



UNIVERSITÀ DEGLI STUDI DI TORINO

ID

VP39\_DIP\_SCITER

## Visiting Professor Program Academic year 2019/2020

### DEPARTMENT OF EARTH SCIENCES

**TEACHING COMMITMENT: 56 hours**

The Visiting professor will teach in two different courses.

### COURSE TITLE

Earth Dynamics, Risks and Georesources: Science and Communication

### TEACHING PERIOD

2nd term

### SCIENTIFIC AREA

Earth Sciences

### LANGUAGE USED TO TEACH

English

### COURSE SUMMARY

The course is divided into 3 modules:

1) Lectures on relationships between Man and the geological environment:

- The conceptual framework: a) environmental dynamics-hazards-vulnerability-risks. b) geodiversity-georesources-human activities-impacts. Definitions: instability event, hazards, multiple hazards, and disaster. Types of hazards and related characteristics (magnitude, frequency, intensity and rate, event and site parameters). Hazard identification, assessment, mapping (concepts and methods).

2) Lectures and laboratory on knowledge and communication on geohazards and Risks

Different dimensional scales and significant case studies will be analysed: seismicity of convergent margins, volcanic areas, flood plains, instabilities of mountains and cryosphere and their relationships to climate change.

3) Applications, laboratory and field activities

Analysis of risk reduction and sustainable development policies: the UNISDR Hyogo Framework for Action for resilient communities. The UN Sustainable Development Goals (SDGs).

Field activities for applying knowledge and developing communications skills on Earth Dynamics, Risks and Georesources by using web and mobile resources for collaborative management of geohazards (community's engagement, knowledge sharing, proactive response).

### **LEARNING OBJECTIVES**

Within the course, students will achieve 1) geoscience knowledge and understanding, 2) ability of applying knowledge and understanding on geohazards, 3) making judgements in case of risks, 4) audiovisual communication skills and 5) basic learning skills on the following topics:

- the links between geodiversity, environmental dynamics, geohazards, risks and georesources;
- the premonitory signs, processes and results of instability within geological environments;
- the differences between hazards, risks, disaster and catastrophes;
- the relationships between magnitude and recurrence time;
- the links between human activities/infrastructures and vulnerability to natural disaster.
- the resilient behaviours to geohazards (from reactive and proactive responses to natural disaster).
- the importance of Earth Sciences knowledge for enhancing disaster reduction actions and sustainable development.

### **TUTORSHIP ACTIVITIES**

Visiting professor will have to:

- act as co-leader of field trips to selected site for analysing geohazards case studies in the Western Alps.
- provide guidance to students for conducting data collection and audiovisual documentation of field activities.
- assist students in elaborating audiovisual reports on collaborative management of geohazards.

### **LAB ACTIVITIES**

Web search, image and data collection on selected geohazards case studies and risk reduction and sustainable development policies Use of geodatabases for organizing information. Simple elaborations of digital data for basic hazards mapping and audiovisual reporting for scientific communication.

### **OTHER ACTIVITIES BESIDES THE COURSE**

The visiting professor will offer targeted seminars on Geoscience Communication to Master and PhD students on Earth Sciences. A specific workshop will be prepared at the University of Torino for the international PhD on Technology Driven Sciences: Technologies for Cultural Heritage (Tech4Culture, H2020-MSCA-COFUND project).

Dissemination activities will be prepared in agreement with the Italian Glaciological Committee and the NatRisk Interdepartmental Research Centre, according to the program prepared by the Public Engagement Committee of the University of Torino.

## **ADDITIONAL COURSE**

### **COURSE TITLE**

Earth Dynamics, Risks and Georesources: Science and Communication

### **TEACHING PERIOD**

2nd term

### **SCIENTIFIC AREA**

Earth Sciences

### **LANGUAGE USED TO TEACH**

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## **VISITING PROFESSOR PROFILE**

Research and educational activities in Earth Sciences, Geoscience Communication, Physical Geography.

Expertise requested: knowledge on Earth surface processes, particularly those related to geohazards and natural disaster. Analyses of geology's effects on human activities and culture. Studies of the role of Geoscience Communication for environmental management.

Specialized skills: audiovisual methods for enhancing public understanding of geoscience and communicating on geohazards and natural disaster.

## **CONTACT PERSON AT THE DEPARTMENT**

Marco Giardino

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