

Dealing professionally with Climate Change Issues

SYLLABUS

VU Graduate Winter School

8-12 January 2024



Any general questions for the Winter School support team? Contact graduatewinterschool@vu.nl.

Course *Dealing professionally with Climate Change Issues* by
Dr. Gerald Ganssen and Dr. Paolo Scussolini

VU Graduate Winter School 2024

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Course organiser(s)

Dr. Gerald Ganssen, main organiser, and lecturer

until 1.12.2022: Department of Earth Sciences, Faculty of Science, VU Amsterdam

since 1.12.2022: COTUME *Coaching-Tutoring-Mentoring* – Gerald Ganssen

Dr. Paolo Scussolini (IvM), second organiser and lecturer

Institute for Environmental Studies, Faculty of Science, VU Amsterdam

Other main lecturers

Prof. Dr. Han Dolman (NIOZ), **MSc., BSc. Tamara Happé** (IvM, VU), **MSc., BSc. Diana Hatzebühler** (Vienna University), **P. D. Dr. Reinhard Kreissl** (VICESSE, Vienna, not confirmed yet), **Prof. Dr. Gerrit Lohmann** (AWI Bremerhaven and Bremen University), **Dr. Iris Manola** (IvM, VU, not confirmed yet), **Prof. Dr. Philipp Pattberg** (IvM, VU), **Prof. Dr. Hans von Storch** (Hamburg University, retired; director of the Institute of Coastal Research of the Helmholtz Zentrum Geesthacht, retired)

Invited guest lecturers (short contribution confirmed)

Dr. Irka Hajdas (ETH Zürich)

Dr. Sjoerd Kluiving (Archeology and ASI, VU)

Dr. Manfred Mudelsee Climate Risk Analysis – Manfred Mudelsee e. K. Manfred Mudelsee

Summary

MSc Courses in most disciplines have an either general or more specialized character and offer state-of-the-art knowledge, practicals, and discussion. However, training in dealing with difficult situations related to either the scientific topic and/or the career stage/path of the student are hardly practiced.

This winter-school course will next to the most actual topics and issues of “Climate Change and its societal effect” fill this “educational gap” by improving student’s efficiency and effectiveness in dealing with controversial topics and difficult situations related to Climate Change issues.

Course description

Climate Change topics are becoming more and more relevant to various fields of science and related studies and get a strong multidisciplinary character: from Earth Sciences to Sustainability Studies, from Social Sciences to Economy including moral and ethical topics and related jurisdiction.

Course Goal

The goal of this winter-school is to improve your ability to react professionally when facing difficult and often controversial discussions related to Climate Change.

You are expected to proactively contribute, including your suggestions/proposals for relevant topics and themes.

Learning Objectives

During this course you will learn the scientific basics of Climate Change: facts, causes and consequences. In-depth information on the following themes will prepare you for discussions within your own profession/study.

1. Natural versus human-made climate change
2. The past and the present: lessons for the future and its modelling
3. The history of Climate Change
4. Policy, politics and societal relevance
5. Climate change and its tradeoffs

The generic learning objectives are to:

- improve at speaking up, discussing and defending your opinion,
- get used to and improve in dealing with criticism,
- become passionate for relevant issues without losing professionalism,
- operate respectfully and professionally.

Are you able to cope with this kind of situation when “Climate Change” is the subject?

At the end of the winter-school you will answer probably with a **“Yes, I can”** when:

- *You get interviewed by a press officer or a reporter for a newspaper/magazine.*
- *You are involved in a discussion with a climate denier.*
- *You apply for a grant and get interviewed.*
- *Your supervisor does not agree with your plans.*
- *You do not agree with the reviewers of your submitted paper.*

Course format

The course will be, in addition to *Lectures* on Climate Change issues by experts, a mixture of

Exercises:

- flipped classroom (<https://flippedclassroommodel.com/>), with critical evaluation of the presentations shown
- evaluation and grading of scientific papers and proposals (partly in small working groups)

Oral presentations, to be actively discussed and criticized by student peers. *

Short written report about a selected topic. *

Final debate

*=subject to grading (50% each)

Winter school schedule (extra activities)

Monday 8 January: 09:00-09:30 Official VU Graduate Winter School Opening

Wednesday 10 January: 11:00-11:30 Virtual Networking Coffee Break

Thursday 11 January: 16:30-18:00 Online Workshop on Effective Online Presenting

Tuesday 16 January: 17:00-17:30 VUture at Vrije Universiteit Amsterdam

Wednesday 17 January: 15:00-15:30 Virtual Networking Coffee Break

Specific course schedule

One week course, 5 days from 9.00 till 15.00h (homework hours not included)

Time schedule

Day 1-4:

9.00h-12.15h lectures by experts with discussions two to three per day, 45 minutes followed by general open discussions at the end, with additional Q&A, experts present.

