University of St.Gallen

Course and Examination Fact Sheet: Autumn Semester 2022

3,307: Quantitative Methods

ECTS credits: 4

Overview examination/s

(binding regulations see below)
Central - Written examination (70%, 90 mins.)
Examination time: inter-term break
Decentral - examination paper written at home (individual) (30%)
Examination time: term time

Attached courses

Timetable -- Language -- Lecturer
3,307,1.00 Quantitative Methods -- Englisch -- Smidt Hannah
3,307,2.00 Quantitative Methods: Exercises -- Englisch -- Chassot Jonathan

Course information

Course prerequisites

To meet the learning objectives of this course, students need to be willing to work through unfamiliar and sometimes complex materials. Students can earn 4 ECTS in this course. This corresponds to a workload of about 120 hours during term time. Attending lecture sessions and tutorials only covers a small fraction of this workload, namely 18 hours (12 times 1.5 hours). This implies that the course requires students to spend about 102 hours or about 8 hours per week during term time studying the materials outside of class. Specially, students need to invest some time in reading the required readings for each lecture session and working through the homework assignment for each of the three tutorials.

Learning objectives

The course has three main learning objectives.

First, the course will provide students in the social sciences with knowledge to understand and critically reflect on research findings and other statements based on quantitative methods.

Second, the course will teach students to apply basic descriptive and inferential statistical methods for answering (their own) research questions.

Third, the course will provide students with skills in preparing, managing, visualizing, and analysing statistical data using the programming language and software environment R.

Course content

This course provides a systematic introduction to applied quantitative methods in the social sciences. The course is divided into twelve sessions. The first session introduces students to the basic concepts used in this course and explains the motivation for studying quantitative methods. The second session gives an overview of descriptive statistics. The third session deals with probability theory and sampling distributions. It provides the foundation for all subsequent sessions. The fourth session introduces students to inferential statistics starting with point and interval estimation. The fifth session is taught as a small group tutorial, which provides students with an introduction to the programming language R. The sixth session and seventh session discuss hypothesis testing and group comparisons, respectively. The eighth session is taught as a small group tutorial, which allows students to practice the contents of the previous two weeks using R. The ninth session covers the basics of regression and correlation. The tenth session discusses uncertainty of regression-based inferences and regression model assumptions, while the eleventh session distinguishes correlation from causation and explains control variable strategies. The

course ends with a small-group tutorial, which allows students to practice the methods for regression-based inferences using R.

Course structure and indications of the learning and teaching design

The instructors and the participants of the course will meet once a week throughout the term. There are nine lecture sessions and three tutorials in a smaller group led by the teaching assistant(s). In order to prepare the weekly meetings, you will have to read the required readings (for the lecture) and work on the required and graded homework assignments (for the exercise sessions / tutorials).

Course literature

The required readings are taken from textbook listed below. The chapters and sections to be read are specified on the syllabus.

Agresti, Alan. 2018. Statistical Methods for the Social Sciences. Fifth edition.

Additional course information

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Examination information

Examination sub part/s

1. Examination sub part (1/2)

Examination time and form

Central - Written examination (70%, 90 mins.)
Examination time: inter-term break

Remark

Central exam

Examination-aid rule

Extended Closed Book
The use of aids is limited; any additional aids permitted are exhaustively listed under "Supplementary aids". Basically, the following is applicable:

- At such examinations, all the pocket calculators of the Texas Instruments TI-30 series and mono- or bilingual dictionaries (no subject-specific dictionaries) without hand-written notes are admissible. Any other pocket calculator models and any electronic dictionaries 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 notebooks, tablets, mobile telephones and others, are inadmissible.
- Students are themselves responsible for the procurement of examination aids.

Supplementary aids

Pocket calculators that cannot be programmed of the Texas Instruments TI-30 series.

Examination languages

Question language: English
Answer language: English

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2. Examination sub part (2/2)

Examination time and form

Decentral - examination paper written at home (individual) (30%)
Examination time: term time

Remark
3 problem sets each of which counts 10 percent.

Examination-aid rule
Term papers

Written work must be written without outside help according to the known citation standards, and a declaration of authorship must be attached, which is available as a template on the StudentWeb.

Documentation (quotations, bibliography, etc.) must be carried out universally and consistently according to the requirements of the chosen/specified citation standard such as e.g. APA or MLA.

The legal standard is recommended for legal work (cf. by way of example: FORSTMOSER, P., OGOREK R., SCHINDLER B., Juristisches Arbeiten: Eine Anleitung für Studierende (the latest edition in each case), or according to the recommendations of the Law School).

The reference sources of information (paraphrases, quotations, etc.) that has been taken over literally or in the sense of the original text must be integrated into the text in accordance with the requirements of the citation standard used. Informative and bibliographical notes must be included as footnotes (recommendations and standards e.g. in METZGER, C., Lern- und Arbeitsstrategien (latest edition)).

For all written work at the University of St.Gallen, the indication of page numbers is mandatory, regardless of the standard chosen. Where page numbers are missing in sources, the precise designation must be made differently: chapter or section title, section number, article, etc.

Supplementary aids
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Examination languages
Question language: English
Answer language: English

Examination content

The final exam will take 90 minutes. The grade of the exam will contribute 70% towards the final grade. The exam will be taken in-class and held in English. The exam will be a closed-book test. However, you will be allowed to use a calculator of the Texas Instruments TI-30 series. No other calculators will be allowed for the exam. You are also allowed to use a bilingual dictionary without notes.

There will be three homework assignments. The grade of each will contribute 10% to your final grade. The homework assignments will be available on Canvas about one week prior to the next exercise session / tutorial. Clarification questions can be asked in the forum on Canvas. The homework assignment needs to be submitted on Canvas by the following dates/times:

Deadline for assignment 1: Wednesday, 19 October, 11am (CET)

Deadline for assignment 2: Wednesday, 23 November, 11am (CET)

Deadline for assignment 1: Wednesday, 22 December, 11am (CET)

The content of the final exam and the three homework assignments will cover the topics listed in the schedule and discussed in the required readings. These topics are basic concepts of quantitative methods, measurement and sampling, descriptive statistics, foundations of inferential statistics including probability and sampling distributions), inferential statistics including hypothesis testing, group comparison and associations of categorical variables, correlations and regression analyses, including regression-based inferences and multivariate regression. In addition, the exam and the three homework assignments require basic R programming skills.

Examination relevant literature

Required readings from: Agresti, Alan. 2018. Statistical Methods for the Social Sciences. Fifth edition

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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, 25 August 2022);
- Examination information (regulations on aids, examination contents, examination literature) for decentralised examinations: in CW 42 (Monday, 17 October 2022);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised mid-term examinations: in CW 42 (Monday, 17 October 2022);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised examinations: two weeks before the end of the registration period in CW 45 (Monday, 7 November 2022).