University of St.Gallen

Course and Examination Fact Sheet: Autumn Semester 2020

5,251: Data Analytics: Statistical Programming

ECTS credits: 3

Overview examination/s

(binding regulations see below)
Decentral - Written examination (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

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.
- Phython: 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.aptech.com/resources/tutorials/) contains excellent tutorials.

University of St.Gallen

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 AS2020, 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 (100%, 90 mins.)
Examination time: term time

Remark
Consistent of programming tasks.

Examination-aid rule
Examinations with electronic aids - on campus or online

For examinations with electronic aids, students may be asked to install a predefined software on their own computer. The procurement and financing of the necessary technical aids, hardware and software as well as ensuring their functionality is the responsibility of the students, unless they are explicitly provided by the University.

If the examination is conducted with the candidates' own laptop or computer, the private device must meet the following requirements:

- Operating system: Windows or macOS

- Software: Microsoft Excel (minimum: Office 2016 or Microsoft Office 365) and current internet browser;

- All necessary updates for the controlled functioning of the operating system and the required software must be installed;

- HSG login: The HSG account must be functional and the access data must be known;

- Network and power: The device must be WLAN capable and have a stable internet connection. For examinations written outside the University premises, a stable internet connection with a sufficiently high transmission rate as well as the availability of a power supply must be ensured at the user's own responsibility;

- Battery life: Operation must be guaranteed during the entire examination period. The device must have a battery life of at least 90 minutes. It is recommended to carry a working power supply;

- Video and audio capability: For examinations which are not held on University premises, the equipment must have a functioning webcam and a functioning, correctly adjusted microphone.

Participants are responsible for ensuring that their equipment is working properly and allows the partaking in the examination. Any deficiencies in the personal infrastructure are the responsibility of the students. Any deficiencies due to the students' own technology or a lack of an uninterrupted internet connection will not be recognized as procedural errors in the execution of the

University of St.Gallen

examination.

The examination is to be taken exclusively by the candidate and only with the help of the permitted aids. The use of additional software, in particular of another internet browser or communication software, is strictly forbidden during the entire examination. Any use of software other than the specified software requires the express prior written permission of the examination administration.

When using a LockDown browser, all applications (internet browser, Office, file explorer, etc.) are blocked and the documents on the computer are therefore not accessible. Any other aids and documents permitted in this leaflet must therefore be printed and/or physically available.

In the case of examinations with electronic aids on the premises of the University, the following shall apply in particular

- After the corresponding request of the examination administration, all connections of the device with networks or other devices (mobile network, WLAN, Bluetooth, etc.) must be disconnected.

For online examinations that do not take place on the University campus, the following applies in particular:

- The identity of the examinee will be verified via webcam before the examination begins. Photographs can be taken. The HSGcard or identity card must be kept ready for this purpose.

- Any unannounced unauthorized removal from the recording area of the webcam may be punished as a culpable violation of the examination conditions.

- Oral examinations may be recorded. The recording may be used for evaluation purposes and documents the examination in the event of appeal and/or disciplinary proceedings. The recordings shall be deleted after the appeal period or any proceedings have expired.

- The use of a headset is only permitted during an oral examination.

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

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.

University of St.Gallen

Please note

Please note that only this fact sheet and the examination schedule published at the time of bidding are is 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).