

MATH-481

Mathematical modelling of DNA

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Cursus	Sem.	Type
Computational science and Engineering	MA1, MA3	Opt.
Ing.-math	MA1, MA3	Opt.
Mathématicien	MA1, MA3	Opt.

Language of teaching	English
Credits	5
Session	Winter
Semester	Fall
Exam	Oral
Workload	150h
Weeks	14
Hours	4 weekly
Courses	2 weekly
Exercises	2 weekly
Number of positions	

Summary

Mathematical modelling of DNA

Content

This course is designed to be an introduction, within the particular context of DNA, to the interplay between analysis, computation and experiment that makes up the process called mathematical modelling. In addition to students mainly interested in DNA modelling, the course is intended for students wishing an introduction to the modelling process in general, and will describe a number of widely encountered mathematical and computational techniques, all within the context of the software package cgDNA <http://lcvmmwww.epfl.ch/cgDNA/>

Learning Prerequisites**Required courses**

1st & 2nd year courses in math or physics, (or with teacher's permission)

Learning Outcomes

By the end of the course, the student must be able to:

- Explain the theory underlying the model
- Expound applications of all of the material in the course

Teaching methods

Ex cathedra lecture and exercises in the classroom

Assessment methods

Oral exam.

Dans le cas de l'art. 3 al. 5 du Règlement de section, l'enseignant décide de la forme de l'examen qu'il communique aux étudiants concernés.

Resources**Bibliography**

Will be given at the beginning of the course