Lecture plan

ENM140, Game theory and rationality 2017

Week 1

Monday 30 October 10:00–11:45

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

Wednesday 1 November 10:00–11:45

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

Wednesday 1 November 13:15–15:00

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

Week 2

Monday 6 November 10:00–11:45

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

Wednesday 8 November 10:00–11:45

Examples on games in economics: duopoly, monopoly.

Wednesday 8 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 13 November 10:00–11:45

Guest lecture: Vilhelm Verendel, Data science unit, Computer Science and Engineering, Chalmers.

"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 15 November 10:00–11:45

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

Wednesday 15 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 20 November 10:00–11:45

Midterm exam

Wednesday 22 November 10:00–11:45

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

Wednesday 22 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 27 November 10:00–11:45

Student-led seminar by group 1
Student-led seminar by group 2

Wednesday 29 November 10:00–11:45

Student-led seminar by group 3
Student-led seminar by group 4

Wednesday 29 November 13:15–15:00

Student-led seminar by group 5
Student-led seminar by group 6

Week 6

Monday 4 December 10:00–11:45

Student-led seminar by group 7
Student-led seminar by group 8

Wednesday 6 December 10:00–11:45

Student-led seminar by group 9
Student-led seminar by group 10

Wednesday 6 December 13:15–15:00

Guest lecture: Ove Granstrand, Professor in Industrial Management and Economics, Gothenburg University

"Cooperative games – theory and experimental economics"

Week 7

Monday 11 December 10:00–11:45

Guest lecture: Rasmus Einarsson, PhD student, Physical Resource Theory, Chalmers.

"Limits to syntactic models of rationality"

Wednesday 13 December 10:00–11:45

Preliminary project results presentations
Groups 1–5 (preliminary plan)

Wednesday 13 December 13:15–15:00

Preliminary project results presentations
Groups 6–10 (preliminary plan)