

# Lecture plan

ENM140, Game theory and rationality 2018

## Week 1

### Monday 5 November 10:00–11:45

Course overview. Agent-based modelling as a motivation for the course. Discussion around a complex game.

### Wednesday 7 November 10:00–11:45

Basic game-theoretic concepts: Nash Equilibrium. Mixed strategies and mixed Nash Equilibrium. Subgame perfection.

### Wednesday 7 November 13:15–15:00

Basic game-theoretic concepts continued: solving examples of games.

## Week 2

### Monday 12 November 10:00–11:45

Repeated games, Folk-Theorem, Backward induction.  
Rules for the computer strategies tournament (Assignment 2).

### Wednesday 14 November 10:00–11:45

Examples on games in economics: duopoly, monopoly.

### Wednesday 14 November 13:15–15:00

Discussion based on Assignment 1: examples of games as possible seeds for projects.

Part 1 of a lecture on evolutionary game theory and spatial games. Evolutionarily stable strategies. Model example: strategy evolution in the infinitely repeated Prisoner's Dilemma. Spatial games: how do local interactions affect the evolution of strategies compared to a situation where all interact with all?

## Week 3

**Monday 19 November 10:00–11:45**

Examples class: Solutions to an old exam.

**Wednesday 21 November 10:00–11:45**

Part 2 of a lecture on evolutionary game theory and spatial games.

**Wednesday 21 November 13:15–15:00**

Computer strategies tournament; the result of Assignment 2 is shown and discussed by running the tournament with the submitted strategies.

Project workshop: formation of groups and project ideas need to be done during this week. During this hour you may form and/or discuss within your groups, and the teachers will be available for questions.

## Week 4

**Monday 26 November 10:00–11:45**

Midterm exam.

**Wednesday 28 November 10:00–11:45**

Guest lecture: Experimental economics.

Peter Martinsson, Professor, Behavioural Economics, University of Gothenburg.

**Wednesday 28 November 13:15–15:00**

Short presentations and discussion of project ideas (5+5 min/group). (We divide the group and use two lecture rooms for this.)

## Week 5

**Monday 3 December 10:00–11:45**

Hosted by Erik Sterner, one of the original developers of this course.

1. Example seminar: Erik presents one of his research projects in a form that serves as an example for how you may organise your student-led seminar: “Agent-based model for harvesting of spatially distributed resources”.

2. Lecture/discussion on how to make the best of peer feedback.

**Wednesday 5 December 10:00–11:45**

Guest lecture: Limits to syntactic models of rationality.

Rasmus Einarsson, PhD student, Physical Resource Theory, Chalmers.

**Wednesday 5 December 13:15–15:00**

Student-led seminar by group 1

Student-led seminar by group 2

**Week 6**

**Monday 10 December 10:00–11:45**

Student-led seminar by group 3

Student-led seminar by group 4

**Wednesday 12 December 10:00–11:45**

Student-led seminar by group 5

Student-led seminar by group 6

**Wednesday 12 December 13:15–15:00**

Student-led seminar by group 7

Student-led seminar by group 8

**Week 7**

**Monday 17 December 10:00–11:45**

Student-led seminar by group 9

Student-led seminar by group 10

**Wednesday 19 December 10:00–11:45**

Presentations of preliminary project results

**Wednesday 19 December 13:15–15:00**

Presentations of preliminary project results