Development Goals and sustainability; Food
Brigitta Zentainé Czauner	Eötvös Loránd University (ELTE)	Hydrogeology
Catherine Moulia	University of Montpellier	Eco-epidemiology (including parasite ecology, emerging human and animal pathogens, co-evolution)
Christophe Coillot	University of Montpellier	Instrumentation for environment
Christophe Peugeot	University of Montpellier	Hydrosciences
Claire Donnellan	Trinity College Dublin	Nursing; Gerontology
Clément Bonnet	University of Montpelier	Environmental and Energy Economics
Corinne Teyssier	University of Montpellier	Microbiology
Cristina Andres Lacueva	University of Barcelona	Nutrition and Food Science
Cristina García Aljaro	University of Barcelona	Water microbiology
Cristina Minguillón Llombart	University of Barcelona	Chemistry
Csaba Kucsera	Eötvös Loránd University (ELTE)	Sociology; Social policy
Deborah Cole	Utrecht University	Communication and persuasion
Deirdre Caden	Trinity College Dublin	Research Funding Expertise - National, European Commission and International
Deirdre D'Arcy	Trinity College Dublin	Pharmacy
Detlef van Vuuren	Utrecht University, Copernicus Institute	Sustainable Development Goals and sustainability

	of Sustainable Development	
Dominique Chevalier-Lucia	University of Montpellier	Food processing
Dries Hegger	Utrecht University	Sustainable Development Goals and sustainability
Elisenda Ballesté	University of Barcelona	Water Microbiology
Enda O'Connor	Trinity College	General Medicine/Intensive Care Medicine
Enric Tello	University of Barcelona	Ecological Economics; Environmental History; Agroecology
Eric Anglaret	University of Montpellier	Materials Science; Nanomaterials
Erik Stam	Utrecht University	Entrepreneurship, Business and society
Ester Fusté Domínguez	University of Barcelona	Medicine and health (Nursing); Microbiology
Eva Midden	Utrecht University	Gender Studies
Eva Orosz	Eötvös Loránd University (ELTE)	Health policy, comparative studies of health care systems and reforms.
Evelina Colacino	University of Montpellier	Organic and Sustainable Chemistry
Feliciano Villar	University of Barcelona	Psychology
Ferenc Takó	Eötvös Loránd University (ELTE)	Philosophy
Fernando Fernandez-Aranda	University of Barcelona	Psychology
Fernando Gonzalez-Posada Flores	University of Montpellier	Physics: Photonics, Semiconductors, Nanotechnology and Plasmonics
Francisco J Pérez Cano	University of Barcelona	Human Physiology and Pathophysiology; Experimental dietary interentions; Immunonutrition.
Francisco José Eiroá Orosa	University of Barcelona	Clinical and Social Psychology
Frank Biermann	Utrecht University	Sustainable Development Goals and sustainability
Frans Prins	Utrecht University	Educational Science
Gábor Timár	Eötvös Loránd University (ELTE)	Georeference of historical maps
Gabor Zemplen	Eötvös Loránd University (ELTE)	History of Science
Geoffroy Lesage	University of Montpellier	Wastewater treatment
Gil Mahe	University of Montpellier	Hydroclimatology
Gilles Belaud	University of Montpellier	Hydraulics
Gillian Wylie	Trinity College Dublin	Peace Studies

Giovanna Lima	Trinity College Dublin	Public Administration
Giuseppe Feola	Utrecht University	Sustainable Development Goals and sustainability
Gloria Garrabou	University of Barcelona	Cell and molecular biology, bioenergetics, autophagy, stem cells, neuromuscular and metabolic disorders, rare diseases
Guillaume Artigue	IMT Mines Alès	Hydrology
Hans Hoeken	Utrecht University	Persuasive communication
Harold Bok	Utrecht University	Life & Health; Education; Assessment
Harold van Rijen	Utrecht University	Life & Health
Heleen Mees	Utrecht University	Sustainable Development Goals and sustainability
Hens Runhaar	Utrecht University, Copernicus Institute of Sustainable Development	Sustainable Development Goals and sustainability; Food
Hervé Jourde	University of Montpellier	Hydrogeology/Hydrology
Iain Atack	Trinity College Dublin	Peace Studies
Imola Koszta	Eötvös Loránd University (ELTE)	Environmental Engineering
Ine Dorresteijn	Utrecht University	Sustainable Development Goals and sustainability
Iris van der Tuin	Utrecht University	Transdisciplinarity
Jake Byrne	Trinity College Dublin	Educational Technology; Contemporary Teaching and Learning; Innovation
James Patterson	Utrecht University	Sustainable Development Goals and sustainability
Jan ten Thije	Utrecht University	Intercultural communication
János Kenyeres	Eötvös Loránd University (ELTE)	Contemporary Canadian Literature and Cinema Studies
Jasper van Vught	Utrecht University	Media and Culture Studies
Javier Velaza	University of Barcelona	Classics
Jean-Emmanuel Paturel	University of Montpellier	Water resources
Jerry van Dijk	Utrecht University	Food
Joan G. Burguera	University of Barcelona	Communication
Joan Gil-Trasfí	University of Barcelona	Economics; Health Economics
Joaquim Gutiérrez	University of Barcelona	Animal Physiology
Jofre Carnicer	University of Barcelona	Ecology and climate change, global change biology
Johan Jeuring	Utrecht University	Data science
Joost Raessens	Utrecht University	Games and play, ecogames
Joost Vervoort	Utrecht University	Sustainable Development Goals and sustainability

Jordi Garcia-Fernàndez	University of Barcelona	Evolution
Jos Philips	Utrecht University	Applied Ethics
Jose F. Garcia	University of Barcelona	Chemistry; Water monitoring
José M. Carmona	University of Barcelona	Hydrogeology
José Peres-Cajías	University of Barcelona	Economic History
Josep M Llovet	University of Barcelona	Translational Oncology
Juan Carlos Laguna Egea	University of Barcelona	Pharmacology
Judit Mádl-Szőnyi	Eötvös Loránd University (ELTE)	Hydrogeology
Judit Szalai	Eötvös Loránd University (ELTE)	Philosophy
Judit Vall Castelló	University of Barcelona	Health Economics
Karin Rebel	Utrecht University	Sustainable Development Goals and sustainability
Károly Márialigeti	Eötvös Loránd University (ELTE)	Environmental Microbiology
Katalin Felvinczi	Eötvös Loránd University (ELTE)	Social Psychology; Health Psychology; Quantitative and qualitative research
Katalin Sulyok	Eötvös Loránd University (ELTE)	International Environmental Law
Katrin Dreyer-Gibney	Trinity College Dublin	Sustainable Operations Management and Service Innovation
Krisztina Szécsényi	Eötvös Loránd University (ELTE)	Language and linguistics
László Horváth	Eötvös Loránd University (ELTE)	Educational Sciences (Adult Education, Higher Education); Economics (Leadership and Management, HR)
László Katona	Eötvös Loránd University (ELTE)	English Applied Linguistics
Laura Rodríguez	University of Barcelona	Supramolecular chemistry with expertise on water soluble systems and biological applications
Laurent Gavotte	University of Montpellier	Eco-epidemiology
Linda Luquot	CNRS Montpellier	Reactive transport in porous medium (water flow, coastal aquifer salinization, wastewater treatment)
Lorraine O'Driscoll	Trinity College Dublin	Pharmacology
Luca Ciandrini	University of Montpellier	Physics/Theoretical Biology
M. Teresa Vadrí	University of Barcelona	Public law - Environmental law
Manon Kluijtmans	Utrecht University	Life & Health; Management

Manuel J Rodriguez	University of Barcelona	Neurosciences
Marc Heran	University of Montpellier	Bioengineering; Environmental Engineering
Maria Arapovics	Eötvös Loránd University (ELTE)	Community Development; Lifelong Learning
Maria Claudia Angel Ferrero	University of Montpellier	Innovation and Entrepreneurship
Maria J Rodriguez	University of Barcelona	Physiology and Physiopathology; Immunonutrition
Marielle Montginoul	University of Montpellier	Economics
Marjanneke Vijge	Utrecht University	Political Science
Marta Alexy	Eötvös Loránd University (ELTE)	Agriculture
Marta Turcsanyi-Szabo	Eötvös Loránd University (ELTE)	Technology Enhanced Learning
Mate Csanad	Eötvös Loránd University (ELTE)	High-energy Nuclear Physics
Máté Varga	Eötvös Loránd University (ELTE)	Genetics
Maxime Louet	University of Montpellier	Molecular Biology
Melanie van Driel	Utrecht University	Sustainable Development Goals and sustainability
Merce Bernardo	University of Barcelona	Business: quality management and sustainability
Michael Morris	Trinity College Dublin	Materials science (of polymers)
Michele Hallahan	Trinity College Dublin	Strategic sustainability management, waste management as a secondary
Michelle Gerbrands	Utrecht University	Challenges, Capstone
Michelle Share	Trinity College Dublin	Education; Sociology; Social Work
Mònica Serrano	University of Barcelona	Environmental and Resource Economics
Mónika Mátay	Eötvös Loránd University (ELTE)	History of Climate and Climate Change
Montserrat Camps Gaset	University of Barcelona	Greek Philology
Montserrat Corominas	University of Barcelona	Genetics and genomics
Namrata Iyer	Trinity College Dublin	Microbiology and Immunology
Nathalie Chazal	University of Montpellier	Infectious Diseases
Niels Bovenschen	University Medical Center Utrecht	Biomedical Sciences; Education
Olatz Larrea	University of Barcelona	Communication; gender studies; cultural studies

Oliver Díaz	University of Barcelona	Computer Science / Artificial Intelligence applied to medicine
Ottó Gecser	Eötvös Loránd University (ELTE)	History and Sociology
Padraig Carmody	Trinity College Dublin	Geography
Patrice Ndiaye	University of Montpellier	Public administration; management; law
Patricia Cucchi	University of Montpellier	Biology: Aquatic organism, Fish farming, Eco-physiology, Histology, Ecology; Innovative Pedagogy
Patrick Caron	University of Montpellier	Farming systems and territorial dynamics
Patrick Lansley	Trinity College Dublin	Research Funding (E3 Institute - Engineering & Natural Sciences)
Pedro Gallo	University of Barcelona	Health; sociology; economics; policy
Pepita Giménez Bonafé	University of Barcelona	Cancer chemoresistance and Human Reproduction
Peter Driessen	Utrecht University	Sustainable Development Goals and sustainability
Peter Sziklai	Eötvös Loránd University (ELTE)	Mathematics; Computer Science; Artificial Intelligence
Quique Bassat	University of Barcelona	Research in poverty-related diseases, pediatrics, infectious diseases, Medicine; Malaria
Rakhyun Kim	Utrecht University	Sustainable Development Goals and sustainability
Ramon Ramon-Muñoz	University of Barcelona	Economic History
Richard Twohig	Trinity College Dublin	Project & Programme Management
Rocio Semino	University of Montpellier	Physical Chemistry; Theoretical Chemistry; Computer Modelling
Roger Moussa	University of Montpellier	Hydrology
Rosa Calvo Escalona	University of Barcelona	Psychiatry
Rosa Mª Casas	University of Barcelona	Nutrition and lifestyle
Sandra van der Hel	Utrecht University	Sustainable Development Goals and sustainability
Santiago Segui	University of Barcelona	Machine Learning; Data Science
Sara Ramos-Romero	University of Barcelona	Nutrition, metabolic diseases and gut microbiota
Sarah Mariottino	Trinity College Dublin	Life sciences; Organoids stem cells
Sebastien Bertout	University of Montpellier	Pharmacy; Infectious Diseases
Seline Trevisanut	Utrecht University	Sustainable Development Goals and sustainability
Sergio Madurga Díez	University of Barcelona	Chemistry

Sílvia Bofill Mas	University of Barcelona	Viruses contaminants of Water and Food
Sinéad Corr	Trinity College Dublin	Microbiology
Sophie Richard	AgroParisTech	Governance and public policy
Stefan Dekker	Utrecht University	Sustainable Development Goals and sustainability
Stefan Werning	Utrecht University	Games and play, ecogames, digital platforms
Sylvain Caillol	University of Montpellier	Biobased and sustainable polymers
Tamas Weidinger	Eötvös Loránd University (ELTE)	Boundary layer meteorology, turbulence exchange processes, surface energy budget measurements and modelling
Teresa Vinuesa Aumedes	University of Barcelona	Clinical Microbiology/ Tropical Diseases
Toine Pieters	Utrecht University	Life&Health
Valérie Borrell	University of Montpellier	Hydroscience
Verónica Violant Holz	University of Barcelona	Hospital Pedagogy; Health and quality life; pedagogical strategies
Viktor G. Mihucz	Eötvös Loránd University (ELTE)	Environmental Analytical Chemistry
Xavier Pons Rafols	University of Barcelona	Public International Law
Zoltán Barcza	Eötvös Loránd University (ELTE)	Meteorology
Zoltán Homonnay	Eötvös Loránd University (ELTE)	Mössbauer Spectroscopy
Zsófia Kollányi	Eötvös Loránd University (ELTE)	Health Policy, Health Sociology
Zsolt G. Török	Eötvös Loránd University (ELTE)	Cartography
Zsuzsanna Varga	Eötvös Loránd University (ELTE)	History

ii. Capstone[16] module and supervision

For the 30 EC Capstone module (Phase 3) students work in transdisciplinary student teams on defining a real-world challenge, bringing in input and insights from research on their own scientific field and knowledge and skills from the flexible and preparatory modules, and ultimately delivering a solution contributing to society. There will be representation from all Alliance universities, extra-academic actors, associate partners, and students from different disciplinary backgrounds (e.g. humanities and social sciences, natural sciences, health and life sciences, business and engineering sciences…) who collaborate on the challenge. Each student has a team role crucial for the support of the project and the delivery of the capstone outputs. Moreover, each student will allocate a designated amount of time on performing

[16] The term Capstone is used in CHARM-EU to denote the final thesis or dissertation as it is known in some institutional contexts.

individual research and on personal development. For more information on assessment in the Capstone phase see section l).

c) Table 2: Student workload across the module spectrum

Table 3. Student workload across the module spectrum

Module	Modules 1-3	Modules 4-12	Module 13 (Capstone)
EC (per module)	10 (x 3)	10 (x 3)	30
Workload	Calculation: 10 EC x 25-30 = 250		
Activities:			
Lectures/Seminars/ Workshops	22	22	22
Tutorials	11	11	-
Study/Self study	85	85	-
Assignment preparation	68	68	-
Project Work	53	53	714
(Other)	11	11	14
Total Hours	250 (x 3)	250 (x 3)	750

i. Assessment and progression

CHARM-EU will use an assessment scale from 0 to 100%.

a. A Pass mark on this course is 50% and above.
b. To qualify for this postgraduate award, students must, as a minimum:
   - Achieve an overall pass mark in each phase. Compensation is possible within each phase but not across phases. Students can compensate a module via another module within that phase if they can demonstrate to the Examination Board that all module learning outcomes have been achieved. The Examination Board will establish the compensation policy before the start of the academic year.
   - Achieve a pass mark in the Capstone phase.

c. Module marks are confirmed by the Examinations Board. Final results are determined at the final Examinations Board meeting at the end of the academic year with input from the External Examiner.
d. Students failing to pass individual taught modules may present for supplemental examination or re-submit required work. Students who, following the supplemental examination or re-assessment, have failed to pass the requisite taught modules will be deemed to have failed the course, and may apply to the Examinations Board for permission to repeat it. Students on the Master's course who do not achieve a pass mark in the Capstone phase will be deemed to have failed the course and may apply to the Examinations Board for permission to repeat it. The rules and regulations in these situations may be adjusted by the Examinations Board prior to the start of the Master's.

3. The CHARM-EU Teaching and Learning Experience (alignment with EA 5.0 Learning Teaching and Assessment [ESG 1.3])

The Master in Global Challenges for Sustainability is built upon an innovative, flexible, inclusive curriculum design model appropriate for a challenge-driven, research-based Master's promoting European citizenship, enabling transdisciplinary approaches, addressing global societal challenges and skills shortages, and focusing on reconciling humanity with the planet.

A combination of face-to-face (on campus) and online modalities are used to deliver module content from CHARM-EU institutional academic staff and extra-academic actors (i.e. from business, civil society and community). This inter-institutional collaboration is present both in module design and delivery via transnational mobility activities, transdisciplinary content creation teams, and in students from multiple institutions working with peers throughout the Master's modules.

The design and delivery of modules is also scaffolded by a challenge-based, student-centred, inclusive and transdisciplinary approach. Active learning experiences (e.g. team-based learning, peer interaction, small group activities), are strongly supported using best practice pedagogical techniques to achieve learning outcomes.

Modules have also been developed through input from business, civil society and community. The Capstone module further develops this integration where students collaborate with these extra-academic actors on solving a student-defined global challenge. The Master's is structured in a way where students emerge at the final Capstone module having completed six modules preparing them for this global authentic challenge.

a) Master's structure and logistics

The proposed 90 ECTS Master's is designed in three phases: Phase 1 (Preparatory), Phase 2 (Flexible), and Phase 3 (Capstone). Phase 1 consists of three compulsory 10 ECTS modules (total = 30 ECTS). Phase 2 consists of three 10 ECTS modules (one theme) (total = 30 ECTS) selected from three thematic pathways. Phase 3 consists of one 30 ECTS Capstone module. The Master's programme consists of a total of seven modules.

The Master's is completed in an 18-months track, but students can choose an intensive 12-month track. Students will decide on which track they wish to take during registration. The Master's begins in September 2021.

Table 4 Calendar of module delivery[17]

Phase 1 (30 ECTS)					Phase 2 (30 ECTS)				Phase 3 (Option 1) (30 ECTS)			Phase 3 (Option 2) (30 ECTS)				
Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Jun	Jun	Jul	Aug	Oct	Nov	Dec	Jan	Feb
M1					M4				Capstone Module			Capstone Module				
M2					M5											
M3					M6											

Phase 1 modules focus on core competencies grounded in contemporary issues and approaches to sustainability. Phase 2 modules focus on three broad sustainability themes: Water, Food, and Life & Health. Students are required to select one of the themes and will participate in all the modules within that theme.[18] Students' progress through these initial two phases, and develop knowledge, skills, aptitudes and competencies required for the authentic final Capstone phase.

During the final Capstone phase students work collaboratively with their peers, academic staff, and extra-academic actors (e.g. business and society) on an authentic sustainability challenge. The students, based on their original disciplinary field, take their previous experiences during the Master's a step further by practically applying their knowledge and competencies through experiential learning (i.e. real-life challenges). The objectives of a Capstone 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, supporting of staff research activities, and quality assurance of graduates.

Supporting the innovative, student-centred, transdisciplinary structure and delivery of the Master's programme as well as the successful implementation of the CHARM-EU educational principles, international student mobility is at the core of the CHARM-EU. Mobility is identified as a key tool for competence development that is embedded in all phases and modules of the Masters programme, and play an indispensable part of the teaching and learning strategies. CHARM-EU mobilities will create multiple opportunities for transnational and intercultural learning that will support the development of a number of competences, such as intercultural, communication, language, personal and social – including 21st century skills and soft skills – as well as professional competences.

One of the main objectives and characteristics of participation in this Master's is inclusiveness, considering that students may come from CHARM-EU partner university countries and other countries around the world. Module delivery modality will be flexible using a blended integrated model of lectures, webinars, small group on-campus seminars in each of the five institutions, collaborative synchronous and asynchronous computer supported learning activities delivered through the Virtual Learning Environment, and collaborative on-campus learning activities. Lectures will be facilitated through multiple

[17] The 12 month accelerated track has more weekly hours in Phase 3 than the 18 month option. The total workload is identical.

[18] See section 1.m) for details on how these module themes were developed.

modalities: live in person within an Alliance institution, live online through web-conferencing software, or pre-recorded and delivered online for flipped classroom delivery. In some cases, students will have the choice to select which modality they would like to use.

Each module will consist of a module leader and a teaching team of CHARM-EU Alliance staff and extra-academic actors (e.g. business and society). At all CHARM-EU institutions academic and administrative staff will support students and guide on-campus activities. For online content, staff will be available for online moderation, coaching, tutoring and mentoring students, answering questions, discussing materials, giving feedback, and moderation.

To support this flexible delivery, a CHARM-EU Virtual Learning Environment (VLE) will be used. This digital ecosystem consists of educational tools and services that work seamlessly together to support students and lecturers in their educational activities. The core of the CHARM-EU VLE will be a Learning Management System (LMS). The LMS offers all the necessary functionality to organize teaching and learning. It will be used to give students access to course content, assigning students to groups, and assessment submission.

Not all learning activities can be supported by the LMS and specific 'best-of-breed' applications for a CHARM-EU Toolbox will be selected. These applications will offer specific functionalities that teachers can use to enhance their courses. The best-of-breed applications are already used within the CHARM-EU universities and have proven to be effective from a didactical, technical and practical perspective (e.g. a platform for collaboration or a tool to support peer-feedback, develop e-modules, organize quizzes and voting).

Academic teachers in CHARM-EU will have the opportunity to request emerging innovative technology to enhance their learning activities, and will receive technical, didactical and practical training and support to incorporate these technologies in their modules and programmes. The CHARM-EU VLE will be connected to supporting systems like the Student Information System, the Open Educational Repository, and the Learning Record Store.

b) Teaching Elements of a CHARM-EU Module

Challenge-based learning is the core pedagogical approach within this Master's; students engage in authentic situated societal challenges in partnership with academics (teachers and researchers) enterprise, and extra academic actors. Each module includes key elements to ensure student motivation and engagement, alignment with Programme Learning Outcomes (PLOs) and Module Learning Outcomes (MLOs), personal reflection, collaborative group work, and student-centred assessment.

At the beginning of each individual module, module leaders will introduce themselves and the MLOs through a short online video or a live in-person lecture. The aim of the introductory element is to help the student prepare for learning, become familiar with the teaching staff, and realize what is expected from them in terms of teaching and assessment. During this introductory stage, students will be provided with learning materials to prepare themselves for this module. Preparatory material will usually take the form of recommended readings, links to relevant web resources, individual or group assignments, critical review and comment or comparison of scientific papers/literature, or a basic introductory presentation. Students will be encouraged to raise questions and reflect on these preparatory materials and give peer-feedback.

The purpose of the proposed Master's is not simply to impart information and skills but for information and skills to enhance a student-centred, challenge-based experience. Students will be encouraged to have responsibility for the own learning in terms of learning activities, assessments, studying, and academic integrity. A broad range of learning activities will be delivered live on-campus (with the option of being broadcasted/streamed online), online, or pre-recorded. Teachers will focus on the learning process (e.g. guiding and feedback) rather than in the assessment outputs.

Students will be encouraged to reflect and apply the didactic learning process to solving global challenges, thereby moving the focus of the Master's from the flexible environment into the "real world". Students will also be encouraged to reflect on their learning experience and how they are developing new knowledge and skills by themselves and in collaboration with their peers during teamwork and in aspects of intercultural communication. This is particularly important for bridging the gap between academic and professional situations. Students themselves play an active role, not only during their studies, but also in team activities and collaborating with extra-academic actors and academic staff. Students will be responsible for their education and for showing their achievements on the PLOs and MLOs, as well as both personal and group results achieved.

Through asynchronous and synchronous online and face-to-face (on-campus) in-person collaborative learning activities students will share their experiences and address MLOs, solve challenges in collaborative groups, reflect on the relevance of evidence presented, and develop a supportive community in a flexible environment. These activities will have the aim of consolidating the learning objectives for that session.

Each module will employ a combination of these teaching elements to address the PLOs and MLOs. However, for Phase 3 there will be a stronger emphasis on research and challenge-based learning next to personal goals the students want to achieve.

All teaching elements will use Universal Design Principles[19] to ensure student inclusivity and accessibility.

c) Assessment

A unique and holistic approach to assessment is an essential part of the CHARM-EU student learning experience. Module teachers are supported in designing their assessments by CHARM-EU educational specialists to ensure high quality and alignment with learning outcomes. Seven assessment principles lay the foundation for student assessment: outcome-based, student-centred, feedback-focused, mentor-supported, multiple assessors and methods, process-oriented, and flexibility. These principles position CHARM-EU educational principles at the core of students' assessment.

To support these assessment principles, the Master's will use a programmatic assessment approach. Both formative and summative approaches are used, but within this approach, every assessment represents

[19] Rao, K., Edelen-Smith, P. & Wailehua (2015). Universal design for online courses: applying principles to pedagogy. Open Learning: The Journal of Open, Distance and e-Learning. 30. 1-18. 10.1080/02680513.2014.991300.

one data point and provides meaningful feedback for the student to optimize the student educational experience. This approach sees assessment as a continuum of stakes, meaning:

- Low-stake: These are individual assessments within modules, such as a test or presentation.
- Intermediate-stake: These are decisions based on a multitude of low-stakes data points and serve to inform the student about its progress (with a mentor), such as the decision to progress from one phase to another.
- High-stake: These are decisions are based on a variety of low-stakes data points and intermediate stakes information and provide justification for promotion. An example of this is the allocation of ECs and the final decision of obtaining a Master's.

