

MATH-481

**Mathematical modelling of DNA**

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Cursus	Sem.	Type
Computational science and Engineering	MA2, MA4	Opt.
Ing.-math	MA2, MA4	Opt.
Mathématicien	MA2	Opt.

Language of teaching	English
Credits	5
Session	Summer
Semester	Spring
Exam	Oral
Workload	150h
Weeks	14
<b>Hours</b>	<b>4 weekly</b>
Courses	2 weekly
Exercises	2 weekly
<b>Number of positions</b>	

**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://lcvmwww.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