Rethinking climate risk
Arqus Winter School 2021
Welcome to the Arqus European University Alliance!

Welcome! By taking this course you are taking part in a wider initiative to build bridges between European Universities as part of the Arqus European University Alliance: https://www.arqus-alliance.eu. In this course you are joining a class of students from across seven European universities.

The Arqus Alliance brings together the universities of Bergen, Granada, Graz, Leipzig, Lyon, Padova and Vilnius, seven longstanding comprehensive research universities who share extensive experience in joint projects and a common profile as internationalized institutions with deep regional engagement in medium-sized cities.

The principal ambition of the Arqus Alliance is to act jointly as a laboratory for institutionally designing, testing and learning about innovative models of deep inter-university cooperation.

The Alliance’s vision is to build on the member universities’ sound prior experience in cooperation in order to achieve a high level of integration in its members’ policies and action plans in order to:

- Enhance the education of critically engaged European and global citizens who are able and willing to contribute to a multicultural, multilingual and inclusive Europe which is open to the world.
- Increase and improve the joint research capacity of the partner universities.
- Better respond to the grand societal challenges of the 21st century in Europe and beyond.

We hope that through this course we will critically engage you as European and global citizens, in thinking about how to study and respond to the grand challenges facing Europe today.

Cover Image: The European Heat wave of 2003 by Reto Stöckli, Robert Simmon and David Herring, NASA Earth Observatory, based on data from the MODIS land team
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Engaged European Citizens

The Arqus Winter School is the beginning of a unique educational journey. It will engage you as students in thinking about what it means to be a European Citizen, and how this citizenship is being galvanized around societal challenges; from pandemics, to global climate change, or in evolving to a more diverse and mixed society. It is a challenge-based approach to educating critically engaged European citizens, and it is being run in parallel at all seven Arqus universities this semester. The course is designed to facilitate interaction and learning between students at the different universities at certain junctures, starting with the winter school.

Traditionally, concepts of citizenship have been connected to notions of territory and statehood and the implicit or explicit rights and responsibilities of people who live there. European citizenship necessitates reimagining this concept, moving away from concrete geographical boundaries and toward more abstract ideas and ideals such as peace, prosperity and equality. This radical new way of thinking about citizenship demands conversations about what our rights and responsibilities are as European citizens, and what they should be. In the 21st century, active European citizenship necessitates engagement with complex global challenges.

Contemporary universities have the power to make substantive contributions to discourses and models of active, engaged citizenship by developing interdisciplinary, challenge-based and student-led pedagogies that empower students to critically reframe, reflect upon and address the challenges we face today.

This introduces four key principles around which this course is designed:

- **Engaged citizenship**: This course starts from the idea that abstract notions of European citizenship are being activated and made more concrete around challenges, which provide tangible discussions of the rights and responsibilities of European citizens. For example, under the COVID-19 Pandemic, responsible citizenship is tied to adhering to government recommendations on
wearing masks or keeping physical distance. How we engage with the grand challenges of our time helps define citizenship.

- **Challenge-based research:** This course engages with social challenges by enabling you as students to conduct group research projects into how challenges take shape in the places they live. This is a mode of research that begins from the complex, uncertain and politically contested nature of these challenges, rather than pushing these things to the side. It adopts a critical perspective for making sense of what is going on, and a normative perspective for thinking what should be done to address the challenge.

- **Transdisciplinarity:** The complexity and interconnectedness of the challenges facing Europe, and the significant uncertainties they pose, mean that no one scientific discipline or field can claim to have the overview. We can more comprehensively and fairly make sense of these challenges by bringing together complementary perspectives – from formal scientific disciplines but also other knowledge systems like traditional knowledge – to develop creative research frames and methods.

- **Student-led:** This course is designed to support you as students in your groups, to enable you to conduct your own independent, transdisciplinary research project. In this way, you will have the opportunity to steer your own learning according to your interests and needs in conceptualizing, carry-out and completing a piece of research.
Rethinking Climate Risks

The Arqus Winter School kicks off this year’s Arqus challenge-based learning programme which looks at how European citizens are engaging with the impacts of global climate change in the places they live; how various institutions and groups of people are defining and responding to ‘climate risks’. The rapidity and complexity of linked climate and other changes are destabilising communities’ long-held understandings and practices of managing risks; from storms, to heatwaves or floods. There are increasing cases where these rapid changes are shaking key institutions (like municipalities) claims to control these risks and undermining public trust in them. Europe’s cities are being forced to (re-)build institutions for governing a new class of risks beyond their experience. Rethinking risk implicates a great many disciplines and professions, and demands vigorous public debate.