On **Day 1: 9.00h-9.30h Official VU Graduate Winter School Opening**

Break

13.00h-16.00h exercises, student presentations (pitches)

Individually continued, homework and informal discussions

At the end of day 4: delivery of reports

Day 5:

8.30h-12.30h: Evaluation of reports jointly

Break

13.30h-15.00h continued:

16.00.-18.00 final debate and course evaluation

The final, detailed planning depends on the number of participants. Details of the topics and titles can be subject to change.

Day 1: Climate Change: Past and Present

1.1 Climate Change in Earth History:

Natural versus Anthropogenic Change (**Ganssen**)

1.2. Floods, Droughts and Disasters: Caused by Climate Change?! (**Scussolini**)

Day 2: Atmosphere and Ocean Today

2.1 Hurricanes (**N.N., IvM**)

2.2. Heat waves, causes and consequences (**Happé**)

2.3. Ocean Acidification (**Ganssen**)

2.4. Modelling the Future (**Manola** to be confirmed)

Day 3: History of Climate Change

- 3.1. Historical perspectives (**Dolman**)
- 3.2. Societal perspective (**Kreissl**)
- 3.3. Governance (**Pattberg**)

Day 4: Communication of Climate Change

- 4.1. Explaining where you work on: „ Welcome to the Anthropocene? !“ (**Hatzenbühler**)
- 4.2. Detection of non-natural climate and attribution of plausible anthropogenic causes (**von Storch**)
- 4.3. Good news vs bad news and the public (**Lohmann**)

Discussions of talks, statements, and perspectives from selected video presentations (**Ganssen and Scussolini**)

Day 5: Discussions of student papers and Debate

- 5.1. Paper discussion
- 5.2. Panel debate: Climate Change, what now?

In a kind of role play a group of 6 students take part in a panel discussion where they defend a certain view with two moderators. All others are the critical public and have the role to take a position and actively participate in the discussion.

- 5.3. Final round: Informal Discussion on establishing a sustainable network; participants talk about their future perspectives and plans.

Confirmed guest lectures

(15 minutes pitches, distributed throughout the course depending on availability)

„Radiocarbon dating: pitfalls and perspectives“

Irka Hajdas (ETH Zürich)

„Analysis of Climate Extremes: An Appetizer“

Manfred Mudelsee (Climate Risk Analysis)

„Sapiens and the Anthropocene“

Sjoerd Kluiving (VU Amsterdam)

About our lecturers

Han Dolman

“Passion for science, environment and the sea”



Han is a leading Earth sciences professor, with years of scientific expertise on issues such as biogeochemical cycles and the atmosphere. Currently professor of Ecohydrology at the VU University in Amsterdam, Han has published more than 240 papers in peer-reviewed journals and is participating in several continental scale carbon projects. In 2021, Han was appointed by the board of the Institutes Organization of NWO, the Dutch Research Council, as the Director of the Royal Netherlands Institute of Sea Research (NIOZ) for a period of five years.

Gerald Ganssen

“Passionately sharing knowledge, experience and vision with students and colleagues”



Gerald looks back to a career of 40 years in research, teaching and management at the VU as expert in past and modern climate change with focus on palaeoceanography.

He is intrigued by leading sea-going research and expeditions since the early years of his career. He has served the European Geosciences Union (EGU) in various functions.

The last years of his academic career had a strong focus on teaching with developing and teaching courses and supervising students at all levels as mentor and teacher. He has retired in 2022 and owns the company CoTuMe.

Irka Hajdas

“Improving the limits of accurate dating and chronology”



Irka is a geochronologist using radiocarbon dating as a chronometer applied in climate research, environmental studies, archaeology, cultural heritage, and forensics. Currently a lecturer at the Geology Department, ETH Zurich, Hajdas is also involved in programs promoting science for schools. She is a member of the European Geosciences Union, where she currently serves as the president of Climate Division. As a member of Radiocarbon community and of the European Association of Archeologists, Hajdas is involved in activities for the protection of cultural heritage.

Tamara Happé

“Challenged by science, human communication and societal engagement”



Tamara is a PhD Candidate in the department of Water and Climate Risk of the Institute for Environmental Studies (IVM) at Vrije Universiteit **Amsterdam** (VU). Her research is part of a larger European project called: eXtreme events: Artificial Intelligence for Detection and Attribution (XAIDA). Particularly, she focuses on the detection of heatwaves in Europe and the drivers behind them. She finished her master thesis in a joint VU Amterdam/PIK Potsdam project under supervision of Efi Rousi and Stefan Rahmstorf (PIK) and Gerald Ganssen and Han Dolman (VU).

Diana Hatzenbühler

“We are just guests on Planet Earth”



Diana is currently PhD Student in the geological department of the University of Vienna, working on „Anthropocene stratigraphic signals“. During her BSc and MSc study she focused her research on sedimentological processes. She has been one of the participants of last year’s edition of this winterschool and will be one of the lecturers in 2024. She is looking forward to also function as mentor in our course to form a bridge from the lecturers to the participants.