This approach will be supported by the VLE, student mentors and academic professional development resources and extra academic actors. The students will be provided with a student assessment portfolio system to store feedback, observations and results on assignments. These data will be linked to the PLOs and MLOs and will gradually show student progress and personal development compared with the mean progress of the cohort.

For modules in Phase 1 and Phase 2, summative and formative assessment approaches will be used and weighted depending on the module learning outcomes. For the Capstone, both group and individual assessments will be used. Traditional assessment methods can be used at many different points during the Capstone phase. However, the challenge-based learning approach provides the opportunity to integrate a variety of alternative and authentic assessment tools. These tools are performance-based in that students are not only expected to know the information but apply and synthesis it in real-world situations. They also provide a longitudinal source of rich data that can be used to assess depth of knowledge and change over time. Both group and individual assessments are used within the Capstone phase. Within the individual assessment, students have the option to deliver a research-based report, an "in company report" or a research-informed position paper depending on their proposed career pathway. In addition, an individual reflective assignment on the group work process is required. For the group assessment, proposal documentation, research reports, prototyping, oral presentations, and peer feedback are used.

A range of assessment methods will be used across formative and summative approaches. A database of assessment methods has been developed and will be used to ensure an innovative approach to assessment. Short essays will enable students to elaborate on their knowledge and justify their points of view with reference to the contents being taught. Online discussions and debates will provide insights in student engagement and effort. Application of theory learnt to practice will be encouraged through individual reflection and through authentic, challenge-based assessment methods.

Assessment rubrics and criteria will be provided to students prior to module delivery but feedback from students on these resources will be welcomed to foster a student-centred approach. Feedback will be provided on all activities through the VLE and e-portfolio from teachers, mentors, peers and extra-academic actors. For MCQs, feedback will be instantaneous in the form of a comment explaining why an answer chosen is correct or incorrect. Discussion boards, feedback will take the form of teacher or mentor comments. These may not be directed at any one student but will help to direct the group towards meaningful and relevant discussion in order to facilitate their learning. For submitted work such as essays or case scenarios, individual and peer feedback in the form of a grade and comments on how the work might be improved will be given.

Grading scales (see Assessment and Progression) will be unique for CHARM-EU and all academic staff will be grading in this scale.

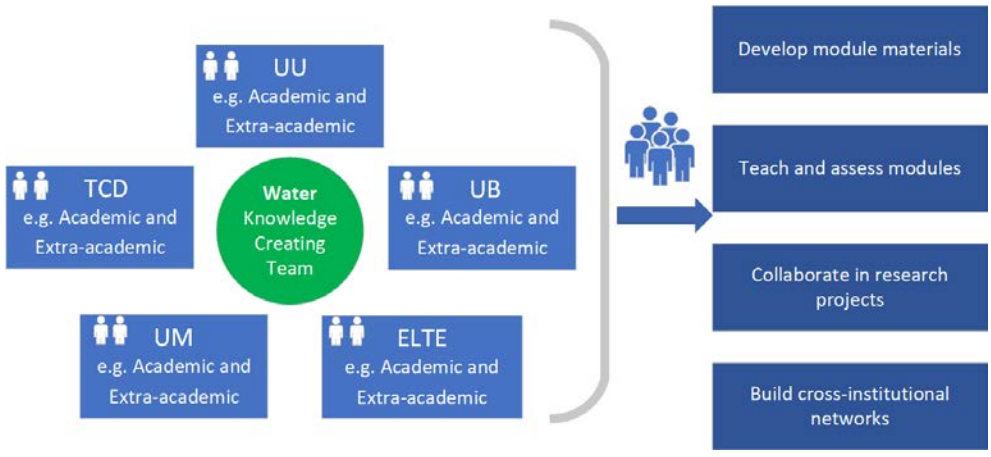
d) Course Development Process

The Master's has been scaffolded by a rigorous programme design and development process. This process includes pedagogical and curriculum design, content creation, content development, and implementation.

Initial design (educational principles): The Master's was initially guided by educational principles underpinning the design of a CHARM-EU educational experience. Developed in a series of cross-institutional workshops, these ten principles focus, structure, and align the Master's with the Alliance mission and values. All modules were designed following CHARM-EU educational principles to some degree: challenge-driven, research-led/research-based, sustainability, technology-enhanced, student-centred, situated learning, transversal skills, transdisciplinarity, transnational and intercultural learning, and inclusivity (see Appendix).

Initial design (curriculum and content): The initial design of module content was led by collaborative groups of content creation teams from each Alliance institution. These content creation teams (known as Phase 2 Knowledge Creating Teams (KCT), and Phase 1 Content Teams (P1CT) are collaborative groups of academic teachers, researchers and extra-academic actors created around module themes (e.g. Water, Food and Life and Health) and aligned competencies. These teams design transdisciplinary module content, teach and assess students, and build cross-institutional research networks. Prior to program approval submission, the KCT and P1CT collaborated to develop PLOs, MLOs, module descriptions, staffing requirements, and module content. To date, CHARM-EU has 31 P1CT and KCT Core members and 180 Expanded KCT members working collaboratively using a transdisciplinary and challenge-based vision to develop learning content.

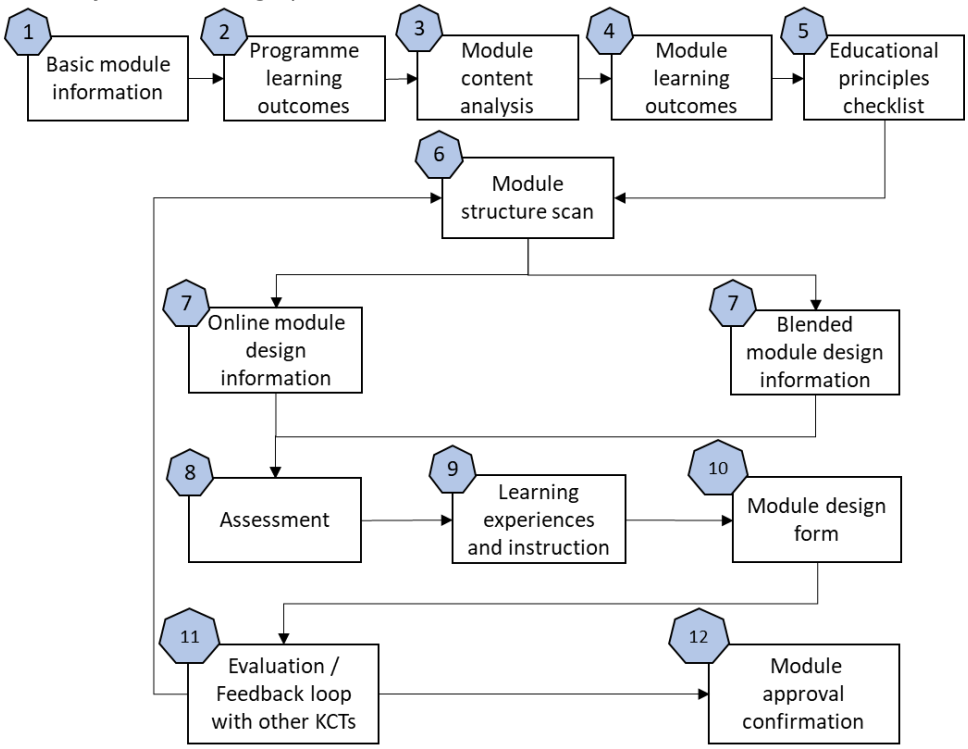
Figure 1 Graphic description of a Knowledge Creating Team (KCT)



Curriculum programme/ Module design: CHARM-EU teaching staff will build upon the initial module content according to a twelve-stage internal module development approach, supported by educational specialists (instructional designers and educational technologists) from the Alliance institutions. This

approach (see Figure 2 below) will ensure close alignment with the CHARM-EU educational principles, using effective and high-quality learning activities and assessment methods such as CHARM-EU specific learning activity databases, resources and interactive materials. Extra-academic actors will also be active module contributors.

Figure 2 Overview of module design process



Programme/Module development: CHARM-EU Knowledge Creating teams (i.e. KCT and P1CT) will work with each other and educational specialists (instructional designers and educational technologists) from Alliance institutions to create high-quality learning materials. Student learning activities will be discussed with CHARM-EU educational specialists to ensure methods used are accessible and inclusive to students, engaging, and relevant to learning outcomes. Online materials will be developed using best practices from Alliance institutions including accessibility and inclusivity, focusing on engaging and motivating students, and supporting a strong online community of learners. Although the module content will be delivered by a range of stakeholders, one module coordinator will be responsible for learning content. To ensure that all modules address the PLOs and provide an integrated narrative to the Master's, a central CHARM-EU contact will work with all course development teams.

Module Implementation: Students may commence their Phase 1 modules in September 2021 and each learning activity for that module will be communicated to students both through the VLE and through an introductory video, in person or online lecture.

The final phase of module design and development is its evaluation. Module evaluation is detailed in the Quality Assurance section.

4. Course administration

a) Table 3: *Ex officio* members of the course committee[20]

CHARM-EU will be using an Academic Board as detailed in the Addendum to the Consortium Agreement. Members will be appointed by the Rectors Assembly.

Table 5. Members of the Academic Board

Roles	Name	Academic title and position
The Academic Director (Chair) TCD	To be confirmed in September 2020	
Local Academic Coordinator UB	Prof. Nuria Casamitjana	Rectors Commissioner for CHARM-EU
Local Academic Coordinator UU	Prof. Stefan Dekker	Professor in Sustainable Development Goals and Sustainability
Local Academic Coordinator ELTE	Prof. László Zentai	Vicerector of Education for Education
Local Academic Coordinator UM	Dr Patricia Cucchi	Associated Professor in Organism Biology
Student representative	To be elected/appointed once the Master's is implemented	-
Chief of the Joint Virtual Administrative Office	To be appointed by the Rectors Assembly	

The Academic Board will be assisted by

- One person representing mobility
- One person representing inclusivity

b) Admissions (Alignment with EA 4.1 Admission)

i. Entry criteria

Admission to the course is selective. There is a maximum capacity. The candidates will be ranked on a scale of 100 points.

General requirements:

- At least a Bachelor's degree or recognised equivalent to a Bachelor's degree for CHARM-EU Admissions Board. In the case of students with a French Licence they will need an additional 30 EC for admission. This is subject to changes in French legal requirements.

[20] This is the CHARM-EU Academic Board, as defined in the Addendum.

- English language certification is necessary for programme admission. C1 is the required level. Students with B2 level will be considered in conjunction with other admission criteria but must attain C1 level before programme registration.

The Joint Virtual Administrative Office will check the requirements with the documentation of the application. The applicants will be ranked according to the following criteria. An evaluation rubric will be used to ensure maximum objectivity. The criteria include four categories:

Academic Excellence (10 points)

Points for academic excellence are based on a graduated scale, with the top 10% of students receiving 10 points, students within 10% and 25% receiving 5 points, 25% to 33% one point, and the remaining applicants receive no points. Scoring below 33% does not exclude the candidate for consideration in the other criteria. This is to facilitate inclusiveness.

General Academic Competencies (40 points)

- Critical thinking
- Analytical writing
- Verbal reasoning
- Visual presentation

This will be assessed through an essay and a video presentation recorded by the student answering three/four predetermined questions and if needed, by a personal interview. This will substitute the motivation letter. If a student has inclusivity requirements to provide a video presentation, the Admission Board will advise on an alternative solution. Students will be assessed by at least two different institutions.

Personal Competencies (40 points)

- Intercultural competence
- Oral communication
- Civic engagement
- Commitment to the programme
- Motivation for programme entry

This will be assessed via their curriculum vitae and previous academic experience, an essay, a video recorded by the student answering three/four predetermined questions and if needed, by a personal interview. Students will be assessed by at least two members of the Admissions Board from two different institutions.

Inclusion (10 points)

In order to ensure access and inclusion, students of under-represented communities can obtain 10 additional points. The prospective students will be given the opportunity to self-disclose about their circumstances in the application form.

As the programme needs to be as diverse and multidisciplinary as possible, students will be classified according to their discipline and geographical European area. Other countries will be considered as one area. This will be used to rank the students. The admission list will be built starting with the first of each discipline and each country, and then the second, and so on.

ii. Addendum to align with EA 4.2 Recognition

Due to the specific type of transdisciplinary programme, CHARM-EU does not consider any professional or academic recognition at this stage.

iii. Table 4: *Ex officio* members of the admissions sub-committee[21]

CHARM-EU will be using an Admissions Board as detailed in the Addendum to the Consortium Agreement.

Table 6. Members of the Admissions Board

Roles	Name	Academic title and position
The Academic Director (Chair, TCD)	To be confirmed September 2020	
Local Academic Coordinator UB	Prof. Nuria Casamitjana	Rectors Commissioner for CHARM-EU
Local Academic Coordinator UU	To be appointed	
Local Academic Coordinator ELTE	Prof. László Zentai	Vicerector of Education for Education
Local Academic Coordinator UM	Dr Patricia Cucchi	Associated Professor in Organism Biology

The Admissions Board will be assisted by

- One expert in international admissions
- One person representing inclusivity

iv. Proposed marketing and promotion of the course (Alignment with EA 8.0 Transparency and Documentation [ESG 1.8])

CHARM-EU has a dedicated communications and marketing team composed of professionals from each of the Alliance institutions. They have developed a detailed marketing strategy which will advertise the Master's, raise awareness of the programme, and inform potential students on key aspects. A range of

21 This is the CHARM-EU Admissions Board.

communication tools have been created including a CHARM-EU dedicated website (www.charm-eu.eu), social media channels (Twitter: @charm_eu, Facebook: @charmeu.initiative, Instagram: @charm.eu and LinkedIn (Available in October 2020)), newsletter, branding guidelines and visual identity. Besides CHARM-EU communication tools, Alliance institutional and associate partner communication channels, and networks from KCT members and CHARM-EU business, society and community stakeholders will also augment the CHARM-EU channels to ensure broad reach. For example, on Twitter alone, there are almost 150,000 followers across all Alliance institutions. This broad reach will ensure that the Master's is successfully disseminated across countries, age groups, gender and professions.

Detailed information about the Master's programme including aim and structure, module information, professors, admission and assessment requirements, criteria and procedures will be clearly documented in the accessible web site to ensure transparency. This information will also be optimized for mobile viewing. Course information will be entered into all Alliance course catalogues and websites, and promotional materials will include an animated trailer, short targeted videos, social media cards, posters, and press releases. Informational open evenings both on campus and online will be delivered. Marketing and promotion of the Master's will commence in January 2021 (assuming the approval processes in each of the five institutions takes place without difficulty).

c) Accommodation, finances, library and student experience (Alignment with EA 7.1 Staff)

i. Clarification if additional accommodation and new staff are required

Staffing

Delivery of teaching content will be by suitably qualified existing academic staff from all five partner universities. All teaching staff will be fluent in English and will undergo appropriate induction training to ensure the CHARM-EU values and educational principles and teaching and learning strategies are maintained and adhered to throughout the programme.

In the Flexible and Capstone phases, extra-academic actors i.e. business professionals and civil society members will participate as assessors and challenge suppliers.

Accommodation

Students will live in one of the cities of the partner universities. On-campus lectures and other teaching related events will take place in existing venues considering accessibility measures (or in those currently being constructed) in all five partner universities. To accommodate hybrid teaching, lecture delivery and collaborative learning, theatres and seminar rooms will contain the appropriate user-friendly, accessible facilities for videoconferencing and/or podcasting.

ii. Proposed financial arrangements

Tuition fees and other fees (irrespective of the chosen study track, starting location or nationality) will be the same for all students and will be paid to the coordinator of the CHARM-EU project. The tuition fees for the complete programme are (irrespective of its duration):

Fee per EU Student	3.000€
Fee per Non-EU Student	19.000€

Students who fail the programme and would like to register again won't necessarily be charged the full tuition fees. The Academic Board will decide on a policy in this regard.

CHARM-EU provides financial scholarship to a number of CHARM-EU students. The scholarship will range between 1500€ and 3000€ as reflected in the budget of the appendix. The amount and the criteria will be defined by the Academic Board. Additional scholarships from external organisations may be considered.

The Budget is provided in the Appendix.

iii. Library approval including agreed costing for acquisitions of new bibliography, additional IT and research facilities arrangements (Alignment with EA 7.2 Facilities)

Students will have the standard access to services such as Library and IT facilities offered by all five partner universities. No additional requirements are envisaged and existing arrangements are sufficient to ensure delivery of the intended learning outcomes. With an emphasis on real world problems and challenges, the few obligatory texts and journals required by students are currently available within existing library resources. Research facilities for the capstone projects will be made available as appropriate on each campus.

d) Student Support - Measures enhancing PGT student experience Alignment with EA 6.0 Student Support [ESG 1.6]

The support services available to CHARM-EU students will strive to create a sense of community among the cohort while also considering the unique circumstances that apply to a mobile group of students. It is envisaged that a dedicated and virtual CHARM-EU Office will be established with participants of each university (that will supply also local services to student) in each university which will endeavor to deliver the following:

- A focused and dedicated orientation programme will be provided by relevant stakeholders online for all students and at the local level in all five universities for students physically located within that university.
- A detailed handbook will be available to students in accessible formats (online and by email) before the formal commencement of modules outlining course expectations, guidelines, and contact details for the appropriate staff.
- A clear pathway regarding engagement with Students Services at CHARM-EU level through the Joint Virtual Administrative Office and at the local level through the local Administrative Officer will be outlined and explained allowing students to interact directly with them.

- Students will have representation in the Academic Board and in the Council.

5. Quality assurance (Alignment with EA 9.0 Quality Assurance [ESG 1.1 & part 1])

a) Governance of Quality

The *European Approach for Quality Assurance of Joint Programmes* (October 2014) requires an integrated approach to quality that 'genuinely reflect and mirror their joint character'. The Standards for Quality Assurance of Joint Programmes in the EEA (outlined in Part B of the document) have been integrated into the various sections of this proposal document .

Part 1 of the *European Standards Guidelines for Higher Education in the EHEA* (ESG 2015) provide a common framework for internal quality assurance for all Alliance partners. These standards are recognised in the quality procedures of the national quality agency responsible for the evaluation of quality in each jurisdiction.

The *Addendum of the Consortium Agreement* that accompanies this proposal outlines the arrangements for the governance of quality and the responsibilities of partner institutions (Section 2), and quality management (Section 6).

The Rectors Assembly is the highest governing authority and is responsible for:

- The number of students admitted and changes to student numbers (e.g. minimum and maximum numbers).
- Budget and accounts.
- Appeals.
- Approval of any change/improvement of the Master's Programme.

The Academic Board is responsible for the activities outlined below, which will demonstrate regard for ESG Standards that require the articulation of policies, procedures, standards and regulations (ESG 1.1; 1.2; 1.3, 1.4; 1.5, 1.6, 1.9 and 1.10):

- Development, agreement and oversight of the academic standards, regulations and quality of the Programme.
- Development, agreement and oversight of the policies, academic standards, regulations, procedures and quality of the Programme.
- Development approval and oversight of student regulations.
- Selection and oversight of the Programmes' External Examiner.

The Examination Board fulfils a key role in monitoring the operationalization of policies, procedures, standards and regulations approved by the Academic Board. The activities of the Examination Board demonstrate regard for the ESG Standards that relate to examination and assessment and the student experience of teaching and learning. (ESG 1.3, 1.4, 1.5, 1.6, 1.9 and 1.10). The Examination Board is responsible for:

- Ensuring consistency of standards of examination in the programme
- The External Examiner will submit an independent report to the Rectors Assembly

b) Participation in Quality Assurance

The composition of the Academic Board will seek to achieve a balance of representation from each partner institution, diversity and will include student representation. The composition of the Examinations Board will be composed by Module Coordinators or persons they delegate and an external examiner nominated by the Academic Board.

Engaging stakeholder feedback from industry, business and civil society representatives in quality assurance activities is an expectation of the European Standard Guidelines and principles of CHARM EU. They provide an alternate perspective to student evaluation of challenges and/ or Capstone projects that they assist identify, facilitate and/or supervise. They act as important ambassadors for CHARM-EU and will assist shape and engage through their respective networks sustainable opportunities for CHARM-EU students to participate in challenge based and solution focused projects.

Quality assurance functions are supported by administrative personnel including the Joint Virtual Quality Office in collaboration with the Joint Virtual Administrative Office, and Local Administration Officers to assure the quality of teaching and learning and the student experience, and to service the governance needs of the governance boards, and internal and/or external quality reporting.

c) Periodic reviews of the Programme

A periodic review of the progamme will be scheduled for the final pilot phase February 2023 utilising a CHARM EU Programme Quality Review Procedure agreed by all Alliance partners and based on the *European Approach for Quality Assurance of Joint Programmes* (October 2014) and *European Standards Guidelines* (2015).

The review will meet the ESG Standard 1.9 for Ongoing Monitoring and Periodic Review and will provide an opportunity to demonstrate a cross-Alliance approach to internal quality assurance using integrated quality assurance procedures and the capacity of administrative systems to report on the agreed quality indicators. It will follow the well -established procedure for such reviews including a:

i. Self-assessment Phase culminating in a Self -Assessment Report that draws together the collated quality metrics for the first two years of the programmes, recommendation arising from external examiner reports, students and stakeholder evaluation survey outcomes and to the degree possible at the time graduate outcome surveys of graduands of the first and second cohorts of the programme.
ii. Review Panel comprised of relevant experts in transdisciplinary, challenge based education, the evaluation of joint programmes and European quality assurance.
iii. Site visit by the review panel to Alliance partner universities, meeting with academic and administrative staff, current and former students, stakeholders from industry, business and civil society organisations, a tour of learning facilities and review of learning resources available to students
iv. Review Report
v. Approval of the Review Outcomes and consideration for future CHARM -EU programmes
vi. Implementation Plan on action to address review recommendations

d) Cyclical External Quality Assurance of CHARM -EU

CHARM-EU aims in the long-term to provide European Awards, and for cyclical institutional quality assurance at the European institutional level.

Consultations with the national Quality Agencies from each jurisdiction have agreed that CHARM EU will pursue accreditation at the institutional level utilising the services on an ENQA (European Association for Quality Assurance in Higher Education) register in EQAR European Quality Assurance Register for Higher Education.

The accreditation of CHARM- EU will be separate and distinct from the requirement of each institutions to participate in their national programme of quality assurance as a recognised university in their own jurisdiction.

The process for the cyclical quality review of CHARM – EU will follow Part 2 of the *European Standards Guidelines* (2015).

If by the time of the accreditation of this Masters, this procedure is not still operative, the master will be jointly accredited following the European Approach procedures.

6. Appendices

6.i Individual module learning outcomes mapped to course learning outcomes at programme level

These MLOs and PLOs are aligned with the FQ-EHEA and National Qualification Frameworks.