For example, recent flooding in one Western Norwegian city saw public scrutiny into how the municipality planned for flooding events, and how a projected increase in rainfall might totally undermine their planning and engineering calculations. Though the city has long lived with the normal rhythms of flooding, climate scientists are telling this community that they will face rainfall and flooding that is far beyond their experience. In response, some groups put forward drastic plans for controlling the nearby river with hydro-power works, but this river is protected for its outstanding natural and recreational value, so these plans are controversial. Critics highlight the high uncertainties about both climate projections, and whether increased rain necessarily results in increased flooding? We see how climate risks have, in this case, opened up heated public debates in the municipality about what the river means for the people of this city, and the heightened levels of flooding risk they may have to live with. In these debates, local residents are engaged in key decisions around what worldviews, risk aversion, values and practices are important for their community.

This semester you will form interdisciplinary research groups, tasked with conducting a piece of independent research into the risks of climate change that are recognised and governed for in the city where you study. Where your group puts its focus, and how you conduct your research will be up to you. But all groups’ work will share three common features:
Concern for how climate risks are addressed by local institutions

Combining descriptive scientific study and normative attention to what ought to be done (e.g. policy recommendations)

Comparison with cases across Europe; groups interact across Arqus universities.

To support you in conducting your research projects, this course runs in three broad phases:

The winter school: This is a one-week intensive session for a sub-set of students enrolled in the course at the seven universities, to kick-off the research projects and invest these students with some of the concepts, methods and competences for leading transdisciplinary research on the theme of changing climate risks in their own cities. It maps climate risks in each Arqus city.

The challenge-based learning programme: Following the winter school, students form research groups at their home universities, to conduct research projects over the semester. As on-going support to this project work, groups at all Arqus universities will access short, recorded lectures and other resources on a common Moodle online learning platform, about the theme of climate risks, and methods and tips for research. This will also be a platform for student groups to compare and review each other’s projects across Arqus universities.

The student-led forum: As student groups come to finish their research projects, we will facilitate a platform where students can compare findings and distil key lessons for engaged European citizenship around climate risks.
The Winter School

The winter school kicks off this semesters course on ‘Engaging European citizens for re-thinking climate risk’ as part of the Arqus Alliance. It has been developed by an academic committee of researchers from across the seven Arqus universities, convened by the University of Bergen. It draws on a Moodle platform of resources set up by the University of Graz.

The winter school brings together six students from each of the seven Arqus universities. It aims to invest these students with interdisciplinary research ideas, skills and resources to enable them to develop group research projects on climate risk in each Arqus city. At some universities the six winter school participants might be the only ones taking this course, while at others the six students might be part of a larger class, and they will need to form research groups and relate their experiences to others in their class.

The school is a five-day, intensive, interactive and interdisciplinary course creating the conditions for students to learn about and reflect on climate risks, to relate it to students in their home city, and begin putting together a mixed set of methods and tools for conducting a research project. Participating in the school ensures students develop working knowledge of:

- Climate impacts, risks and vulnerability; from the city up to the European scale.
- What climate risks mean for engaged European citizenship.
- Conducting transdisciplinary research.

The winter school was originally designed to convene 42 students together for a week at a cabin in the Norwegian mountains. But current restrictions on travel and conducting physical classes associated with the on-going pandemic meant that this course was forced into a virtual or hybrid mode. This means that, depending on the regulations at each Arqus university, students may be able to sit together as a group, or individually take part in the school virtually from home.

We have designed the winter school with this hybrid format in mind, particularly by creating space for interactive work among students,
within and across Arqus universities. The winter school is designed as a first mapping of climate risks in the Arqus cities, with a regard for climate risks and vulnerability at the regional European scale.

Winter school students undertake carefully designed workshop exercises each day, which ‘map’ local climate risks in different ways; through creative presentations (Monday), interpreting maps of climate projections (Tuesday), drawing risks as systems diagrams (Wednesday), imagining European risk scenarios (Thursday), or discussing principles of citizenship under climate change (Friday). Together these exercises build a composite picture of actual and projected risks and their management in each city.

