Course and Examination Fact Sheet: Spring Semester 2019

8,316: Econometric Methods for Financial Instruments

ECTS credits: 4

Overview examination/s
(binding regulations see below)
Decentral - Oral examination (individual) (70%, 15 mins.)
Decentral - Group examination paper (all given the same grades) (30%)

Attached courses
Timetable -- Language -- Lecturer
8,316.1.00 Econometric Methods for Financial Instruments -- Englisch -- Fengler Matthias

Course information

Course prerequisites
Basic knowledge in derivatives & asset pricing is helpful; a sound stat, math, econometrics basis is mandatory.

Course content
The class discusses econometric modeling and statistical inference for financial instruments data.

The course is relevant for students planning to work professionally with financial data. In part one, the class covers diffusion processes and discusses methods for approximation and estimation; the second part is devoted to miscellaneous topics such as modeling the Black-Scholes-Merton implied volatility, the estimation of option price functions and state price densities. Students learn how to analyze and to appropriately model financial instruments data.

Course structure

1. Basic concepts of probability theory
2. Basic concepts of stochastic processes
3. Diffusions
4. Maximum likelihood estimation
5. Estimation of diffusions by means of ML
6. Method of Moments
7. Estimation of diffusions by means of GMM and simulated MM
8. Models of implied volatility
9. Estimation of option pricing functions and state price densities
10. Implied trees

Course literature

Additional course information

Fact sheet version: 1.0 as of 01/07/2019, valid for Spring Semester 2019
Examination information

Examination sub part/s

1. Examination sub part (1/2)

Examination time and form
Decentral - Oral examination (individual) (70%, 15 mins.)

Remark

Examination-aid rule
Extended Closed Book
The use of aids is limited; any additional aids permitted are exhaustively listed under "Supplementary aids". Basically, the following is applicable:

- At such examinations, all the pocket calculators of the Texas Instruments TI-30 series and mono- or bilingual dictionaries (no subject-specific dictionaries) without hand-written notes are admissible. Any other pocket calculator models and any electronic dictionaries 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 notebooks, tablets, PDAs, mobile telephones and others, are inadmissible.
- Students are themselves responsible for the procurement of examination aids.

Supplementary aids

Examination languages
Question language: English
Answer language: English

2. Examination sub part (2/2)

Examination time and form
Decentral - Group examination paper (all given the same grades) (30%)

Remark
Assignments

Examination-aid rule
Term papers

- Term papers must be written without anyone else’s help and in accordance with the known quotation standards, and they must contain a declaration of authorship.
- The documentation of sources (quotations, bibliography) has to be done throughout and consistently in accordance with the APA or MLA standards. The indications of the sources of information taken over verbatim or in paraphrase (quotations) must be integrated into the text in accordance with the precepts of the applicable quotation standard, while informative and bibliographical notes must be added as footnotes (recommendations and standards can be found, for example, in METZGER, C. (2017), Lern- und Arbeitsstrategien (12th ed., Cornelsen Schweiz).
- For any work written at the HSG, the indication of the page numbers both according to the MLA and the APA standard is never optional.
- Where there are no page numbers in sources, precise references must be provided in a different way: titles of chapters or sections, section numbers, acts, scenes, verses, etc.
- For papers in law, the legal standard is recommended (by way of example, cf. FORSTMOSER, P., OGOREK R. et SCHINDLER B. (2018, Juristisches Arbeiten: Eine Anleitung für Studierende (6. Auflage), Zürich: Schulthess, or the recommendations of the Law School).
Examination content

Please note: If an exam question requires information on slides, the lecturer will provide a copy of the respective slides. Students will not be able to use their own copy.

1. Basic concepts of probability theory
2. FHH 3
3. Basic concepts of stochastic processes
4. FHH 4
5. Diffusions
6. FHH 5; GJ 11
7. Maximum likelihood estimation
8. General exposition: G 17
9. Estimation of diffusions by means of ML
10. GJ 12.1; CLM 9.3-9.3.2; Hurn, Jeisman, Lindsay; Cysne.
11. Method of Moments
12. General exposition: G 18
14. Estimation of diffusions by means of GMM and simulated MM
15. GJ 12.2; GJ 12.4; Hurn, Jeisman, Lindsay; Cysne
16. Models of implied volatility
17. NLS: G 9; F 2.5
18. Estimation of option pricing functions and state price densities
19. Figlewski (2008); GJ 13.1.4
20. Implied trees
21. I follow: Härdle, Mysickova; Seydel (2011)
22. Original work is: Derman, Kani (1994)

Examination relevant literature

All documents published via study net by 24 May 2019.

The starred titles printed in bold are strictly recommended references.

Books:


· Fengler (2005), Semiparametric modeling of implied volatility, Springer-Verlag.


Papers:

Please note

We would like to point out to you that this fact sheet has absolute priority over other information such as StudyNet, faculty members' personal databases, information provided in lectures, etc. When will the fact sheets become binding?

- Information about courses and examination time (central/decentral and grading form): from the start of the bidding process on 24 January 2019
- Information about decentral examinations (examination-aid rule, examination content, examination relevant literature): after the 4th semester week on 18 March 2019
- Information about central examinations (examination-aid rule, examination content, examination relevant literature): from the start of the enrolment period for the examinations on 08 April 2019

Please look at the fact sheet once more after these deadlines have expired.