Table 7. Individual module learning outcomes mapped to course learning outcomes at programme level

PLOs	MLOs
PLO1. Critically analyse and evaluate the concept of sustainability as it is constructed and represented within multiple disciplines and by extra-academic actors. Reflect upon these to understand the relevant ethical issues and the role of active citizenship, in particular within a European context.	MLO 1.2, MLO 1.6, MLO 2.1, MLO 2.2, MLO 2.3, MLO 3.1, MLO 3.3, MLO 3.6, MLO 4.1, MLO 4.2, MLO 5.1, MLO 5.3, MLO 5.7, MLO 5.10, MLO 6.1, MLO 6.2, MLO 6.3, MLO 6.4, MLO 6.9, MLO 6.10, MLO 7.1, MLO 7.2, MLO 7.5, MLO 7.10, MLO 8.2, MLO 8.5, MLO 8.8, MLO 9.2, MLO 9.3, MLO 9.6, MLO 9.7, MLO 10.2, MLO 10.5, MLO 11.3, MLO 11.4, MLO 11.7, MLO 12.1, MLO 12.2, MLO 12.3, MLO 12.5, MLO 12.6, MLO 12.7, MLO 13.7, MLO 13.9, MLO 13.10, MLO 13.11, MLO 13.12
PLO2. In collaboration with extra-academic actors, investigate and evaluate complex societal challenges from a variety of stakeholder, gender and intercultural perspectives to creatively identify, select and devise robust, adaptable, ethical solutions using a range of methodologies, theoretical frameworks and data analysis tools.	MLO 1.1, MLO 1.3, MLO 1.4, MLO 1.6, MLO 1.7, MLO 2.3, MLO 2.4, MLO 2.5, MLO 2.6, MLO 2.7, MLO 2.8, MLO 2.9, MLO 3.6, MLO 3.7, MLO 3.8, MLO 4.2, MLO 4.4, MLO 4.9, MLO 5.2, MLO 5.3, MLO 5.5, MLO 5.6, MLO 5.10, MLO 6.1, MLO 6.2, MLO 6.4, MLO 6.5, MLO 6.6, MLO 6.9, MLO 7.7, MLO 7.8, MLO 7.9, MLO 7.10, MLO 8.5, MLO 8.6, MLO 8.7, MLO 8.9, MLO 9.8, MLO 9.9, MLO 10.2, MLO 10.3, MLO 10.4, MLO 10.6, MLO 11.1, MLO 11.3, MLO 11.4, MLO 11.5, MLO 11.6, MLO 12.1, MLO 12.2, MLO 12.3, MLO 12.5, MLO 12.6, MLO 13.4, MLO 13.7, MLO 13.8, MLO 13.9, MLO 13.10, MLO 13.11
PLO3. Rigorously assess and integrate different disciplinary and transdisciplinary knowledge and	MLO 2.6, MLO 2.8, MLO 3.2, MLO 3.3, MLO 3.4, MLO 4.6, MLO 5.1, MLO 5.2, MLO 5.4,

research methodologies to connect research questions, data and findings to their challenges.	MLO 5.5, MLO 5.9, MLO 5.10, MLO 6.1, MLO 6.3, MLO 6.5, MLO 6.6, MLO 6.10, MLO 7.1, MLO 7.3, MLO 7.6, MLO 7.7, MLO 7.8, MLO 3.11, MLO 7.11, MLO 7.12, MLO 8.1, MLO 8.2, MLO 8.3, MLO 8.4, MLO 8.7, MLO 9.1, MLO 9.4, MLO 9.5, MLO 9.7, MLO 9.8, MLO 10.1, MLO 10.3, MLO 10.4, MLO 10.5, MLO 10.6, MLO 10.7, MLO 11.2, MLO 12.1, MLO 12.3, MLO 12.5, MLO 12.7, MLO 13.7, MLO 13.8, MLO 13.9, MLO 13.10, MLO 13.11, MLO 13.12, MLO 13.13, MLO 13.15
PLO4. Demonstrate expertise in the identification and application of the latest technological tools to source, analyse, handle, use and communicate complex bodies of data ethically.	MLO 2.6, MLO 3.4, MLO 4.3, MLO 5.2, MLO 5.4, MLO 5.5, MLO 5.7, MLO 5.8, MLO 6.2, MLO 6.6, MLO 6.7, MLO 6.8, MLO 8.4, MLO 10.7, MLO 11.2, MLO 11.5, MLO 13.5, MLO 13.10, MLO 13.12, MLO 13.13, MLO 13.14, MLO 13.15, MLO 13.16
PLO5. Formulate an advanced understanding of transdisciplinarity and demonstrate expertise in the facilitative, communicative, reflexive and collaborative skills to support its practice.	MLO 1.2, MLO 1.3, MLO 1.4, MLO 2.8, MLO 2.9, MLO 2.10, MLO 3.5, MLO 3.8, MLO 4.4, MLO 4.5, MLO 4.7, MLO 5.3, MLO 5.4, MLO 5.6, MLO 5.8, MLO 5.9, MLO 5.10, MLO 6.4, MLO 6.5, MLO 6.7, MLO 6.8, MLO 6.10, MLO 7.4, MLO 8.6, MLO 9.9, MLO 10.6, MLO 11.2, MLO 11.3, MLO 11.4, MLO 12.6, MLO 13.2, MLO 13.3, MLO 13.8, MLO 13.9, MLO 13.10, MLO 13.11, MLO 13.12, MLO 13.13, MLO 13.14, MLO 13.15, MLO 13.17, MLO 13.18, MLO 13.19
PLO6. Communicate effectively on complex issues that aim for behavioural change, interpreting and connecting complex challenges to diverse stakeholder, disciplinary and intercultural perspectives that encompass global and European citizenship.	MLO 1.2, MLO 1.3, MLO 1.4, MLO 1.6, MLO 1.8, MLO 2.1, MLO 2.2, MLO 2.5, MLO 2.8, MLO 2.9, MLO 2.10, MLO 4.8, MLO 5.3, MLO 5.9, MLO 6.10, MLO 7.1, MLO 7.4, MLO 8.6, MLO 8.7, MLO 9.9, MLO 12.8. MLO 13.5, MLO 13.10
PLO7. Acquire advanced competency within a range of transversal skills such as communication, teamwork, problem solving, creative thinking, innovation, entrepreneurship, digital skills and a life-long learning disposition.	MLO 1.1, MLO 1.2, MLO 1.3, MLO 1.4, MLO 1.5, MLO 1.7, MLO 2.9, MLO 3.5, MLO 3.7, MLO 4.7, MLO 4.8, MLO 5.5, MLO 5.8, MLO 5.9, MLO 5.10, MLO 6.2, MLO 6.4, MLO 6.7, MLO 6.8, MLO 6.10, MLO 8.6, MLO 8.9, MLO 9.9, MLO 11.6, MLO 12.4, MLO 12.8, MLO 13.12, MLO 13.1, MLO 13.2, MLO 13.3, MLO 13.4, MLO 13.6, MLO 13.11, MLO 13.14, MLO 13.17, MLO 13.18, MLO 13.19

6.ii Detailed Module Descriptors

a) Each Module must have its own designated Module Descriptor (in Template 1) and start from a new page.

Phase One	**Preparatory Phase**
Module 1	Social Innovation
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	1
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Jake Byrne – TCD Jasper van Vught – UU
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	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.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: • MLO 1.1: Critically evaluate and apply theories and concepts associated with creativity, innovation (social and traditional) and design/systems thinking. [PLO.2, PLO.6] • MLO 1.2: Distinguish between clarification, dialogue, argument, persuasion and other rhetorical modes and demonstrate presentation, pitching, negotiation, and coordination skills. [PLO.1, PLO.5, PLO.6] • MLO 1.3: Develop skills to work sensitively and professionally as peers and team members, demonstrating both empathy and leadership in the management and integration of diverse intercultural,

	interpersonal, intersocietal and inter/trans-disciplinary communication. [PLO.2, PLO.5, PLO.6] • MLO 1.4: Critically appraise the ways in which diverse forms of media (including language) and technologies (can) help to frame and analyse sustainability issues and communicate these issues to multiple audiences to raise awareness and (playfully) construct civic engagement. [PLO.2, PLO. 5, PLO.6] • MLO 1.5: Develop a broad professional skillset including project management, risk analysis, ethical market research, strategic planning, business modelling and horizon scanning to evidence and create solutions to address key societal challenges. [PLO.6] • MLO 1.6: Understand different methods for mobilising political, social and business action for sustainability transitions, drawing critically on knowledge and theories around societal changes and transformations from different sustainability perspectives, including gender, intercultural and religious ones [PLO.1, PLO.2] • MLO 1.7: Identify and reflect on what it means to have fixed versus growth mindsets, explain how they are developed, and how they can change over time. [PLO.2, PLO.6] • MLO 1.8: Identify and critically appraise the many ways in which (understandings of) sustainability issues and their consequences involve matters of socio-cultural identity construction and politics (including gender, ethnicity, religion, education, geo-politics and generations) and consider these matters when designing for and assessing methods for social action. [PLO. 1, PLO.2, PLO.4]
Module assessment, separate components and their weighting (%)	Continuous assessment (20%) Project assignment (30%) Group assignment (30%) Pitch (20%)
Module indicative content	The module will include workshops, lectures and seminars on: • Social innovation and intra/entrepreneurship o Design Thinking o Practice-Led Research o Change management o 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
Indicative reading list (5-7 items)	• Gray, D., Brown, S., & Macanufo, J. (2010). Gamestorming: A playbook for innovators, rulebreakers, and changemakers. "O'Reilly Media, Inc.". • Leonard, D. A., & Swap, W. C. (1999). When sparks fly: Harnessing the power of group creativity. Boston, MA: Harvard Business School Press. • Gladwell, M. (2006). The tipping point: How little things can make a big difference. Little, Brown. • Peredo, A. M., & McLean, M. (2006). Social entrepreneurship: A critical review of the concept. Journal of world business, 41(1), 56-65. • Brown, T. E., & Ulijn, J. M. (Eds.). (2004). Innovation, • entrepreneurship and culture: the interaction between technology, progress and economic growth. Edward Elgar Publishing. • Teece, D.J. (2010) 'Business Models, Business Strategy and Innovation', Long Range Planning, 43, p. 172-194. • Godin, S. (2006). Small is the new big: And 183 other riffs, rants, and remarkable business ideas. Penguin. • Parham, J. (2016). *Green Media and Popular Culture. An Introduction.* London: Palgrave Macmillan. • Lakoff, G. (2010). Why it matters how we frame the environment. *Environmental Communication 4*(1), 70-81.

	• Bendor, R. (2018). *Interactive Media for Sustainability*. Cham: Palgrave Macmillan. • Cameron, J., Hicks, J. (2014). Performative Research for a Climate Politics of Hope: Rethinking Geographic Scale, 'Impact' Scale, and Markets. *Antipode 46*(1): 53–71. • Fogg, B.J. (2003). Persuasive Technology. Using Computers to Change What We Think and Do. San Francisco: Morgan Kaufmann Publishers. • Light, Andrew. (2000). What Is an Ecological Identity? *Environmental Politics 9*(4): 59–81 • Hulme, M. (2009). Why We Disagree About Climate Change. Understanding Controversy, Inaction and Opportunity. New York: Cambridge University Press. • Garrard, G. (2004) *The Ecocriticism.* Routledge. • Glotfelty, C. & Fromm, H. (eds), (1996) *The Ecocriticism Reader. Landmarks in Literary Ecology* U of Georgia Press.

Phase One	**Preparatory Phase**
Module 2	Sustainability
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	1
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Carole-Anne Senit – UU Patricia Cucchi – UM
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	1. Critically discuss the concepts of sustainability and sustainable development as they are constructed and represented within multiple disciplines and by different societal actors. [PLO1, 5] 2. Acquire a systems perspective to analyse and evaluate complex sustainability challenges and develop inter- and transdisciplinary skills to design solutions for these challenges. [PLO2, 3, 4, 6]
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: • MLO 2.1: Operationalise and critically discuss the concepts of sustainability and sustainable development from different cultural, historical, inter- and transdisciplinary perspectives. [PLO1] • MLO 2.2: Understand different framings of the natural world and its relation to societies, and how these shape sustainability challenges. [PLO1] • MLO 2.3: Capture the complex interlinkages between different sustainability challenges from social, economic, environmental, (geo)political, legal and developmental perspectives. [PLO1, 2]

	• MLO 2.4: Analyse governance and legal regimes around different sustainability themes (sustainable development, climate, biodiversity, forests, etc.), and develop skills to assess their performance based on core values such as democracy, transparency, accountability, legitimacy, justice, equity, etc. [PLO2] • MLO 2.5: Recognise, explain and reflect upon the (current and historical) positions of and power dynamics between different actors that are involved in and affected by sustainability challenges. [PLO2] • MLO 2.6: Identify theories from various disciplines that explain how socio-ecological systems function and how humans are interconnected with nature. [PLO2,3,4] • MLO 2.7: Define the dynamics, causes and impacts of global environmental changes. [PLO2] • MLO 2.8: Identify theorical approaches (e.g. transitions, earth system governance, institutionalism, policy analysis) that help explain (the lack of) policy and behavioural change towards sustainability. [PLO2,3,5] • MLO 2.9: Develop knowledge and skills to analyse, evaluate and design proposals for viable solutions to sustainability challenges in a transdisciplinary manner, taking into account the impact on and care for the planet and different groups of people (including marginalized communities). [PLO2,5,6] • MLO 2.10: Acquire a systems and sustainability ethics perspective to study and address complex sustainability challenges, with appreciation for cross-sectoral and intercultural dynamics. [PLO5]
Module assessment, separate components and their weighting (%)	Continuous Assessment 50% (with pass/fail min. requirement) Project Assignment (Individual and/or groupwork) 50%
Module indicative content	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
Indicative reading list (5-7 items)	• Brundtland, G. H. (1987). Our Common Future—Call for Action. *Environmental Conservation*, *14*(4), 291-294. https://doi.org/10.1017/S0376892900016805 • UN. Transforming our world: the 2030 Agenda for Sustainable Development, United Nations, New York (2015) https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf • Kanie, N. and Biermann, F. (Eds.). (2017). *Governing through Goals: Sustainable Development Goals as Governance Innovation.* Cambridge, Mass.: MIT Press • Meadowcroft, J., Banister, D., Holden, E., Langhelle, O., Linnerud, K., & Gilpin, G. (Eds.). (2019). *What Next for Sustainable Development? Our Common Future at Thirty*. Edward Elgar Publishing. • Intergovernmental Panel on Climate Change (2019) Climate Change and Land. An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystem. Summary for Policymakers. https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM_Updated-Jan20.pdf

Phase One	**Preparatory Phase**
Module 3	Transdisciplinary Research
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	1
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Gabor Zemplén – ELTE Santiago Segui – UB
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	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.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: • MLO 3.1: Formulate the different steps in a research process, for example: problem statement, conceptual framework, literature review, analysis and critical reflection on research limitations with a clear understanding of responsible and ethical research. (PLO 1) • MLO 3.2: Describe, critically assess and apply quantitative and qualitative research methods through the design of a proposal

	for conducting quantitative and/or qualitative transdisciplinary research in a team (PLO 3) • MLO 3.3: Understand the methodological basis of data collection and which methods are most appropriate to a well-formulated research question including how to store, process and analyse data. (PLO 1, 3) • MLO 3.4: Investigate basics of complex systems theory, methodological problems of modeling Life and the living; emerging technologies of analysis (Big Data). (PLO 3, 4) • MLO 3.5: Understand basics of social processes, internal and external scientific communication. Identify obstacles to successful solution: individual and group biases (confirmation bias, groupthink, etc.), and factors influencing trust and consensus. Be familiar with potentials and limits of critical thinking/rational decision making. (PLO 5, 6) • MLO 3.6: Analyse and critically discuss the role of science and the way in which scientific results can be framed and used to the (dis)advantage of different stakeholders. (PLO 1, 2) • MLO 3.7: Compare and categorise the diverse ethical concerns (algorithmic bias, privacy, transparency, law, gender, environmental and social impacts of research) raised by data collection, analysis, interpretation and communication. (PLO 2, 6) • MLO 3.8: Apply concepts to evaluate the needed mix of academic and extra-academic actors throughout the entire research process, taking into account environmental and ethical concerns and legal issues. (PLO 2, 5)
Module assessment, separate components and their weighting (%)	Continuous Assessment 50% (with pass/fail min. requirement) Project Assignment (Individual and/or groupwork) 50%
Module indicative content	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.
Indicative reading list (5-7 items)	• Gelfert, Axel (2016). _How to Do Science with Models. A Philosophical Primer_. Springer. • Höttecke, D, Allchin, D. (2020) Reconceptualizing nature-of-science education in the age of social media. *Science Education*. 104: 641– 666. https://doi.org/10.1002/sce.21575 • Kevin C. Elliott, & Ted Richards. (2017). Exploring Inductive Risk - An Introduction. Oxford UP. DOI:10.1093/acprof:oso/9780190467715.003.0001 • Mercier, H., & Sperber, D. (2017). *The enigma of reason.* Harvard University Press. https://doi.org/10.4159/9780674977860 Part IV. What Reason Can and Cannot Do • Weaver, Warren (1948). Science and Complexity. *American Scientist* 36 (4):536-44.

Phase Two	Flexible Phase - Water
Module 1	Extremes in the Water Cycle and Their Complex Consequences
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	2
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Valérie Borrell – UM András Vadas – ELTE
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	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.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: • MLO 4.1: Recognise, describe, understand and analyse past and current extremes in the water cycle (water sciences basics, floods, droughts, trends); characterise global changes; assess its impact and interpret the associated uncertainties. [PLO.1] • MLO 4.2: Identify both the impacted communities as well as various stakeholders and understand their social-cultural contexts, motivations, action capacities, goals, and their complex interrelationships. [PLO.1, 2]

	• MLO 4.3: Know and understand both the impact of past surface water practices on nature and the international legislative and regulatory context. Analyse the effects on biology and ecology of the confrontation between this legacy and global changes. [PLO.4] • MLO 4.4: Identify complex challenges in extremes or natural hazards from a combination of different disciplinary and global perspectives. [PLO.2, 5] • MLO 4.5: Assess and critically discuss the effects of the global change and the vulnerability and resilience of complex socio-eco-hydro-systems. Evaluate the efficiency of hydrological infrastructures and nature restoration or preservation solutions and analyse their management principles in inter- and transdisciplinary ways [PLO.5] • MLO 4.6: Update their own knowledge: Review the state of the art on a social or scientific question related to changes in the water cycle and their impacts on Nature and human security (reports of international organization, last operational solutions…), be aware of their own limits and know when and how to call on experts to improve analysis and assessment of complex situations. [PLO.3] • MLO 4.7: Imagine, plan, model, build, play, present and debate complex scenarios for these complex socio-eco-hydro-systems, assess uncertainties in these systems, and identify the various (legal, political, social) frameworks within which interventions into these complex systems are and can be designed, integrating multiple points of view, in inter- and transdisciplinary (collaborative) ways. [PLO.5, PLO.6] • MLO 4.8: Communicate (orally and/or written) with different "social groups", professionals from different disciplines, stakeholders, kids and young people, with the goal of reaching the best achievable group result. [PLO.6] • MLO 4.9: Develop a critical capacity that allows for a consideration of inclusivity and equality during every step of identifying, analysing and proposing a solution for extreme water challenges (specifically focused on marginalized communities, gender roles, sexual orientation, ethnicity, religion, income, education, among others). [PLO.2]

Module assessment, separate components and their weighting (%)	Continuous Assessment 50% (with pass/fail min. requirement) Project Assignment (Individual and/or groupwork) 50%
Module indicative content	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)
Indicative reading list (5-7 items)	By the end of this module, students should be able to: • Read, understand and interpret reports of international organisations and to suggest ways to implement their recommendations in the field of the extremes (for example The Intergovernmental Panel on Climate Change (IPCC) reports available on https://www.ipcc.ch/) • Find and describe the latest operational solutions for the extremes or risks. (for ex. ALFIERI Lorenzo et al. 2018. A global network for operational flood risk reduction. Environmental science & policy p. 149-158 vol. 84) • Locate in the scientific literature specific advances (for example Bodnar et al. 2013. Whole Earth geohydrologic cycle, from the clouds to the core: The distribution of water in the dynamic Earth system. The Geological Society of America. Spe500-13)

Phase Two	**Flexible Phase - Water**
Module 2	Adaptation Measures and Strategies in Water Management
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	2
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Jose F. García – UB Ádám Tóth – ELTE
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	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.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: • MLO 5.1: Understand the water cycle, the vital role played by water in the maintenance of ecosystem services, how it has changed over time, and particularly how climate, human and economic activities alter in the past and present the water cycle in a globalised context. (PLO1,3) • MLO 5.2: Determine and analyse environmental indicators, such as physical, chemical and biological ones, and parameters of water supply for drinking and economic sectoral uses, as well as consider, assess and

	plan sustainable water treatment processes and re-use of water considering the natural water cycle. (PLO2,3,4) • MLO 5.3: Assess the implications of virtual water as a key concept for sustainable water management and implement techniques to calculate appropriate water footprints to provide policymakers, stakeholders and consumers with reliable information to make sustainable decisions in terms of equity, justice, culture, geopolitics and other social dimensions, as well as, environmental sustainability. (PLO1,2,5) • MLO 5.4: Integrate fundamental management and governance tools in the sustainable use of the world's water resources for various social groups, as well as aquatic and non-aquatic flora and fauna, and economic and commercial purposes. (PLO3,4,5) • MLO 5.5: Evaluate preliminary technical and economic feasibility, plan and design different management implementation projects for various purposes and use worldwide also considering their impacts on the multidimensional and interconnected nature of social categories and environment. (PLO2,3,4,6) • MLO 5.6: Analyse all environmental, social and institutional aspects needed to be considered when implementing a water management project including legal and regulatory issues, water rights and ownership, the public/private and central/regional/local decision trade-off, geopolitical aspects as well as, all dimensions of a person's social and political identities (e.g. gender, ethnic group, religion, class). (PLO2,5) • MLO 5.7: Demonstrate a critical capacity to distinguish Managed Aquifer Recharge (MAR) technique as a prospective and a higher priority solution that can increase groundwater storage, protect and improve water quality, and secure drought and emergency supplies for human, commercial and ecosystem use of water also considering their impacts on the multidimensional and interconnected nature of social categories, geopolitics and environment. (PLO1,4) • MLO 5.8: Present and explain the benefits and limitations of different adaptation projects to a broad range of professionals and non-professionals in written

	documentation of project proposals, executive reports and town planning, as well as digital communication through media and social network platforms. (PLO4,5,6) • MLO 5.9: Communicate with scientists, policymakers, stakeholders (communities, town planners, developers, water utilities and regulators), and other agents of society (including younger generations) talking a cross-language to promote acceptance and foster civic engagement in sustainable water management. (PLO3,5,6) • MLO 5.10: Recognise the water–food–life & health nexus and identify the role of water management strategies and measures in ecosystem sustainability, poverty reduction, gender equality, livelihood stability, agricultural systems, economic and health risk reduction, and thereby reaching equality in access to water. (PLO1,2,3,5,6)
Module assessment, separate components and their weighting (%)	Continuous assessment (50%) Project Assignment (Individual and/or groupwork) 50%
Module indicative content	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
Indicative reading list (5-7 items)	- W. Aeschbach-Hertig, T. Gleeson (2012): Regional strategies for the accelerating global problem of groundwater depletion. Nature Geoscience 5, 853–861. - J. J. Burke, M. H. Moench (2000): Groundwater and society: resources, tensions and opportunities. Themes in groundwater management for the twenty-first century. UN - K. Conca, E. Weinthal (ed) (2018): The Oxford Handbook of Water Politics and Policy. Oxford University Press - I. Gale (2005): Strategies for Managed Aquifer Recharge (MAR) in semi-arid areas. UNESCO IHP - D.E. Garrick, M. Hanemann, C. Hepburn (2020): Rethinking the economics of water: an assessment, Oxford Review of Economic Policy, Volume 36(1): 1-23 doi:10.1093/oxrep/grz035

	- M.M. Mekonnen, A.Y. Hoekstra (2011): National Water Footprint Accounts: The green, blue and grey water footprint of production and consumption. UNESCO IHP - B. Orlove, S.C. Caton (2010): Water sustainability: Anthropological Approaches and Prospects. Annual Review of Anthropology, 39(1): 401-415.

