



## Course and Examination Fact Sheet: Autumn Semester 2021

### 5,251: Data Analytics: Statistical Programming

ECTS credits: 3

#### Overview examination/s

(binding regulations see below)

Decentral - Written examination (with defined exam duration) (100%, 90 mins.)

Examination time: term time

#### Attached courses

Timetable -- Language -- Lecturer

[5,251,1.00 Data Analytics: Statistical Programming](#) -- Englisch -- [Lechner Michael](#) , [Valladares-Esteban Arnau](#)

#### Course information

#### Course prerequisites

It is a prerequisite for this course successful completion of Data Analytics I: Statistics. Further, it is recommended that students complete Data Analytics II: Empirical Economic Research."

#### Learning objectives

1. Use basic programming concepts such as iterations and conditionals statements.
2. Design and implement simple estimation methods.
3. Execute basic statistical analysis of a data set using Gauss/Python.
4. Communicate statistical results in writing.

#### Course content

This course offers an introduction to programming in Gauss and Python while learning the main pillars of rigorous Data Analysis. The main topics covered are:

1. Introduction to programming and algorithm design.
2. Overview of Gauss and Python.
3. Data Analysis in Gauss and Python.
4. Regression analysis and Ordinary Least Squares estimation.
5. Causal estimation with an Instrumental variables approach.

The aim of the course is twofold. First, the course provides students with an opportunity to gain fluency both in Gauss and Python. Second, the course introduces students to essential Econometric methodology.

#### Course structure and indications of the learning and teaching design

The course consists of six sessions of four hours which take place in the second part of the semester. Each session combines lecture and programming intervals. Students are expected to use their own computers in order to follow the course.

#### Course literature

- There is no reference textbook. All relevant material is on the website of the course.
- Python: A good complementary reference is the website Lectures in Quantitative Economics by Thomas J. Sargent and John Stachurski (<https://lectures.quantecon.org/py/>).
- Gauss: The Website of Aptech (<https://www.apttech.com/resources/tutorials/>) contains excellent tutorials.



## Additional course information

Students need to install the necessary software before the course. A manual explain how to do this can be found on the website of course.

In the case of the President's Board having to implement new directives due to the SARS-CoV-2 pandemic in AS2021, the course information listed above will be changed as follows:

- The course is conducted online via the platform ZOOM.
- The recordings of the course are available for 30 days.
- The lecturer informs via StudyNet on the changed implementation modalities of the course.

The examination information listed below would be changed as follows:

- The final exam is conducted online and may be recorded.

## Examination information

### Examination sub part/s

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

##### Examination time and form

Decentral - Written examination (with defined exam duration) (100%, 90 mins.)

Examination time: term time

##### Remark

Consistent of programming tasks.

##### Examination-aid rule

Electronic aids BYOD at HSG - Extended closed book

The use of aids is limited. Any additional aids permitted must be listed exhaustively in the section "Supplementary aids". The following generally applies:

- For this examination, all pocket calculators of the Texas Instruments TI-30 series and mono- or bilingual dictionaries (no subject-specific dictionaries) without marginal notes are admissible. All other pocket calculator models as well as electronic dictionaries are inadmissible.
- In addition, any type of communication is inadmissible, as are all electronic devices that can be programmed and enable communication, such as additional notebooks, tablets, mobile phones and other devices, which have not been explicitly permitted by the faculty member in charge.

The procurement of the electronic aids as well as ensuring their functionality and fulfillment of the technical requirements is the responsibility of the students.

The examination must be carried out on university equipment and using the programs defined in advance by the faculty member in charge. Mastery of the operation of the programs is part of the examination.

##### Supplementary aids

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##### Examination languages

Question language: English

Answer language: English

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## Examination content



The exam consists of solving various programming tasks and problems using a dataset provided exclusively for this purpose.

The exam will be a 90 minute programming task to be performed during the last course session on your own computers at the University of St.Gallen.

## Examination relevant literature

All the material on the website of the course.

### 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, 26 August 2021);
- Examination information (regulations on aids, examination contents, examination literature) for decentralised examinations: in CW 42 (Monday, 18 October 2021);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised mid-term examinations: in CW 42 (Monday, 18 October 2021);

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, 8 November 2021).