CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: Virtual fieldtrips on Geomorphology and Quaternary Geology

Participant universities:

- National and Kapodistrian University of Athens
- Universidad Autónoma de Madrid
- Aix Marseille University
- Stockholm University - Navarino Environmental Observatory (NEO)

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

- Prof. Niki Evelpidou, Faculty of Geology and Geoenvironment, National and Kapodistrian University of Athens, evelpidou@geol.uoa.gr
- Prof. Jeronimo Lopez-Martinez, Department of Geology and Geochemistry Faculty of Sciences, Universidad Autónoma de Madrid, jeronimo.lopez@uam.es
- Prof. Francois Sabatier, Department of Geography, Planning and Environment, Aix-Marseille Université, sabatier@cerege.fr
- Assoc. Professor Zahra Kalantari, Department of Physical Geography, Stockholm University - Director, Navarino Environmental Observatory (NEO), zahra.kalantari@natgeo.su.se

Kind of activity:

Individual courses

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

Terms/semesters

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

Various

□ Other (please elaborate): .....

Capacity (total # of participants): 40

Brief description of the activity (Aims and Scopes, content, etc): The proposed activities will include virtual fieldtrips in order to train students on geomorphology and Quaternary geology. The fieldtrips will take place at different locations, with fieldtrip guides, multimedia material such as images, videos and google earth maps, that will allow participants to be acquainted with the study sites. The aim is to train students on different topics of geomorphology and Quaternary Geology, different approaches and techniques, according to each partner's expertise. Our aim is to provide our students a multidisciplinary field experience by giving them the opportunity to virtually visit different geomorphological environments, they would not find in their home countries. Due to the geomorphological characteristics of each

participant country, students will be trained on different geomorphological environments, connected with different prevailing processes and Quaternary history that have shaped the present landscape.
The content of the virtual fieldtrips will include the following topics:

- Coastal geomorphology and relative sea level changes – provided by the National and Kapodistrian University of Athens
- Fluvial geomorphology, weathering processes and morphostructure in central Spain – provided by Universidad Autónoma de Madrid
- Virtual field trip about coastal adaptation in the context of sea level rise along the urbanized shoreline of Hyères (Var, France). Most of beaches are going to reduce drastically in the future and need to adapt trough retreat and overwash deposits – provided by Aix Marseille University
- Virtual fieldwork of Navarino Bay: water management for wetland restoration and enhancement of wetland Ecosystem Services, biodiversity conservation, agricultural practices and adaptation to climate change, tourism practices and adaptation to climate change, past climate variability and human societies, atmospheric particles and climate change – provided by Stockholm University - Navarino Environmental Observatory (NEO)

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

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc.): The proposed activity eliminates economic or other difficulties of training students in field activities and enables access to field activities to students with mobility impairments, which are necessary for them to better understand what they are taught in the classroom.
The virtual fieldwork approach is intrinsically a more interactive and engaging approach than simply presenting static images and provides the basis for a range of learner activities and challenges. We propose this activity, because many geomorphological topics are sometimes perceived by students and teachers as being more difficult to introduce and engage with in the classroom. Of course, this can be addressed through well-designed fieldwork.
Unfortunately, fieldwork – if it takes place at all – often occurs at a different time in the year from when students are learning about them in class. In addition, fieldwork can occasionally be blighted by poor weather, illness, accessibility issues etc. These virtual fieldtrips provide a solution to these challenges. Virtual fieldwork has an important role to play in the classroom or during on-line courses and, as such, it can also help to underpin ‘real’ fieldwork – for which there is no substitute.

