Storybook of Lectures

**General skills** (coordination: Lenka Fehrenbach)

**KN1: Communication techniques (2h)**

Lecturer: Dr. Annie Cottier Bucher, Jasmin Fallahi

Join us for a session on the inspiring and interesting topic of intercultural learning and communication. The class is aimed at supporting you in developing your intercultural learning skills, and encourages you to be critical about your views on the culture and society of your host and your home country. We will discuss your expectations for the summer school, learn about complex terms such as culture and interculturality, and reflect on how you can benefit most of your two weeks with fellow students from all over the world at the University of Bern.

**Physical climate system** (coordinators: Christoph Raible and Jörg Franke)

**KN2: IPCC Working Group I - current state of knowledge (1.5 h)**

Lecturer: Prof. Thomas Stocker

The lecture presents the important results of the latest assessment reports of the Intergovernmental Panel on Climate Change published in 2013. These reports support the United Nations Framework Convention on Climate Change, which is the main international treaty on climate change. The report of Working Group I assesses the current physical understanding of the climate system and the potential future change. The students will learn about what climate scenarios are and how under certain scenarios the climate will evolve in future. Thus, the educational objectives are to obtain an overview of the current understanding of climate and its potential future change. Additionally, insights of the process on how the report was generated and which role IPCC Panel composed of representatives appointed by governments have will be presented. Finally, the current status of the new IPCC process started in 2015 will be discussed.

**References**


KN3: Climate impacts and climate risks (1.5 h)

Lecturer: Olivia Romppainen-Martius

The notion of climate risks arising from a combination of hazards, vulnerability and exposure is introduced. We start with an overview of major weather and climate hazards and their evolution in a changing climate. The hazard view is then expanded to include a discussion of vulnerability and changes in exposure. Finally, we analyze implications for adaptation measures and uncertainty estimates.

References


KN4: Basics on statistical methods and modeling (1h)

Lecturer: Dr. Jörg Franke / Prof. Christoph Raible

Models have limitations as they are simplifications of reality. Thus, it is essential to assess their quality by (i) analyze the variability represented in a model and (ii) evaluate the model’s ability to predict a future state. To do so, observations are inevitable prerequisite. Still, also observations have limitations and, thus, a brief overview will be given first. It is also important that observations are completely independent from the forecast because often observations are already used to fit parameters of model (e.g. regression coefficients). The concepts of cross-validation and leave-one-out validation are discussed. These two methods are used to avoid so-called “overfitting”, which would make us believe that the model forecast is better than is actually is.

The second part of the lecture will introduce statistical methods to verify predictions on, e.g., the weather time scale or longer times scales up to several seasons; the latter being important for the most important mode of climate variability ENSO. Forecasts are preferably accurate, unbiased and sharp. The main focus in this lecture are basic measures like correlation, bias or root mean squared error. However, not all meteorological measures are metric and Gaussian, e.g. precipitation. Concepts are introduced how to deal with discrete or binary data (e.g. precipitation vs no precipitation). Additionally, forecast accuracy is often checked with so-called “skill scores”. These are a relative measure that compare for instance how much better a forecast is compared to the climatology, the assumption that the climate state will be simply average. Especially if multiple forecasts are available, more advanced measures are commonly used. Therefore, concepts of like rank histograms, error-spread ratios are introduced.

References

Climate Governance and Law (coordinator: Manfred Elsig)

KN5: Theories of Climate Governance (1.5 h)

Lecturer (Manfred Elsig)

The lecture focuses on the role of international cooperation in climate governance. It presents major advancements in theorizing about international cooperation drawn from the main theories of international relations (realism, liberalism and social constructivism) and discusses selected research programs that are relevant in the study of the governance of global commons, and in particular climate.

References

KN6: Multi-Level decision in climate politics (1.5h)

Lecturer: Karin Ingold

To be announced soon

KN7: International trade law and climate governance (1h)

Lecturer: Peter Van den Bossche

The lecture addresses the question whether the rules of international trade law affect national climate change policies. The lecture focuses primarily on the basic rules of non-discrimination, market access and subsidies and how these rules either promote or undermine the efforts by States to address climate change.

References

Climate Economics (coordinator: Eric Strobl, Ralph Winkler)

KN8: Using Quasi-Experiments for Environmental Policy Evaluation (1.5h)

Lecturer: Eric Strobl

An inherent challenge in evaluating the effectiveness of actually implemented environmental policy is identifying causality. In this lecture students will be introduced to the necessary assumptions needed in regression analysis to establish such causality, when they are likely
violated, and how this might affect empirical estimates. They will then be introduced to using quasi-experimental approaches in an environmental policy context to overcome such problems.

References:

KN9: Linking Trade Policy and Climate Policy (1.5h)
Lecturer: Joseph Francois

We have witnessed two related processes in recent decades that have greatly transformed the world economy. These changes pose challenges in the inter-linkages between global and local economic activity and the environment. One is the geographic disintegration and delocation of production with the emergence of international production networks. The other is changes in the institutional architecture governing related trade and investment flows since the early 1990s. In this lecture we provide an overview of global trade linkages, their relationship to carbon management, and the sometimes-conflicting interactions between trade policy objectives and environmental ones. Students will be introduced to the concept of global carbon accounting, wherein we trace for example the carbon emitted in various stages of production -- for example steel, rubber, and plastics that feed into production of an automobile. This will include the concept of assigning carbon to where it is consumed rather than produced. We will also examine the balance between environmental and economic (trade) policy within the WTO system. This includes tariffs against imports of solar panels, and the economics underpinning the application of international trade rules (and consistency with those rules) when implementing environmental policies. An example here is border tax adjustment in carbon pricing regimes, and the legitimacy of clean air as a trade policy objective.

References