



Course and Examination Fact Sheet: Autumn Semester 2018

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) (100%)

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 strong Masters level sequence in econometrics. Specifically, an understanding of probability and statistical inference at the level of Casella and Berger (1990), linear regression analysis at the level of Goldberger (1991), some exposure to non-linear models, and a basic knowledge of applied matrix algebra. A course based upon the Wooldridge (2010) graduate textbook would suffice (for example).

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. The grade will be shown on the scorecard.

Course content

This course will provide an overview of econometric methods appropriate for the analysis of social and economic spillovers and networks. Many social and economic activities are embedded in networks. Furthermore, datasets with natural graph theoretic (i.e., network) structure are increasingly available to researchers. Examples include trade networks among nations, buyer-supplier networks among firms, friendship/advice networks among individuals, and risk-sharing networks among households in rural villages. We will learn (i) how to describe, summarize and present network data, (ii) formulate, estimate, and conduct inference on the parameters of, econometric models of network formation that admit heterogeneity, strategic behaviour, and/or dynamics, and, finally, (iii) how to model behaviours that occur on networks (e.g., the identification of peer group effects or social spillovers). The focus will be on the formal development of methods, but selected empirical examples will also be covered, as will methods of practical computation. At the end of the course students will have a basic overview of methods for the analysis of network data and peer effects; including methods of computation (generally using Python).

Course structure

The bulk of class will be devoted to the formal development of the material, albeit with empirical illustrations as well as ample discussions of the various practicalities of implementation. However, some class time will be reserved for actual practice with computation. Computational examples will be done in Python. Python is free. I recommend the Anaconda installation available for download at <http://continuum.io/downloads>. Some basic tutorials on installing and using Python, with a focus on economics applications, can be found online at <https://quantecon.org/team>. Class discussion will be encouraged.

Course literature

A detailed list of readings will be provided at the start of class. A textbook introduction to the economics of networks is available in Matthew O. Jackson's book *Social and Economic Networks* (Princeton University Press, 2008). The 2017 *Journal of Economic Literature* survey by Matthew O. Jackson, Brian W. Rogers and Yves Zenou is useful background reading (for prior to the start of classes). Some of the technical econometrics material will be based upon my own forthcoming chapter on the networks in the *Handbook of*



Econometrics. For an illustrative list see https://github.com/bryangraham/short_courses/tree/master/Warwick and https://github.com/bryangraham/short_courses/tree/master/Oslo.

Additional course information

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Examination information

Examination sub part/s

1. Examination sub part (1/1)

Examination time and form

Decentral - examination paper written at home (individual) (100%)

Remark

The paper has to be written in English

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., OGORREK R. et SCHINDLER B. (2018), *Juristisches Arbeiten: Eine Anleitung für Studierende* (6. Auflage), Zürich: Schulthess, or the recommendations of the Law School).

Supplementary aids

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Examination languages

Question language: English

Answer language: English

Examination content

Evaluation will be by an Examination Paper Written at home (in **English**) and due in **early December**. The paper will be 7 to 12 pages in length (size A4 paper, double spaced). The paper will involve relating course readings to potential student research ideas (both empirical and theoretical).

Examination relevant literature

To be defined during the lecture.



Please note

We would like to point out to you that this fact sheet has absolute priority over other information such as StudyNet, faculty members' personal databases, information provided in lectures, etc. When will the fact sheets become binding?

- Information about courses and examination time (central/decentral and grading form): from the start of the bidding process on 23 August 2018
- Information about decentral examinations (examination-aid rule, examination content, examination relevant literature): after the 4th semester week on 15 October 2018
- Information about central examinations (examination-aid rule, examination content, examination relevant literature): from the start of the enrolment period for the examinations on 05 November 2018

Please look at the fact sheet once more after these deadlines have expired.