CALL FOR HUB 1 ACTIVITIES

Title of the proposed activity: Webinars on Geomorphology and Quaternary Geology

Participant universities:

- National and Kapodistrian University of Athens
- University of Bucharest
- Stockholm University

Non-CIVIS Institutes

- Harokopio University, Greece
- University of Modena and Reggio Emilia, Italy

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

- Prof. Niki Evelpidou, Faculty of Geology and Geoenvironment, National and Kapodistrian University of Athens, evelpidou@geol.uoa.gr
- Prof. Mihaela Verga, Faculty of Geography, University of Bucharest, mihaela.verga@geo.unibuc.ro
- Dr. Britta Sannel, Department of Physical Geography, Stockholm University, britta.sannel@natgeo.su.se
- Prof. Stefan Wastegård, Department of Physical Geography, Stockholm University, stefan.wastegard@geo.su.se
- Prof. Arjen Stroeven, Department of Physical Geography, Stockholm University, arjen.stroeven@natgeo.su.se

Non-CIVIS academics:

- Prof. Efthimios Karymbalis, Department of Geography, Harokopio University, Greece, karymba@hua.gr
- Prof. Mauro Soldati, University of Modena and Reggio Emilia, Italy, soldati@unimore.it
- Ass. Prof. Paola Coratza, University of Modena and Reggio Emilia, Italy, paola.coratza@unimore.it

Kind of activity:

Individual courses

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

Terms/semesters

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

Various

□ Other (please elaborate): ……

Capacity (total # of participants): 40

Brief description of the activity (Aims and Scopes, content, etc.): The proposed activities will include webinars amongst the participating universities, in order to train students on different topics of geomorphology, geomorphological hazards and Quaternary geology. Each of the partners specializes in different aspects of geomorphology and brings particular expertise that will allow to improve the regular learning outcomes of the student and provide them a more thorough education. The webinars will include lectures on the topics below:

- **Coastal geomorphology and Holocene Sea level changes – provided by National and Kapodistrian University of Athens**
  This webinar aims to train students on how to understand relative sea level changes using sea level indicators. The topics will include the various types of sea level indicators, such as archaeological, geomorphological, sedimentological, biological with emphasis on the accuracy of each type and the information obtained. Students will also be educated on the main dating methods for sea level indicators. The webinar will deal with the usefulness of sea level indicators in the identification of palaeoseismicity, with examples from the eastern Mediterranean. The webinar will also discuss coastal geomorphology topics, such as coastal hazards with focus on palaeo-tsunamis, coastal erosion, impacts of climate change and adaptation and the evolution of the coastal zone during the Holocene.

- **Applied geomorphology in territorial planning – provided by University of Bucharest**
  This webinar aims to train students on how to understand the role of geomorphological research for optimal spatial planning. The strategy of territorial developing starts from the knowledge of the shape, nature and dynamic of landforms which are in a continuous evolution and transformation. Students will learn to conduct researches using specific principles, methods and techniques in order to identify and analyze geomorphological processes, including natural hazards (such as floods, landslides, ravines, lateral erosion) and their risks for society. It will be discussed how the geomorphological analysis can be used to design development policies in order to organize sustainable socio-economic activities accordance with an efficient environmental planning and management.

- **Quaternary stratigraphy and paleoglaciology – provided by Stockholm University**
  The main focus of this webinar/online lecture will be the development of the Fennoscandian Ice Sheet during the Quaternary glaciations with special emphasis on the deglaciation of the Weichselian ice sheet. The topics will include Quaternary stratigraphy and glacial landforms and how these can be used for ice sheet reconstructions. This webinar/online lecture will also discuss methods for dating glacial landforms and sediments, for example TCN dating, clay-varve chronology and tephrochronology

- **Fluvial geomorphology – human impacts and their effects on fluvial systems – flash floods - provided by Harokopio University, Greece**
  This webinar aims for the students to become familiar with fluvial processes in tectonically active areas and to understand the influence of human activities on the "fluvial system". The webinar will deal with fluvial processes (erosion, sediment transport and deposition), the factors affecting these processes (e.g. climate, tectonic

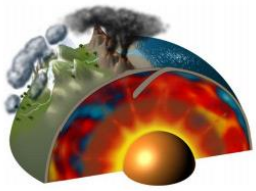
activity etc.) with special focus on human activities (climate change, channel alignment, dam construction, urbanization etc.). The topics will also include extreme fluvial processes/fluvial hazards with special emphasis on flash floods providing examples from Greece. The webinar will also discuss flood-risk management in ungauged catchments.

