



# **VIU** Graduate seminar **COPING** **WITH sea** **Level rise**

**Understanding and Managing Climate Change:  
Coping with Sea Level Rise**

**July 10–22, 2017**

**Venice International University  
Isola di San Servolo, Venice**

# VIU Graduate Seminar

## Understanding and Managing Climate Change: Coping with Sea Level Rise

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Scientific coordinator:

Sonia Silvestri  
Duke University



### Program

The symptoms of Global Warming, and in particular an accelerating Sea Level Rise, are already detectable in several regions of the globe. The discussion, at a governmental level, on the importance of reducing greenhouse gas emissions is ongoing, but strategic decisions have to be taken soon in particular in regard to low-lying coastal areas and cities, considering that coastal areas less than 5 meters above sea level are home to roughly 200 million people worldwide (World Ocean Review 2013).

The Graduate Seminar will give students a broad perspective on the impact of Climate Change and Sea Level Rise upon coastal areas from the social, economic and environmental points of view. Causes and consequences of global warming, and its impact on the state of the oceans and internal seas will be addressed and discussed, and changes in the hydrological cycle will be examined. Using data and models to explore future scenarios, the impact of sea level rise on coastal morphology, ecosystems, water resources, population and health will be presented and discussed. Students will explore, in class and in the lab, state-of-the-art monitoring technologies and available datasets. Through analysis of adaptation and mitigation strategies and engaging discussions on critical management issues, students will develop their own critiquing concepts in a multidisciplinary framework.

The Venice Lagoon will be used as a “laboratory”, the ideal case-study to explore the intertwined dynamics of human and natural systems. The Venice Lagoon is a diverse ecosystem providing invaluable services, which has been deeply transformed over the long history of the Venetian State and, in more recent years, by extremely impacting engineering works. There will be four field trips closely linked to the topics discussed in class in order to explore some of the issues caused by Sea Level Rise in the lagoon and surrounding areas.

The MOSE system, the systems of gates currently being constructed to protect the city of Venice from extreme high tides, will also be presented and its characteristics will be discussed.

The 2017 edition will be led by:

- Duke University
- National Research Council of Italy
- Università degli Studi di Padova
- Università Ca' Foscari Venezia
- Università Iuav Venezia
- INRS University
- KU Leuven

### Topics

- Causes and consequences of global environmental change and Sea Level Rise: available records, models and future projections.
- Global warming and changing oceans: models and examples.
- Ecological aspects of the impact of global warming on life in the oceans.
- The impact of sea level rise and climate change on global water resources.
- Extreme events in coastal areas: data analysis and modeling.
- Coastal eco-geomorphological processes: modelling of current dynamics and prediction of future changes.
- Coastal wetlands ecology, restoration and management.
- Observations and monitoring systems for the management of coastal areas.
- Social, economic and political impacts of sea level rise.
- Climate change, sea level rise and global health in coastal areas

### Methodology

Students will attend lectures every morning, and participate in discussions about the impact of global environmental change on coastal areas. The four field trips will provide the opportunity to collect data and samples that will be analyzed within specific hands-on activities in the VIU computer lab. Students will develop an extensive knowledge of models, predictions, and related uncertainties.

### Learning outcomes

At the end of the course students will be familiar with the physical processes that generate the global warming phenomenon, and will

understand the impacts of changing oceans and rising sea levels on human and natural systems.

### Target

Master's students and PhD candidates from VIU partner universities with an interest in environmental issues. Candidates from non-member institutions will be also considered if invited by the scientific coordinator.

### Fees & Grant Support

Students from the VIU member universities will pay no participation fees. Grant support is also available to support, partially or fully, the costs of international travel and accommodation.

The participation fee for students from non-member institutions is € 1220 (incl. tuition, course materials and taxes). Students from non-member institutions are not eligible for VIU grant support.

### Credits

This program is equivalent to 3 ECTS.

This program has been included in the Master in Environmental Management (MEM) course listing at the Nicholas School of the Environment, Duke University.

**The final program will be available on the VIU website on February 10, 2017.**

### Applications

February 7 – 28, 2017  
via the VIU website.

Applicants must submit the application form, a letter of motivation – which should include a brief description of the candidate's Master's or PhD research project, a curriculum vitae and a photo.

### Application deadline: February 28, 2017

Admitted candidates will be notified by March 7, 2017.

### Contacts

Venice International University  
Isola di San Servolo  
30133 Venice, Italy

T +39 041 2719511

F +39 041 2719510

E [summerschools@univiu.org](mailto:summerschools@univiu.org)