



Course and Examination Fact Sheet: Autumn Semester 2020

10,398: Econometric Methods for Social Spillovers and Networks

ECTS credits: 4

Overview examination/s

(binding regulations see below)

Decentral - examination paper written at home (individual) (80%)

Examination time: term time

Decentral - Active participation (20%)

Examination time: term time

Attached courses

Timetable -- Language -- Lecturer

[10,398,1.00 Econometric Methods for Social Spillovers and Networks](#) -- Englisch -- [Graham Bryan](#)

Course information

Course prerequisites

The equivalent of a first-year Ph.D. sequence in econometrics. Specifically an understanding of probability and inference at the level of Casella and Berger (1990, *Statistical Inference*), linear regression analysis at the level of Goldberger (1991, *A Course in Econometrics*), some exposure to nonlinear, especially discrete choice, models (e.g., probit, logit) and a basic knowledge of applied linear and matrix algebra. A basic knowledge of game theory would be useful, but is not required.

Learning objectives

Students, using a series of examples, will learn how to interpret empirical research related to social and economic networks. They will also learn the underlying theory of such models as well as how to apply them in their own research (including methods of computation using the Python programming language). Some exposure to methodological research topics will also be provided. At the end of the course students will be proficient consumers of research on social and econometric networks and also have some facility in conducting such research themselves.

Course content

This course will provide an overview of econometrics methods suitable for the analysis of social and economic networks. Many social and economic activities are embedded in networks. Furthermore, datasets with natural graph theoretic structure are increasingly available to empirical researchers (e.g., matched employee-employer data, buyer-supplier networks etc.). We will study (i) how to display and summarize network data, (ii) how to fit and interpret formal econometric models of network formation (including models admitting unobserved heterogeneity and allowing for strategic interaction among agents) and, finally, (iii) how to study behaviors which occur on networks (i.e., the identification of peer group effects and other spillovers). Attention will be given to underlying econometric theory, empirical applications as well as computation.

Course structure

Class will be lecture based, albeit with ample time for student questions and discussion. Computation will be discussed and illustrated in class using Jupyter Notebooks and the Python programming language.

Course literature

A detailed list of course readings will be made available to students immediately prior to the start of class. Special use will be made of the book *The Econometric Analysis of Network Data* by Bryan Graham and Aureo de Paula (2019, Academic Press) as well as the *Handbook of Econometrics 7A* survey chapter on "Network Data" by Bryan Graham (2010, Elsevier).

Additional course information



In the case of the President's Board having to implement new directives due to the SARS-CoV-2 pandemic in AS2020 or if the lecturer cannot travel to Switzerland because of travel restrictions, the course information listed above will be changed as follows:

- The course would be conducted online via the platform Zoom.
- The recordings of the Zoom lectures would be saved for at least 90 days.
- The lecturer would inform via e-mail on the changed implementation modalities of the course.
- Remote instruction would have no implications for the content of the course.
- Remote instruction would have no implications for course examinations (which are of the "take home" variety regardless).

Students who plan to take this course as an *optional* course and *without an examination* should not register via the bidding system. They should register directly with the lecturer.

Students who plan to take this course as a *regular* course or as an *optional* course *with an examination* should register via the bidding system. Enrolment in a course is binding: students have to attend the course and take the exam.

Examination information

Examination sub part/s

1. Examination sub part (1/2)

Examination time and form

Decentral - examination paper written at home (individual) (80%)

Examination time: term time

Remark

Final exam / project / paper

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

The final exam / project / paper will be open book. All course materials may be freely utilized.

Examination languages

Question language: English

Answer language: English



2. Examination sub part (2/2)

Examination time and form

Decentral - Active participation (20%)

Examination time: term time

Remark

Participation in class discussion and office hours

Examination-aid rule

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.

Supplementary aids

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Examination languages

Question language: English

Answer language: English

Examination content

The exam will provide an opportunity for the student to demonstrate their theoretical knowledge of, and ability to practically apply, econometric methods for network data. A portion of the exam will involve preparing a research proposal.

Examination relevant literature

No materials beyond the course readings are required for exam.

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 (CW51) at the latest. In the case of centrally organised mid-term examinations, the documents and materials up to CW 42 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 34 (Thursday, 20 August 2020);
- Examination information (regulations on aids, examination contents, examination literature) for decentralised examinations: in CW 42 (Monday, 12 October 2020);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised mid-term examinations: in CW 42 (Monday, 12 October 2020);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised examinations: two weeks before the end of the registration period in CW 44 (Thursday, 29 October 2020).