



## Course and Examination Fact Sheet: Autumn Semester 2017

9,178: Pension Finance

ECTS credits: 4

### Overview examination/s

(binding regulations see below)

Decentral - Written examination (75%, 90 mins.)

Decentral - Presentation (individual) (25%)

### Attached courses

Timetable -- Language -- Lecturer

[9,178,1.00 Pension Finance](#) -- Englisch -- [Wolter Hans-Jürgen](#)

### Course information

#### Course prerequisites

Solid knowledge in single period portfolio theory and option pricing is a prerequisite. Specific knowledge in pension systems or pension finance is not required.

The course is recommended for MBF-students in their third semester of the program.

#### Course content

Funded pension systems have been gaining in importance, since pay-as-you-go social security systems are getting more and more under demographic pressure. These pension schemes, which have also their own primarily financial challenges, accumulate significant amounts of capital, which need to be managed over a long-time horizon. The specific institutional framework has to be taken into account in the asset management. Unfortunately, this framework differs from country to country. For more information the papers World Economic Forum (2017): „We'll Live to 100 – How Can We Afford It?“ and OECD (2016): “Pension Markets in Focus” give a good overview.

Goal of this course is on one hand to analyze different frameworks and on the other hand to find common investment management approaches.

#### Course structure

##### Part 1: Institutional Framework:

Demographic pressure on social security systems

Interaction between social security and pension systems



Challenges for funded pension systems with guarantees

## **Part2: Introduction to Actuarial Valuation of Pension Liabilities:**

Actuarial principles

Mortality tables and technical interest rates

Present value of pension liabilities

Periodic premium calculation

Mathematical reserves

## **Part 3: Asset and Liability Approaches for Pension Funds:**

Mean-variance based single period shortfall concept in pension finance

Shortcomings and inconsistencies of this concept

Cash flow based models

Continuous-time expected utility portfolio selection as an alternative approach

Estimation of the model parameter and the concept of the representative investor

## **Part 4: Impact of Long Investment Horizon:**

The myth of time diversification

Perpetual exchange options (Margrabe) as a counter-example of time diversification

Zero-infinity paradox

## **Course literature**

Hans-Juergen Wolter, Lecture Notes on Pension Finance

The Notes will be made available on StudyNet.

## **Additional course information**

The students will have to give a brief presentation (about 15 minutes plus Q&A) on a pension finance related topic. The students



are encouraged to work on their own suggested topic, but can also choose from a list provided before the first lesson.

The exact date and time of the exam will be determined jointly in the first class. In the past students preferred to have the exam a couple of weeks after the course had finished.

## Examination information

### Examination sub part/s

#### 1. Examination sub part (1/2)

##### Examination time and form

Decentral - Written examination (75%, 90 mins.)

##### Remark

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##### 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

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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

Decentral - Presentation (individual) (25%)

##### Remark

Presentation plus Q&A

##### Examination-aid rule

Practical examination

No examination-aid rule is necessary for such examination types. The rules and regulations of the University of St. Gallen apply in a subsidiary fashion.

##### Supplementary aids

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## Examination languages

Question language: English

Answer language: English

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## Examination content

Main focus will be the understanding of the different concepts presented in the course.

## Examination relevant literature

Lecture notes

### 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 August 2017
- Information about decentral examinations (examination-aid rule, examination content, examination relevant literature): after the 4th semester week on 16 October 2017
- Information about central examinations (examination-aid rule, examination content, examination relevant literature): from the start of the enrolment period for the examinations on 06 November 2017

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