

# Synthetic Biology

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**Teaching team :** Matthieu JULES, Iona POPESCU, Cécile GASSE

## Course organization:

The course module is organized in 16h of lectures and 9h of tutorials to introduce knowledge and methodological too

## Targeted learning objectives:

The aim of this module is to give students perspectives in Synthetic Biology, a field where novel biological and biologically based parts, devices and systems are (re)designed and constructed to perform new functions that do not exist in nature.

**At the end of the course, students will be able to:**

- Explain the strategies employed in the field of metabolic engineering for the production of sustainable biobased compounds
- Analyse simple synthetic regulatory circuits
- Explain the principles of genome engineering techniques and illustrate the synthetic genomics approaches
- Describe several orthogonal systems and analyse their advantages and limitations

Thus, students will have a strategic vision on how to progress in the field of synthetic biology: from the extraction of innovative knowledge from the available biological data to the transformation of the data into new rational and useful knowledge.