The planned output is that the sets of maps developed in each city will be assembled together into a common portfolio of the seven Arqus cities, as a draft *Atlas of climate risks at different points of Europe*. The very concrete intention of this Atlas is as a resource for helping student groups to focus and frame their research projects after the winter school.
<table>
<thead>
<tr>
<th>Day</th>
<th>Theme</th>
<th>Monday Feb 22nd</th>
<th>Tuesday Feb 23rd</th>
<th>Wednesday Feb 24th</th>
<th>Thursday Feb 25th</th>
<th>Friday Feb 26th</th>
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</thead>
<tbody>
<tr>
<td>Morning plenary</td>
<td>Rethinking climate risk and science</td>
<td>0900–1200 (CET)</td>
<td>0900–1100 (CET)</td>
<td>Intro to the day’s theme by moderator</td>
<td>0900–1100 (CET)</td>
<td>0900–1100 (CET)</td>
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<tr>
<td>Official welcome to the Arqus Winter School</td>
<td>A short round of introductions to all seven ARQUIS institutions</td>
<td>Svetlana van Verschueren, University of Padova &amp; Silke Beck, University of Leipzig</td>
<td>Intro to the day’s theme by moderator</td>
<td>How climate risks emerge from connections between natural and social worlds</td>
<td>Introductions to day’s theme by moderator</td>
<td>Arqus Forum on European Citizenship 2020: Changing conceptions of citizenship and collective identity in the context of climate change</td>
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<td>Framing the winter school: studying sustainability and citizenship in an uncertain world</td>
<td>Jakob Grandin, University of Bergen</td>
<td>High Risks from Climate Change Douglas Maraun, University of Graz</td>
<td>How climate risks emerge from connections between natural and social worlds (double lecture)</td>
<td>Disruptive, top-down policy mixes for rapid decarbonization</td>
<td>Disruptive, top-down policy mixes for rapid decarbonization</td>
<td>Pawel Karolewski, University of Leipzig</td>
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<td>European citizenship, environmental challenges and populist discourse in perspective</td>
<td>Pietro De Perini, University of Padova</td>
<td>The impact of climate change on the risk of flooding Andrea D’Alpaos, University of Padova</td>
<td>The impact of climate change on the risk of flooding Andrea D’Alpaos, University of Padova</td>
<td>Bottom-up grassroots initiatives for climate change mitigation and adaptation</td>
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<td>A short round of introductions to all seven ARQUIS institutions</td>
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<td>Transdisciplinary ways of studying climate risks (double lecture)</td>
<td>Scott Bremer, University of Bergen &amp; Silke Beck, University of Leipzig</td>
<td>Short break</td>
<td>Short break</td>
<td>Short break</td>
<td>Short break</td>
<td>Shooting for the stars: keys to enhancing citizenship to mitigate climate risks</td>
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<td>Afternoon plenary</td>
<td>None</td>
<td>12.30-16 (CET): Plenary discussion in plenary students share: (i) their creative introduction to risks in their city (Mon); and (ii) one map describing processes behind these risks (Tue).</td>
<td>15–16 (CET): Plenary discussion</td>
<td>14.30–16 (CET): Communication and dissemination workshop: Local groups preparing a communication strategy related to their systems maps.</td>
<td>15–16 (CET): Plenary discussion</td>
<td>14.30–15.30 (CET): Ending of the winter school</td>
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Technical details

Plenary lecture sessions

Each day the winter school starts with a plenary lecture session running from 09.00 – 11.00, with the exception of Mondays session which will run until 12.00. This ‘webinar’ will be held on a Zoom platform, convened by Scott Bremer and Jakob Grandin at the University of Bergen. All 42 winter school participants and lecturers will have the active status of ‘panelists’ and will receive an email with their own unique link for each webinar, a few days before the school. As panelists, participants can question or comment on the lectures by registering that they have a comment (use !) or question (use ?) in the chat box, and being invited by the facilitator to speak. The lecture sessions will also be open to people not attending the winter school, who will join the webinar only as observers using a non-unique link, and without the possibility of interacting. Lecture sessions will have a break in the middle and at the end.

