- Faculté des sciences
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Models and parameter estimation (3BL2189)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en biologie	**Cours: 3 ph**	**controle continu: 1**	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Automne

Equipe enseignante:

Jacob Koella

Objectifs:

First, using case studies mainly from several areas of biology, I hope that you will appreciate that dynamics models help to explain interesting and important biological phenomena, and that they help to understand the complexity of biology. Second, learn how to model dynamic systems and to estimate parameters.

Contenu:

First, I introduce Scilab. Second, I discuss the basics of dynamic models. This includes differential equations describing processes in continuous time, the emergence of bistability, and a brief introduction to spatial models and pattern formation; it does not include models in discreet time or stochastic models. Third, I give an introduction to the estimation of parameters. Each part uses several biological systems to explain the important aspects.

Forme de l'évaluation:

There are two parts to the evaluation: graded homework during the semester and a modelling assignment at the end of the lecture. If the student fails, there will be an opportunity for a second exam during the spring semester (date fixed with discussion).

Documentation:

i will provide a pdf-book that contains my lectures. The software Scilab is kopen-access, and must be downloaded by the students.

Pré-requis:

Basic matehmatics is necessary. Previous modelling of discrete systems (e.g. population genetics) is helpful, but not necessary

Forme de l'enseignement:

Lectures and practical