

## Syllabus of the course

**Course title:** Living with changing climate

**Course code:** ATM389

**Responsible organisation:** Master's Programme in Atmospheric Sciences

**Responsible teacher for course unit:**

**Course unit level:** Advanced studies

**Course unit type:** Regular course unit

**Possible attainment languages:** English, Finnish, Swedish

**Grading scale:** General scale, 0-5

**Completion methods for course unit:**

For one course unit, usually one or several implementations (e.g. lecture courses, exams, seminars) are held during the academic year. Once the student has passed it, the student has attained the course unit and is given a grade. For some course units the implementations are held less frequently, for example only every other year.

**Prerequisites:** ATM302 Climate.now and ATM308 Statistical tools for climate and atmospheric science or similar knowledge is recommended.

### Learning outcomes

The overarching goal is to be able to utilize open climate and weather data for mitigation and adaptation actions in real-life. In more detail:

- To learn about the real-life actions and action gaps in climate change adaptation and mitigation at different levels of the society.
- To know the concepts of weather and climate
  - Understanding distributions of weather events and their extremes and their connection to climate.
  - Critically examining public discussion on weather and climate phenomena and claims
  - Knowing the difference between local & global, current vs. future phenomena
- To be able to investigate and communicate how weather and climate data is used in real organizations and businesses, and what kind of needs for weather and climate data arise from organizational decision-making, culture, operations and/or its stakeholders.
- To be able to find open weather and climate data for a defined location and region, and to get an overview of different types of observations and models openly available.
- To learn what kind of applications there are for giving practical/usable information regarding the different aspects of the climate system:
  - Weather
  - Climate (incl. seasonal forecasts)
  - Climate change

## **Content**

This course consists of five main themes:

- Introduction:
  - Assessing benefits of proactive adaptation and mitigation in parallel.
  - Practical views on how weather and climate risks form and how impact chains are investigated
  - Sectoral examples in developing risk management plans and implementing them
- Weather and Climate:
  - Introduction to distributions of weather events and their connection to climate and critically examining public discussion on weather and climate phenomena and claims.
  - The difference between local & global, current vs future phenomena.
- Where to Find Data:
  - Introduction of data portals for weather and climate data
  - How to access, process and visualize data from observations (weather, greenhouse gases, reanalysis data, remote sensing) and models (weather forecasts, Earth System Models, seasonal forecasting).
- Decision Making and Applications:
  - Introduction of how climate data is used in decision making
  - Examples of applications that are utilising climate data
- Project work on real-life example:
  - Working life collaboration
  - Planning and implementation of interview study and questionnaire
  - Communicating and presenting the results

## **Learning materials**

The course learning material is located at the course online platform.

## **Completion methods**

The course consists of:

- Independent studying in the online platform
- Online meetings with the teachers
- Online quizzes
- Assignments
- Group work (planning the study visit and the interview, participating the study visit and the interview, producing a final report, blog or video of the study visit)
- Evaluation of others' group work (giving and receiving peer evaluation)

## **Assessment practices and criteria**

The assessment practices used are directly linked to the learning outcomes and teaching methods of the course.

Grading: 1-5.

Final grade is based on assignments, group work, and peer evaluation.

**Activities and methods in support of learning**

- Independent studying in the online platform
- Online meetings with the teachers
- Online quizzes
- Assignments
- Group work (planning the study visit and the interview, participating the study visit and the interview, producing a final report, blog or video of the study visit)
- Evaluation of others' group work (giving and receiving peer evaluation)

**Teaching period when the course will be offered:** The course will be lectured every year in the II period.

**Recommended time or stage of studies for completion:** This course can be completed during any time of the studies.

**Recommended optional studies**

Leadership for sustainable change

SystemsChange.now

ClimateComms.now

**Study module**

ATM391 Climate University

ATM392 Climate University

ECH301 Environmental Changes at Higher Latitudes, Advanced Studies

**Language of instruction**

English

**EQF level**

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**Additional information**

The course is part of [Sustainability Studies Network](#). The maximum number of students accepted through the network is 30. Network students will be selected in the order of registration.