- **Long-term coastal landslide evolution and sea-level change – provided by University of Modena and Reggio Emilia, Italy**
  The lecture presents a multidisciplinary approach based on the integration of terrestrial and marine datasets which can be used in the investigation of the long-term geomorphological evolution of coastal landslides. The results of research carried out in the open-air laboratory of the Maltese Islands (central Mediterranean Sea) will be shown with particular emphasis on the (i) understanding of the paleo-environmental conditions under which the landslides developed, (ii) identification of their conditioning and triggering factors, (iii) assessment of landslide hazard. The research carried out on emerged coastal landslides was integrated with identification and mapping of submarine landslide deposits by means of a Digital Elevation Model based on a multibeam survey coupled with an airborne bathymetric LiDAR (Light Detection And Ranging) survey. In addition, the time frame of possible landslide onset was determined by means of Cosmogenic Radionuclide Exposure dating (CRE).

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

Other remarkable features of the proposal (interdisciplinary/multidisciplinary character; contribution to CIVIS goals; etc.): Through these multidisciplinary webinars we will provide our students with new skills and knowledge, facilitating their education with no economic barriers.

PROPOSAL FOR HUB 1 ACTIVITIES



Title of the proposed activity:

CIVIS PhD network in SOLID EARTH SYSTEM DYNAMICS

CIVIS SESD PhD network

Participant universities:

1. ***National and Kapodistrian University of Athens,***
2. ***University of Bucharest,***
3. ***Sapienza Università di Roma,***
4. ***Stockholm University***

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

- **National and Kapodistrian University of Athens,**
  Department of Geology & Geoenvironment
  - ✓ ***Prof. Filippos Vallianatos, fvallian@geol.uoa.gr (coordinator)***
  - ✓ *Prof Nikolaos Voulgaris, Vice rector NKUA, voulgaris@geol.uoa.gr*
  - ✓ *Prof. Akis Tselentis, tselentis@geol.uoa.gr*
  - ✓ *Prof. Ariadne Argyraki, argyraki@geol.uoa.gr ,*
  - ✓ *Prof. Niki Evelpidou, evelpidou@geol.uoa.gr*
  - ✓ *Prof. Stephanos Kilias, kilias@geol.uoa.gr*
  - ✓ *Asc. Prof. Athanasios Godelitsas, agodel@geol.uoa.gr*
  - ✓ *Asc. Prof. Panagiotis Pomonis, ppomonis@geol.uoa.gr*
  - ✓ *Asc. Prof. Vasiliki Kouskouna, vkouskouna@geol.uoa.gr*
  - ✓ *Ass. Prof. George Kaviris, gkaviris@geol.uoa.gr*
  - ✓ *Ass. Prof. John Kassaras, kassaras@geol.uoa.gr*
  - ✓ *Ass. Prof. Dimitrios Kostopoulos, dikostop@geol.uoa.gr*

The Group of the NKUA will be in Collaboration with the UNESCO Chair on Solid Earth Physics & Geohazards Risk Reduction, Hellenic Mediterranean University (Chair holder Prof. F. Vallianatos) and a number of Academic personnel is involved with the national infrastructure HELPOS (Hellenic Plate observing System)

- ***University of Bucharest,***
  Faculty of Geology and Geophysics, Doctoral School of Geology and other departments
  - ✓ *Prof. Lucian Petrescu, Dean of the Faculty of Geology and Geophysics and Mineralogy Department; lucpet@geo.edu.ro*

