

# Course unit: Actuarial science

## Course metadata

- Title in French: Actuariat
- Course code: tba
- ECTS credits: 3
- Teaching hours: 72h
- Type: specialized course
- Language of instruction: English
- Coordinator: Renaud Bourlès
- Instructor(s): Renaud Bourlès, Violaine Conti (AXA), Alban Davand (AXA), Rim Ennajar-Sayadi (AXA), Xavier Guerrault (AXA), Emmanuelle Mimart (AXA), Sofiane Ournidi (AXA), Thérèse Winterholer (AXA)

## Course description

The aim of the course is to present the main issues related to pricing of insurance products as well as the recent developments in actuarial sciences related to prudential regulation, disability insurance or long-term care.

## Learning outcomes

- How to price simple life insurance products
- Understand the accounting specificities of insurance companies
- Know the current issues and the current regulations of the insurance market.

## Course content

### Insurance economics

### Actuarial science 1

1. Introduction to actuarial science
  - The model of life insurance
  - Non-life insurance specificities
2. Non-life insurance products
  - Characteristics of Non life insurance
  - Mechanisms of Non life Insurance
  - Technical Indicators
  - Pricing
  - Reserving

## Actuarial science 2

1. Life insurance products
  - Technical and financial margins
  - Fair Value and warranty hedging in life insurance
2. Insurance regulation
  - Valuing an insurance portfolio and its profitability
  - Solvency II : modèle interne, SCR computation, BEL,...
3. Asset-Liability Management in insurance
4. Duration models and experience tables
5. Long-term care risk
6. Reinsurance
7. Accounting standards

## Bibliography

- Tosetti A., Weiss F. et Poncelin T., Les outils de l'actuariat vie, Economica
- Charpentier A. et Dutang C., L'Actuariat avec R

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Last update: **2020/07/27 11:46**

