

COURSE SYLLABUS

The Economics and Finance of Pensions

 On-campus | PM



University of
Amsterdam



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Short Biography

Servaas van Bilsen is an associate professor at the University of Amsterdam and a fellow of Netspar (Network for studies on Pensions, Aging and Retirement). He holds a PhD in actuarial science and mathematical finance from Tilburg University and was visiting scholar at the University of Pennsylvania and the University of New South Wales. Servaas has published in top journals on behavioral finance and pensions. Furthermore, he has been actively involved in advising the Dutch government and policymakers on the transition of the Dutch second pillar pension system.

Introduction/Course Description

Pension systems are becoming increasingly complex due to demographic changes, financial market dynamics, and evolving policy frameworks. This course examines the economic and financial foundations of pension design, combining institutional analysis with quantitative tools. Students will explore how pension systems are structured and financed across countries, perform actuarial calculations, and apply models such as the Diamond OLG framework to assess sustainability and funding methods. The course also addresses key challenges including intergenerational risk sharing, portfolio optimization in defined contribution plans, longevity risk, and behavioral factors influencing retirement decisions.

Course Objectives

This course aims to:

- Understand the Structure and Role of Pension Systems
- Analyze Pension Policy and Taxation
- Perform Fundamental Pension Calculations
- Apply the Diamond Overlapping Generations (OLG) Model
- Evaluate Intergenerational Risk Sharing
- Optimize Investment Portfolios in Defined Contribution (DC) Systems
- Understand and Quantify Longevity Risk
- Integrate Behavioral and Financial Insights into Pension Design

Course Methodology

Each lecture consists of a theoretical part where the instructor will provide the important theoretical basis, combined with interactive activities in which students can engage with the instructor and their fellow students. During some of the lectures, there will be in-class assignments in which students have to work in group on a given task. Some of the lectures will conclude with a short quiz, such that students can test their knowledge of the past lectures.

Evaluation System

The course evaluation will be performed based on the following set of activities:

- A final exam consisting of two parts with multiple choice and open questions (60%)
- Quizzes during and after the lectures (10%)
- In-class group assignments (30%)

Course Prerequisites

Basic knowledge about calculus and probability theory is required for this course.