- ✓ *Prof. Nicolae Anastasiu, member of the Romanian Academy and Doctoral School of Geology; anastasiu@b.astral.ro*
- ✓ *Prof. Victor Mocanu, Doctoral School of Geology; victor.mocanu@g.unibuc.ro*
- ✓ *CS1 Mihaela Melinte, Doctoral School of Geology; Melinte@unibuc.ro*
- ✓ *Prof. Dan Grigorescu, Doctoral School of Geology; : dangrig@geo.edu.ro*
- ✓ *Prof. Cornel Păunescu, Doctoral School of Geology; cornelpaun@gmail.com*
- ✓ *Prof. Daniel Scrădeanu, Doctoral School of Geology; dscrd2000@yahoo.com,*
- ✓ *Prof. Marian Ivan, Doctoral School of Geology; marian.ivan@g.unibuc.ro*
- ✓ *Prof. Mihai Emilian Popa, head of the Doctoral School of Geology; me.popa@unibuc.ro*
- ✓ *Assoc. Prof. Bogdan Niculescu, head of the Geophysics Department; (bogdan.niculescu@g.unibuc.ro; bogdan.niculescu@gg.unibuc.ro*
- ✓ *Lect. Florin Tuluca, Geophysics Department;*
- ✓ *Lect. Ionelia Panea, Geophysics Department;*
- ✓ *Lect. Gina Andrei, Geophysics Department. gina.andrei@g.unibuc.ro*

- **Sapienza Università di Roma,**
  Dipartimento di Scienze della Terra
  - ✓ *Prof. Cristiano Collettini, cristiano.collettini@uniroma1.it*
  - ✓ *Asc. Prof Maurizio Barbieri, maurizio.barbieri@uniroma1.it*
  - ✓ *Ass. Prof. Elisa Tinti, elisa.tinti@uniroma1.it*
  - ✓ *Lecturer Dr. Marco Scuderi, marco.scuderi@uniroma1.it*

Within the infrastructure involved is the HP-HT laboratory with a unique apparatus as BRAVA 2.0 biaxial apparatus with a pressure vessel and temperature (Version 2 of Collettini et al., 2014 Brava apparatus), BIAX2 a large 75x 30 cm biaxial apparatus (Version 2 of Pennsilvania Sate University machine) and Rotative Multianvil developed with a recent ERC grant, giving to the network a strong potential to support the proposed PhD Network

- **Stockholm University**

Department of Physical Geography

- ✓ *Prof. Georgia (Gia) Destouni, Head of Department, georgia.destouni@natgeo.su.se*
- ✓ *Assoc. Prof. Zahra Kalantari, zahra.kalantari@natgeo.su.se, Director of collaborative Sw-Gre Navararino Environmental Observatory, Messinia, Greece -https://www.navarinoneo.se*

We note that the Navararino Environmental Observatory is a pioneer cooperation between the academia and the private sector exist and will play a key role in the development of the proposed PhD Network

Kind of activity:

Individual courses

□ Virtual mobility courses/modules

□ Short courses/workshops (1-2 ECTS)

X□ Summer School

X□ Workshops/Days

Terms/semesters

X□ Erasmus research exchanges/traineeships

X□ Independent projects (e.g. joint supervision of thesis work)

□ Erasmus-term semesters (30 ECTS)

Various

□ Other (please elaborate): ……

Capacity (total # of participants):..30 members of Academic personel

In the initial stage [and due to Covid19 conditions] a limited number of participants exist.
The conditions after the reoperation of Universities puts a time limitation for the development of a larger network. To overcome this event we introduce a preparatory phase where we will capitalize the dynamics of the possible acceptance of the operation of the **CIVIS SESD PhD network, invited Colleagues to join the Network.**
The number of the Participant academics is in this initial phase 30 and we expect an initial number of PhD students on September 2021 of about 8 increasing year by year.

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

We live on a restless planet. Earth is continually influenced by the sun, gravitational forces, processes emanating from deep within the core, and by complex interactions with oceans and atmospheres. Study of both the slow and fast processes that govern Earth's dynamics are essential for improving of our scientific understanding and for optimizing responses to natural hazards, along with the identification of potential risk areas.

