

Course and Examination Fact Sheet: Spring Semester 2024

8,780: Skills: Network Analysis and Visualization with R & Python

ECTS credits: 3

Overview examination/s

(binding regulations see below) decentral - Analog written examination, Analog, Individual work individual grade (50%, 90 mins.) Examination time: Term time decentral - Presentation, Analog, Group work group grade (50%) Examination time: Term time

Attached courses

Timetable -- Language -- Lecturer 8,780,1.00 Skills: Network Analysis and Visualization with R & Python -- English -- Hoffmann Magnus

Course information

Course prerequisites

None

Learning objectives

Students will learn how to

- analyze real world networks in terms of their main components,
- visualize and analyze network structures using R (and Python).

More detailed learning objectives will be communicated at the beginning of each lecture.

Course content

Social Network Analysis, a rapidly expanding domain in the social sciences, centers around the study of connections between individuals (or other units of analysis) such as friendships, advice, trust, or trade relationships. Its main objectives involve visualizing and analyzing network structures while comprehending the impact of networks on individuals' proclivity to adopt different behaviors.

This course provides a comprehensive overview and analysis of social and economic networks, incorporating a synthesis of models and techniques. It is a valuable course for students seeking to delve into the subject. The course focuses on the modeling and theoretical aspects related to the structure, formation, and impacts of social networks. Moreover, statistical and experimental analyses applied to networks are extensively discussed. The ultimate goal is to establish a solid foundation for the analysis and understanding of social and economic networks.

During this course, students will receive an introduction to a collection of R (and Python) commands designed for conducting social network analysis. These commands encompasses a wide range of functionalities, including importing, exporting, loading, saving, manipulating, replacing, generating, visualizing, and animating networks.

Course structure and indications of the learning and teaching design

The course meets weekly. During the first part of the semester we will discuss key concepts, theories and their application. The second part of the semester is devoted to the discussion of more specific topics in the form of presentations.



Contextual Studies are considered part of **Contact Learning**; thus, taking part properly implies **regular attendance**. It is the students' own responsibility to ensure that there is **no timetable clash** between the courses they have chosen. A detailed course outline and all relevant documents will be made available on **StudyNet**. Only the current timetable as published on **Courses** does apply.

Course literature

Jackson, Matthew O. (2008), Social and Economic Networks, Princeton University Press Easley, David and Jon Kleinberg (2010), Networks, Crowds and Markets, Cambridge University Press Newmann, M.E.J. (2015), Networks - An Introduction, Oxford University Press

Additional course information

Since 2017, Magnus Hoffmann has a post-doc position at the Institute for Business Ethics (IWE-HSG). He studied politics and economics at the Universities Marburg and Mainz, and completed his doctorate at the University of Mainz. He spent time as visiting scholar at Universidad Carlos III de Madrid and the University of Manchester. His research is focused on the intersection of normative economics and game theory.

Examination information

Examination sub part/s

1. Examination sub part (1/2)

Examination modalities

Examination type	Analog written examination
Responsible for organisation	decentral
Examination form	Written exam
Examination mode	Analog
Time of examination	Term time
Examination execution	Synchronous
Examination location	On Campus
Grading type	Individual work individual grade
Weighting	50%
Duration	90 mins.

Examination languages

Question language: English Answer language: English

Remark

Examination-aid rule Closed Book

The use of aids is prohibited as a matter of principle, with the exception of pocket calculator models of the Texas Instruments TI-30 series and, in case of non-language exams, bilingual dictionaries without any handwritten notes. Any other aids that are admissible must be explicitly listed by faculty members in the paragraph entitled "Supplementary aids" of the course and examination fact sheet; this list is exhaustive.

Procuring any aids, as well as ensuring their working order, is the exclusive responsibility of students.

Supplementary aids



Closed Book

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2. Examination sub part (2/2)

Examination modalities

Examination type	Presentation
Responsible for organisation	decentral
Examination form	Oral examination
Examination mode	Analog
Time of examination	Term time
Examination execution	Asynchronous
Examination location	On Campus
Grading type	Group work group grade
Weighting	50%
Duration	

Examination languages

Question language: English Answer language: English

Remark

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Examination-aid rule

Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

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Examination content

The final grade consists of the written final exam (50%) and the group presentation (50%). The topic of the presentation can be negotiated, but I will provide a list of potential topics and basic literature. Presentations will take place during the second half of the semester. The written exam is based on the mandatory reading list.

Examination relevant literature

See course literature.



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 13 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, 25 January 2024);
- Examination information (supplementary aids, examination contents, examination literature) for decentralised examinations: in CW 12 (Monday, 18 March 2024);
- Examination information (supplementary aids, examination contents, examination literature) for centrally organised mid-term examinations: in CW 13 (Monday, 25 March 2024);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised examinations: Starting with de-registration period in CW 15 (Monday, 08 April 2024).