UE Introduction à la biologie mathématique et à la dynamique des populations - MAT236 -

ECTS
3 crédits

Crédits ECTS Echange
3.0

Composante
Département de la licence sciences et technologies (DLST)

Période de l'année
Printemps (janv. à avril/mai)

> **Langue(s) d'enseignement:** Anglais

> **Ouvert aux étudiants en échange:** Oui

> **Crédits ECTS Echange:** 3.0

> **Code d'export Apogée:** GBX2MT96

Présentation

Description

The aim of the course is to become familiar with some basic tools for the modeller and the informed user of mathematical models in the life sciences, limited to simple deterministic models of population dynamics and their applications.

Heures d'enseignement

UE Introduction à la biologie mathématique et à la dynamique des populations - CMTD	Cours magistral - Travaux dirigés	8h
Nouvelles heures d'enseignement	TD	22h

Pré-requis recommandés

Notions of the high school program seen in the first semester in MAT103, concerning numerical sequences, derivatives and primitives of functions, and matrix calculus in dimension 2.

Période : Semestre 2

Compétences visées

- Present some basic tools for the modeller and the (informed) user of mathematical models
- Recall the principles, limits and contributions of a modelling approach in the life sciences
- Study simple deterministic models of population dynamics
- Develop quantitative tools for the analysis of 1D and 2D linear models
- Develop qualitative tools for the analysis of general 1D models
- Apply these tools to concrete situations concerning the evolution of animal, plant or bacterial populations, the kinetics of chemical reactions, genetics, genomics considered at the cellular and molecular levels, the propagation of the SARS-Cov2 virus, etc.
- Finally, emphasise that "The most that can be expected from any model is that it can supply a useful approximation to reality: All models are wrong; some models are useful" (George Box, in Science and Statistics, Journal of the American Statistical Association, 1976).

Infos pratiques

Contacts

Responsable pédagogique

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Lieu(x) ville

> Grenoble

Campus

> Grenoble - Domaine universitaire