Phase Two	**Flexible Phase - Water**
Module 3	Resilient Cities: Water in Urban Environments
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	2
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Monica Serrano – UB Jasper van Vught – UU
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	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.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: • MLO 6.1: Analyse how human interference in the natural water cycle transformed historical ecosystems (through damming, pollution, extinction of species), recognise the potential risks of intensive urbanisation on water-tables (causing public health hazards, building and infrastructure damages) and question the adaptation of cities to future available water resources distinguishing other alternatives. [PLOs 1, 2, 3] • MLO 6.2: Assess the multisectoral and ecosystem water needs in metropolitan areas taking into account the sources of urban water supply worldwide. [PLOs 1, 2, 4, 6]

	• MLO 6.3: Realise the complex system of material and energy flows to and from cities (urban metabolism) and the need for increasingly integrated supply systems to cover the fresh water, food and energy needs of urban populations considering all aspects of a person's social and political identities as well as environmental impacts and international geopolitics. [PLOs 1, 3] • MLO 6.4: Consider and apply smart innovative techniques and adaptive management approach of water quality monitoring, water treatment and wastewater management in response to contaminant load from in-situ sanitation, sewer leakage, inadequate storage and handling of community and industrial chemicals, pharmaceutical and hormonal residues and disposal of liquid effluents and solid wastes. [PLOs 1, 2, 5, 6] • MLO 6.5: Analyse and critically adapt the ways past and present societies managed and manage complex water-systems, design integrated surface and groundwater management strategies to improve the resilience to water hazards, to reduce water stress and to promote welfare. [PLOs 2, 3, 5] • MLO 6.6: Know the legal framework, political and economic structure and social organisation related to complex water systems as well as integrate water in city development plans and national planning policy considering political and international relationships. [PLOs 2,3, 4] • MLO 6.7: Design protocols for managing water systems in urban environments while balancing population needs and available resources in a way that ensures adequate supply for local ecosystems and manages social repercussions. [PLOs 4, 5, 6] • MLO 6.8: Consider and debate innovative and smart water management strategies in urban environments, including smart cities and homes, from local households to the scale of megacities and promote the involvement and empowerment of the actors in managing these systems. [PLOs 4, 5, 6] • MLO 6.9: Understand the different dimensions of water security and inequalities in access to water in urban environments with special regard to potential

	implications to migrations to and from towns and rural and agrarian areas as well as climate change. [PLOs 1,2] • MLO 6.10: Effectively communicate with different actors and argue for or against water management of different scales including political actors, private investors, NGOs, and local societies and other social actors (younger generations, as well) and bridging the collaboration between society and researchers. [PLOs 1, 3, 5, 6]
Module assessment, separate components and their weighting (%)	Continuous Assessment 50% (with pass/fail min. requirement) Project Assignment (Individual and/or groupwork) 50%
Module indicative content	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
Indicative reading list (5-7 items)	- Castonguay, S., and Evenden, M., eds (2012). *Urban Rivers: Re-making Rivers, Cities and Space in Europe and North America*. Pittsburgh, PA: University of Pittsburgh Press, . - Domènech, L., March H., and Surí, D. (2013) "Degrowth initiatives in the urban water sector? A social multi-criteria evaluation of non-conventional water alternatives in Metropolitan Barcelona." *Journal of Cleaner Production* 8 : 44-55. doi:10.1016/j.clepro.2011.09.020 - Heynen, N. C., Kaika, M., and Swyngedouw, E., eds. (2005) *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. Abingdon: Routledge. - Karar, E., ed. (2017) Freshwater Governance for the 21st Century. Cham Springer International Publishing. - Paterson, W. et al. (2015) "Water footprint of Cities: A Review and Suggestions for Future research", *Sustainability*, 7 : 8461–8490. doi:10.3390/su7078461

Phase Two	**Flexible Phase – Life & Health**
Module 1	Health Systems and Policies
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	2
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Nathalie Chazal – UM Éva Orosz – ELTE
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	• To enable students to develop and apply effective bespoke health system strategies and approaches in the context of diverse health and disease management requirements. • Students acquire knowledge for analysing and assessing the functioning and performance of health systems and health policymaking. • 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.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: • MLO 7.1: Demonstrate an understanding of health outcomes and health system performance from multiple stakeholders' perspectives e.g. health service users (client outcomes) and providers e.g. knowledge users, researchers, policy makers. (PLO1, 3) • MLO 7.2: Discuss principles of clinical governance and adherence to clinical guidelines for creating and maintaining quality and safer healthcare delivery. (PLO 1)

	• MLO 7.3: Recognise the social, economic and cultural context and requirements of health policy-making processes as well as “health in all policies”. (PLO 3) • MLO 7.4: Collaborate and work with diverse groups of stakeholders and organisations at local, national and international levels. (PLO 5) • MLO 7.5: Explain the concept of *sustainability science* and its application for challenges in health systems, taking into account (the linkages between) the well-being of socio-economic and natural systems. (PLO 1) • MLO 7.6: Critically discuss and apply knowledge translation for bridging the gap between research developments, clinical practice and health policy. (PLO3) • MLO 7.7: Demonstrate knowledge on the hierarchy of evidence and apply it in analysing health care, practice, and policy. (PLO 3, 2) • MLO 7.8: Recognise and explain individual, community and societal level needs when analysing health services as well as health systems thereby contributing to develop interventions and methods required for a well-functioning and resilient health systems (ensuring universal health coverage and equal access to quality healthcare). (PLO2, 3) • MLO 7.9: Design solutions for health system challenges in collaboration with individuals and groups from different domains, reconciling different views, values and interests. (PLO 2) • MLO 7.10: Discuss ethical considerations in health system challenges, taking into account (the quality of) human and non-human life from different cultural, religious, gender, economic and political perspectives. (PLO 1, 2) • MLO 7.11: Recognise and explain the relationships between long-term economic development, well-being, health status and health systems. (PLO 3) • MLO 7.12: Understand how communication, including (mass) media, can play a role in addressing health system challenges and patient-public involvement. (PLO 3)

Module assessment, separate components and their weighting (%)	Continuous Assessment 50% (with pass/fail min. requirement) Project Assignment (Individual and/or groupwork) 50%
Module indicative content	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
Indicative reading list	Figueras J and McKee M (eds.) (2012) Health Systems, Health, Wealth and Societal Well-being. Assessing the case for investing in health systems. Open University Press https://www.euro.who.int/en/about-us/partners/observatory/publications/studies/health-systems,-health,-wealth-and-societal-well-being.-assessing-the-case-for-investing-in-health-systems-2011 OECD (2019), Health for Everyone?: Social Inequalities in Health and Health Systems, OECD Health Policy Studies, OECD Publishing, Paris, https://doi.org/10.1787/3c8385d0-en WHO(2015) People-centred and integrated health services: an overview of the evidence. Interim report. WHO Press, Geneva https://apps.who.int/iris/bitstream/handle/10665/155004/WHO_HIS_SDS_2015.7_eng.pdf?sequence=1 Kimmo Leppo, Eeva Ollila, Sebastián Peña, Matthias Wismar, Sarah Cook (eds.) (2013) Health in All Policies Seizing opportunities, implementing policies. Ministry of Social Affairs and Health, Finland https://www.euro.who.int/__data/assets/pdf_file/0007/188809/Health-in-All-Policies-final.pdf Kutzin, J. (2010) Conceptual framework for analysing health financing systems and the effects of reforms. In: Kutzin, J., Cashin, C. and Jakab, M. (eds) *Implementing Health Financing Reform Lessons from Countries in Transition.* (Chapter 1. pp.3-

	24) European Observatory on Health Systems and Policies. http://www.euro.who.int/en/about-us/partners/observatory/studies Papanicolas I and Smith PC (eds) (2013) Health system performance comparison: An agenda for policy, information and research. Open University Press https://www.euro.who.int/__data/assets/pdf_file/0009/244836/Health-System-Performance-Comparison.pdf

Phase Two	**Flexible Phase – Life & Health**
Module 2	Health Challenges
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	2
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Quique Bassat – UB Niels Bovenschen – UU
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	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. To translate into innovative solutions for a specific challenge towards achieving health benefit for all.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: MLO 8.1: Explain the most important concepts and theories of the study subject, including the pathophysiology, prevention, diagnosis and treatment and management of the most prevalent (higher burden of disease and mortality) communicable (infectious) and non-communicable diseases, as well as their risk factors. (PLO 3) MLO 8.2: Explain the importance of globalisation and environmental degradation in the emergence of pathologies through linking ecology, health problems, and urban health. (PLO 1, 3)

	MLO 8.3: Analyse the principles of evidence-based translational medicine from bench to bedside and society, and back. (PLO 3) MLO 8.4: Critically discuss and utilise new technological developments and systems approaches in the long-term interest of health and well-being of societies and ecosystems. (PLO 3, 4) MLO 8.5: Demonstrate comprehensive and critical awareness of health challenges and their interconnection with One Health and Environmental & Planetary Health, including ethical approaches, personalized disease management, and societal needs. (PLO 1, 2) MLO 8.6: Design solutions to health challenges in transdisciplinary collaboration with stakeholders from different domains, disciplines, and social groups (e.g. scientist-medical specialist-patient-society-industry-policymakers). (PLO 2, 5, 6) MLO 8.7: Frame hypotheses/challenges based on current literature and cutting-edge data to identify the appropriate methodology, execute the proposed work in the field, interpret results and draw conclusions and communicate results to stakeholders and society (both written and orally). (PLO 2, 3) MLO 8.8: Analyse and critically discuss the concept of sustainability in addressing health problems, taking account of ethical considerations around (the quality of) human and non-human life from different social, economic, cultural and environmental perspectives. (PLO 1) MLO 8.9: Develop and translate cross-sectoral, context-specific strategies/interventions back and forth within the continuum of fundamental science to pharmaceutical industry, policymaking, and social, economic, cultural and environmental determinants of health problems. (PLO 2, 6)
Module assessment, separate components and their weighting (%)	Continuous Assessment 50% (with pass/fail min. requirement) Project Assignment (Individual and/or groupwork) 50%
Module indicative content	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
Indicative reading list	Battaglia M, Albani S, Prakken B, Rosenblum ND. Front Med (Lausanne). (2020) Editorial: The Silent Cry: How to Turn Translational Medicine Towards Patients and Unmet Medical Needs. 4;7:69. Drost RH, Dictus WJAG, Prakken BJ, Bovenschen N.Nat Biotechnol. (2019) How a four-year-old boy connects healthcare, biomedical research and undergraduate education. ;37(9):1092-1095.

Phase Two	**Flexible Phase – Life & Health**
Module 3	Healthy Lives and Wellbeing
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	2
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Avelina Tortosa – UB Katalin Felvinczi – ELTE
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	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. 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. 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.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: • MLO 9.1: Explain the most important concepts and theories of the study subject from a biological and medical perspectives. [PLO.3]

	• MLO 9.2: Identify and analyse social, economic, cultural and environmental determinants of health and health inequalities. [PLO.1] • MLO 9.3: Describe healthy lifestyles and their common risk factors and how they are influenced by a person's social and political identity such as gender, ethnicity, race, socio-economic class and religion. [PLO.1] • MLO 9.4: Explain the most important concepts and theories on a life course approach to health while framing interventions. [PLO.3] • MLO 9.5: Identify evidence-based practices in developing interventions aimed at improving individual and community health. [PLO.3] • MLO 9.6: Explain different perspectives regarding sustainability in life and health and apply sustainable practices for healthy lifestyles and health promoting living- and working environments. [PLO.1] • MLO 9.7: Analyse health status trends (e.g. life expectancy, avoidable mortality, etc.) and key public health issues (e.g., obesity, addictions, etc.) – under varying social, economic, and cultural dimensions. [PLO.1, PLO.3] • MLO 9.8: Frame hypotheses based on scientific literature, execute methodologies, interpret results, draw conclusions and communicate results for addressing challenges in maintaining healthy lifestyles and wellbeing [PLO.2, PLO.3] • MLO 9.9: Design solutions for maintaining healthy lifestyles in transdisciplinary collaboration with stakeholders from different domains, disciplines, and social groups. [PLO.2, PLO.5, PLO.6] • MLO 9.10: Explain the role of communication, including (mass) media, in improving healthy lifestyles and wellbeing. [PLO.3]
Module assessment, separate components and their weighting (%)	Continuous Assessment 50% (with pass/fail min. requirement) Project Assignment (Individual and/or groupwork) 50%
Module indicative content	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
Indicative Reading List	Health determinants. https://www.euro.who.int/en/health-topics/health-determinants Shan Qiao, Yanping Jiang, Xiaoming Li. (2020) The Impact of Health Promotion Interventions on Telomere Length: A Systematic Review. Amm J Health Prom, 34(6):633-647. https://doi.org/10.1177/0890117120906958. Figueras J and McKee M (eds.) (2012) Health Systems, Health, Wealth and Societal Well-being. Assessing the case for investing in health systems. Open University Press https://www.euro.who.int/en/about-us/partners/observatory/publications/studies/health-systems,-health,-wealth-and-societal-well-being.-assessing-the-case-for-investing-in-health-systems-2011

Phase Two	**Flexible Phase – Food**
Module 1	The Food-Health-Environment Nexus
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	2
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Sinéad Corr – TCD Cristina Andres Lacueva – UB
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	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.
Module learning outcomes [please map to PLOs i.e. have	On successful completion of the module students should be able to:

connected PLO(s) in brackets after each MLO]	• MLO 10.1: Analyse the importance of diet in maintaining health and the impact of diet on diseases, including an appreciation of the multifaceted dimension of undernutrition and obesity. [PLO 3] • MLO 10.2: Define the environmental, social and health challenges (local and global) of food production, consumption and waste in terms of equity, justice, gender, different dimensions of sustainability, culture, geopolitics and other relevant dimensions. [PLO 1, 2] • MLO 10.3: Articulate a critical awareness of the changes in nutritional requirements throughout the life cycle of individuals and on how traditional and current discourses (including media) influence nutrition and dietary patterns (taking into consideration the impact of gender, culture, age, lifestyle etc.). [PLO 2, 3] • MLO 10.4: Analyse how and why food is produced, prepared, narrated and consumed, taking into consideration the impacts of gastronomy, gender, age, lifestyle, religion and culture on dietary choices, and the subsequent impact on health. [PLO 2, 3] • MLO 10.5: Assess the role of biotechnology in the future of sustainable food consumption and dietary health, including the societal, economic and environmental implications thereof. [PLO 1, 3] • MLO 10.6: Critically discuss key research and evaluate the different dimensions and causes of food inequality and insecurity from a variety of disciplines and from socio-ecological and socio-economic systems perspectives, taking into account nexus between water, food, waste, energy, biodiversity, climate, health, poverty, etc. [PLO 2, 3, 5] • MLO 10.7: Assess how (decisions around) the use of and access to water, energy and other (natural) resources are interconnected and impact food security from global to local levels. [PLO3, PLO4]
Module assessment, separate components and their weighting (%)	Continuous Assessment 50% (with pass/fail min. requirement) Project Assignment (Individual and/or groupwork) 50%
Module indicative content	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
Indicative reading list (5-7 items)	Flammini, A., Puri, M., Pluschke, L., Dubois, O. (2014). Walking the Nexus Talk: Assessing the Water-Energy-Food Nexus in the Context of the Sustainable Energy for All Initiative. Environment and Natural Resources Working Paper No. 58 – FAO, Rome, 2014 Editors: Selamat, Jinap, Iqbal, Shahzad Zafar, Springer, (2016) Food Safety: Basic Concepts, Recent Issues, and Future Challenges, Cirkovic Velickovic, Tanja, Gavrovic-Jankulovic, Marija, (2014) Food Allergens: Biochemistry and Molecular Nutrition, Springer. Julie M. Parsons, (2015) Gender, *Class and Food. Families, Bodies and Health*. Palgrave Mc Millan. Paul Fieldhouse,(2017) *Food Feasts and Faith. An Encyclopaedia of Food Culture in World Religions*, Clio, Sta. Barbara.

	Christine A. Hastorf, (2017) *The Social Archaeology of Food. Thinking about Eating from Prehistory to the Present*, Cambridge U. Press. Maye, E. (2018) The Mind-Gut Connection: How the Hidden Conversation Within Our Bodies Impacts Our Mood, Our Choices, and Our Overall Health Reynolds, C., Soma T., Spring, C. & Lazell, J. (2020). The Routledge Handbook of Food Waste. London: Routledge. Coveney, H. (2007) (2nd Edition) Food Morals and meaning: The pleasure and anxiety of eating. London: Routledge. Scrinis, G. (2015). Nutritionism: The Science and Politics of Dietary Advice. New York: Cambridge University Press. Gard, M. (2011). The End of the Obesity Epidemic. London: Routledge

Phase Two	Flexible Phase – Food
Module 2	Food Systems and their Transformations
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	2
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Viktor G. Mihucz – ELTE Clément Bonnet – UM
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	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.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in	On successful completion of the module students should be able to:

brackets after each MLO]	• MLO 11.1: Recognise, explain and reflect upon the positions of different actors that influence or are affected by food insecurity and that play a role in food systems. [PLO2] • MLO 11.2: Apply tools that help characterize food systems and evaluate them using various criteria, taking account of different dimensions of sustainability, democratic values, justice, equity, human rights, and other relevant dimensions. [PLO 3, 4, 5] • MLO 11.3: Critically discuss and evaluate the (un)sustainability of global supply chains of agri-food systems and demonstrate the connection between these, sectoral interrelationships and international interdependencies. [PLO 1, 2, 5] • MLO 11.4: Recognise, explain and reflect on how food systems components work and interact, including the (positions and power dynamics of) actors therein, and how these components influence sustainability at different levels. [PLO 1, 2, 5] • MLO 11.5: Investigate the global and local impacts of food systems across borders, including the effects of food consumption in one location on sustainability challenges elsewhere [PLO2, PLO4] • MLO 11.6: Define the different paradigms to view and design food-related sustainability transformations to address environmental degradation and nutritional concerns related to food production, overconsumption, unequal distribution of food, food and nutrition insecurity. [PLO 2, 6] • MLO 11.7: Differentiate between the different cultural, political and (inter)disciplinary framings of food systems and food-related sustainability challenges and explain how they relate to issues like gender, human rights, education, identity, ethics, religion sovereignty, perspectives on the environment. [PLO1]
Module assessment, separate components and their weighting (%)	Continuous assessment (50%) Project assignment (50%)
Module indicative content	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
Indicative reading list (5-7 items)	Bastos-Lima, M.G., Persson, U.M., Meyfroidt, P. (2019) Leakage and boosting effects in environmental governance: A framework for analysis. Environmental Research Letters https://doi.org/10.1088/1748-9326/ab4551 Bazilian, M., Rogner, H., Howells, M., Hermann, S., Arent, D., Gielen, D., Steduto, P., Mueller, A., Komor, P., Tol, R.S.J., Yumkella, K.K. (2011). Considering the energy, water and food nexus: Towards an integrated modelling approach. Energy Policy, 39(12), 7896-7906 HLPE reports number 12 (food systems), 10 (sustainable agricultural development), 14 (agroecology). accessible in all 6 UN languages at http://www.fao.org/cfs/cfs-hlpe/reports/en/ Caron P, Ferrero y de Loma-Osorio G, Nabarro D, Hainzelin E, Guillou M, Andersen I, Arnold T, Astralaga M, Beukeboom M, Bickersteth S, Bwalya M, Caballero P, Campbell B M, Divine N, Fan S, Frick M, Friis A, Gallagher M, Halkin J P, Hanson C, Lasbennes F, Ribera T, Rockstrom J, Schuepbach M, Steer A, Tutwiler A, Verburg G (2018) Food systems for sustainable development: proposals for a profound four-part transformation, Agronomy for Sustainable Development, 38(4): 12 p. DOI: 10.1007/s13593-018-0519-1 Editors: Clayton Campanhola and Shivaji Pandey, (2019) Sustainable Food and Agriculture - An Integrated Approach, Elsevier.

	Diana Mata Codesal; Maria Abranches (ed.) (2019), *Food Parcels in International Migration*, Palgrave McMillan. Jakob Klein, Anne Murcott (ed.) (2014), *Food Consumption in Global Perspective*, Palgrave McMIllan. World Development. (1981) Volume 117. Special Issue on Food Security and Violent Conflict WHO. International Code of marketing of Breast-milk Substitutes. Geneva: World Health Organization. Sobel H, et al. (2011) Is unimpeded marketing for breast milk substitutes responsible for the decline in breastfeeding in the Philippines? Social Science and Medicine. 73:1445-8. Brady J. (2012) Marketing breast milk substitutes: problems and perils throughout the world. Archives of Diseases in Childhood, 97:529-32. Bureau for Appraisal of Social Impacts for Citizen Information (BASIC) (2015) Banana value chains in Europe and the consequences of Unfair Trading Practices. https://www.bananalink.org.uk/wp-content/uploads/2019/04/Banana-value-chains-in-Europe-and-the-consequences-of-Unfair-Trading-Practices.pdf

Phase Two	Flexible Phase – Food
Module 3	Socially Just and Sustainable Food Systems
Module code and mode of delivery	tbd
Module ECTS Weighting	10
Semester of delivery	2
Module Contact Hours	Lectures/Seminars/ Workshops 22 Tutorials 11 Study/Self study 85 Assignment preparation 68 Project Work 53 Mentoring 11
Module Coordinator	Marjanneke Vijge – UU Montserrat Camps Gaset – UB
Module teaching staff and academic titles	Teaching will be delivered from a pool of Knowledge Creation Team members. See Table 2 above.
Module learning aims	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: 1. (Co-)design and monitor research and policy/social actions to promote socially just and sustainable food systems transformations.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: • MLO 12.1: Describe the need for cross-sectoral sustainability considerations and integrated approaches to food system policies and practices, building on knowledge about different food nexus and food systems. [PLO 1, 2, 3] • MLO 12.2: From an inter- and transdisciplinary perspective, critically appraise the governance systems that seek to promote socially just and sustainable food systems and

	address food sustainability and security at local, national and international levels [PLO 1, 2] • MLO 12.3: Identify pathways, policies and actions to mitigate global and systemic planetary crises through socially just and sustainable food system transformations. [PLO 1, 2, 3] • MLO 12.4: Appraise and apply models and methods to (re)design policies and actions that advance robust, sustainable and socially just food systems in collaboration with different academic and extra-academic actors. [PLO 6] • MLO 12.5: Investigate, evaluate and design interventions for sustainable food systems in a transdisciplinary manner while taking account of the views and impacts on different dimensions of sustainability. [PLO 1, 2, 3] • MLO 12.6: Evaluate different solutions to sustainability challenges related to food production and consumption, including social movements, policies, market mechanisms and business innovations. [PLO 1, 2, 5] • MLO 12.7: Evaluate the role of innovation (the future of) sustainable, healthy, secure and socially just food systems, taking into account the societal, economic and environmental implications thereof. [PLO 1, 3] • MLO 12.8: Communicate about policies and actions to address food-related sustainability challenges, including the appraisal and design of educational programmes that support sustainable and healthy food production and consumption. [PLO 6]
Module assessment, separate components and their weighting (%)	Continuous assessment (50%) Project assignment (50%)
Module indicative content	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).
Indicative reading list (5-7 items)	Boas, I., Biermann, F., Kanie, N. (2016). Cross-sectoral strategies in global sustainability governance: towards a nexus approach. International Environmental Agreements: Politics, Law and Economics, 16(3), 449-464. Weitz, N., Strambo, C., Kemp-Benedict, E., & Nilsson, M. (2017). Closing the governance gaps in the water-energy-food nexus: Insights from integrative governance. *Global Environmental Change*, *45*, 165-173. Oberlack, C., Boillat, S., Brönnimann, S., Gerber, J. D., Heinimann, A., Speranza, C. I., ... & Wiesmann, U. (2018). Polycentric governance in telecoupled resource systems. *Ecology and Society*, *23*(1). HLPE reports number 12 (food systems), 14 (agroecology), 4 (social safety net), 6 (small scale farmers). accessible in all 6 UN languages at http://www.fao.org/cfs/cfs-hlpe/reports/en/ Paul Collinson, Helen Macbeth (ed.) (2014)*, Food in Zones of Conflict. Cross-disciplinary perspectives*, Berghahnbooks Djemila Zeneidi, (2017) *Gender, Temporary Work and Migration Management. Global Food and Utilitarian Migration in Huelva, Spain*. Palgrave McMillan 2017 (original in French, PUF, Paris 2013). Morgan, K. & Sonnino, R. (2010). The urban foodscape: world cities and the new food equation. *Cambridge Journal of Regions,*

	Economy and Society, Cambridge Political Economy Society, vol. 3(2), pages 209-224.

Phase Three	Capstone
Module 1	Capstone Project
Module code and mode of delivery	tbd
Module ECTS Weighting	30
Semester of delivery	3
Module Contact Hours	Lectures/Seminars/ Workshops 22 Project Work 700 Mentoring 28
Module Coordinator	tbd
Module teaching staff and academic titles	Patricia Cucchi – UM Marjanneke Vijge – UU Jake Byrne – TCD Núria Casamitjana – UB José Jesús Reyes Nuñez – ELTE
Module learning aims	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.
Module learning outcomes [please map to PLOs i.e. have connected PLO(s) in brackets after each MLO]	On successful completion of the module students should be able to: • MLO 13.1. Further develop communication skills and demonstrate those skills sensitively and professionally in teamwork, presentation, pitching, negotiation and coordination. [PLO.5, 6] • MLO 13.2. Develop and demonstrate self-awareness of personal leadership style in the collaboration within an inter/transdisciplinary team. [PLO.5, 6] • MLO 13.3. Demonstrate a creative mindset by designing new concepts / solutions for sustainability challenges. [PLO.2, 6]

	• MLO 13.4. Demonstrate expertise in the identification and application of the latest technological tools to source, analyse, handle, use and communicate complex bodies of data ethically. [PLO.4] • MLO 13.5. Reflect on how the challenge can have a personal impact on the student. [PLO.6] • MLO 13.6. Analyse individual, societal and ecological needs and explore opportunities for solutions within a societal, scientific, economic context. [PLO.1, 2, 3] • MLO 13.7. Describe and critically appraise a real-world sustainability challenge from various disciplinary perspectives to determine and frame the challenge. [PLO.2, 3, 5] • MLO 13.8. Outline different disciplinary approaches, intercultural perspectives, and their interrelationships to identify (e.g. social, cultural, political, economic) actors involved in and affected by the challenge. [PLO.1, 2, 3, 5] • MLO 13.9. Identify and execute methodologies, analyse data and synthesize information to understand the challenge and areas for innovation, relevant for addressing the challenge. [PLO.1, 2, 3, 4, 5] • MLO 13.10. Articulate and develop sustainable and ethical solution prototypes to a complex societal challenge, as part of a transdisciplinary team, while considering the needs and perspectives of multiple stakeholders and disciplines [PLO.1, 2, 3, 5, 6] • MLO 13.11. Implement and monitor sustainable and ethical solution prototypes and validate in collaboration with extra-academic actors the solution based on its value for the planet and different groups of people. [PLO.1, 3, 4, 5, 6] • MLO 13.12. Critically reflect on one solution from the validated prototypes and design it. [PLO.3, 4, 5] • MLO 13.13. Formulate a systematic and holistic implementation plan for the sustainable and ethical solution within the environment of the extra-academic actors. [PLO.4, 5, 6]

	• MLO 13.14. Implement, monitor and critically evaluate the solution for the identified challenge, using appropriate (technological) tools and combining various disciplinary perspectives. [PLO.3, 4, 6] • MLO 13.15. Effectively communicate the inter- and transdisciplinary research results and developed solution to a diverse (academic and non-academic) audience through identification and use of the most appropriate media/technological tools/resources. [PLO.4, 5, 6] • MLO 13.16. Critically reflect on the individual and collaborative learning process, personal and professional developments and results of implementation. [PLO.5, 6]
Module assessment, separate components and their weighting (%)	• Team Track: 40% - Project Assignment: 20% - Continuous Assessment: 20% • Individual Track: 60% - Project Assignment: 30% - Continuous Assessment: 30%
Module indicative content	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
Indicative reading list (5-7 items)	Depending on the challenge chosen, students will utilise readings and knowledge banks e.g. websites, policy reports, data etc. identified through connection with the team of relevant experts within the Core and Expanded KCT.

