Modelling and simulation project

ENM140, Game theory and rationality 2017

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1 Overview

A major part of the course (40-50%; 80-100 h) is a game theory project, involving modelling, simulation and analysis of a model selected by the project group. The time estimate includes report, presentation and peer review.

All students must sign up in a group no later than Wednesday 15 November, 18:00. To sign up, form a group of **three students** and send an email to Rasmus with your names, CIDs and email addresses. Groups may in exceptional cases consist of **two or four students**. If you want or need to be two or four in a group, discuss this with Rasmus or Kristian in person or by sending an email.

The project work will be preceded by a first individual assignment, in which each of you proposes a variation of an old game, or a new game. A selection of these suggestions will be discussed in a lecture, and some may be used as seeds for projects. But also entirely new ideas may be starting points for projects.

The project work will typically involve:

- Setting up a functioning computer simulation,
- Reproducing some earlier results (if based on old game idea),
- Investigating something new,
- Performing a game-theoretic analysis of the results.

2 Time plan

1. Game suggestion assignment, handed in no later than Monday 6 November, 18:00 (see separate description).

2. Project group formation: Sign up for a group no later than Wednesday 15 November, 18:00. On Wednesday 15 November 14:15, you have the lecture room available for discussing project ideas and finding a group, if you have not already. We will be available for questions during this hour.

3. Short presentation of project idea (5 min/group) on Wednesday 22 November 10:00–11:45. Written one-page formulation of "First project description" submitted Wednesday 22 November, 23:59 (see below for instructions).

4. Project supervisors selected, quick first feedback on project idea during week 4.

5. Up to two supervision meetings (2 x 20 min) during weeks 5-7.

6. Oral presentations in class of preliminary results by the project groups (15 min): on Wednesday 13 December. Short feedback is given to you within a week.

7. Preliminary report submitted for peer review Wednesday 3 January 2017, 18:00, so you will give and get peer-review comments Monday 8 January 2018, 18:00.

8. Final report submitted by Friday 12 January 2018, 18:00. Feedback and grade will be given within 3 weeks.

3 First project description

Submit (no later than Wednesday 22 November, 23:59) about one half to one page consisting of:

- Background (if you have been inspired by some game in the literature)
- Research/project question(s) and aim
- Method(s)
- Limitation/Scope

Focus on presenting the game-theoretic part(s) of the project and how to narrow your study into something doable. (You may modify the details of this; the point is that you should have an idea that you can start to work on.)

4 Peer review

An exchange of peer review comments is a compulsory part of the project work. The procedure is as follows:

- Each group is randomly assigned one other group to send their draft report to. Submit your draft report to the other group, with copy to Rasmus, no later than Wednesday 3 January 2017, 18:00. Thus, each group receives the draft report of one other group.

- Collectively review the report draft of the other group. Please try to provide helpful comments. A separate document on the course homepage provides some suggestions on how to give useful peer review comments. Send your review by email to the other group, with copy to Rasmus, no later than Monday 8 January 2018, 18:00.

- Submit your final report no later than Friday 12 January 2018, 18:00as a PDF file to Rasmus. Only this final version is read and graded by the teachers.

We do not have any strict requirements on exactly what the peer review comments should contain. This is up to you. However, we do require that all groups do take part in the peer review in a serious way. It has to be clear from your peer review comments that you have indeed read the other group's draft report and that you have made an effort to provide relevant and helpful comments.

5 Project reports: Guidelines and grading

The final project report should follow academic standards.

The main text **excluding** figures, tables, etc, may not exceed 5000 words. The report shall include the following sections: Introduction, Model and/or Method, Results, Discussion and/or Conclusions.

Think of your classmates as your audience. In other words, someone who has taken this course, but not studied your specific problem, should be able to understand and reproduce what you have done.

Make sure that you are not guilty of plagiarism. If you are in any doubt about how to use, quote and cite sources, please read Chalmers' writing guide http://writing.chalmers.se/en/78-using-sources-in-texts and Chalmers' guide to academic honesty: https://student.portal.chalmers.se/en/chalmersstudies/joint-rules-and-directives/Documents/20090920_Academic_Honesty.pdf

Contribution report

The report must contain a contribution report.

Describe the contributions made by each person to the project work. Please indicate if some person made especially large or small contributions. Please also specify if there are substantial pieces of work that are not presented in the report, along with a brief explanation.

Specify for each section in the report who the main author/authors is/are.

Grading

The final project reports give up to 24 points, based **exclusively on our reading of your report**. In grading your project, we do not consider what you have written in the draft report, what you have said in discussions or what you have shown or said in oral presentations.

Since the projects may be quite different, we are necessarily a little vague in the grading criteria, but we will always consider and grade the following dimensions:

- Your project idea and the context you present for it are graded with 0–8 points. The context includes things such as: Why is your problem or model an interesting one to study? What are some examples of similar work that has been done on the problem or model? What are some examples of theoretical or simulation tools that can be or have been applied to it? We also consider whether your project proposes an interesting question or an interesting extension/variant of the problem or model.

- The quality of your simulation, analysis and discussion is graded with 0–8 points. We will use guiding questions such as: Is your analysis correct, comprehensible and relevant to the problem? Did you use suitable simulations/theory/models for your problem? Did you have to make extensive and/or difficult simulations or calculations, and in that case, were they well made? Is your discussion comprehensible, relevant, convincing, and does it put your work in context?

- The project report itself is graded with 0–8 points. We will consider at least the following dimensions: Does the report conform to all the guidelines given in the project report instructions? Are your descriptions of method and results so clear that we could reproduce your work and compare our results to yours? Are all figures and tables labeled with correct units, axis labels, descriptive captions and other things that are necessary to understand?

Late hand-in of the report can not give more than the lowest passing grade. Insufficient reports are given one more chance for revision (to be handed in no later than 16 February 2018, 18.00), but only to get the chance for the lowest passing grade.

Projects are graded individually based on the above points and the information provided in your contribution report.