



## Course and Examination Fact Sheet: Autumn Semester 2019

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

ECTS credits: 6

#### Overview examination/s

(binding regulations see below)

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

#### 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 -- [Kostrov Alexander](#)

#### Course information

##### Course prerequisites

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

##### 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 Objective:

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 distributions of the relevant random variables under investigation.

##### 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. Shoesmith, "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

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## Examination information

### Examination sub part/s

#### 1. Examination sub part (1/1)

##### Examination time and form

Central - Written examination (100%, 120 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

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## 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 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 (CW51) 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 22 August 2019
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for decentral examinations after the 4th semester week on 14 October 2019
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for central examinations as from the starting date for examination registration on 4 November 2019

Please consult the fact sheet again after these deadlines have expired.