Afternoon workshops

After the lecture sessions, winter school participants alone will take part in group exercises in workshops. These will also take place on Zoom, and participants and lecturers will receive a common log-on link for each workshop. These workshops will always start in plenary with instructions from an expert, before participants are split into seven different ‘break-out groups’ to complete the exercise. Participants will sometimes be grouped by university (Monday to Wednesday’s workshops) and sometimes as mixed groups comprising participants from different Arqus universities (Thursday and Friday’s workshops). Each university has allocated facilitator(s) for the student groups at that university, who will support during the workshop activities. In addition, the expert(s) who present each exercise will also cycle around the break-out groups and offer advice or support as necessary.
Sharing sessions

At the end of the day (15.00 – 16.00) on Tuesday and Thursday, student groups will present what they produced in the workshops to each other. Here again these sessions will run on Zoom, with participants and lecturers all receiving a common log-on link for each sharing session. Students will have the possibility of presenting through Zoom, and/or depositing their presentation on the common Moodle platform for other groups to look at.

The Moodle platform

All participants have been invited via an email to work on a winter school Moodle platform at the University of Graz. On this platform, participants will have access to resources and be able to share material across all participants. Workshop outputs may, for instance, be deposited here.
Reading list

Below is a list of readings that go with the lectures delivered over the winter school, grouped according to the day of the lectures. Each university has different requirements on whether readings are mandatory or recommended.

Monday


Tuesday


Wednesday


Bensaude Vincent (in review), Rethinking time in response to the Anthropocene From timescales to timescapes. Submitted to Anthropocene Review. PDF will be distributed separately.
Thursday


Friday


The Winter School Workshops

Through the carefully designed workshop exercises each day, you will ‘map’ local climate risks in different ways; through creative presentations (Monday), interpreting maps of climate projections (Tuesday), drawing risks as systems diagrams (Wednesday), imagining European risk scenarios (Thursday), or discussing principles of citizenship under climate change (Friday). Together these exercises build a composite picture of actual and projected risks and their management in each city. The planned output is that the sets of “maps” developed in each city will be assembled together into a common portfolio of the seven Arqus cities, as a draft ‘Atlas’ of climate risks at different points of Europe.

Monday: Introducing climate risks in each city

Groups at each university will be expected to have read existing reports on climate risk management for their city in advance of the course. Your first group task is to creatively introduce your city and its climate risks as represented in reports by institutions responsible for managing these risks. This could be through flash cards or through a short (unprofessional) film, a photo montage, a recorded interview, a power-point… Groups and universities have full flexibility.

Tuesday: Interpreting climate risk maps

Groups at each university will be supplied with a portfolio of maps downscaling climate projections and translating these to maps of climate risk. You will have a targeted session interpreting these maps according to key questions about (i) how climate projections are downscaled; (ii) translated to risk maps; (iii) what natural processes are behind risks; (iv) and how to critically read maps – uncertainties for example. We will have experts available on Zoom to help groups with your interpretative work. You will select one map relevant to describe climate risks in your city, and present this in plenary.
**Wednesday: Systems maps of elements connected in creating risks**

Groups will be introduced to rapid systems mapping approaches and asked to draft a systems map showing how one prominent climate risk in their city is ‘created’ through diverse connected elements. For example, how coastal development pressure, in combination with weak regulation, and strong developers, and sea-level rise and extreme events might combine to assemble coastal flooding risk. You will then identify the "leverage points", ie. the most pressing parts of the system where an intervention would be most effective. This will require desktop research and creative thinking.

**Thursday: Scenario mapping**

In this workshop, you will work in international teams. Groups be introduced on how to use to a simple, well-established qualitative scenario method to map and plan for key future uncertainties related to climate risk. Using the four quadrant-scenario method - also known as "Shell scenarios" - you will identify important and uncertain future trends and then create four different scenarios that explore how the future might play out depending on these trends. This workshop will draw on the systems mapping exercise, and require desktop research and creative thinking.

**Friday: Inter-University workshop Engaging with climate risk - European citizenship in a turbulent future**

In this workshop, you will synthesize the results from the preceding day's workshops and relate climate risk to European citizenship and their own personal agency. The workshop starts with an individual reflexive walk, where you will individually reflect on the key insights they have gained during the week and how that relates to engaged European citizenship and personal agency. After the walk, you will reconvene in your inter-university groups (the same as on Thursday) to collaboratively identify principles of engaged European citizenship that are meaningful to you. These principles will later be shared with the other groups.