Modélisation et simulation

**Lecturer**
Gianluca BONTEMPI (Coordinator)

**Course mnemonic**
INFO-F305

**ECTS credits**
5 credits

**Language(s) of instruction**
French

**Course period**
First term

**Campus**
Plaine

### Course content
1) Introduction to modelling and simulation  
2) introduction to dynamical systems  
3) Discrete-state and discrete-time systems  
4) continuous time dynamical systems  
5) continuous linear systems  
6) nonlinear continuous systems  
7) discrete-time systems  
8) Monte Carlo simulation  
9) discrete-event simulation

### Objectives (and/or specific learning outcomes)
Introduction to the notions of modelling and simulation of dynamical systems and their application to real problems. Introduction to the tools (Simulink) and languages for computer simulation.

### Pre-requisites and co-requisites

**Pre-requisites courses**
INFO-F205 | Calcul formel et numérique | 5 crédits

**Co-requisites courses**
INFO-F205 | Calcul formel et numérique | 5 crédits

### Teaching method and learning activities
Lectures, exercises and practical assignments. Some assignments involve practical work using the software package Octave.

### References, bibliography and recommended reading

### Course notes
Syllabus and Université virtuelle

### Other information

**Place(s) of teaching**
Plaine

**Contact(s)**
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**Evaluation method(s)**
written examination and Project

**Evaluation method(s) (additional information)**
Modelling computer project (with Octave)+ written exam

**Determination of the mark (including the weighting of partial marks)**
18/20 (written assessment), 2/20 (project)

**Main language(s) of evaluation**
French

### Programmes

Programmes proposing this course at the faculty of Sciences
BA-INFO | Bachelor in Computer science | unit 3, BA-MATH | Bachelor in Mathematics | unit 3 and MA-ACTU | Master in Actuarial Science | finalité Professional/unit 1