Solid Earth System science is concerned with the internal structure and dynamics of planet Earth, from Earth's land surface to its inner core. Solid Earth System science deals with physical and (bio)geochemical processes, which cover wide temporal and spatial scales, from microseconds to billions of years and from nanometers to thousands of kilometers. Our understanding of Earth dynamics and tectonic processes relies on analysis of seismological data, ground deformations inferred from terrestrial and satellite observations, geological and mineralogical and geochemical studies, and laboratory experiments to investigate the processes occurring at earth's depth and surface.
Geology, natural hazards, natural resources and, in general, environmental processes do not respect national boundaries, therefore trans-national integration of observations, measurements and methodologies is often vital for its optimal research. Thus the study of Solid Earth System Dynamics is necessarily multidisciplinary and transboundary, and requires access to methodologies and facilities created and/or operated by different Universities.

In this framework, the next generation of researchers must be able to use multidisciplinary data and be prepared to collaborate in cross-disciplinary international investigations. This is one of the key challenges for the CIVIS PhD research network. Our proposal for a CIVIS PhD network in Solid Earth System Dynamics [SESD] aims to help young Earth scientists develop a more holistic understanding about the wide range of processes underlying Earth's land-surface-to-core dynamics, and will train PhD students in various methods to investigate this dynamics and the solid earth structure leading to it.

Earth's land surface is broken into more than a dozen plates, each of which moves relative to the others, in response to forces originating deep in the Earth's interior. Plate tectonic processes

are responsible for most of the world's mountain belts, earthquakes and volcanoes, and also account for the distribution of many important natural resources, such as oil, natural gas and ore and industrial mineral deposits.

Furthermore, mitigating the impacts of natural hazards and satisfying increasing demands for finite natural resources are critical challenges faced by modern societies. The analysis of our restless planet will be based on its physics and (bio)geochemistry, attempting to identify and model the processes producing its present structure, and account for its present and past behavior in projecting relevant future development scenarios. The PhD program will promote research on the composition, structure, dynamics of the Earth from the surface to the deep interior at all spatial and temporal scales, focused on a variety of instrumental, experimental, remote-observation and modeling methodologies, existing and developed within CIVIS Universities.

Being interdisciplinary in scope, SESD will cover and connect a range of disciplines, including for example:

- Geochemistry, mineralogy, petrology, volcanology, ore geology
- Geodesy and gravity, geodynamics: modeling and complexity of geoprocesses
- Applied geophysics, seismics, geoelectrics, electromagnetics, geomagnetism
- Geomorphology, palaeogeography, morphotectonics, paleoseismology, archaeogeomorphology
- Rock physics and fractures; flow and transport in fractured media
- Geophysics and seismology, Seismic Hazard & Risk
- Critical zone science (Earth's permeable near-surface layer), biogeography, hydrology, hydrogeology, cryosphere science, soil science, environmental dynamics
- Climate change, geohazards
- Geomatics, geographic information systems
- Stratigraphy, sedimentology, palaeontology
- Rock deformation, structural geology, tectonics

The proposed SESD PhD network will thus be dedicated to the study of the Solid Earth System with an interdisciplinary perspective, based on the interactions among its various component sub-systems.

The SESD PhD network envisions increased access to and use of the multidisciplinary approach required for SESD study and the various infrastructures, monitoring networks, and field, laboratory and computational facilities operated by the CIVIS Universities. The establishment of CIVIS SESD PhD network will foster interoperability and offer attractive educational and research infrastructure and services to a broad community of PhD students in the Earth sciences.

What is CIVIS SESD PhD network aiming at?

The goal of the **CIVIS SESD PhD network** is to establish a comprehensive multidisciplinary research and research education platform for Earth sciences in Europe. The ground-breaking nature of the **CIVIS SESD PhD network** approach lies in joining high-quality multidisciplinary

resources and facilities for the benefits of CIVIS PhD students, attracting the best of them and offering opportunities for innovative high-impact research.

