



Course and Examination Fact Sheet: Spring Semester 2021

8,334: Game Theoretic Models for a Digital World

ECTS credits: 4

Overview examination/s

(binding regulations see below)

Decentral - Group examination paper (all given the same grades) (90%)

Examination time: term time

Decentral - examination paper written at home with presentation (individual) (10%)

Examination time: term time

Attached courses

Timetable -- Language -- Lecturer

[8,334,1.00 Game Theoretic Models for a Digital World](#) -- Englisch -- [Gizatullina Alia](#)

Course information

Course prerequisites

The course is relatively formal and based on concepts from game theory. To learn effectively from this course, students must have already taken at least one advanced course in Microeconomics (Bachelor or Master). However, all the corresponding game-theoretic concepts will be also reviewed during the course before the new material.

Learning objectives

By the end of the course the students should be able to construct independently a game-theoretic model that would help to understand better a given real-life phenomenon and test it, eventually, with data. Hence, the course can be useful to students who wish to write their Master thesis on the topic, be it a purely theoretical analysis or an empirical work that also contains a new theoretical development.

Course content

The goal of the course is to introduce students to a staple of the most recent game-theoretic models of the strategic interactions that became possible due to the development of digital economy.

The increasing creation and consumption of digital representation of information touches a wide breadth of economic activities. This digitization has transformed social interactions, facilitated entirely new industries and undermined others and reshaped the ability of people - consumers, managers, government officials, financial markets job seekers and many others - to access and leverage information. While a lot of techniques have been developed to analyze and learn from the data at the empirical level, full theoretical understanding of the impact of digitalization on economic interactions is still lagging behind. However, some recent papers have already addressed a number of open theoretical issues.

Our course will cover the most important papers that have been developed recently in this area. The examples of the topics that we will study are, among other things - the models of herding and information aggregation; contagious inefficient unravelling of trade; design of optimal rating systems; functioning and design of peer platform markets (e.g. like eBay, Uber or TaskRabbit), and several others. While occasional working though abstract game-theoretic and probabilistic concepts is unavoidable, the main focus will be on learning applied models that provide empirically testable implications.

The overall goal of the course is two-fold. On the one hand, to make students acquainted with new theoretical models of digitalization that are not yet available in the « standard » textbooks. On the other hand, the goal is also to learn and to practice new game-theoretic tools that became pertinent for formalizing strategic interactions that appeared due to digitalization.

Course structure



The course is held weekly and consists of a mixture between lectures and tutorials. The goal of the tutorials is to practice and apply at a smaller scale the main concepts introduced during the theoretical parts.

Course literature

Lecture notes and the corresponding scientific papers covered in lecture notes

Tadelis, Steven, "Game Theory: An Introduction"

Additional course information

In the case of the President's Board having to implement new directives due to the SARS-CoV-2 pandemic in SpS2021, the course information listed above will be changed as follows:

- The course is conducted online via the platform Zoom; The recordings of the course will not be saved;
- The lecturer informs via StudyNet on the changed implementation modalities of the course;

The examination information listed below would be changed as follows:

- The presentation and written examination are conducted online and are recorded;

Examination information

Examination sub part/s

1. Examination sub part (1/2)

Examination time and form

Decentral - Group examination paper (all given the same grades) (90%)

Examination time: term time

Remark

referee report and presenting it in class

Examination-aid rule

Term papers

Term papers must be written without anyone else's help and in accordance with the known quotation standards, and they must contain a declaration of authorship which is a published template in StudentWeb.

The documentation of sources (quotations, bibliography) has to be done throughout and consistently in accordance with the chosen citation standard such as APA or MLA.

For papers in law, the legal standard is recommended (by way of example, cf. FORSTMOSER, P., OGOREK R. et SCHINDLER B., *Juristisches Arbeiten: Eine Anleitung für Studierende*, newest edition respectively, or according to the recommendations of the Law School).

The indications of the sources of information taken over verbatim or in paraphrase (quotations) must be integrated into texts in accordance with the precepts of the applicable quotation standard, while informative and bibliographical notes must be added as footnotes (recommendations and standards can be found, for example, in METZGER, C., *Lern- und Arbeitsstrategien*, newest edition respectively).

For any work written at the HSG, the indication of the page numbers is mandatory independent of the chosen citation standard. Where there are no page numbers in sources, precise references must be provided in a different way: titles of chapters or sections, section numbers, acts, scenes, verses, etc.

Supplementary aids



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Examination languages

Question language: English

Answer language: English

2. Examination sub part (2/2)

Examination time and form

Decentral - examination paper written at home with presentation (individual) (10%)

Examination time: term time

Remark

Solving problem sets and presenting solutions

Examination-aid rule

Term papers

Term papers must be written without anyone else's help and in accordance with the known quotation standards, and they must contain a declaration of authorship which is a published template in StudentWeb.

The documentation of sources (quotations, bibliography) has to be done throughout and consistently in accordance with the chosen citation standard such as APA or MLA.

For papers in law, the legal standard is recommended (by way of example, cf. FORSTMOSER, P., OGOREK R. et SCHINDLER B., Juristisches Arbeiten: Eine Anleitung für Studierende, newest edition respectively, or according to the recommendations of the Law School).

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Supplementary aids

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Examination languages

Question language: English

Answer language: English

Examination content

Writing an extended referee report and presenting it in class, discussing presentations of others. Submitting solutions to the weekly homework exercises.

Examination relevant literature

Scientific papers, lecture notes



Please note

Please note that only this fact sheet and the examination schedule published at the time of bidding are binding and takes precedence over other information, such as information on StudyNet (Canvas), on lecturers' websites and information in lectures etc.

Any references and links to third-party content within the fact sheet are only of a supplementary, informative nature and lie outside the area of responsibility of the University of St.Gallen.

Documents and materials are only relevant for central examinations if they are available by the end of the lecture period (CW21) at the latest. In the case of centrally organised mid-term examinations, the documents and materials up to CW 12 are relevant for testing.

Binding nature of the fact sheets:

- Course information as well as examination date (organised centrally/decentrally) and form of examination: from bidding start in CW 04 (Thursday, 28 January 2021);
- Examination information (regulations on aids, examination contents, examination literature) for decentralised examinations: in CW 12 (Monday, 22 March 2021);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised mid-term examinations: in CW 12 (Monday, 22 March 2021);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised examinations: two weeks before the end of the registration period in CW 14 (Thursday, 8 April 2021).