6.iii Letters from Head(s) of School to support use of shared modules and service teaching

This is a TCD specific item. To be confirmed September 2020.

6.iv Letters from Heads of external institutions to provide service teaching (both academic and non-academic)

Please refer to the Consortium Addendum for full details.

6.v Letters of support from industry partners for placement/internship purposes

Letters from Associate Partners supporting CHARM-EU are available upon request. These include:

- Irish Universities Association Sinéad Lucey. Head of International Affairs and External Engagement.
- Accenture. The Dock. Ryan Shanks. Managing Director.
- Ricoh Europe PLC P.R. Nanninga. SVP Sales and Marketing
- ANECA José Arnáez Vadillo. Director
- Hochschule Ruhr West of Applied Science, University Prof. Dr.-Ing. Susanne Staude, President commissioned by the state
- AQU Dr. Martí Casadesús Fa. Director
- Coimbra Group ASBL Prof. Ludovic Thilly. Executive Board Chair
- CILcare Celia Belline. CEO
- Hungarian Meteorological Service Dr. Kornélia Radics. President
- Richter Gedeon Plc Erik Bogsch. Chairman
- Unimed Marcello Scalisi. Director
- AGBAR Maria Monzó Llopis. Directora

Supporting institutions

- National Agency, Quality Qualifications Ireland (QQI), Dr. Padraig Walsh, Chief Executive.
- Ministry of Education, Culture and Science, Jantina Walraven, Head of Department Higher Education.
- Ministerio de Ciencia, Innovación y Universidades José Manuel Pingarrón Carrazón, Secretario General de Universidades.

6.vi A list of CVs academic and non-academic staff providing service teaching
(A CV of max 2 pages in length)

The CVs of external non-academic staff providing service teaching have been appended below.

These are shared as a separate attachment.

6.vii *Calendar* Part 3 entry for the academic year 2021/22

Programme	Master of Science in Global Challenges for Sustainability
School	To be confirmed in September 2020
Award/exit award	Master of Science in Global Challenges for Sustainability
Admission Regulations	Admission to the course is selective. There is a maximum capacity. The candidates will be ranked on a scale of 100 points. General requirements: • At least a Bachelor's degree or recognised equivalent to a Bachelor's degree for CHARM-EU Admissions Board. In the case of students with a French Licence they will need an additional 30 EC for admission. This is subject to changes in French legal requirements. • English language certification is necessary for programme admission. C1 is the required level. Students with B2 level will be considered in conjunction with other admission criteria but must attain C1 level before programme registration. The Joint Virtual Administrative Office will check the requirements with the documentation of the application. The applicants will be ranked according to the following criteria. An evaluation rubric will be used to ensure maximum objectivity. The criteria include four categories: The applicants will be ranked according to the following criteria. The criteria include four categories: Academic Excellence (10 points) Points for academic excellence are based on a graduated scale, with the top 10% of students receiving 10 points, students within 10% and 25% receiving 5 points, 25% to 33% one point, and the remaining applicants receive no points. Scoring below 33% does not exclude the candidate for consideration in the other criteria. This is to facilitate inclusiveness. General Academic Competencies (40 points) Critical thinking Analytical writing Verbal reasoning Visual presentation This will be assessed through an essay and a video presentation recorded by the student answering three/four predetermined questions and if needed,

	by a personal interview. This will substitute the motivation letter. If a student has inclusivity requirements to provide a video presentation, the Admission Board will advise on an alternative solution. Students will be assessed by at least two different institutions. Personal Competencies (40 points) Intercultural competence Oral communication Civic engagement Commitment to the programme Motivation for programme entry This will be assessed via their curriculum vitae and previous academic experience, an essay, a video recorded by the student answering three/four predetermined questions and if needed, by a personal interview. Students will be assessed by at least two members of the Admissions Board from two different institutions. Inclusion (10 points) In order to ensure access and inclusion, students of under-represented communities can obtain 10 additional points. The prospective students will be given the opportunity to self-disclose about their circumstances in the application form. As the programme needs to be as diverse and multidisciplinary as possible, students will be classified according to their discipline and geographical European area. Other countries will be considered as one area. This will be used to rank the students. The admission list will be built starting with the first of each discipline and each country, and then the second, and so on.	
Mode of Delivery and Duration	1 Year Full time 2 Years Part time The Master's is completed in 18-months, but students can choose an intensive 12-month track. Students will decide on which track they wish to take during registration.	Blended The percentage of online to face to face (on-campus) teaching will vary depending on the module.
Course Structure	This Master's carries 90 ECTS of which 30 ECTS are three compulsory preparatory modules on sustainability, transdisciplinarity and social innovation; three 30 ECTS flexible modules which are selected by students from a pool of nine modules within Water, Food and Life and Health; and one 30 ECTS module from a challenge based Capstone. Students must complete a total of 7 modules.	

Assessment and Progression	Students must complete a range of assessment approaches including continuous assessment, and group and individual project assessment. The pass mark is 50%
URL Handbook	To be confirmed
Course Director **Course Coordinator (if appropriate)**	To be confirmed in September 2020

6.viii *Prospectus* entry for the academic year 2021/22

Course:

Duration: Students can select two durations to complete the full time Master's; 18 month or 12 months.

Closing Date Details: EU 04/01/2021; Non-EU 05/01/2021

Course Director: To be confirmed in September 2020.

Course Administrator: To be confirmed in September 2020.

Course Email: To be confirmed in September 2020.

Contact Tel: To be confirmed in September 2020.

Next Intake: September 2021

Course information: www.tcd.ie/courses/postgraduate/az

Course details:

The Master's in Global Challenges for Sustainability, commencing in 2021, is aimed at graduates of any discipline seeking to acquire advanced knowledge of sustainability by addressing global societal challenges (e.g. SDGs and Green Deal), developing challenge analysis skills, and extending their capabilities to address and develop solutions for complex problems. Delivered full-time over 18 months with the option of an accelerated 12 month programme, the 90 ECTS Master's is comprised of 30 ECTS Preparatory Phase modules on sustainability, social innovation and transdisciplinary research; 30 ECTS Flexible Phase transdisciplinary modules related to Water, Food or Life and Health; and a 30 ECTS Capstone on a sustainability challenge in collaboration with extra academic actors (i.e. business, community and society). This overall structure will attract high quality graduates from diverse relevant backgrounds who intend to work in sustainable policy and communication roles, social innovation and action either within existing companies (intrapreneurship) or via generation of new enterprises (entrepreneurship), and academic research in this area.

Admission Requirements:

Admission to the course is selective. There is a maximum capacity. The candidates will be ranked on a scale of 100 points.

General requirements:

• At least a Bachelor's degree or recognised equivalent to a Bachelor's degree for CHARM-EU Admissions Board. In the case of students with a French Licence they will need an additional 30 EC for admission. This is subject to changes in French legal requirements.

• English language certification is necessary for programme admission. C1 is the required level. Students with B2 level will be considered in conjunction with other admission criteria but must attain C1 level before programme registration.

The Joint Virtual Administrative Office will check the requirements with the documentation of the application. The applicants will be ranked according to the following criteria. An evaluation rubric will be used to ensure maximum objectivity. The criteria include four categories:

The applicants will be ranked according to the following criteria. The criteria include four categories:

Academic Excellence (10 points)
Points for academic excellence are based on a graduated scale, with the top 10% of students receiving 10 points, students within 10% and 25% receiving 5 points, 25% to 33% one point, and the remaining applicants receive no points. Scoring below 33% does not exclude the candidate for consideration in the other criteria. This is to facilitate inclusiveness.

General Academic Competencies (40 points)
Critical thinking
Analytical writing
Verbal reasoning
Visual presentation

This will be assessed through an essay and a video presentation recorded by the student answering three/four predetermined questions and if needed, by a personal interview. This will substitute the motivation letter. If a student has inclusivity requirements to provide a video presentation, the Admission Board will advise on an alternative solution. Students will be assessed by at least two different institutions.

Personal Competencies (40 points)
Intercultural competence
Oral communication
Civic engagement
Commitment to the programme
Motivation for programme entry

This will be assessed via their curriculum vitae and previous academic experience, an essay, a video recorded by the student answering three/four predetermined questions and if needed, by a personal interview. Students will be assessed by at least two members of the Admissions Board from two different institutions.

Inclusion (10 points)
In order to ensure access and inclusion, students of under-represented communities can obtain 10 additional points. The prospective students will be given the opportunity to self-disclose about their circumstances in the application form.

As the programme needs to be as diverse and multidisciplinary as possible, students will be classified according to their discipline and geographical European area. Other countries will be considered as one area. This will be used to rank the students. The admission list will be built starting with the first of each discipline and each country, and then the second, and so on.

How to Apply:

All the relevant information about the programme such as admission requirements and procedures, course catalogue, mobility, fees, examination and assessment procedures will be published on the CHARM-EU web site (http://www.charm-eu.eu) among other promotional channels (Twitter, Instagram, and Facebook). The websites of the partner universities will also publish it among their offerings, linking to the information published in CHARM. The Admissions Board will seek representativeness of home university, gender, race, ability (whenever possible).

The student will send:

- The bachelor's award
- The academic certificate
- A video and essay answering predetermined questions
- A C.V.

In order to apply the student will access to the application system through CHARM-EU web site. The Academic Board will agree the closing date for receipt of applications to the joint Master's Programme (April 1st for non-EU applicants and May for EU applicants).

6.ix Financing sheet approved by Faculty Dean

Financial Inputs re New Course/Activity to be reviewed by Finance Partner			
Forecasted Student Numbers	**Forecast 1**	**Forecast 2**	**Forecast 3**
EU	90	45	23
Non-EU	10	5	2
Grants	15	2	1
Fees			
Fee per EU Student	3.000	3.000	3.000
Fee per Non-EU Student	19.000	19.000	19.000
TOTAL INCOME	**460.000**	**230.000**	**107.000**
Direct Costs			
Cost of the grants	**78.000**	**10.400**	**5.200**
Grants for fees (amount equivalent to students)	45.000	6.000	3.000
Travel cost equivalent to the granted students	33.000	4.400	2.200
Academic staff cost: Total [1]	**321.651**	**200.515**	**146.718**
Academic staff UB	46.170	28.782	21.060
Academic Staff TCD	86.355	53.833	39.390
Academic Staff UU	82.508	51.435	37.635
Academic Staff ELTE	46.170	28.782	21.060
Academic Staff UM[1]	60.449	37.683	27.573
Support staff			
Additional Administrative Staff	-	-	-
Additional Demonstrators & Technical Staff	-	-	-
External Examiners	300	300	300
Grants cost			
Total direct costs	**399.951**	**211.215**	**152.218**
Other costs (15%)			
Consumables	59.993	31.682	22.833
Advertisement			
Service costs			
Office/admin costs (15% of the staff costs)			
Equipment - Platform (2)			
Space Costs	-	-	-

Space cost UB	-	-	-
Once off & Capital Costs			
Equipment - Once off or start up	-	-	-
Set up costs	-	-	-
Other - specify	-	-	-
TOTAL COSTS	**459.944**	**242.897**	**175.051**

RESULT	56	- 12.897	- 68.051

(1) Staff cost have been calculate with a detailed estimation of the total staff hours (face-to-face, preparation, tutoring, assessing, etc.) and the price per hour has been calculated accordingly considering the salaries, the total working hours and the proportion between teacher activities in each university).

(2) This is cover by the project in the budget of UU responsible for this part

6.x Documents supporting the legal status of the Alliance institutions

The following links describe the legal status of each partner institution

University of Barcelona:
https://www.educacion.gob.es/ruct/universidad.action?codigoUniversidad=004&actual=universidades

Trinity College Dublin:

https://www.tcd.ie/Secretary/corporate/legal-faq/

UU:

https://intranet.uu.nl/en/official-and-legal-uu-details (Access can be granted where needed)

ELTE:

https://www.elte.hu/en/eotvos-lorand-university-administration-data

UM:

https://www.umontpellier.fr/universite/actes-reglementaires

6.xi Official documents outlining procedure for recognition of qualifications

There is no recognition in this programme

6.xii Diploma supplement (sample)

Please refer to the Consortium Addendum.

6 xiii Evaluation panel in lieu of external reviewer

Profile	Name	Short bio
Academic expert in water	Prof. Peter Langdon	School of Geography and Environmental Science at University of Southampton, Head of School of Geography and Environmental Science, specialises in reconstructing past environmental change from lake and peat sediments.
Academic expert in food	Prof. Gilles Trystram	Professor at AgroParisTech, a High School for Food and process Engineering, general director of the school. After gaining a degree in Process Control at Nancy University and a Ph. D. he focuses the research on Food Process engineering applications, mainly thermal processing of food, looking for modelling of unit operations in order to develop algorithm able to help for design and optimisation of the product final qualities. Research works are dedicated to the control and instrumentation of processes. Part of the results concerns the modelling of food unit operation (frying, baking, drying, fermentation). Modelling of the building of structure of Food is part of the research activities. Researches are part of numerous International research projects and collaborations with private companies. Member of numerous scientific committees, and international editorial Board of scientific journal and of the French academy for engineering.
Academic expert in life and health	Ildefonso Hernández Aguado	Professor of Public Health at the Miguel Hernández University (Alicante). Former Director General of Public Health of the Ministry of Health and Social Policy (2008-2011), where he directed the preparation of the General Law of Public Health that presented the Health Impact Assessment to assess the health effects of public policies and the laws on tobacco control, he directed the report: "Advancing Equity and Health: Monitoring Social Determinants of Health and Reducing Health Inequalities." He was a member of the Standing Committee of the Regional Committee for Europe (WHO), the Board of Directors of the European Center for Disease Control and the Scientific Committee of WHO. He has been President of the SE of Epidemiology and is now Vice President of the SE of Public Health and Health Administration and member of the Board of Directors of the World Federation of Public Health Associations.
Academic expert in transdisciplinary programmes	Prof.dr.ir. Lex Lemmens	In December 1, 2013 Prof.dr.ir. Lex Lemmens was appointed full-time professor of Academic Science and Engineering Education within the Eindhoven School of Education at Eindhoven University of Technology.

		Lex Lemmens, born in Heerlen in 1955, graduated from TU Eindhoven (Chemical Engineering) in 1981 and gained his PhD in Technology Assessment in Developing Countries 1987. He worked for five years as manager of the Technology Advisory Unit at the University of Zambia before becoming a university lecturer at TU Eindhoven in 1992, teaching Technology Assessment and Environmental Impact Assessment. In 1996 he became director of the Technology Center for Sustainable Development that was renamed the Eindhoven Energy Institute in 2010. While director there, he established the interdepartmental Master of Sustainable Energy Technology, becoming its first director. From 2002 until 2012 he combined these jobs with that of Program Director for the Bachelor and Master programs at the School of Innovation Sciences. In 2006 he also became Program Director of the Bachelor program at the School of Industrial Engineering. In June 2011 he was appointed the first Dean of the TU/e Bachelor College, in which all the university's Bachelor studies are clustered. From 1998 until 2011 he ran summer courses at the University of Dar es Salaam and was involved in setting up Bachelor studies in Sustainable Energy at the Vellore Institute of Technology in India and at five universities in Indonesia. From 2010 until 2011 he represented TU/e in the KIC InnoEnergy of the European Institute of Technology where he established various Master programs as member of the education group.
Professional	TBC	
Student	Ms. Pegi Pavletic	Student from the Quality pool of European Student Union. She has a Bachelor of biotechnology and drug research – University of Rijeka, Department of biotechnology, a master (2014-2016), Master of Drug research and development – University of Rijeka, Department of Biotechnology (2016-2019), Climate KIC Alumni (programme on sustainable entpreneurship and development) European Institute of Innovation and Technology (EIT) (2017)., Ph.D. Candidate in pharmaceutical, nutraceutical and food sciences – University of Camerino (2020-current).
Expert in evaluation/Secretary	Mr. Ronny Heintze	Commissioner for international affairs At AQAS (Agency for Quality Assurance through Accreditation of Study Programs in Bonn, Germany). He has participated in the ImpEA project which piloted three European Approach processes for three different joint programmes, so he knows the process and its challenges. He has significant experience in reviews both within Germany, as well as outside (also outside of Europe) and has a great sense of cultural

		differences in higher education and complex situations. He has taken part in many ENQA reviews, also as a secretary, and he produces excellent review reports. He is a political scientist by training.

6 xiv Glossary of definitions

Capstone: The term Capstone is used in CHARM-EU to denote a multifaceted assignment at the end of the Master's including the final thesis or dissertation as it is known in some institutional contexts.

Challenge-based learning (CBL): A learning approach that uses global themes, real world challenges, collaboration, technology, flexibility, multi-disciplinarity, creativity, innovation, and a defining challenge. CHARM-EU will base its challenge-based learning pedagogy on the Apple CBL framework[22].

Continuous Assessment: This form of assessment evaluates student progress throughout the programme of study rather than a single assessment at the end of a programme.

Extra-academic actors: Extra-academic actors are members of social and traditional enterprise, communities and individuals across all sectors of society.

Interdisciplinary[23]: Interdisciplinary seeks the integration of tools, methods and theories from various disciplines to answer a question, solve a problem, or address a topic "that is too broad or complex to be dealt with adequately by a single discipline or profession" (Klein & Newell, 1997).

Life and Health (Phase): Life and Health encompasses challenges related to human health in the context of life and lifestyles

Multidisciplinarity[24]: Multidisciplinarity corresponds to the juxtaposition of disciplinary perspectives. The insights produced by the disciplines coexist independently without integration and without disruption in the structure of knowledge.

Sustainability: CHARM-EU employs the 1987 Brundtland Commission Report definition of sustainable development as employed by UNESCO: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Sustainability is therefore "a paradigm for thinking about the future in which environmental, societal and economic considerations are balanced in the pursuit of an improved quality of life." (UNESCO, 2020)

Sustainable Development Goal (SDGs) Challenges: CHARM-EU will employ the SDGs, and other sustainability initiatives and policies, to guide student challenges throughout the programme. These challenges will be guided in practice by the Challenge Based Learning approach.

Transdisciplinarity[25]: Unlike interdisciplinarity built on the basis of disciplines, transdisciplinarity is built based on topics of interest. [It]… implies an opening of academic disciplines to players outside the academic world in order to include and integrate knowledge produced outside the academic system. In practice, researchers work with other relevant actors to develop a conceptual and methodological

22 https://www.challengebasedlearning.org/framework/
23 Wernli, D., & Darbellay, F. (2016). Interdisciplinarity and the 21st century research-intensive university. League of European Research Universiti (LERU). (Accessed 27 August 2020) http://www.leru.org/files/publications/Interdisciplinarity_and_the_21st_century_research-intensive_university.pdf.
24 Wernli, D., & Darbellay, F. (2016). Interdisciplinarity and the 21st century research-intensive university. League of European Research Universiti (LERU). (Accessed 27 August 2020) http://www.leru.org/files/publications/Interdisciplinarity_and_the_21st_century_research-intensive_university.pdf.
25 Wernli, D., & Darbellay, F. (2016). Interdisciplinarity and the 21st century research-intensive university. League of European Research Universiti (LERU). (Accessed 27 August 2020) http://www.leru.org/files/publications/Interdisciplinarity_and_the_21st_century_research-intensive_university.pdf.

framework that transcends disciplinary boundaries with the aim of resolving a concrete problem between science and society.

Wicked problems: A wicked problem is a social or cultural problem that is difficult or impossible to solve. Every wicked problem is unique. "The information needed to understand the problem depends upon one's idea for solving it. That is to say: in order to describe a wicked-problem in sufficient detail, one has to develop an exhaustive inventory of all conceivable solutions ahead of time. Problem understanding and problem resolution are con-comitant to each other"[26].

26 http://www.ask-force.org/web/Discourse/Rittel-Dilemmas-General-Theory-Planning-1973.pdf

6 XV CHARM-EU Educational Principles

CHARM-EU Educational Principles

The CHARM-EU curriculum is challenge-driven and built on trans-institutional research missions focused on solving global challenges. Students learn through Challenge-Based Learning (CBL), an educational approach that frames learning around global, real-world, authentic challenges. These challenges are co-developed, investigated and acted upon by students and multidisciplinary stakeholders, including academic and extra-academic (social and traditional enterprise) actors.

The CHARM-EU curriculum is research-led: it is deeply connected to research strengths and practices of its member universities. Students are actively engaged with researchers and, through Research-Based Learning (RBL), develop the skills to analyse and interpret information, reach conclusions and, wherever relevant, propose solutions.

CHARM-EU educates all stakeholders (students, academic and extra-academic actors) to create solutions "to secure a sustainable, peaceful, prosperous and equitable life on Earth for everyone now and in the future" (UNESCO, 2017). CHARM-EU research and education supports the United Nations Sustainable Development Goals and key European missions including those in the Horizon Europe Framework Programme and the European Green Deal. Its programmes support the development of UNESCO's Education for Sustainable Development competencies.

CHARM-EU explores and implements technology that supports education, didactics, research and pedagogy. This will enhance existing models of learning and develop new models that meaningfully integrate technology in learning. Technology-enhanced learning is not only instructional but paves the way for interaction and knowledge construction through the use of digital technology in education. Technology will be built into the educational experience and used to support flexibility, accessibility and mobility.

Students are active partners in independent and collaborative learning and can exercise flexibility in time and location with regards to their learning experience. Students can choose and contribute to challenge pathways as a group or individually to fulfil their professional and educational ambitions and support their personal needs.

Students learn through social interaction in authentic, realistic contexts. They participate in networks and/or communities and gradually learn and grow from novices into experts, building their identity throughout their studies. Students learn authentically in close collaboration with partners in a variety of professional environments, for example, research groups and laboratories, enterprise, civic organisations and administrations.

CHARM-EU educational programmes are designed to respect the diversity of students and are adapted to different students' learning needs and preferences taking into consideration their backgrounds or abilities. They will enable all students to take part in learning and fulfil their potential. Where possible any barriers that prevent students from learning are minimised or removed.

CHARM-EU programmes are designed to provide consistent opportunity for the development of non-specific competences, for example, transversal skills such as critical and innovative thinking, inter- and intra-personal skills, global citizenship, media and information literacy, project management, problem-solving and entrepreneurialism.

CHARM-EU educational programmes provide students as well as academic and non-academic staff with transnational and intercultural learning opportunities through mobility and internationalisation 'at home'.

Global challenges are complex problems that require input from equally complex networks of individuals and groups to identify and define problems. CHARM-EU is a transdisciplinary university in which all stakeholders – students, academic and extra-academic actors – collaborate equally to tackle global challenges. Transdisciplinarity develops in students the ability to use theoretical frameworks to analyse complex problems, source and appraise data, assess stakeholder needs, build collaboration and teamwork and create action plans. It is built on the foundation of disciplinary depth, which is central to the CHARM-EU educational mission.

