

Lecture plan

ENM140, Game theory and rationality 2020

Week 1

Monday 2 November 10:00–11:45

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

Wednesday 4 November 10:00–11:45

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

Wednesday 4 November 13:15–15:00

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

Week 2

Monday 9 November 10:00–11:45

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

Wednesday 11 November 10:00–11:45

Examples on games in economics: duopoly, monopoly.

Wednesday 11 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 16 November 10:00–11:45

Examples class: Solutions to an old exam.

Wednesday 18 November 10:00–11:45

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

Wednesday 18 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 23 November 10:00–12:00

Midterm exam.

Wednesday 25 November 10:00–11:45

Guest lecture: Limits to syntactic models of rationality.

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

Wednesday 25 November 13:15–15:00

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

Week 5

Monday 30 November 10:00–11:45

Meta-group 2:

Student-led seminar by group 1

Student-led seminar by group 2

Wednesday 2 December 10:00–11:45

Meta-group 1:

Student-led seminar by group 7

Student-led seminar by group 8

Wednesday 2 December 13:15–15:00

Meta-group 2:

Student-led seminar by group 3

Student-led seminar by group 4

Week 6

Monday 7 December 10:00–11:45

Meta-group 1:

Student-led seminar by group 5

Student-led seminar by group 6

Week 7

Wednesday 16 December 13:15–15:00

Presentations of preliminary project results