



## Course and Examination Fact Sheet: Autumn Semester 2021

### 7,315: Theory of Finance

ECTS credits: 4

#### Overview examination/s

(binding regulations see below)

Decentral - examination paper written at home (individual) (50%)

Examination time: term time

Central - Written examination (50%, 60 mins.)

Examination time: inter-term break

#### Attached courses

Timetable -- Language -- Lecturer

[7.315.1.00 Theory of Finance](#) -- Englisch -- [Söderlind Paul](#)

#### Course information

#### Course prerequisites

Bachelor's level in statistics, some basic knowledge of linear algebra is also useful.

#### Learning objectives

Understanding of financial theory and ability to implement the theory based on recent financial data.

#### Course content

This course is the core finance course in the MiQE/F. It deals with the basic concepts of financial modelling and principles of asset pricing, and has a rigorous treatment of portfolio theory and applications. Moreover, interest rate calculations, bond pricing, bond portfolio management and option pricing are also covered.

Course objective: The aim of the course is to present advanced financial theory and to illustrate how it can be applied on real-life data. Quantitative problem sets are an important part of the course.

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

This course will take place in hybrid form with pre-recorded lectures and face-to-face teaching. Attendance of the face-to-face teaching sessions is not mandatory.

The course covers the following topics:

1. The Basics of Return Calculations
2. The Basics of Portfolio Choice
3. Mean-Variance Frontier
4. Index Models
5. Portfolio Choice
6. Capital Asset Pricing Model
7. Foreign Exchange



8. Performance Analysis
9. Risk Measures
10. Utility-Based Portfolio Choice
11. CAPM Extensions and Multi-Factor Models
12. Investment for the Long Run
13. Efficient Markets
14. Dynamic Portfolio Choice
16. Interest Rate Calculations
17. Hedging Bonds
18. Interest Rate Models
19. Basic Properties of Options
20. The Binomial Option Pricing Model
21. The Black-Scholes Model
22. Hedging Options
23. FX and Interest Rate Options
24. Trading Volatility

The course contains lectures, problem sets (= examination paper), and has a written exam.

## Course literature

(i) Required readings:

- Lecture notes (available as pdf files on the course homepage);
- Elton, E. J., M. J. Gruber, S. J. Brown, and W. N. Goetzmann, 2014, *Modern portfolio theory and investment analysis*, John Wiley and Sons, 9th edn.

(ii) Optional extra reading on interest rate and options:

- Hull, J. C., 2009, *Options, futures, and other derivatives*, Prentice-Hall, Upper Saddle River, NJ, 7th edn.

(iii) Further readings:

- To be specified in class.

## Additional course information

This course will take place in hybrid form with pre-recorded lectures and face-to-face teaching. Attendance of the face-to-face teaching sessions is not mandatory.

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 until the exam;
- 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 (1/2)

##### Examination time and form

Decentral - examination paper written at home (individual) (50%)

Examination time: term time

##### Remark

examination paper = collection of problem sets

##### Examination-aid rule

Term papers

Written work must be written without outside help according to the known citation standards, and a declaration of authorship must be attached, which is available as a template on the StudentWeb.

Documentation (quotations, bibliography, etc.) must be carried out universally and consistently according to the requirements of the chosen/specified citation standard such as e.g. APA or MLA.

The legal standard is recommended for legal work (cf. by way of example: FORSTMOSER, P., OGOREK R., SCHINDLER B., Juristisches Arbeiten: Eine Anleitung für Studierende (the latest edition in each case), or according to the recommendations of the Law School).

The reference sources of information (paraphrases, quotations, etc.) that has been taken over literally or in the sense of the original text must be integrated into the text in accordance with the requirements of the citation standard used. Informative and bibliographical notes must be included as footnotes (recommendations and standards e.g. in METZGER, C., Lern- und Arbeitsstrategien (latest edition)).

For all written work at the University of St.Gallen, the indication of page numbers is mandatory, regardless of the standard chosen. Where page numbers are missing in sources, the precise designation must be made differently: chapter or section title, section number, article, etc.

##### Supplementary aids

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##### Examination languages

Question language: English

Answer language: English

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#### 2. Examination sub part (2/2)

##### Examination time and form

Central - Written examination (50%, 60 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

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## Examination content

Topics of the written exam (50%):

- All topics covered during the lectures as well as the required reading (specified in the detailed reading list) are relevant for the written exam.
- The material in the problem sets is also relevant for the written exam.
- Selected topics: The Basics of Return Calculations, The Basics of Portfolio Choice, Mean-Variance Frontier, Index Models, Portfolio Choice, CAPM, Foreign Exchange, Performance Analysis, Risk Measures, Utility-Based Portfolio Choice, CAPM Extensions and Multi-factor models, Investment for the Long Run, Efficient Markets, Forwards and Futures, Interest Rate Calculations, Bond Portfolios and Hedging, Interest Rate Models, Basic Properties of Futures and Options, The Binomial Option Pricing Model, The Black-Scholes Model, Hedging Options.

## Examination relevant literature

- Lecture notes
- Elton, E. J., M. J. Gruber, S. J. Brown, and W. N. Goetzmann, 2014, Modern portfolio theory and investment analysis, John Wiley and Sons, 9th edn.

## 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).