Clarification of Page 1 Table for non-Trinity College institutions

The structure of this proposal is a Trinity College specific document. Therefore, there are some terms that are Trinity specific within the initial table which are defined below:

- **Course Group: PG Taught.** This refers to the type of course being proposed with PG being an abbreviation for Postgraduate. Taught Postgraduate programmes are similar to Bachelor's degrees in that they are delivered and assessed through a series of taught modules and may include independent research in the specialised subject area.
- **SITS**: SITS stands for Strategic Information Technology Systems and is a standard web hosted student administration system used by universities in Ireland and the UK. Within CHARM-EU each institutional information system will be used for the pilot, however, for the case of this proposal SITS is listed as it is relevant to the TCD application.
- **Closing date for applications for the proposed regular entry:** This is a standard TCD date but CHARM-EU will not be following this.
- **Duration and mode of delivery/attendance:** This section denotes a part-time and full-time duration. For the purposes of CHARM-EU there will not be part time students, but this is an option within the document that will denote the difference between the 12 month and 18 month option requested by Trinity.
- **School ownership of the course/name of Head of School:** This is a TCD specific request which will be defined within TCD for administrative purposes.
- **Name of the Faculty and the Discipline (where relevant):** This is a TCD specific request which will be defined within TCD for administrative purposes.
- **Director(s) of Teaching and Learning (Postgraduate) in School(s) proposing the course:** This is a TCD specific staffing request which will be defined within TCD for administrative purposes.
- **Name of First Course Director:** This is a TCD specific staffing request which will be defined within TCD for administrative purposes.
- **Name of Course Coordinator (only if different to Course Director):** This is a TCD specific staffing request which will be defined within TCD for administrative purposes.
- **Name of Progression Manager in Trinity:** This is a TCD specific staffing request which will be defined within TCD for administrative purposes.
- **Date of financial approval by the Faculty Dean:** This is a TCD specific request and the Faculty Dean in this instance will be a TCD staff member and is determined by which School is assigned ownership of the course.

C.V.s of CHARM-EU teaching staff in Knowledge Creating Team Core

Contents

Prof. Dr. Quique Bassat

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Prof. Quique Bassat, MD, MSc, PhD	
Institutional affiliation	ISGlobal, Hospital Clínic - Universitat de Barcelona, Barcelona, Spain	
Education Please list the title, institution, and year of award.	• University of Barcelona (Spain): MD, 1999, Medicine and Surgery • University of Barcelona (Spain): MSc1, 2004, Tropical Medicine & international Health • London School of Hygiene and Tropical medicine (LSHTM, UK): MSc2, 2008, MSc Epidemiology • University of Barcelona (Spain): PhD, 2009, PhD Medicine	
Current role	ICREA research professor Head of malaria Programme	
Professional Memberships or Affiliations	1. ISGlobal, Hospital Clínic - Universitat de Barcelona, Barcelona, Spain 2. Centro de Investigação em Saúde de Manhiça (CISM), Maputo, Mozambique 3. ICREA, Pg. Lluís Companys 23, 08010 Barcelona, Spain. 4. Pediatric Infectious Diseases Unit, Pediatrics Department, Hospital Sant Joan de Déu (University of Barcelona), Barcelona, Spain 5. Consorcio de Investigación Biomédica en Red de Epidemiología y Salud Pública (CIBERESP), Madrid, Spain	
Teaching experience	October 2019	Course Director Salud Global pediátrica y cooperación: Una introducción para pediatras. Hospital Sant Joan de Deu, Barcelona, Spain
	July 2017	Course Director Europa ante los desafíos globales de la cooperación al desarrollo. Erradicación y prevención de enfermedades endémicas: Malaria. Real Monasterio de Yuste, del 5 al 7 de julio
	Since 2017	Module co-coordinator and lecturer "De la medicina Tropical a la Salut Global" [From tropical medicine to global health] Undergraduate optional module for students Universidad Central de Barcelona, Faculty of Medicine, Barcelona, Spain.
	Since 2013	Lecturer

		Science of malaria eradication: A leadership course (annual basis) Co-organized by ISGlobal, Harvard School of Public Health, Swiss Tropical and Public Health Institute
	Since 2009	Lecturer MSc Public Health. Lectures on malaria and other international health topics Universitat Pompeu Fabra, Barcelona, Spain
	Since 2008	Lecturer MSc Tropical Medicine and International Health. Lectures on malaria and tropical paediatrics. Universidad Central de Barcelona, Faculty of Medicine, Barcelona, Spain.
	2009-2010	Lecturer MSc Tropical Medicine. Lectures on malaria Universitat Autònoma de Barcelona, Barcelona, Spain
	September 2008	"Severe malaria course" accreditation teacher for two sites participating in the Phase III RTS,S malaria vaccine trial Bagamoyo, Tanzania; Manhiça, Mozambique
	July 2017	Course Director Europa ante los desafíos globales de la cooperación al desarrollo. Erradicación y prevención de enfermedades endémicas: Malaria. Real Monasterio de Yuste, del 5 al 7 de julio
	Since 2017	Module co-coordinator and lecturer "De la medicina Tropical a la Salut Global" [From tropical medicine to global health] Undergraduate optional module for students Universidad Central de Barcelona, Faculty of Medicine, Barcelona, Spain.
Awards/Fellowships/Scholarships	• ICREA fellowship (Research professorship), Catalan government (2017-onwards) • International JCI (junior Chamber International) 2012 "Ten Outstanding Young persons of the World –TOYPS-2012" award in category "Medical Innovation". Award received in Taipei, Taiwan, the 20th of November 2012 • Catalan JCI (Junior Chamber International) 2011 "Outstanding Young Person" award in category "Medical Innovation" • Miguel Servet fellowship of the ISCIII (Plan Nacional de I+D+I 2008-2011, grant number: CP11/00269) (2011-2016) • "Ayudas para contratos de formación en investigación «Rio Hortega» para profesionales sanitarios que hayan	

	finalizado el periodo de formación sanitaria especializada", Spanish Ministry of Science (2005-2008) • Hadassah International organization's first Bernice S. Tannenbaum Young International Volunteer of Distinction Award (2004) • Erasmus/Socrates scholarship to study third year of Medical School. Università degli studi di Parma, Parma, Italy (1995-96) • United World College of the Atlantic, 2-year scholarship (1991-1993) • UNICEF's Honorific diploma (1987)
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://orcid.org/0000-0003-0875-7596 Taylor AW*, Blau DM*, Bassat Q*, Onyango D, Kotloff KL, Arifeen SE, Mandomando I, Chawana R, Baillie VL, Akelo V, Tapia MD, Salzberg NT, Keita AM, Morris T, Nair S, Assefa N, Seale AC, Scott JAG, Kaiser R, Jambai A, Barr BAT, Gurley ES, Ordi J, Zaki SR, Sow SO, Islam F, Rahman A, Dowell SF, Koplan JP, Raghunathan PL, Madhi SA, Breiman RF; CHAMPS Consortium [shared co-primary authorship]. Initial findings from a novel population-based child mortality surveillance approach: a descriptive study. Lancet Glob Health. 2020 Jul;8(7):e909-e919. doi: 10.1016/S2214-109X(20)30205-9. Bassat Q, Watkins K, Peterson S, Bijleveld P, Detjen A, Winn J, Wright S, Kyrillou A, Fanjul G, Casamitjana N, Greenslade L; Global Forum on Childhood Pneumonia Steering Committee. The first Global Pneumonia Forum: recommendations in the time of coronavirus. Lancet Glob Health. 2020 Jun;8(6):e762-e763. doi: 10.1016/S2214-109X(20)30125-X. Madrid L, Bassat Q. Azithromycin for child survival: digging without getting too dirty into the differential effect on cause-specific mortality. Lancet Glob Health. 2020 Feb;8(2):e169-e170. doi: 10.1016/S2214-109X(19)30558-3
Link to full academic C.V. if available	https://www.researchgate.net/profile/Quique_Bassat
	https://www.scopus.com/authid/detail.uri?authorId=23024176000

Prof. Dr. Sébastien Bertout

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Prof. Sébastien Bertout, PharmD, PhD
Institutional affiliation	Université de Montpellier
Education Please list the title, institution, and year of award.	2008 Habilitation à Diriger des Recherches French post-doctoral degree allowing its holder to supervise PhD students Université Montpellier 1 2005-2010 Pharm D. - Université Montpellier I 1998-2000 PhD Parasitology, UFR des Sciences Pharmaceutiques, Université de Montpellier I 1997 Post Graduate degree following my master in Parasitology, Option Molecular Parasitology and Immunology, Université Lille 2 1994-1996 Master's degree Cellular biology, Immunology Université Aix Marseille II
Current role	Head of learning department in Parasitology and medical mycology in Faculty of pharmacy, Montpellier Head of research team "Parasitic and fungal infections", in the UMI TransVIHMI https://transvihmi.ird.fr/
Professional Memberships or Affiliations	Member of the French Society of Medical Mycology Member of the French Association of Parasitology Teachers
Teaching experience	Since 2014 Professor in Parasitology and medical mycology U.F.R. des Sciences Pharmaceutiques et Biologiques, Université Montpellier 2008-2014 Assistant professor in Parasitology and medical mycology U.F.R. des Sciences Pharmaceutiques et Biologiques, Université Montpellier I 2000-2008 Lecturer Parasitology and medical mycology
Awards/Fellowships/Scholarships	2014-2017 Prime d'Excellence Scientifique (Junior researcher grant) 2006-2010 Prime d'Encadrement Doctoral et de Recherche (Junior researcher grant) 1997-2000 Phd Scholarship 1997 Post graduate scholarship

Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://www.researchgate.net/profile/Sebastien_Bertout ORCID 0000-0001-9724-4690.
Link to full academic C.V. if available	

Dr. Valérie Borrell Estupina

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Mrs Valérie BORRELL ESTUPINA PhD	
Institutional affiliation	Montpellier University	
Education Please list the title, institution, and year of award.	Director Agreement (Habilitation à Diriger les Recherches), Montpellier University, 2017. PhD in Environmental Sciences, Towards a hydrological model for flash flood forecast, Toulouse INP (Institut National Polytechnique), 2004. Engineer ENSEEIHT in Fluid Mechanics & Hydraulics, Water & Environmental Sciences, Toulouse INP (Institut National Polytechnique), 1999. Master in Physics & Chemistry of the Environment, Toulouse INP (Institut National Polytechnique), 1999.	
Current role	Senior Assistant Professor (Maître de conférences Hors Classe) in Water sciences at Montpellier University with Research Director agreement (HDR)	
Professional Memberships or Affiliations	Faculty of Sciences, Montpellier University (teaching affiliation since 2006). Research Lab Hydrosciences (2006-2020), Research Lab G-Eau (since 2020) (research affiliation).	
Teaching experience	2016-2020 Coordinator of the EACEA project ERASMUS+ Capacity Building in Higher Education, MAREMA. 2015-today Education service officer for the Executive Board of the WATERS Key Initiative, Montpellier University MUSE. 2019-today co-Director of the Master's Degree IEGB (ecological engineering and biodiversity management), Montpellier University. 2011-2020 co-Director of the Master's Degree HYDRE (Hydrology and Risks), Montpellier University. 2015-2018 Director of the Master's training in Water Sciences, Montpellier University, Montpellier SupAgro, AgroParisTech, University Paul Valéry. Teacher in Water Sciences (Hydrology, Hydraulics, Water cycle modeling, Applied mathematics for hydrology or fluid mechanics) for Master students, under different educational formats: classical courses, reversed class, project, real case studies, international field schools…). About 60 hours /year between 2000 and 2005, and about 250 hours/year since 2006 mainly in France, with teaching experience in Vietnam, Coastal Ivory, Cameroon, Spain.	
Awards/Fellowships/Scholarships	PhD with Escande Awards 2005	
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.		https://orcid.org/0000-0003-1409-6536
Link to full academic C.V. if available		

Dr. Clément Bonnet

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Clément BONNET, PhD
Institutional affiliation	Faculté d'Economie, Université de Montpellier Art-DEV, UMR 5281
Education Please list the title, institution, and year of award.	Doctoral Thesis, delivered by Université Paris Nanterre Master's degree, Environmental and Energy Economics Licence degree, International Economics
Current role	Lecturer in economics at Université de Montpellier
Professional Memberships or Affiliations	Associated researcher, Climate Economics Chair Associated research, EconomiX UMR 7235
Teaching experience	5 years Microeconomics, Macroeconomics, Economics of Innovation, Geopolitics of Technology.
Awards/Fellowships/Scholarships	
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://www.researchgate.net/profile/Clement_Bonnet2
Link to full academic C.V. if available	https://art-dev.cnrs.fr/index.php/bonnet-clement

Dr. Niels Bovenschen

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr. Niels Bovenschen, PhD
Institutional affiliation	Department of Pathology, UMC Utrecht, The Netherlands & Utrecht University, Utrecht, The Netherlands
Education Please list the title, institution, and year of award.	2003: PhD, Sanquin, Amsterdam, The Netherlands 1998: MSc, Medical Biology, Free University Amsterdam, The Netherlands
Current role	Associate Professor, University Medical Center Utrecht Principal Investigator, University Medical Center Utrecht Principal Fellow, Utrecht University
Professional Memberships or Affiliations	2020-now: Principal Fellow, Utrecht University 2019-now: Royal Netherlands Academy of Arts and Sciences (KNAW) Comenius Network (advisory board for Ministry of Education, Culture and Science) 2017-now: Senior Fellow, Utrecht University
Teaching experience	2019-now: Examiner/Coordinator course Experimental Translational Medicine (15 ECTS), Biomedical Sciences Bachelor + Medicine, Utrecht University 2017-now: Examiner/Coordinator Scientific Research Internships Medicine (master, year 6), Utrecht University 2017-now: Examiner/Coordinator course Biomedical Research Lab (15 ECTS), Biomedical Sciences Bachelor, Utrecht University 2012-now: Examiner/Coordinator course Pathology (3 ECTS), Biomedical Sciences Master, Utrecht University 2010-now: Examiner/Coordinator course Pathologie (7.5 ECTS), Biomedical Sciences Bachelor, Utrecht University 2005-now: Examiner, Biomedical Sciences internships (n>100) 2005-now: Lecturer in pathology, immunology, oncology, cell biology
Awards/Fellowships/Scholarships	2020: Principal Fellow, Utrecht University 2019: NWO Comenius Teaching Fellow (50 kEuro) 2019: Lecturer of the Year 2019, Utrecht University 2018: Lecturer of the year 2018, Faculty of Medicine, University Medical Center Utrecht 2018: Distinguished Member: Harmen Tiddens Society, University Medical Center Utrecht 2017: Senior Fellow, Utrecht University (160 kEuro) 2010: Travel Award, International Herpesvirus Workshop, Salt Lake City, USA 2007: Best oral presentation, Dutch Society for Pathology, Ede, The Netherlands

	2006: NWO VENI Grant (ZonMw) (Grant application 016.066.044) (200 kEuro). 2003: Young Investigator Award, International Society Thrombosis and Haemostasis, Birmingham, UK
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	1. Drost RH, Dictus WJAG, Prakken BJ, Bovenschen N. How a four-year-old boy connects healthcare, biomedical research and undergraduate education. Nat Biotechnol. 2019 Sep;37(9):1092-1095. 2. Shan L, Li S, Meeldijk J, Blijenberg B, Hendriks A, van Boxtel KJWM, van den Berg SPH, Groves IJ, Potts M, Svrlanska A, Stamminger T, Wills MR, Bovenschen N. Killer cell proteases can target viral immediate-early proteins to control human cytomegalovirus infection in a noncytotoxic manner. PLoS Pathog. 2020 Apr 13;16(4):e1008426. 3. van Daalen KR, Reijneveld JF, Bovenschen N. Modulation of Inflammation by Extracellular Granzyme A. Front Immunol. 2020 May 19;11:931. List of publications: https://pubmed.ncbi.nlm.nih.gov/?term=Bovenschen+n&sort=date
Link to full academic C.V. if available	https://www.uu.nl/medewerkers/NBovenschen

Dr. Jake Rowan Byrne

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr. Jake Rowan Byrne, PhD, MSc, BEng
Institutional affiliation	School of Education, Trinity College Dublin
Education Please list the title, institution, and year of award.	• Ph.D., Trinity College Dublin, 2013 • M.Sc., Trinity College Dublin, 2008 • B.Eng. Dublin City University, 2006
Current role	Assistant Professor in Contemporary Teaching & Learning and Computing
Professional Memberships or Affiliations	Ireland ACM SIGCSE Chapter 2019 – Present
Teaching experience	Programme Director: • Postgraduate Certificate in 21st Century Teaching and Learning (PGC21CTL) Module Coordination (including design, delivery and assessment): • Digital Media Literacy • Problem Solving in the 21st Century (Computational Thinking), Introduction to Programming through Animation • Intermediate Programming through Game Design • Text-based Programming (Python Introduction) • Exploring Computer Systems Supervision: • Ph.D., D.Ed., M.Ed. and P.M.E. Students Leadership: • PGC21CTL director • Module Coordinator for six modules • Academic Director of Tangent, Trinity's Ideas Workspace, where innovation and entrepreneurship training is delivered through collaborative and challenge based approaches.
Awards/Fellowships/Scholarships	• John Holland Undergraduate Scholarship awarded by RINCE @ Dublin City University, 2007 • EdTech Ireland U.S. cultural exchange recipient - Awarded by U.S. Embassy Dublin, 2014

	• Trinity Teaching Innovation Grants 2016 - Co-Applicant, 2016
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://scholar.google.com/citations?user=56D5VDcAAAAJ&hl=en https://orcid.org/0000-0001-9986-6995
Link to full academic C.V. if available	http://www.jakebyrne.com/jrb-2-page-curriculum-vitae/

Dr. Montserrat Camps-Gaset

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr. Montserrat Camps-Gaset, PhD
Institutional affiliation	Universitat de Barcelona
Education Please list the title, institution, and year of award.	Bachelor (Llicenciada) in Greek Philology, U. of Barcelona 1980 Doctor in Classical Philology, Univ. of Barcelona 1985 Bachelor in Theology, Theological Faculty, Barcelona 1983
Current role	Prof. Titular (= Senior Lecturer) in Greek Philology at the Univ. of Barcelona Director of the Centre for Australian and Transnational Studies, Univ. of Barcelona
Professional Memberships or Affiliations	Societat Catalana d'Estudis Clàssics (IEC); Sociedad Española de Estudios Clásicos; Mommsen-Gesellschaft (Deutschland)
Teaching experience	Senior Lecturer at the University of Barcelona since 1988. [Former assistant at the Univ. Barcelona (1980-1987) and teacher in a high school (1980-1988)] Member of a Group of Innovation in Teaching Ancient Greek from 2002 to 2008
Awards/Fellowships/Scholarships	Award for translation Ancient Greek-Catalan (Premi de traducció Vidal Alcover 2015, Corpus Hermètic) Scholarship for translating Plato into Catalan (Institució lletres Catalanes 2010)
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	ORC-ID 0000-0001-8486-6036 1. "El mito del lujo lidio en la cocina de Plutarco", in AAVV, Mythologica Plutarchea, Ediciones Clásicas, Madrid 2020, p. 81-90. 2. "Black Magic and Christian Myth: A covenant with the Devil in the 4th C." in J.J. Pomer & J. Redondo (edd.), Pietat, prodigi i mitificació a la tradició literària occidental, ed. Hakkert, Amsterdam 2019, p. 33-54. 3. "La tradició grega del culte de Cebrià d'Antioquia i santa Justina a Catalunya" Antiqua et Medievalia. Anuari de Filologia 2019 p. 3-16,

Link to full academic C.V. if available	https://montserratcampsgaset.academia.edu/

Dr Patrick Caron

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr Patrick Caron (Habilitation à Diriger des Recherches HDR, PhD)
Institutional affiliation	University of Montpellier
Education Please list the title, institution, and year of award.	HDR (Habilitation à Diriger des Recherches) in Geography (University of Paris Ouest la Défense / Nanterre 2011) PhD in Geography (University of Paris X / Nanterre 1998) Master in Public Health and Developing Countries (Institut santé et développement, University of Paris VI / Paris / France 1992) Doctorate in Veterinary Medicine, National Veterinary School (Ecole nationale vétérinaire de Lyon, University Claude Bernard / Lyon / France 1989) Master in Food and Nutrition in Developing Countries (Université des sciences et techniques of Languedoc / Montpellier / France 1988) Veterinary diploma (Ecole nationale vétérinaire / Lyon / France, 1985)
Current role	Vice President for International Affairs
Professional Memberships or Affiliations	Member of the French Academy of Technology Member of the French Academy of Agriculture and Food
Teaching experience	Currently 30 hours per year
Awards/Fellowships/Scholarships	
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://www.researchgate.net/scientific-contributions/14247472_Patrick_Caron http://publications.cirad.fr/auteur.php?mat=1131
Link to full academic C.V. if available	

Dr. Nathalie Chazal

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr. Nathalie Chazal PhD
Institutional affiliation	Faculty of Medicine, University of Montpellier
Education Please list the title, institution, and year of award.	- PhD in Microbiology University of Montpellier (1994). - Post-Doctoral position : Center for AIDS and Human Retroviruses Research, University of Virginia, USA. (Pr. Rekosh et Pr. Hammarskjöld) - Assistant Professor at University of Toulouse - Assistant Professor at University of Montpellier (Faculty of Medicine and UMR 9004 CNRS-UM, IRIM https://www.irim.cnrs.fr/index.php).
Current role	Assistant-Professor (Virology)
Professional Memberships or Affiliations	
Teaching experience	Virology
Awards/Fellowships/Scholarships	Fellowships : - Agence Nationale de Recherche sur le SIDA (ANRS) - SIDACTION - Agence de Recherche sur le Cancer (ARC)
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	ORCID iD: 0000-0002-1528-9607
Link to full academic C.V. if available	

Dr. Sinéad Corr

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr Sinéad Corr, PhD
Institutional affiliation	
Education Please list the title, institution, and year of award.	- 2002-2006 Ph.D (with distinction) Molecular Microbiology, Alimentary Pharmabiotic Centre (APC) & Dept. of Microbiology, University College Cork, Ireland "Analysis of Listeria monocytogenes interaction with the host gastrointestinal tract." - 1998-2002 BSc Microbiology, 1st Class Honors, University College Cork, Ireland
Current role	Assistant Professor, and Group Leader Microbiome & Mucosal Immunity lab, Department of Microbiology, Moyne Institute of Preventative Medicine, Trinity College Dublin, Ireland
Professional Memberships or Affiliations	Adjunct Faculty Member APC Microbiome Ireland, 2017-Present Microbiology Society, 2002-Present Irish Society of Immunology, 2008-Present Irish Epithelial Physiology Group, 2015-Present Irish Society of Gastroenterology, 2006-Present Dublin Academy of Pathogenomics and Infection Biology, 2015-Present American Gastroenterological Association, 2002-2014
Teaching experience	I have contributed to and developed teaching initiatives in Trinity College Dublin since 2010. In particular I have driven the development of new Microbiome-related teaching and learning activities. I design, deliver and examine biochemistry, microbiology and immunology lecture series to students of the School of Genetics & Microbiology, School of Biochemistry & Immunology, School of Pharmacy & Pharmaceutical Sciences and School of Medicine. I have experienced a broad range of teaching scenarios from engaging with large classes of up to 300 people, to small-group tutorials and one-on-one teaching, from first year undergraduates through to MSc level and also post-graduate students in a laboratory environment.
Awards/Fellowships/Scholarships	Frontiers for the Future, Science Foundation Ireland, 2020

	Starting Investigator Research Grant, Science Foundation Ireland, 2011 Crohn's and Colitis Foundation of America, Litwin IBD Pioneer Award, 2016
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	http://orcid.org/0000-0001-9930-5039
Link to full academic C.V. if available	

Dr. Patricia Cucchi

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr Patricia CUCCHI Associated Professor in Organism Biology- "MCU Hors Classe" PhD, MSc, MS.
Institutional affiliation	Faculty of Science and MARBEC – University of Montpellier (UM)
Education Please list the title, institution, and year of award.	• 1998 PhD in Biology – Rennes 1 University - France • 1994 MSc in Cell Physiology- UPMC – Paris IV -France • 1993 MS in Valorisation of natural resources- University of Corsica • 1991 Bsc (2-years degree) in Natural and Life Sciences - University of Corsica
Current role	In CHARM : • P1CT Members • KCT expanded network member (Food and Water) • WP3-4 Coordinating team member more specifically WP4.1, WP4.2, WP4.3, WP4.6 (WP4 UM correspondent) • WP8 team member (UM correspondent) • WP7 team member (to support Gilles SUBRA) In UM (beside CHARM-EU) : • Pedagogical Correspondent for the Biology-Ecology department • Project leader of BIP-BIP (Integrative Biology: Promoting Good Integration through Pedagogical Innovations) 10000 € grant of I-Site MUSE Take-off1 • Project leader of LIPS (Laboratory for Pedagogical Innovation in Science) 47000 € grant of I-Site MUSE Take-off2 • Project Leader of Bachelor degree in PBL : 71000 € APP-ACTIV grant of I-Site MUSE Take-off3 + 80000 € APP-MOVE grant I-Site MUSE Take-off4 Until 2021 • Manager of the research training pole of the MARBEC : Res. Lab. • Coordinator of the Integrative Biology module in Bachelor's degree (700-900 students, 20-30 teachers) • Coordinator of the professionalisation module in Master (100-200 students, 10-15 teachers) From 2021 • (January) Associate Director of the MARBEC : MARine Biodiversity, Exploitation and Conservation Research Laboratory • (September) Head of Bachelor degree PBL in Biology
Professional Memberships or Affiliations	• I-Site MUSE

