# University of St.Gallen

## Course and Examination Fact Sheet: Spring Semester 2020

## 8,334: Game Theoretic Models for a Digital World

## ECTS credits: 4

## Overview examination/s
(binding regulations see below)
Decentral - Group examination paper with presentation (all given the same grades) (90%)
Decentral - Active participation (10%)

## Attached courses
Timetable -- Language -- Lecturer
8,334,1.00 Game Theoretic Models for a Digital World -- Englisch -- Gizatulina 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 concepts will be also reviewed during the course.

### 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 many 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 non-standard 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

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# Examination information

## Examination sub part/s

### 1. Examination sub part (1/2)

**Examination time and form**
Decentral - Group examination paper with presentation (all given the same grades) (90%)

**Remark**
Group of max 2 people

**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.
- The documentation of sources (quotations, bibliography) has to be done throughout and consistently in accordance with the APA or MLA standards. The indications of the sources of information taken over verbatim or in paraphrase (quotations) must be integrated into the text 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. (2017), Lern- und Arbeitsstrategien (12th ed., Cornelsen Schweiz).
- For any work written at the HSG, the indication of the page numbers both according to the MLA and the APA standard is never optional.
- 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.
- For papers in law, the legal standard is recommended (by way of example, cf. FORSTMOSER, P., OGOREK R. et SCHINDLER B. (2018, Juristisches Arbeiten: Eine Anleitung für Studierende (6. Auflage), Zürich: Schulthess, or the recommendations of the Law School).

**Supplementary aids**
lecture notes and scientific papers

**Examination languages**
Question language: English
Answer language: English

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### 2. Examination sub part (2/2)

**Examination time and form**
Decentral - Active participation (10%)

**Remark**

Solving exercises in class

<span style="color:green">Examination-aid rule</span>
Practical examination
No examination-aid rule is necessary for such examination types. The rules and regulations of the University of St. Gallen apply in a subsidiary fashion.

<span style="color:green">Supplementary aids</span>
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<span style="color:green">Examination languages</span>
Question language: English
Answer language: English

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## Examination content
Writing a referee report and presenting it in class

## Examination relevant literature
Scientific papers

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## Please note

Please note that this fact sheet alone is binding and has priority over any other information such as StudyNet (Canvas), personal databases or faculty members' websites and information provided in their lectures, etc.

Any possible references and links within the fact sheet to information provided by third parties are merely supplementary and informative in nature and are outside the University of St.Gallen's scope of responsibility and guarantee.

Documents and materials that have been submitted no later than the end of term time (CW21) are relevant to central examinations.

Binding nature of the fact sheet:

- Information about courses and examination time (central/decentral) and examination typestarting from the beginning of the bidding on 23 January 2020
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for decentral examinations after the 4th semester week on 16 March 2020
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for central examinations as from the starting date for examination registration on 6 April 2020

Please consult the fact sheet again after these deadlines have expired.

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