The CIVIS SESD PhD network represents a scientific vision of such innovative multidisciplinary PhD research and research education that advances our basic process understanding and our ability to prepare for, respond to, and/or control, for example, earthquakes, volcanic eruptions, droughts, floods, natural resource availability and sustainability, environmental pollution, and other aspects and drivers of Earth tectonics and surface dynamics.

Scheduled time (if flexible, please write "flexible"): Flexible

Even if the scheduled time is flexible a preliminary time chart is running to ensure the sustainability of the network. The three years plan analysed as follows

Preparatory phase .

- From the official approval day to September 2021. During this phase the network will organize the activities for the Academic year 2021-22, the common PhD Thesis that will proposed, along with the Summer School and the Workshops/Days for the Academic year 2021-22.
- During the preparatory phase the CIVIS SESD PhD network, will invite Academics for the CIVIS Universities to enlarge the Network.
- Organization of ERASMUS Agreements for the support of Mobility of CIVIS SESD PhD network students and partners
- Nomination of the **Monitoring Committee**
- Advertisement and PhD students Recruiting Activities

M0. Strategic plan. Delivery time : September 2021

1st Year. 2021-22 Activities.

- Enrolment of the first cycle of PhD Student with common Supervision
- 1st CIVIS SESD PhD Summer School
- 1st CIVIS SESD PhD Workshop

M1. Progress Report. Delivery time : September 2022

2st Year. 2022-23 Activities.

- Enrolment of the second cycle of PhD Student with common Supervision
- 2nd CIVIS SESD PhD Summer School
- 2nd CIVIS SESD PhD Workshop

M2. Progress Report. Delivery time : September 2023

3nd Year. 2023-24 Activities.

- Enrolment of the third cycle of PhD Student with common Supervision
- 3nd CIVIS SESD PhD Summer School
- 3nd CIVIS SESD PhD Workshop

M3. Progress Report and Evaluation of CIVIS SESD PhD Network**. Proposal for the future status of the Network.Delivery time : September 2024**

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

The goal of the **CIVIS SESD PhD network** is to establish a comprehensive multidisciplinary research and research education platform for Earth sciences in Europe. The ground-breaking nature of the **CIVIS SESD PhD network** approach lies in joining high-quality multidisciplinary resources and facilities for the benefits of CIVIS PhD students, attracting the best of them and offering opportunities for innovative high-impact research.

The CIVIS SESD PhD network represents a scientific vision of such innovative multidisciplinary PhD research and research education that advances our basic process understanding and our ability to prepare for, respond to, and/or control, for example, earthquakes, volcanic eruptions, droughts, floods, natural resource availability and sustainability, environmental pollution, and other aspects and drivers of Earth tectonics and surface dynamics.

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών
ΙΔΡΥΘΕΝ ΤΟ 1837

UAM
Universidad Autónoma de Madrid

Title of the proposed activity: **Climate Change and Cities – challenges and collective responses**

Image from Cities Forum - EC

Participant universities:
National and Kapodistrian University of Athens (NKUA)
Universidad Autónoma de Madrid (UAM)

Participant academics (indicating university, department, e-mail)
Prof. Constantinos Cartalis, Dept. of Environmental Physics, ckartali@phys.uoa.gr
Assoc, Prof. Emmanuella Doussis, Director of the Institute of European Integration and Policy, UNESCO Chairholder on Climate Diplomacy
Assoc. Prof Margarita Asimakopoulou, Dept. of Environmental Physics,
Prof. Eva Botella, Dept. of Modern History, eva.botella@uam.es
Prof. Carmen Madorrán, Dept. of Philosophy, carmen.madorran@uam.es
Prof. Esther Lorenzo, Dept. of Social Psychology, esther.lorenzo@uam.es
PhD. Raquel Lázaro Vicente Dept. Contemporary History, raquelazaro1988@gmail.com