	• LabEX CEMEB : Lab.of Excellence "Mediterranean Centre for Environment and Biodiversity" • I HELT (International Higher Education Teaching & Learning Association) individual Membership ID 55679537
Teaching experience	• 20 years of teaching in 4 French universities in Bachelor and Master degree : Professionalisation and Project Management, Cell Biology, Biochemistry and Enzymology, Molecular Biology and Genetics, Immunology, Organism Biology and Development • Coordinator of 16 modules (5 in Bachelor degree, 11 in Master degree) • Head of Bs degree in Life Science (UM) 2013-2020 • Head of MS degree IEGB in "Ecological Engineering and Biodiversity Management", MS1 (UM) 2014-2017 • Head of MS degree BAEMT in "Aquatic Bioresources in Mediterranean and Tropical Environments" (UM)
Awards/Fellowships/Scholarships	• 1998-1999 : Fellowship of Territorial collectivity of Corsica for post-doctoral position in INSERM- Necker Hospital-Paris • 1998 : Prize of the Accademia Corsa of Nice for my PhD thesis on "Anthropological and epidemiological study of the Corsican population " • 1994-1997 : Ministry of Higher Education and Research of French Republic Scholarship for PhD in Rennes 1 University • 1994-1995 : Merit Scholarship of Pierre and Marie Curie University of Paris for MSc degree (DEA) • 1989-1993 : Social criteria scholarships
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	1. Rind, Khalid ; Rodriguez-Barucg, Quentin ; Nicolas, Delphine ; Cucchi, Patricia ; Lignot, Jehan-Herve Morphological and physiological traits of Mediterranean sticklebacks living in the Camargue wetland (Rhone river delta). (2020) J. Fish Biol. DOI: 10.1111/jfb.14323 2. Rind, Khalid ; Beyrend, Delphine ; BGlondeau-Bidet, Eva ; Charmantier, Guy ; Cucchi, Patricia ; Lignot, Jehan-Herve. Effects of different salinities on the osmoregulatory capacity of Mediterranean sticklebacks living in freshwater (2017) DOI: 10.1111/jzo.12491 3. Patricia Cucchi, Ahmed-Adam Ali, Jehan-Hervé Lignot, Nelly Godefroy, Mohamed Aithamza, et al..Apport de l'outil Atelier Moodle pour apprendre à rédiger un compte rendu de travaux pratiques enbiologie. Colloque international : Apprendre, Transmettre, Innover à et par l'Université Saison_2,Jun 2018, Montpellier, France. https://www.researchgate.net/publication/340455641_Cucchi_et_al_Compte-rendu_TP_biologie_Outil-Moodle_Actes_Colloque_ATIU_2018
Link to full academic C.V. if available	• https://www.researchgate.net/profile/Patricia_Cucchi • https://www.linkedin.com/in/patricia-cucchi-30882174/ • http://www.umr-marbec.fr/cucchi-patricia.html

Dr. Claire Donnellan

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr Claire Donnellan PhD, C.Psychol.Ps.S.I., C. Health Ps.S.I., MSc Advanced Neuroimaging, MA, PG Dip Stats, BSc, RGN
Institutional affiliation	Trinity College Dublin
Education Please list the title, institution, and year of award.	MSc Advanced Neuroimaging – UCL – Feb 2020 Special Purpose Certificate in Academic Practice – TCD – July 2020 PhD Medical Gerontology – TCD – Dec 2008 Postgraduate Diploma in Statistics – TCD – 2006 BSc (Hons) in Psychology – Birkbeck College, University of London – 2002 English Nursing Board 148 Neurological and Neurosurgical Nursing – Southbank University – 1997 Registered General Nurse – Sligo General Hospital School of Nursing - 1994
Current role	Assistant Professor School of Nursing and Midwifery, TCD Academic lead and facilitator for Gerontological Nursing Specialist Strand
Professional Memberships or Affiliations	Chartered Psychologist with the Psychological Society of Ireland Chartered Health Psychologist with Psychological Society of Ireland Irish Gerontological Society European Health Psychology Society Nursing and Midwifery Board of Ireland World Federation for Neuro-Rehabilitation International Federation of Ageing World Stroke Organisation European Stroke Organisation
Teaching experience	I have been a university teacher for over 14 years delivering lectures, tutorials and workshops to undergraduate and postgraduate students across the health sciences in Ireland and Bahrain. In addition to my direct teaching commitments, my other teaching and learning responsibilities have included been course director for various undergraduate and postgraduate programmes and also as Programme Director for Behavioural Sciences and Introduction to Psychiatry, for the medical curriculum with the Royal College of Surgeons of Ireland (RCSI), in Bahrain. My higher education experience has been very diverse in terms of lecturing student cohorts from various geographical regions and is also extensive in relation to the levels and variety of subjects that I can deliver, given my multiple qualifications and experience in the health sciences. I have created, developed and achieved all regulatory approvals for the new Postgraduate Gerontological Nursing Specialist Strand Programme curriculum commencing this academic year, that is inclusive of content delivery from gerontological clinical

	interdisciplinary specialists working in community, long-term care and acute age-related healthcare services.
Awards/Fellowships/Scholarships	The Royal College of Surgeons in Ireland – Bahrain Annual Research Grants Award - 2014 Master in Arts (jure officii) – TCD - 2012 The Noel Hickey Award – Irish Heart Foundation - 2010
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://orcid.org/0000-0002-9226-9407 https://www.researchgate.net/profile/Claire_Donnellan https://scholar.google.com/citations?user=k0OiHK4AAAAJ&hl=en
Link to full academic C.V. if available	http://peoplefinder.tcd.ie/Profile?Username=cdonnel

Prof. Dr. Lorraine O'Driscoll

Name *Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)*	Prof. Lorraine O'Driscoll BSc(Hons, Pharm), MSc(Res, Clin Pharm), PhD(Biotech)
Institutional affiliation	School of Pharmacy and Pharmaceutical Sciences, Trinity College Dublin
Education *Please list the title, institution, and year of award.*	• PhD in Biotechnology. Drug Resistance in Cancer, Dublin City University, Ireland, 1995 • M.Sc.(Res.) in Clinical Pharmacology, University College Dublin & McMaster University Canada, 1991 • BSc(Hons) in Pharmacology, University College Dublin, Ireland, 1990
Current role	Professor in Pharmacology
Professional Memberships or Affiliations	• Elected Fellow, Royal Society for Biology (FRSB) • Elected Member of the Board of Directors, International Society for Extracellular Vesicles (ISEV) • Honorary Secretary of Science and Meetings, International Society for Extracellular Vesicles (ISEV) • Lead of Clinical Pharmacology & Founding Committee Member, Irish Association of Pharmacologists (IAP) • Founding Chair, European Network on Microvesicles and Exosomes in Health and Disease (ME-HaD) • Deputy-Chair, Irish Cancer Society (ICS) Research Capacity Building Committee • Director and Council Member, Irish Association for Cancer Research (IACR) • Chair (for 5yr) and Executive Member, International Institute of Anticancer Research Scientific Advisory Board (SAB) • Deputy-President of the European Tissue Culture Society (ETCS) • Scientific PI, Translational Clinical Trials, Irish Clinical Oncology Research Group (now Cancer Trials Ireland) • Member, American Society for Cancer Research (AACR), American Society for Clinical Oncology (ASCO), Academy of Pharmaceutical Scientists, British Pharmacological Society (BPS), European Society for Medical Oncology (ESMO), Royal Academy of Medicine in Ireland (RAMI)
Teaching experience	Since 1997, I have taught medical, science, engineering, business and pharmacy students. I have developed an undergraduate degree course and multiple (20+) individual modules. I currently teach on 13 modules; 5 to undergraduates and 8 to postgraduates in the

	School of Pharmacy & Pharmaceutical Sciences, TCD; other TCD Schools; or bi-/multi-institutional. Our Pharmacy course (M.Pharm) is accredited every year and I am heavily involved in preparing documents for annual accreditation and for presenting to the Regulatory Authority. Supervised to graduation, to date: 26 PhDs 5 MSc, by research 42 MSc, where taught MSc and minor thesis to graduation 64 Undergraduate research projects
Awards/Fellowships/Scholarships	• Elected Fellow of the Royal Society for Biology (FRSB) – 2020 • Irish Research Council Advanced Laurate Award (only female recipient in STEM) -2019 • Eurolife Distinguished Lecture Award – 2019 • Irish Laboratory Awards, Collaborative Achievement Award for ICS-supported national virtual cancer research centre, Breast-Predict [Strand Leader] – 2014 • Irish Laboratory Awards, Collaborative Achievement Award for SFI-supported national virtual cancer research centre, Molecular Therapeutics for Cancer [Strand Leader] – 2013 • Elected Fellow of Trinity College Dublin (FTCD) – 2012 • MA (jure oficii) – 2012 • Barcroft Medal, Royal Academy of Medicine in Ireland – 2011 • EMBO/EMBL Symposium Award – 2010 • Dublin City University Teaching Award – 2008 • Dublin City University's Inaugural Research Fellowship Award – 2007 • 2007 Innovation Award, Invent [award by Enterprise Ireland Big Ideas] – 2007 • Dublin City University President's Targeted Research Award – 2006 • Albert College Fellowship Award – 2004 • Royal College of Physicians National Scientific & Medical Award – 1996 • Health Research Board Post-Doctoral Research Fellowship Award – 1995 • Pfizer Young Investigator International Award - 1991
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	ORCH-ID: 0000-0002-9860-8262
Link to full academic C.V. if available	http://peoplefinder.tcd.ie/Profile?Username=LODRISC

Dr. Katalin Felvinczi

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Ph.d.Habil Katalin Felvinczi
Institutional affiliation	ELTE Faculty of Education and Psychology
Education Please list the title, institution, and year of award.	MA in psychology Ph.D in Psychology Habilitation
Current role	associate professor, vice dean
Professional Memberships or Affiliations	European Evaluation Society European Society for Prevention Research Hungarian Association on Addictions Hungarian Psychological Association European Society for Social Drug Research
Teaching experience	25 years
Awards/Fellowships/Scholarships	
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	ORC-ID: 0000-0003-1813-7227 list of publications: https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=authors10023365
Link to full academic C.V. if available	

Dr. José F. García

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr. José F. García (PhD)
Institutional affiliation	University of Barcelona
Education Please list the title, institution, and year of award.	Degree in Analytical Chemistry, University of Barcelona (1982) PhD in Analytical Chemistry, University of Barcelona (1989) Master Business Administration, ESADE Business School (1991)
Current role	Associate Professor – University of Barcelona Coordinator of the Master on Analytical Chemistry – University of Barcelona Director of Water Research Institute - University of Barcelona
Professional Memberships or Affiliations	
Teaching experience	Teaching chemistry and analytical chemistry to students of different degrees (Chemistry, Environmental Science, Geology, Pharmacy and Fine Arts) since 1985
Awards/Fellowships/Scholarships	
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	ORCID- 0000-0003-4543-9642 Active teaching strategies for introducing radioanalytical techniques in analytical chemistry master degree: 40K determination in Bananas Bagán, H.; Serra, J; Tent, J.; Tarancón, A.; García J.F. Journal of Radioanalytical and Nuclear Chemistry (2019) 322, 1905-1914. DOI: 10.1007/s10967-019-06784-3 The sixteenth century panel Virgin with the Child and an Angel, confluences of material characterization and iconography Marín, E; García, J.F. Journal of Cultural Heritage (2018) 29, 160-167. DOI: 10.1016/j.culher.2017.09.006 Plastic scintillators and related analytical procedures for radionuclide analysis Tarancón, A.; Bagán, H.; García, J.F Journal of Radioanalytical and Nuclear Chemistry (2017) 314, 2, 555-572. DOI: 10.1007/s10967-017-5494-5
Link to full academic C.V. if available	

Michele Hallahan

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Michele Hallahan, MSc, LEED AP
Institutional affiliation	Trinity College Dublin
Education Please list the title, institution, and year of award.	BA Moderatorship Microbiology, 1990 MSc Environmental Science, 1992 Leadership in Energy and Environmental Design, Accredited Professional, 2009
Current role	Sustainability Advisor to Trinity
Professional Memberships or Affiliations	LEED AP, with USGBC
Teaching experience	Have taught on Climate KIC summer schools for the past 2 years, and have taught waste module for Dip Environmental Engineering for the past 2 years. Pre-Trinity – have taught over 3,000 professionals environmental management skills, environmental auditing, waste management.
Awards/Fellowships/Scholarships	Green Campus Award, 2020.
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	
Link to full academic C.V. if available	https://www.linkedin.com/in/michelehallahan/

Dr. Viktor Gábor Mihucz

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr. Viktor Gábor MIHUCZ, PhD, Dr. habil., MEd.
Institutional affiliation	ELTE – Eötvös Loránd University, Budapest, Hungary
Education Please list the title, institution, and year of award.	MSc in Chemistry, ELTE, 1998 (No. 85/1998) MEd in Chemistry, ELTE, 1999 (insert to 85/1998) PhD in Chemistry, ELTE, 2002 (P-918/2002) Habilitation, ELTE, 2014 (No. 896/2014) Castilian Spanish – Hungarian interpreter and translator certificate (PT B 000070/355) issued by Technical University, Budapest, Hungary, 2006
Current role	Associate professor, ELTE, 2015 -
Professional Memberships or Affiliations	Hungarian Chemical Society, member of the Steering Committee (2019 -); Hungarian Spectrochemical Society, secretary (2015-2019), president (2019 -); Scientific Committee for Analytical and Environmental Chemistry of the Hungarian Academy of Sciences, secretary (2018-)
Teaching experience	Laboratory practices in field of Chemical Technology for Chemistry MEd students (1999 – 2002), General and Inorganic Chemistry & Qualitative and Quantitative Analytical Chemistry laboratory practices for Pharmacy students (2007 -), Instrumental Analysis for BSc in Chemistry (2007 – 2009), Food Analysis laboratory practices for Environmental MSc and Chemistry MSc students (2009 -); Seminar on Analytical Chemistry Calculations for Chemistry BSc students (2007 – 2017); Lectures: Hyphenated techniques for elemental speciation in environmental samples for MSc and PhD students (2009 -), Introduction to Food analysis lecture for MSc students (2009 -); Analytical Chemistry 1 for Chemistry BSc (2017 -)
Awards/Fellowships/Scholarships	Pungor Ernő Award issued by Hungarian Academy of Sciences (2017), Preisich Miklós Award issued by the Hungarian Chemical Society (2020); Erasmus Fellowship (6 months) at UCM, Madrid in 2000/2001; MASHAV Fellowship (3 weeks) in 2002; Ministero degli Affari Esteri Fellowship (1 month) at Istituto Superiore di Sanita, Rome in 2004.
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	Scopus ID: https://www.scopus.com/authid/detail.uri?authorId=6602373855 – my ORCID page has not been updated since 2016.
Link to full academic C.V. if available	-

Prof. Dr. Éva Orosz

Name	**Prof. Dr. Éva Orosz, DSc, PhD**
Institutional affiliation	Eötvös Loránd University, Faculty of Social Sciences
Education *Please list the title, institution, and year of award.*	Karl Marx University of Economic Sciences, Budapest (current name: Corvinus University) Diploma in Economics (1977)
Current role	Professor, Head of Doctoral Programme in Social Policy
Professional Memberships or Affiliations	Chair of the Social Science Committee of the National Council of Students Research Societies Member of the European Public Health Association Member of the Committee on Sociology of the Hungarian Academy of Sciences
Teaching experience	30 years of experience in teaching and developing courses and higher education programmes in the field of health systems and policies and social policy
Awards/Fellowships/Scholarships	2017 Pro Ingenio Award of ELTE (for talent management) 2000 Institute for Human Sciences (Institute fur die Wissenschaften vom Menschen, IWM) Wien, (Scholarship, 6 months) Széchenyi Professor Scholarship of the Hungarian Government (1998-2001) 1994 University of Michigan, Ann Arbor (Scholarship, 4 weeks) 1992 Great-Britain, Know How Fund Scholarship: University of York, Centre for Health Economics (10 weeks); STICERD, London School of Economics and Political Science (4 weeks) 1989 Youth Award of the Hungarian Academy of Sciences 1985 Youth Award of the Hungarian Academy of Sciences
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=10007554
Link to full academic C.V. if available	https://www.tatk.elte.hu/munkatarsak/orosz-eva

Gemma O'Sullivan

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Ms. Gemma O'Sullivan BA Hons, PG Dip
Institutional affiliation	Trinity College Dublin
Education Please list the title, institution, and year of award.	Doctoral Candidate, School of Education, Trinity College Dublin, September 2017 – present (anticipated submission September 2021) My thesis examines the development and implementation of transdisciplinary university curricula reflective of higher education policy in Europe. Postgraduate Certificate in Teaching and Learning for Higher Education, Griffith College, Ireland, 2009 Intermediate and Advanced Copy-editing Certificates, University of California at Berkeley, USA, 1998-1999 First Class Honours Postgraduate Diploma in World Politics, London School of Economics, London, England, 1994 First Class Honours BA in English and Sociology, University College Cork, Ireland, 1992
Current role	Research Associate, CHARM-EU
Professional Memberships or Affiliations	
Teaching experience	2013 – 2015 | Head of Faculty | Faculty of Journalism and Media Communications, Griffith College (Cork campus) • Led the faculty of journalism and media communications in the Cork campus of Griffith College, one of Ireland's largest private third-level

	colleges. This included management of the BA and MA in Journalism and Media Communications and the Springboard Diploma in Digital Communications for Enterprise. • Sourced, hired and managed a team of 16 part-time lecturers (including module coordinators) for modules as diverse as TV Journalism; Contemporary Politics; Media Marketing and Digital Communication. 2006 – 2013 | Module Coordinator/Lecturer | Faculty of Journalism and Media Communications Griffith College (Cork campus) • Module Coordinator and Lecturer on the BA and MA in Journalism and Media Communications. Modules included Journalism I core module; Writing for Arts and Culture; Online Journalism; Freelance and Feature Writing; Writing and Presentation Skills; Newspaper and Magazine Production; Reporting and Newsday; Freelance and Feature Writing II; News Reporting, Features and Subediting (MA); Introduction to Online and Digital Media (MA).
Awards/Fellowships/Scholarships	Awarded place at the League of European Research Universities (LERU) Doctoral Summer School in Edinburgh (14-19 July 2019) representing Trinity College Dublin. London School of Economics Graduate Student of the Year, 1994 (scholarship recipient).
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	O'Sullivan, G. (2020) "Universities need to change, can change and are changing". Weblog. Available from: https://www.shapeid.eu/universities-need-to-change-can-change-and-are-changing/ O'Sullivan, G. (2019) "Being part of a team is considering the human". Weblog. Available from:

	https://blogs.ed.ac.uk/iad4researchers/2019/07/19/consider-the-human/ O'Sullivan, G. et al (2019) Research Collaborations: A guide for early career researchers by early career researchers. Available from: https://www.leru.org/files/News/Research-Collaborations-A-guide-for-early-career-researchers.pdf And multiple newspaper articles in the Sunday Times, Independent (UK), Irish Independent, Irish Examiner 1998-2010.
Link to full academic C.V. if available	https://www.linkedin.com/in/gemma-o-sullivan
Professional Experience	Features writer, The Sunday Times, Culture section, Ireland, 2003 – 2005 Sub-editor, The Guardian, 119 Farringdon Road, London EC1R 3ER, England, 2003 – 2004 Commissioning Editor, Features Writer and Columnist, The Irish Examiner, Dublin and Cork, Ireland, 2000 – 2003 Senior Sub-Editor, The Irish Examiner, Cork, Ireland, 1999 – 2000

Dr. Santi Seguí

Name *Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)*	Dr. Santi Seguí, PhD
Institutional affiliation	University of Barcelona
Education *Please list the title, institution, and year of award.*	Ph.D. Computer Science, University of Barcelona, Spain. 2011 Master in Computer Science, Universitat Autònoma de Barcelona, Bellaterra, Spain , 2007 Computer Science Degree, Universitat Autònoma de Barcelona, Spain, 2006
Current role	Associate Professor
Professional Memberships or Affiliations	
Teaching experience	DataScience, Machine Learning, Recommender Systems
Awards/Fellowships/Scholarships	
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://orcid.org/0000-0002-8603-138X
Link to full academic C.V. if available	

Dr. Mònica Serrano

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr. Mònica Serrano
Institutional affiliation	University of Barcelona
Education Please list the title, institution, and year of award.	European PhD in Economics, University of Barcelona, 2008 Master in Economics, University of Barcelona, 2002 Bachelor in Economics, University of Barcelona, 1999
Current role	Associate Professor
Professional Memberships or Affiliations	Secretary of SHAIO Secretary and Director of the Research Line "Environment, Sustainability and Well-Being" of Research Institute BEAT Member of the Network of reference in Economics and Public Policies (XREEP) Member of teaching innovation and research group "Active Learning Techniques in Economics"
Teaching experience	From 2002 until now. Undergraduate and master level. Supervisor of Master and PhD thesis. Microeconomics, Ecological Economics, Gender Economics, Global Sustainability.
Awards/Fellowships/Scholarships	2011, Temporary leave by the University of Barcelona to perform research at the University of Groningen (The Netherlands). 2008, Fellowship of the Catalonian Government for researchers. 2008, Fellowship of the University of Barcelona for temporary professors to perform research at the University of Groningen (The Netherlands). 2002, Research Scholarship by the University of Barcelona to visit Manchester School of Management, UMIST, England. 2000 – 2004, Fellowship of the University of Barcelona for graduate studies.
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	ORC-ID: orcid.org/0000-0003-1190-5406 ResearcherID: H-6489-2015 Scopus Author ID: 16317634900
Link to full academic C.V. if available	

Dr. Michelle Share

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr Michelle Share PhD, M Ed (Hons), MA (Hons), BA (Hons)
Institutional affiliation	University of Dublin, Trinity College Dublin
Education Please list the title, institution, and year of award.	MEd (Higher Education) TCD [Distinction] (2014) PhD Risk, Responsibility and Choice: Food and Eating in Irish Second Level Schools (Sociology/Education), University of Ulster (2007) MA (International & Community Development), Deakin University, Australia, [Distinction](2001) BA(Hons)(Sociology/English/Geography), Charles Sturt University, Australia [1st Class Hons] 1996
Current role	Senior Research Fellow School of Education Trinity College Dublin
Professional Memberships or Affiliations	Member of the Association for the Study of Food and Society Co-editor European Journal of Food, Drink and Society External Examiner MSc in Food Product Development TU Dublin.
Teaching experience	Current Masters in Education (Higher Education) TCD: • Curriculum, Assessment & Supervision – co-teach • Teaching and Research within and beyond the disciplines – co-teach • Reflective Practice in Teaching and Learning in HE (module leader) • Traditions, Power and Contexts – co-teach Postgrad Certificate in Academic Practice (2016, 17, 18,19) • Research Supervision Previous teaching experience at Trinity College Dublin Master's in Applied Social Research Methods (2014, 15, 16) • Evaluation Research BA Social Policy (2015) • Children and Society (Senior Fresh) Postgraduate Supervision Current: two PhD students; three M Ed students Completed: 11 MA/M Ed students Trinity Education Project Teaching Fellow (2016-2017) Member of the Strand 4 committee on development and implementation of Trinity Electives.

