

[Home](#)

Risk Assessment and Decision Support System for Environmental Impacts related to Climate Change

Anno accademico

2021/2022

[→ Programmi anni precedenti](#)**Titolo corso in inglese**[Risk Assessment and Decision Support System for Environmental Impacts related to Climate Change](#)**Codice insegnamento**

PHD026 (AF:364620 AR:193161)

Modalità

In presenza

Crediti formativi universitari

6

Livello laurea

Corso di Dottorato (D.M.45)

Settore scientifico disciplinare

CHIM/12

Periodo

II Semestre

Anno corso

1

Sede

VENEZIA

Spazio Moodle[Link allo spazio del corso](#)[→ Docenti e corsi di laurea](#)[→ Programma](#)

^ Inquadramento dell'insegnamento nel percorso del corso di studio

The course seeks to impart a broad understanding of the methods, tools and skills required for conducting analyses of environmental impacts, vulnerability and risks posed by climate change in the context of global environmental changes. The course emphasizes the integration of disciplinary knowledge and covers a wide range of subjects, including scenario development, environmental risk analysis, impact and vulnerability assessment, decision support systems. Attention is paid to both, theoretical and practical aspects of vulnerability and risk assessment, underpinned by examples from recent international research.

Following an introduction to the key concepts and the state of the art in environmental impact, risk and vulnerability assessment methodologies, the course will provide an overview of the main assessment and management tools applied to relevant case studies.

Then, we will go on to the analysis of Decision Support Systems (DSSs) for the assessment and management of environmental impacts of climate change. An introduction to the concept of DSS and their applications will provide a preliminary insight into the theme. Review of some existing Decision Support System to be compared and evaluated will add technical and analytical aspects. Application to a case study will be instrumental in order to explore flexibility of DSSs and the use of existing tools.

^ Risultati di apprendimento attesi

Conoscere la terminologia linguistica di base e comprendere i testi che ne fanno uso.

Saper utilizzare correttamente la terminologia linguistica in tutti i processi di applicazione e comunicazione delle conoscenze acquisite.

Sapere formulare ed argomentare semplici ipotesi, sviluppando anche un approccio critico alla valutazione di ipotesi alternative.

Sapere interagire con i pari e con il tutor, in modo critico e rispettoso.

Saper consultare criticamente i testi di riferimento e la bibliografia in essi contenuta.

Saper utilizzare strumenti e software dedicati.

^ Prerequisiti

Basic knowledge of some computer tools and programs, including some notions of GIS (Geographical Information System)

^ Contenuti

no. 1 Regulatory frameworks for environmental risk assessment and management related to climate change.

Parry M, Carter T, 1998. Climate Impact and Adaptation assessment: the IPCC Method. Earthscan, 192 pp.

Willows, R.I., and R.K. Connell (eds.) 2003. Climate adaptation: Risk, uncertainty and decision-making. UKCIP Technical Report. UKCIP. Oxford, UK.

no. 2 Approaches and methodologies for environmental risk assessment and management related to climate change. UNFCCC, 2004. Compendium on methods and tools to evaluate impacts of, and vulnerability and adaptation to climate change. 151pp.

Australian Government, 2005. Climate change risk and vulnerability. Promoting an efficient adaptation response in Australia. Report to the Australian Greenhouse Office, Department of the Environment and Heritage.

Landis WG, Wieggers JK, 2007. Ten years of the relative risk model and regional scale ecological risk assessment Human Ecological Risk Assessment, 13 (1): 25-38 .

Romieu E.,Welle T., Schneiderbauer S., Pelling M., Vinchon C., 2010. Vulnerability assessment within climate change and natural hazard contexts: revealing gaps and synergies through coastal applications. Sustainability Science:159–170.

no. 3 Decision Support Systems for evaluation and management of environmental impacts of climate change.

Shim, J P, Warkentin, M., Courtney, J F, Power D J, Shards, R, Carlsson C. 2002. Past, present and future of decision support technology, Decision Support Systems: 33, 111-126.

Some relevant websites: DIVA DSS, <http://www.dinas-coast.net/> ; WADBOS DSS, <http://www.riks.nl/Projects/WadBOS> ; LADSS DSS, <http://www.macauley.ac.uk/LADSS/> ; CLIME DSS, <http://geoinformatics.tkk.fi/twiki/bin/view/Main/CLIMEDSS> ; <http://www.climsystems.com/simclim/> .

no. 4 Assessment and management tools applied to case studies.

Different case studies will be presented to illustrate specific assessment tools and management options for climate change impacts.

Lecture based on material provided by the instructor.

no. 5 Overview of international on-going research projects.

Lecture based on material provided by the instructor.

Some relevant websites: CLIM-RUN project, www.climrun.eu; CIRCE project, www.circeproject.eu; KULTURISK project, www.kulturisk.eu; CIRCLE-MED projects, www.circle-med.net

no. 6 Case study application of a DSS (practical application).

The DSS will be chosen during the course.

Students will be asked to summarise and evaluate the impacts of climate change and possible measures for adaptation in a particular sector and/or region. The exercise will require a internet review to gather and critically evaluate available scientific knowledge for the assessment of climate change impacts.

Material for the practical application delivered by the lecturer, use of PCs.

no. 7 Discussion of case study application and final remarks.

^ **Testi di riferimento**

See the program of lectures for details.

^ **Modalità di verifica dell'apprendimento**

La prova scritta consiste nella consegna e valutazione di un rapporto sintetico dell'esercitazione pratica condotta dagli studenti durante il corso (60 % del voto).

Presentazioni ppt su argomenti trattati nelle lezioni e presentate dagli studenti durante il corso saranno anche considerate (40 % del voto).

^ **Metodi didattici**

Lezioni frontali.

Gruppi di lavoro e presentazioni degli studenti su argomenti trattati nelle lezioni frontali.

^ **Lingua di insegnamento**

Inglese

^ **Altre informazioni**

The course may be enriched by the participation of some external lecturers. Attendance is required. Daily preparation is also required. The assignments are set out above in the course syllabus. Academic honesty is an important part of university training. While students may discuss assignments with their classmates and others, they are expected to make sure any written material they submit is their own work. Students are expected to know how to cite the work of others and present a bibliography of the research texts that were used.

^ **Modalità di esame**

scritto

^ **Obiettivi Agenda 2030 per lo sviluppo sostenibile**

Questo insegnamento tratta argomenti connessi alla macroarea "**Cambiamento climatico e energia**" e concorre alla realizzazione dei relativi obiettivi ONU dell'[Agenda 2030](#) per lo Sviluppo Sostenibile



Programma definitivo.

Cerca nel sito

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