This Ph.D minicourse applies modern dynamic game theory and presents a coherent framework that can be used to analyze jurisdictions’ strategic choices of emissions over time, their investments in technology, coalition formation, agreements, negotiations, and renegotiations. Assumptions will be based on real-world environmental policy, and we will learn how to use various tools to derive analytical results that are relevant for domestic policies as well as international treaties.

The material will draw on a large literature but is summarized in Lecture Note 1, Lecture Note 2, and Lecture Note 3. There will be 14h lectures and a take-home exam later for those who want to get credit for the class.

**Session 1**
Repeated games and subgame-perfect equilibria (self-enforcing agreements)

**Session 2**
Stochastic games and Markov-perfect equilibria (legally binding agreements)

**Session 3**
Incomplete contracts and hold-up problems (short-term agreements)

**Session 4**
Optimal contracts and duration (long-term agreements and spillovers)

**Session 5**
Renegotiation and renegotiation design (uncertainty and updating)

**Session 6**
Free-riding and coalition formation (participation)
**Required background:**

Fudenberg and Tirole (1996): *Game Theory*, Ch. 3-5 and 13, or something similar.

**Related readings:**

Most of the reading will be based on Lecture Note 1, Lecture Note 2, and Lecture Note 3.

*The following journal articles are also relevant:*


