

# Lecture plan 2016

ENM140, Game theory and rationality 2016

## Document change log

7 december 2016: Removed a break on Wednesday 14 December.

7 december 2016: Removed empty groups from project presentations and seminars; tightened schedule accordingly.

3 november 2016: Removed lecture Monday 12 Dec 13–15 (should have gone already yesterday).

2 november 2016: Added guest lecture by Vilhelm Verendel on 14 November. Moved other lecture. Moved oral presentations of projects to the A block, 12 and 14 December.

## Week 1

### Monday 31 October 10.00–11.45

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

### Wednesday 2 November 10.00–11.45

Basic game-theoretic concepts; Nash Equilibrium; Mixed strategies and mixed Nash Equilibrium; subgame perfection

### Wednesday 2 November 13.15–15.00

Problem session; solving examples of games

## Week 2

### Monday 7 November 10.00–11.45

Repeated games, Folk-Theorem, Backward induction

### Wednesday 9 November 10.00–11.45

Examples on games in economics; duopoly, monopoly.

Rules for the computer strategies tournament (2nd assignment)

### Wednesday 9 November 13.15–15.00

Discussion based on First Assignment: 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 when all interacts with all?

## Week 3

### Monday 14 November 10.00–11.45

Guest lecture: Vilhelm Verendel. Expected utility maximization and theories of rationality. This lecture will show how theories of rationality can be a basis for the utility maximization principle.

### Wednesday 16 November 10.00–11.45

Part 2 of a lecture on evolutionary game theory and spatial games. (See Wednesday 9 November above.)

### Wednesday 16 November 13.15–15.00

1. Computer strategies tournament; the result of Assignment 2 is shown and discussed by running the tournament with the submitted strategies.
2. 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 21 November 10.00–11.45

Short presentations and discussion of project ideas (5+5 min/group). (We divide the whole group and use two lecture rooms for this: FL41 and FL51.)

### Wednesday 23 November 10.00–11.45

Guest lecture: Ove Granstrand (Professor in Industrial Management and Economics)  
"Cooperative games – theory and experimental economics"

### Wednesday 23 November 13.15–15.00

Hosted by Erik Sterner, PhD student and 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.

## Week 5

### Monday 28 November 10.00–11.45

Guest lecture: Vilhelm Verendel (Post doc and former developer of the course); Vilhelm presents one of his research projects and theories behind that based on his paper: "Strategic reasoning and bargaining in catastrophic climate change games".

### Wednesday 30 November 10.00–11.45

Guest lecture: Peter Martinsson (Professor, Behavioural Economics, University of Gothenburg). Experimental economics, part 1.

### Wednesday 30 November 13.15–15.00

Guest lecture: Peter Martinsson (Professor, Behavioural Economics, University of

Gothenburg). Experimental economics, part 2.

## Week 6

### **Monday 5 December 10.00–11.45**

Student-led seminar by group 1

Student-led seminar by group 2

### **Wednesday 7 December 10.00–11.45**

Student-led seminar by group 3

Student-led seminar by group 5

### **Wednesday 7 December 13.15–14.00**

Student-led seminar by group 6

## Week 7

### **Monday 12 December 08.45–09.45**

Preliminary project results presentations

Room FL51: Groups A, B, D (Kristian's groups)

Room FL52: Groups C, E, G (Rasmus' groups)

### **Monday 12 December 10.00–11.45**

Student-led seminar by group 7

Student-led seminar by group 8

### **Wednesday 14 December 10.00–11.45**

Student-led seminar by group 9

Student-led seminar by group 10

### **Wednesday 14 December 13.15–15.00**

1. Student-led seminar by group 12
2. Preliminary project results presentations
  - Room FL51: Groups I, N (Kristian's groups)
  - Room FL63: Groups K, O (Rasmus' groups)