



## Course and Examination Fact Sheet: Spring Semester 2023

### 8,314: Time Series Econometrics

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 (in groups - all given the same grades) (30%)

Examination time: term time

#### Attached courses

Timetable -- Language -- Lecturer

[8,314,1.00 Time Series Econometrics](#) -- Englisch -- [Grigoryeva Lyudmila](#)

#### Course information

#### Course prerequisites

Knowledge of data analytics I.

#### Learning objectives

Students learn how to analyze, appropriately model and predict time series data.

#### Course content

The course offers an introduction to time series analysis with applications to macroeconomic and financial data.

The course is relevant for students planning to work professionally with economic time series data, such as macro-economic or financial data. The class covers the most important linear times series models, discusses their properties and estimation strategies.

Main Topics

1. Background and introduction to Time series modelling in the time domain.
2. Fundamental concepts in time series analysis
3. ARMA modelling, identification, estimation and forecasting
4. Non-stationary series, unit roots and testing for unit roots
5. Vector auto regressions, structural modelling and causality
6. Co-integration and error correction

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

Weekly lecture with theoretical and practical problem sets.

#### Course literature

##### Reading Material

- Lecture notes
- Walter Enders, Applied Economic Time Series, Wiley, New York, 2nd edition 2004.
- Shumway, Robert H., Stoffer, David (2017): Time Series Analysis and Its Applications



## Further Reading Material

- James D. Hamilton, Time Series Analysis, Princeton University Press, 1994.
- Brockwell and Davis, Introduction to Time Series and Forecasting, 2nd edition, Springer Texts in Statistics 2002

## 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

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##### Examination-aid rule

Closed Book

The use of aids is prohibited as a matter of principle, with the exception of pocket calculator models of the Texas Instruments TI-30 series and, in case of non-language exams, bilingual dictionaries without any handwritten notes. Any other aids that are admissible must be explicitly listed by faculty members in the paragraph entitled "Supplementary aids" of the course and examination fact sheet; this list is exhaustive.

Procuring any aids, as well as ensuring their working order, is the exclusive responsibility of students.

##### Supplementary aids

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##### Nature of examination

analog

##### 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 (in groups - all given the same grades) (30%)

Examination time: term time

##### Remark

Assignments (2-3 students collaborate)

##### Examination-aid rule

Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.



## Supplementary aids

All the aids that violate the following principles are not allowed:

1. Written assignments must be accomplished independently by each group without undue outside help; used sources and aids must be properly cited.
2. During group work, all members must contribute reasonably. Without such contribution, a person may neither be named as a co-author, nor ask for inclusion to the author list.
3. Undue aid may not be offered to others. This includes asking members from other groups to help write the codes and provide solutions.
4. Open source codes available on various web resources should be properly cited and minimally used. Proactive posting requests for ready solutions on web resources is not allowed.

## Nature of examination

analog

## Examination languages

Question language: English

Answer language: English

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## Examination content

The written exam (70%) will cover the following topics:

- Fundamental concepts in time series analysis
- ARMA modelling, identification, estimation and forecasting
- Non-stationary series, unit roots and testing for unit roots
- Vector auto regressions, structural modelling and Causality
- Co-integration and error correction.

The examination paper (30%) consists in a take-home group work on an assigned problem.

## Examination relevant literature

All examination relevant literature will be published by end of term.

### Mandatory Reading Material

- Lecture notes and assignments
- Walter Enders, Applied Economic Time Series, Wiley, New York, 2nd edition 2004.
- Shumway, Robert H., Stoffer, David (2017): Time Series Analysis and Its Applications

### Further Reading Material

- James D. Hamilton, Time Series Analysis, Princeton University Press, 1994.
- Brockwell and Davis, Introduction to Time Series and Forecasting, 2nd edition, Springer Texts in Statistics 2002



## 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 (CW21) at the latest. In the case of centrally organised mid-term examinations, the documents and materials up to CW 12 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 04 (Thursday, 26 January 2023);
- Examination information (regulations on aids, examination contents, examination literature) for decentralised examinations: in CW 12 (Monday, 20 March 2023);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised mid-term examinations: in CW 12 (Monday, 20 March 2023);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised examinations: two weeks before the end of the de-registration period in CW 15 (Monday, 10 April 2023).