Elective course unit

** General information **

- Course name in French: Electifs
- ECTS credits: 4 (see below what must be done to get these ECTS)
- ** Period: Fall-Winter Semester (from early September until end of January/early February) **
- Level : Undergraduate (Bachelor 4th Year) or Graduate (Master 1st Year)
- Teaching hours: 90 hours divided into 3 courses (30 hours each)
- Language of instruction: usually French

Warning! The elective course unit consists of 3 courses. Students must choose ** one and ONLY ONE ** course in each list.

Three courses in Mathematics can be attended as they are offered in two separate lists:

1. Numerical mathematics and simulation (List 1),
2. Introduction to stochastic processes (List 2),
3. Advanced analysis (List 3).

Due to timetable constraints, you cannot attend more than one course in a list.

Numerical mathematics and simulation (available in course list 1)

** General information **

- Course name in French: Mathématiques numériques et simulation
- ECTS credits: see explanation above
- ** Period: Fall-Winter Semester (from early September until end of January/early February) **
- Level : Undergraduate (Bachelor 4th Year) or Graduate (Master 1st Year)
- Teaching hours: 30 hours (Lectures = tba hours, Tutorials = tba hours, Self-study = tba hours)
- Language of instruction: French
- Coordinator: Marie Billaud-Friess
- Instructor(s): Marie Billaud-Friess, Mitra Fouladirad, Guillaume Chiavassa, Christophe Pouet
- Last update 14/03/2025 by C. Pouet

** Brief description **

This course is an advanced course in Mathematics dealing with simulation, stochastic algorithms and Itô integration.

** Learning outcomes **

- tba

** Prerequisites ** Tba

** Assessment ** Tba

** Course content **

1. Simulation of random variables
    - tba
2. Monte-Carlo methods
    - tba
3. Stochastic algorithms
    - tba
4. Introduction to Itô integration

** Bibliography **

Introduction to stochastic processes (available in course list 2)

** General information **

- Course name in French: Introduction aux processus stochastiques
- ECTS credits: see explanation above
- ** Period: Fall-Winter Semester (from early September until end of January/early February) **
- Level : Undergraduate (Bachelor 4th Year) or Graduate (Master 1st Year)
- Teaching hours: 30 hours (Lectures = tba hours, Tutorials = tba hours, Self-study = tba hours)
- Language of instruction: French
- Coordinator: Mitra Fouladirad
- Instructor(s): Mitra Fouladirad, Thibaut Le Gouic
- Last update 14/03/2025 by C. Pouet

** Brief description **

This course is an advanced course in Mathematics dealing with random processes.

** Learning outcomes **

- tba

** Prerequisites ** Tba

** Assessment ** Tba

** Course content **

1. Conditional expectation
    - tba
2. Markov chains
    - tba
3. Poisson process
    - tba

** Bibliography **

Advanced analysis (available in course list 1)

** General information **

- Course name in French: Analyse mathématique
- ECTS credits: see explanation above
- ** Period: Fall-Winter Semester (from early September until end of January/early February) **
- Level : Undergraduate (Bachelor 4th Year) or Graduate (Master 1st Year)
- Teaching hours: 30 hours (Lectures = tba hours, Tutorials = tba hours, Self-study = tba hours)
- Language of instruction: French
- Coordinator: Magali Tournus
- Instructor(s): Magali Tournus
- Last update 01/04/2022 by C. Pouet

** Brief description **

This course is an advanced course in Mathematics dealing with functional analysis.

** Learning outcomes **

- tba

** Prerequisites ** Tba

** Assessment ** Tba

** Course content **

1. Tba
    - tba

** Bibliography **

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