



Course and Examination Fact Sheet: Spring Semester 2020

8,300: Data Analytics II: Causal Econometrics

ECTS credits: 4

Overview examination/s

(binding regulations see below)

Central - Written examination (60%, 60 mins.)

Decentral - examination paper written at home (individual) (25%)

Decentral - Group examination paper (all given the same grades) (15%)

Attached courses

Timetable -- Language -- Lecturer

[8,300,1.00 Data Analytics II: Causal Econometrics](#) -- Englisch -- [Lechner Michael](#), [Bodory Hugo](#), [Zimmert Michael](#), [Knaus Michael](#)

Course information

Course prerequisites

It is assumed that students are familiar with the methods taught in Data Analytics I: Predictive Econometrics. Furthermore, the knowledge of an introductory econometrics course is assumed as well.

Learning objectives

Goal of the course is know and use modern data analytic and econometric tools for causal empirical studies. In particular, students will understand important concepts of Empirical causal analysis, like identification strategies and research designs. They will also learn to use suitable advanced data analytic causal estimators (classical estimators as well as causal machine learning estimators). Finally, students will learn how to code estimators in GAUSS.

Course content

In the lecture part of the course, we will review important aspects of classical estimation theory (maximum likelihood, GMM), discuss research designs suitable to detect causal effects in empirical studies (selection-on-observables, instrumental variables, difference-in-difference, regression-discontinuity), as well as classical and machine learning estimators suitable in the particular research design.

Course structure

The course is in the first half of the term only. It consist of 7 lectures, 5 PC project sessions (contact studies), as well as a self-studies part. The contact studies part emphasise the statistical theory and its application. The self-studies part emphasis coding in GAUSS (in groups).

Course literature

Wooldridge: Econometric Analysis of Cross-sectional and Panel Data, 2nd ed.

Angrist, Pischke: Mostly Harmless Econometrics.

Frölich, Sperlich: Impact Evaluation.

Athey, Imbens: The State of Applied Econometrics: Causality and Policy Evaluation. Journal of Economic Perspectives, 31, 3-32.

Additional course information

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Examination information

Examination sub part/s

1. Examination sub part (1/3)

Examination time and form

Central - Written examination (60%, 60 mins.)

Remark

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Examination-aid rule

Open Book

Students are free to choose aids but will have to comply with the following restrictions:

- At such examinations, all the pocket calculators of the Texas Instruments **TI-30 series** are admissible. Any other pocket calculator models are inadmissible.
- In addition, any type of communication, as well as any electronic devices that can be programmed and are capable of communication such as electronic dictionaries, notebooks, tablets, PDAs, mobile telephones and others, are inadmissible.
- Students are themselves responsible for the procurement of examination aids.

Supplementary aids

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Examination languages

Question language: English

Answer language: English

2. Examination sub part (2/3)

Examination time and form

Decentral - examination paper written at home (individual) (25%)

Remark

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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

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Examination languages



Question language: English

Answer language: English

3. Examination sub part (3/3)

Examination time and form

Decentral - Group examination paper (all given the same grades) (15%)

Remark

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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).
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Supplementary aids

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Examination languages

Question language: English

Answer language: English

Examination content

Aspects of classical estimation theory (maximum likelihood, GMM, etc)

Research designs suitable to detect causal effects in empirical studies.

Classical and machine learning estimators suitable in the particular research design.

Examination relevant literature

Wooldridge: Econometric Analysis of Cross-sectional and Panel Data, 2nd ed.

Angrist, Pischke: Mostly Harmless Econometrics.

Frölich, Sperlich: Impact Evaluation.

Athey, Imbens: The State of Applied Econometrics: Causality and Policy Evaluation. Journal of Economic Perspectives, 31, 3-32.



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 type starting 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.