Sjoerd Kluiving

“Humanities and our Planet: past, present and future”



With a background in Physical Geography and Geology Sjoerd works as Associate Professor in Geoarchaeology and Anthropocene Studies at the Faculty of Humanities and at the Amsterdam Sustainability Institute of the Vrije Universiteit Amsterdam. In both, research and teaching he integrates History, Art and Culture, and Earth and Life Sciences with a focus on the Anthropocene. He co-leads the newly established Environmental Humanities Center at the Vrije Universiteit Amsterdam and is (co-) leader of various EU-Horizon 2020 and national (NWO) funded projects.

Reinhard Kreissl

“Climate Change and crimes might be closer related than you might expect”



Reinhard’s research focuses on the Sociology of Law, Deviance and Social Control, Knowledge and Science, and on aspects of Cognitive- and Neuroscience.

He is founder of VICESSE, a private, non-profit and independent research institution, sustained primarily by European and national research grants won in highly competitive processes. No subsidy from political parties, ministries or other stakeholder groups flows into the work of VICESSE.

His publications often focus on Criminology, the interdisciplinary study of crime and deviant behavior. He is strongly engaged in public discussions, writes comments for the press and publishes books like “Die ewige Zweite” and “Feinde” to name just a few.

Gerrit Lohmann

“It is important to help the general public understanding our changing climate”



Based on his study of chemistry, mathematics and physics his research interests focusses Paleoclimate Dynamics, Ocean/Climate Change, Polar Science and Earth System Modeling. He works at the Alfred Wegener Institute in Bremerhaven and at the University of Bremen for teaching. Recently he is strongly engaged in communicating Science to the general public by explaining the processes, causes and consequences of past and present Climate Change and its prediction for the future in an understandable way.

Iris Manola

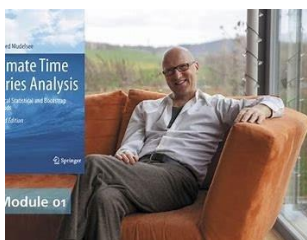
“Understanding current climate extremes helps understanding our future”



Iris works on “Climate extremes” as postdoctoral researcher at IVM group of Vrije Universiteit Amsterdam and is Visiting researcher of KNMI. Her areas of expertise are dynamic meteorology and climatology from urban to global scale, land-atmosphere interactions, teleconnections and extreme weather.

Manfred Mudelsee

“Advising decision makers on climate risks.”



Manfred studies how climate changes are related to changes in extreme climate/weather. For that purpose, he advances bootstrap and other mathematical-statistical simulation methods to quantify more accurately climate parameters and to test harder hypotheses. With his background in physics, geology and statistics he is owner of two companies: *Climate Risk Analysis* and, non for profit, *Advanced Climate Risk Education*.

Philipp Pattberg

“Accelerating sustainability transitions in times of Global Change”



Currently, Phillip serves as Director of the Amsterdam Sustainability Institute (ASI), a platform for interdisciplinary research collaboration among all faculties at Vrije Universiteit Amsterdam. As full professor of transnational environmental governance and policy, he specializes in the study of global environmental politics, with a focus on climate change governance, biodiversity, forest and ocean governance, transnational relations, public-private partnerships, network theory and institutional analysis. His current research analyzes options for institutional innovation to help accelerate the sustainability transition in times of increased institutional complexity, functional overlaps and fragmentation across environmental domains.

His most recent co-edited book is *The Anthropocene Debate in Political Science* (Routledge 2018).

Paolo Scussolini

“Improving our skill and knowledge on water, environment, and climate change”



Paolo works at the intersection of climatic changes, hydrology, natural hazards and climate adaptation. Presently, his efforts are mainly geared towards improving understanding of climate impacts by learning from past climates. In his Last Interglacial Floods project he uses paleo climate models, global hydrological and hydraulic models and geological proxies to reconstruct the hydrology and floods of a key past warmer climate. His other main areas of focus are the climate and socio-economic drivers of changes in flood risk, from the local to the global-scale, and the potential of climate adaptation measures.

Hans von Storch

“Ambassador for the integrity of science”



Hans von Storch is director emeritus of the Institute of Coastal Research of the Helmholtz Zentrum Geesthacht (HZG), professor emeritus at the University of Hamburg, and professor at the Ocean University of China (Qingdao). From 1987 - 1995, he was Senior Scientist at the Max Planck-Institute for Meteorology, where he worked with Klaus Hasselmann.

His research interests are climate diagnostics and statistical climatology, regional climate change and its transdisciplinary context. He has published 25 books, among them “Statistical Analysis in Climate Research” with Francis Zwiers and “Die Klimafalle” with ethnologist Werner Krauss, and numerous articles. By some of his colleagues he is regarded as an “enfant terrible” because of his strong statements always based on scientific facts during (public) debates.