Kind of activity:

Various

X □ Other (please elaborate) Web based Lecture series

Capacity (total # of participants): twenty (20) (may exceed to thirty subject to demand)

Brief description of the activity (aims and scopes, content, etc):

Lecture Series in the theme "Climate Change and Cities – challenges and collective responses"

Period: January 2021 (two hours per lecture, one lecture per week, afternoon hours)
Deadline to apply: 30 November 2020
Potential participants: graduate students in the fields of social sciences, humanities, geography, climate and environment
Type of course: On line
Working language: English
Preconditions: Internet connection, use of virtual educational platform
Materials to be provided: Lecture notes in ppt, reference documents (e.g. UNFCCC, UNEP, UN Habitat, European Union, etc.)

The Lecture series aims to provide transdisciplinary training for capacity building towards the understanding of (a) the city as a "living organism" (b) climate change, its controlling processes and impacts at the city (c) links of climate change to cultural heritage at the urban scale (d) social and economic dimensions of climate change (e) nature in cities (f) urban transformations for Climate Friendly and Climate Neutral cities.

The course will also expose the participants to the international framework related to "climate change and cities" and to relevant European initiatives. Emphasis will be given to the European Green Deal and the new role of cities towards 2050.

Lecture 1. Introduction to the theme "Climate change and Cities"
European Union and international initiatives related to the theme "Climate Change and Cities". The Sustainable Development Goal on Sustainable Cities and Communities.

Lecture 2. The city as "a living organism"
Understanding the two-fold processes between cities and climate change. Explore and inter-correlate urban, environmental, climatic, energy, social and economic aspects of a city. Urban climate risks. The Resilient City.

Lecture 3. Ecological and social crisis: a problem beyond the Cities
The aim of this lecture will be twofold. On the one hand, we would provide an analysis of the ecological and social crises from an interdisciplinary point of view. On the other hand, we would focus on our inter- and eco-dependency as humans, and explore how human needs should be the center of our cities and rural areas.

Lecture 4. Cultural heritage and ecology in global cities
The lecture consists on the analysis of the instrumentalization of cultural heritage in the large capital cities and its consequences for global and local cultures. Through a comprehensive examination of the cities through a social, economic, and ecological lens, this lecture analyzes histories and urban transformations within a global context.

Lecture 5. Urban green and Climate Change
The green infrastructures as tools for climate adaptation of cities: experiences and evaluations. The role of urban green spaces from an environmental psychology-based view: a multi-disciplinary approach to understanding and addressing human dimensions of climate change.

Lecture 6. Urban transformations in view of Climate friendly and neutral Cities
Acquaintance with the terms exposure, sensitivity, adaptive capacity and vulnerability. Climate change indicators. Road map and prerequisites for Climate Friendly and Neutral Cities.

Scheduled time: Flexible (provisional period January 2021, one lecture per week)

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

This proposal suits one of the main CIVIS goals since it not only allows cooperation between Universities, but also between six different Departments within five academic fields.

The proposed educational activity has also the following characteristics:

(a) contributes to the goals of Hub 1 and complies well to the landscape mapping performed within its operation;
(b) establishes a cooperation between two member Universities in view of the definition and development of a more extended educational framework and collaboration,
(c) reflects an issue of main concern taken that 70% of people live in cities and the trend is increasing
(d) addresses the two fold relationship between climate change and cities,
(e) has a strong transdisciplinary/multidisciplinary character,
(f) takes note of recent developments in climate change (from the scientific and policy perspectives) as far as cities are concerned.
(g) facilitates the participation of graduate students from a multitude of disciplines,
(h) introduces European Union priorities as related to the Green Deal and to Climate Neutral Cities.

Finally, the activity reflects considerable flexibility, taken that it will be offered on line and according to a schedule which will not conflict to the main educational obligations of the participants.