	Core member of the CAPSL team that delivered the 'New Directions Programme' at Thapar University, Patiala, India. I was involved in programme design and delivery 2015 to 2018.
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	ORCID: 0000-0003-3953-7318 Share, M. (2019). 'Housing, food and dignity: the food worlds of homeless families in emergency accommodation in Ireland', Journal of Social Distress and the Homeless, https://doi.org/10.1080/10530789.2019.1677065 Share, M. & Hennessy, M. (2019). 'Food, Connection and Care: Perspectives of Service Providers in Alternative Education and Training Settings'. Irish Journal of Applied Social Studies, 19 (1): 33-50. Share M. & Share, P. (2017). 'Doing the 'right thing'? Children, families and fatness in Ireland' In C. Edwards & E. Fernandez (Eds), Reframing health and health policy in Ireland. Manchester: Manchester University Press. pp. 46-71.
Link to full academic C.V. if available	https://www.researchgate.net/profile/Michelle_Share

Associate Professor, Dr. Avelina Tortosa

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Associate Professor, Avelina Tortosa i Moreno, MD. PhD
Institutional affiliation	University of Barcelona
Education Please list the title, institution, and year of award.	Autonomous University of Barcelona (Spain): MD, 1986, Medicine and Surgery University of Barcelona (Spain): PhD, 1993, PhD Medicine
Current role	Associate Professor of Human Physiology Director of Advanced Nursing Clinical Practice Master
Professional Memberships or Affiliations	EANO - European Association of Neuro-Oncology Society for Neuro-Oncology
Teaching experience	23 years
Awards/Fellowships/Scholarships	Fellowship in Neuro-Oncology, Massachusetts General Hospital, Harvard University, 1998-1999.
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://orcid.org/0000-0002-9080-2976 Researcher ID O-7788-2016 Janin, M.; Ortiz-Barahona, V.; Castro de Moura, M.; Martínez-Cardús, A.; Llinàs-Arias, P.; Soler M.; Nachmani, D.; Pelletier, J.; Schumann, U.; Calleja-Cervante, M.E.; Moran, S.; Guil, S.; Bueno-Costa, A.; Piñeyro, D.; Perez-Salvia, M.; Rosselló-Tortella, M.; Piqué, L.; Bech-Serra, J.; De La Torre, C. Vidal, A.; Martínez-Iniesta, M. ; Martín-Tejera, J.; Villanueva, A.; Aria, A.; Cuartas, I.; Aransay, A.M.; Morales-La Madrid, A.; Carcaboso, A.M.; Santa-Maria, V. ; Mora, J. ; Fernandez, A.F.; Fraga, M.; Aldecoa, I.; Pedrosa, L.; Graus, F.; Vidal, N.; Martínez-Soler, F. ; Tortosa, A.; et al. Esteller, M. Epigenetic loss of RNA-methyltransferase NSUN5 in glioma targets ribosomes to drive a stress adaptive translational program Acta Neuropathologica, 2019; 138:1053-1074. Stanzani, E.; Martínez-Soler, F.; Martín Mateos, T.; Vidal, N.; Villanueva, A.; Pujana, MA.; Serra-Musach, J.; De la Iglesia, N.; Giménez-Bonafé, P.; Tortosa, A. Radioresistance of mesenchymal glioblastoma initiating cells correlates with patient outcome and is associated with activation of inflammatory program. Oncotarget – 2017;8: 73640-73653. Moreno, M.; Pedrosa, L.; Paré, L.; Pineda, E.; Bejarano, L.; Martínez, J.; Balasubramaniyan, V.; Ezhilarasan, R.; Kallarackal, N.; Kim, S.H.; Wang, J.; Audia, A.; Conroy, S.; Marin, M.; Ribalta, T.; Pujol, T.;

	Herreros, A.; Tortosa, A.; Mira, H.; Alonso, M.M.; Gómez-Manzano, C.; Graus, F.; Sulman, E.P.; Piao, X.; Nakano, I.; Prat, A.; Bhat, K.P.; de la Iglesia, N. GPR56/ADGRG1 Inhibits mesenchymal differentiation and radioresistance in glioblastoma. Cell Reports - 2017; 21: 2183-2197.
Link to full academic C.V. if available	https://webgrec.ub.edu/webpages/personal/ang/000862_atortosa.ub.edu.html

Dr. Ádám Zoltán Tóth

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Ádám Zoltán TÓTH, PhD
Institutional affiliation	Department of Geology, ELTE Eötvös Loránd University, Pázmány Péter sétány 1/C., 1117 Budapest, Hungary
Education Please list the title, institution, and year of award.	2019 PhD in Earth Sciences/Hydrogeology ELTE Eötvös Loránd University, Budapest, Hungary 2013 MSc in Geophysics – Geophysical Exploration specialisation ELTE Eötvös Loránd University, Budapest, Hungary 2011 BSc in Earth Sciences – Geophysics specialisation ELTE Eötvös Loránd University, Budapest, Hungary
Current role	senior lecturer/assistant professor
Professional Memberships or Affiliations	2015– European Association of Geoscientists & Engineers (EAGE) 2013– International Association of Hydrogeologists (IAH) 2015– Secretary, Regional Groundwater Flow Commission (RGFC–IAH) 2019– Secretary, Hungarian National Chapter (IAH–MNT) 2013– Society of Exploration Geophysicists (SEG)
Teaching experience	January 2020 – Senior lecturer/assistant professor in hydrogeology, ELTE Eötvös Loránd University, Budapest, Hungary September 2019 – Invited lecturer, University of Pannonia, Veszprém, Hungary September 2016 – 2019 Assistant lecturer/junior assistant professor in hydrogeology, ELTE Eötvös Loránd University, Budapest, Hungary January–June 2016 Part-time assistant lecturer/junior assistant professor in hydrogeology, ELTE Eötvös Loránd University, Budapest, Hungary Courses in Hungarian and English at Earth Sciences BSc, Water Operation Engineer BSc, Geology MSc, Environmental Sciences MSc, Doctoral School of Chemistry and Environmental Sciences Supervisor of 4 MSc and 2 BSc students, reviewer of 7 MSc and 5 BSc theses Secretary of the English and Hungarian Geology (“Geológus”) MSc admission committee Secretary of the English and Hungarian Geology (“Geológus”) MSc final exam committee
Awards/Fellowships/Scholarships	2020 Environmental Science Youth Award, Hungarian Academy of Sciences 2019–2020 József Tóth Hydrogeology PostDoc Scholarship, ELTE Eötvös Loránd University, Budapest, Hungary

	2015 Best Research Paper on Regional Groundwater Flow First Prize, 41st IAH Congress, Rome, Italy 2014 Young Karst Researcher Prize, Karst without Boundaries, Trebinje, Bosnia and Herzegovina 2014 Best poster prize in Hydrogeology & Engineering Geology session, 5th International Students Geological Conference, Budapest, Hungary 2013 William Agocs Geophysical Prize, Department of Geophysics and Space Sciences, ELTE Eötvös Loránd University, Budapest, Hungary 2012–13 Fellowship granted by the Republic of Hungary, ELTE Eötvös Loránd University, Budapest, Hungary
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://www.researchgate.net/profile/Adam_Toth4
Link to full academic C.V. if available	academic CV

Dr. András Vadas

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Vadas, András, PhD
Institutional affiliation	Eötvös Loránd University, Budapest
Education Please list the title, institution, and year of award.	- Central European University, Medieval Studies, PhD (2020) - Eötvös Loránd University, Medieval and Early Modern History, Phd (2015) - Central European University, Medieval Studies, MA (2010) - Eötvös Loránd University, History, MA (2009) - Eötvös Loránd University, Geography, Msc (2009)
Current role	Assistant Professor, Department of Medieval History, Eötvös Loránd University
Professional Memberships or Affiliations	- European Society for Environmental History (regional representative for Hungary) - Environmental History Network for the Middle Ages - Medieval Central European Research Network (MECERN)
Teaching experience	- Environmental History of Pre-Modern Europe (BA, MA) - Environmental History of the Pre-Modern World (BA, MA) - Source reading (MA) - Climate History (BA, MA) - Medieval European History (BA, MA, PhD) - Research Methodology (MA) - Cultural Tourism (BSc)
Awards/Fellowships/Scholarships	- Bolyai János Research Scholarship of the Hungarian Academy of Sciences (2019-2022) - Fulbright Visiting Research Scholarship. Georgetown University (Washington D.C) (2017) - Sahin-Tóth Péter Prize for the PhD-dissertation: Some Questions in the Early Modern Environmental History of Hungary Border, Environment and Society along the River Rába in Vas County (1600–1659) - András Kubinyi Young Scholar Prize for the monograph: Körmend and the waters. A settlement and its environment in the early modern times, 2014
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://elte.academia.edu/VadasAndras
Link to full academic C.V. if available	

Dr. Jasper Van Vught

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr. Jasper Van Vught, PhD
Institutional affiliation	Utrecht University
Education Please list the title, institution, and year of award.	MA, University of Groningen, The Netherlands, 2010 PhD, Waikato University, New Zealand, 2016
Current role	Assistant Professor, Department of Media and Culture Studies, Utrecht University, The Netherlands
Professional Memberships or Affiliations	Centre for the Study of Digital Games and Play
Teaching experience	Coordinating and teaching a variety of courses and supervising theses at BA and MA level at both Utrecht University and Waikato University from 2013 onwards. Such as: Computer Games in Context, Introduction to New Media and Digital Culture, Mobile Communication, Playful Communication, Playful Media Cultures.
Awards/Fellowships/Scholarships	
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	Glas, René, van Vught, J.F. & Werning, S. (2020). 'Thinking Through' Games in the Classroom: Using Discursive Game Design to Play and Engage with Historical Datasets. Transactions of the Digital Games Research Association (ToDIGRA), 5 (1). Glas, René & van Vught, J.F. (2020). The Netherlands. In Mark J.P. Wolf (Eds.), Encyclopedia of Video Games: The Culture, Technology, and Art of Gaming Santa Barbara: ABC-Clio. Glas, René & van Vught, J.F. (2019). The politics of game canonization: Tales from the frontlines of creating a national history of games. DiGRA '19 - Proceedings of the 2019 DiGRA International Conference: Game, Play and the Emerging Ludo-Mix DiGRA. van Vught, J.F. & Glas, R. (2018). Considering play: From method to analysis. Transactions of the Digital Games Research Association (ToDIGRA), 4 (2), (pp. 205-242).

Link to full academic C.V. if available	

Dr. Marjanneke Vijge

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Dr. Marjanneke Vijge (PhD, MSc)
Institutional affiliation	Copernicus Institute of Sustainable Development, Utrecht University
Education Please list the title, institution, and year of award.	2011-2016: PhD Environmental Policy Group, Wageningen University. Thesis title: Carbonizing forest governance: Analyzing the consequences of REDD+ for multilevel forest governance. Full scholarship from Wageningen School of Social Sciences. Promoter: Prof. Arthur P.J. Mol. Supervisor: Dr. Aarti Gupta. Defence and thesis evaluation: very good 2007-2009: MSc International Development Studies (with distinction), Wageningen University. Specialisation Sociology with focus on Environmental Policy and Minor in Communication Science. Thesis title: A World/United Nations Environment Organisation? An explanation of the non-decisions on the reform of the international environmental governance system 2004-2007: BSc International Development Studies (with distinction), Wageningen University. Specialisation Sociology with Minor in Forest and Nature Conservation
Current role	Assistant Professor (of sustainability governance in the developing world)
Professional Memberships or Affiliations	Research fellow, Earth System Governance, from 12/2015 Member, Global Land Programme, from 1/2016 Member, Thematic Working Group on Agriculture, Food Security and Land Use by the NDC Partnership, hosted by the Food and Agriculture Organization of the United Nations (FAO), from 7/2018.
Teaching experience	2020-now Utrecht lead of content development of MSc program on sustainability of CHARM-EU (http://charm-eu.eu/) 2020-now Coordinator of the track Governance and Societal Transformations of the BSc program Global Sustainability Science, Utrecht University Course coordinator: 2018-2019 Main lecturer and course coordinator for BSc course Policy Evaluation and Design (student evaluation: 7.4/10 in 2018 and 4/5 in 2019), Utrecht University 2014 Main lecturer and course coordinator for MSc course 'International Environmental Policy' (student evaluation: 4.1/5), Wageningen University

	2012 Curriculum development and main organiser of international and interdisciplinary post-graduate course 'REDD+Science+Governance: Opportunities and Challenges' (student evaluation: 4.4/5), Wageningen University & Research Lecturer and/or supervisor (all at Utrecht University): 2020-now BSc course Global Integration Project 2018-now BSc course Socio-economic Processes 2018-now MSc course International Governance for Sustainable Development 2019-2020 MSc course Tailor-made course: 'Framework to measure policy coherence for sustainable development' 2019-2020 MSc course Tailor-made course: 'The art of designing policies: A critical assessment and categorization of policy design methods' 2019 BSc course Regional Integration Project 2018 BSc course Creative Challenge Guest lecturer: 2019 BSc course Research Skills, Utrecht University 2019 BSc course Politics of the Earth, Utrecht University 2018 Postgraduate Utrecht Winter School on Earth System Governance, Utrecht University 2013-2016 MSc course Climate Governance, Environmental Policy Group, Wageningen University 2015 MSc course Interdisciplinary Approaches in Communication, Health and Life Sciences, Communication Philosophy and Technology Group, Wageningen University 2013-2014 MSc course Design of Climate Change Mitigation and Adaptation Strategies, Earth System Science Group, Wageningen University 2013 Post-academic course Climate Change Adaptation and Mitigation as Institutional Change Processes, Centre for Development Innovation, Wageningen University & Research Co-promoter of PhD candidates (all at Utrecht University): 2019-now Yanuardi, 'Extractive industry governance and its contribution to sustainable peace in Indonesia' (expected to finalise in September 2021) 2019-now Melanie van Driel, 'Conceptualizing (synergistic-) fragmentation for Global Governance through Goals' (expected to finalise in January 2023)

	2019-now Francesco Montesano, 'The Sustainable Development Goals and integrated sustainable development' (expected to finalise in January 2023) 2019-now Abbie Yunita, 'The Politics of Policy Coherence and Inclusive Development: Translating the Sustainable Development Goals (SDGs) in the Netherlands, Japan, India and Ghana' (expected to finalise in January 2023) Supervisor for MSc theses: 2020-now Margaux Duchâtel, 'Gender mainstreaming in the EU development policy: an analysis of the European and national levels', Utrecht University. Started February 2020. 2019-now Stella Münninghoff, 'Coherence in Dutch Development policies: Aid and(/or) Trade?', Utrecht University. Started September 2019. 2020 Nikki Theeuwes, 'In the end it is for the people, not for the policies: On the policy coherence processes in the formation of the Haryana Vision 2030 and consequences for Leaving No One Behind', Utrecht University. 2012 Bishowamber Khadka, 'REDD+ and its implication on the tenure arrangements: A case of Nepal' (together with Prof. Kris van Koppen), Wageningen University. Second reader for MSc theses (completed): 2020 Sebastiaan Egberts, Urban politics in action: The case of sustainable mobility policies in the Dutch Randstad, Utrecht University 2020 Francisco Osuna Garrido, 'Policy incoherence and development imaginaries in Colombian rural development', Utrecht University 2019 Oana Forestier, 'Prioritisation of SDGs: understanding a national phenomenon with global implications', Utrecht University 2019 Bram van de Boogaard, 'Dutch multinationals and the SDGs: Changing strategies or Greenwashing?', Utrecht University 2019 Anne Luijten, 'Global Governance through Goals: Assessing and Explaining the Origins of and Steering Effects behind Sustainable Development Goal 10', Utrecht University 2018 Lisette van Beek, 'Serious Gaming for Climate Tipping Points: The effects of a role-play simulation game designed for climate negotiators

	on perceptions of risks and efficacy associated with climate tipping points', Utrecht University 2014 Jetske Vaas, 'Payment for Environmental Services in Costa Rican Forestry', Wageningen University 2013 Siti Ina Malayni Kamil, 'Feasibility and Justification of MRV in Indonesia and China', Wageningen University 2013 Depi Susilawati, 'The Indonesian Timber Legality Assurance System in the Community Forest: An Evaluation of Mandatory Timber Verification and Local Practice', Wageningen University 2013 Heriel Mahinda Mchome, 'Reducing Emissions from Deforestation and Forest Degradation (REDD+): Changing Forest Governance Arrangements and Impact on the Livelihood of Local Communities in Tanzania—Policy and Institutional Aspects', Wageningen University 2012 Caecilia Yulita Novia 'The Potential of REDD+ Program in Changing the Existing Political Ecology: a Case Study of Berau Forest, East Kalimantan–Indonesia', Wageningen University 2012 Ma (Tess) Allen, 'REDD+ and Multilevel Forest Governance', Wageningen University 2011 Koen Joosten, 'Linking Climate Change and Agriculture: Framing a 'New' Problem in an International Bureaucracy', Wageningen University 2011 Samuel Lissah, 'Implementing Global Policy at Local Level', Wageningen University Supervisor for 13 BSc theses since 2019, Utrecht University Second reader for 13 BSc theses since 2019, Utrecht University Teaching assistant (all at Wageningen University & Research): 2009-2013 MSc course International Environmental Policy, Environmental Policy Group 2009-2011 MSc course Environmental Policy Analysis and Evaluation, Environmental Policy Group 2011 BSc course Governance for Forest and Nature, Forest and Nature Conservation Policy Group 2010 BSc course Environmental Economics and Policy, Environmental Economics and Natural Resources Group Other education-related experience:

	2011 Facilitator, International Programme on the Management of Sustainability, the Sustainability Challenge Foundation, Zeist 2005-2007 Member of Programme Evaluation Committee for MSc and BSc programme International Development Studies, Wageningen University 2005-2006 Education commissioner in the board of study association Ipso Facto, Wageningen University
Awards/Fellowships/Scholarships	2020: Research grant (€1.24 million as Principle Investigator) in Water-Energy-Food communities in South Africa: multi-actor nexus governance for social justice? Led by Utrecht University in collaboration with North-West University, University of Groningen, University of Fort Hare and WWF-South Africa. NWO-WOTRO Cooperation South Africa-The Netherlands. 2017-2019: Research grant (£19,946 as co-applicant), Artisanal jade mining in Myanmar. With Harvard University & Myanmar Centre for Economic and Social Development. From International Growth Centre (London School of Economics & University of Oxford) 2019: Research grant (€7,500 as Principle Investigator), Review of global multi-stakeholder networks on agriculture. From German Federal Enterprise for International Cooperation (GIZ) 2016-2017: Post-doctoral Niels Stensen Fellowship (€34,166 individual, selected 7 out of 87), Can the Extractive Industries Transparency Initiative help Myanmar on its way to a sustainable democracy? 2011-2016: PhD scholarship (individual: 4 yrs. salary, selected 5 out of 140), The consequences of REDD+ for multilevel forest governance. From Wageningen School of Social Sciences 2010-2015: Various grants (individual) to participate in international conferences and PhD courses 2014: Visiting researcher grant (€3,500 individual), Center for International Forestry Research (CIFOR), Indonesia. From Wageningen School of Social Sciences 2010-2013: Seed money (€23,400 as network manager), REDD@WUR, interdisciplinary research project on Reducing Emissions from Deforestation (REDD+). From Wageningen University
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	Research Gate: https://www.researchgate.net/profile/Marjanneke_Vijge Scholar Google: https://scholar.google.nl/citations?user=fajIgQ0AAAAJ&hl=nl
Link to full academic C.V. if available	https://www.uu.nl/staff/MJVijge/CV

Prof. Dr. Gábor Á. Zemplén

Name Please list your title, first name, surname, and qualification abbreviation (e.g. PhD, MSc)	Prof. Gábor Á. Zemplén (PhD)
Institutional affiliation	ELTE, Department of Argumentation Theory and Marketing, Institute of Business Economics Part time: Hungarian Academy of Science 'Lendület' Research Group „Morals and Science" (2017-2020, Senior researcher), Institute of Philosophy
Education Please list the title, institution, and year of award.	University degree: ELTE (Biology-Chemistry-teacher in English M.Sc./M.Ed.) 1998. PhD degree: Budapest University of Technology and Economics (BME). PhD certificate: 2002 (BME-PhD 1181) in: Multidisciplinary Engineering Sciences (Philosophy and Informatics), History of Technology, Engineering, and Science. Habilitation: 2008. 12. 18. „Philosophy", (BME, 340-H) 2018. 03. 21. „Philosophy" (H-1083/2018) Eötvös Loránd University (ELTE)
Current role	Deputy Head of Department of Argumentation Theory and Marketing, Institute of Business Economics, ELTE Faculty International Coordinator 2018-2022 MC member in EU Cost Action APPLY European network for argumentation and public policy analysis - https://publicpolicyargument.eu/about/ca17132-publications/
Professional Memberships or Affiliations	2019- Book Review Editor Science & Education - Contributions from History, Philosophy and Sociology of Science and Mathematics SCImago Q1 2018-2020 Study Group member: Modeling Conceptual Knowledge and Conceptual Change. Study Group, HWK Delmenhorst (Ins. for Advanced Study) 2011- IUHPS/DLMPS National secretary 2008-2014 Editorial Board Argumentation (Springer SCImago Q1) 2008-International Association for the Study of Controversies (IASC), member, regional conf. organization in 2016 2004- International History & Philosophy of Science Teaching Group (IHPST) 2002- International Society for the History of Philosophy of Science (HOPOS), member, Conference organizer (2010)
Teaching experience	2018- postgraduate courses on Persuasion/Argumentation (6 ECTS credits): ELTE Institute of Business Economics. 2002-2018 undergraduate courses at BME: History of Science, Philosophy, Research Methodology, Sociology & Arts).

	Coordinator from 2007 (Research Methodology); textbook On The boundaries of science (Kutrovátz, G., Láng B., Zemplén G. (2008). Budapest, Typotex. (376 Pages). 2009-2016 Theories of representations; Argumentation; Dialectic and Rhetoric. For Cognitive Science MSc students: Research methodology, Evolutionary theory and cognition, Cognitive models of science, Observation and experiment. 2004-2018 teaching at the Doctoral School of History and Philosophy of Science (BME) 6 Ph.D. student supervision, also lecturing at Cognitive Science Doctoral School (BME): Evolutionary Theory - philosophy of biology. 2004-2008 Theory of Knowledge teaching for International Baccalaureate Org. (IBO), 2004-2008 module development and testing, also used in 2008-10 EU 7. framework HIPST (History and Philosophy in Science Teaching) project. 2001 Autumn semester: Seminar at the Department of Philosophy at the University of Bern: invited lecturer: Klassische Theorien des Lichtes und der Farben (textbook) 2000 Teaching practice in Munich, Universität der Bundeswehr (joint teaching with Prof. Ivo Schneider) 1999-2013: Lectures at the ELTE TTK Department of History of Science and Philosophy: The formation of modern scientific thinking; Philosophy of Science, History of Methodology, Theory of Arguments I-II, Nature of Science; The boundaries of science; Newton. 1998-2000 Apáczai Secondary Grammar School, chemical training materials with Attila Villányi,: Chemistry III - Organic chemistry secondary school textbook, 2000, co-author; "How to get an A in Chemistry", English version reviewer. 1996-97 Full-time teacher at HMC Dauntsey's School in England. Subjects taught: Biology, Chemistry, Philosophy of Science for A-Level Students 1993-95 Biology (in English) and Chemistry in the Karinthy Frigyes Bilingual Grammar School.
Awards/Fellowships/Scholarships	2003- Magyary Zoltán, Békésy György, Bolyai János Postdoctoral Scholarship 2005-6 Postdoctoral Scholarship in History of Science - Max Planck Gesellschaft MPIWG Berlin (Generating Experimental Knowledge) 2010 BME GTK Faculty Research Excellence prize.

Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	Douglas Allchin; Gábor Á. Zemplén. 2020. Finding the place of argumentation in science education: Epistemics and Whole Science Science Education https://onlinelibrary.wiley.com/doi/full/10.1002/sce.21589 ORCID: 0000-0001-7017-4661 https://www.researchgate.net/profile/Gabor_Zemplen Scopus ID: 15069904700
Link to full academic C.V. if available	Publications: https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=10010986

Prof. Dr. Károly Márialigeti

Name	**Prof. Dr. Károly Márialigeti, DSc, PhD, Dr habil**
Institutional affiliation	Eötvös Loránd University, Faculty of Science, Department of Microbiology
Education *Please list the title, institution, and year of award.*	- MSc in Biology, Eötvös Loránd University, 1976 - University doctors' dissertation defended, 1984 - PhD (Candidate of Biological (Microbiological) Science, Hungarian Academy of Sciences), 1985 - Habilitation in Biology/Microbiology, Eötvös Loránd University, 2006 - Doctor of Sciences in Biology/Microbiology, Hungarian Academy of Sciences, 2009
Current role	Professor at the Department of Microbiology Head of the Center for Environmental Science
Professional Memberships or Affiliations	- President of the Hungarian Society for Microbiology - Head of the Interdepartmental Scientific Committee on Microbiology of the Hungarian Academy of Sciences - Member of the editorial board of Acta Microbiologica et Immunologica Hungarica - Handling editor, FEMS Microbiology Letters
Teaching experience	40 years of experience in teaching and developing courses and higher education programmes in the field of biology/microbiology/environmental science
Awards/Fellowships/Scholarships	- Collective research prize for Balaton research, Hungarian Academy of Sciences, 1980 - Patent prize of the Hungarian Patent Office, 1990 - Distinguished Teacher at Faculty of Science, Eötvös Loránd University, 2000

	- Founder prize at Sapientia University in Transsylvania, Romania, 2007 Manninger Award, Hungarian Society for Microbiology, 2013 Excellence prize of the vice chancellor, Eötvös Loránd University, 2016 Owner of the distinguished medal of Eötvös Loránd University, 2018
Link to publications (e.g. ORC-ID, ResearchGate) or list three most recent publications.	https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=10005182
Link to full academic C.V. if available	