



Course and Examination Fact Sheet: Autumn Semester 2020

3,222: Data Analytics I: Statistics (Economics)

ECTS credits: 6

Overview examination/s

(binding regulations see below)

Central - Written examination (100%, 120 mins.)

Examination time: inter-term break

Attached courses

Timetable -- Language -- Lecturer

[3,222,1.00 Data Analytics I: Statistics \(Economics\)](#) -- Englisch -- [Audrino Francesco](#)

[3,222,2.00 Data Analytics I: Statistics \(Economics\): Exercises](#) -- Englisch -- [Ballinari Daniele](#)

Course information

Course prerequisites

No prior preparation in probability and statistics is required, but familiarity with basic algebra and calculus is expected.

Learning objectives

Students will learn how to deal with stochastic environments and will be able to work properly under conditions where uncertainty plays a major role. Moreover, students will identify and estimate key quantities (parameters) that drive the distribution of the relevant random variables under investigation.

Course content

Introductory course in probability and statistics with some basic economic applications.

The main essential ingredients taught are: elements of probability theory, sampling theory, and statistical estimation. It uses elementary econometrics and other applications of statistical tools to economic data. It also provides a solid foundation in probability and statistics for economists.

The course will emphasize topics needed in the further study of econometrics and provide the needed quantitative preparation for the understanding and analysis of the different economic and financial applications taught in the later terms.

Course structure

The lecture is organized in the form of frontal classes and exercises. The discussed subjects are:

- Probability theory: the building blocks
 - Random experiments
 - Probability models
 - Probability computation rules
 - Basic theorems
- Combinatorial methods
- Random variables: definition and properties
- Special distributions
- Multivariate random variables
 - Joint, marginal, and conditional distributions
 - Expectation, variance, and correlation



- Sums and sample means of random variables
- The Central Limit Theorem (CLT)
- Descriptive statistics
- Estimation of unknown parameters
- Confidence intervals

Course literature

Mandatory:

- F. Audrino, script from lecture (available in Studynet at the beginning of the teaching term).

Recommended:

- M. H. DeGroot and M. J. Schervish, "Probability and Statistics", fourth international edition, Pearson Education, Inc. (2012)
- M. Barrow, "Statistics for economics, accounting and business studies", sixth edition, Pearson Education, Inc. (2013)
- D. Anderson, D. Sweeney, T. Williams, J. Freeman, and E. Shoemith, "Statistics for Business and Economics", third edition, CENGAGE Learning (2014).
- J. Schira, "Statistische Methoden der VWL und BWL: Theorie und Praxis", 3. Auflage, Pearson Studium (2009) - in German

Additional course information

Due to the current pandemic and the limits on the lecture rooms' capacity to maintain the proper social distancing measures in place, the class may be split into groups and each group will alternate face-to-face teaching on Tuesday's lectures. Sessions will be simultaneously broadcasted and recorded via Zoom in the cloud for the group of students not present in the classroom.

Wednesday's lectures will be taught online and recorded in the cloud via Zoom for all students.

In the case of the President's Board having to implement new directives due to the SARS-CoV-2 pandemic in AS2020, the course information listed above will be changed as follows:

- The course is conducted entirely online via the platform Zoom;
- The lecturer informs via StudyNet and e-mail on the changed implementation modalities of the course;

The examination information listed below would be changed as follows:

- There are no changes necessary to the examination information.

Examination information

Examination sub part/s

1. Examination sub part (1/1)

Examination time and form

Central - Written examination (100%, 120 mins.)

Examination time: inter-term break

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:

- All the pocket calculators that are not of the Texas Instruments TI-30 series are explicitly 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, 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

Examination content

- Probability theory: the building blocks
 - Random experiments
 - Probability models
 - Probability computation rules
 - Basic theorems
- Combinatorial methods
- Random variables: definition and properties
- Special distributions
- Multivariate random variables
 - Joint, marginal, and conditional distributions
 - Expectation, variance, and correlation
 - Sums and sample means of random variables
- The Central Limit Theorem (CLT)
- Descriptive statistics
- Estimation of unknown parameters

Confidence intervals

Examination relevant literature

F. Audrino, script from lecture (available in Studynet at the beginning of the teaching term).



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).