Teach System Biology Project

C**oordinator**: Matthieu JULES

Teaching team: Jean-Denis FAURE, Matthieu JULES, Vincent SAUVEPLANE.

Course organisation:

This course adopts a reverse pedagogy approach in which the students themselves construct the course.

In each session, students will evaluate each other. The “teacher” will be evaluated on the basis of his 2-hour lecture while the “students” will be evaluated through the 1-hour tutorial.

Targeted learning objectives:

Systems biology (SB) is an attempt to understand cells (or other biological systems) as complex systems by studying their basic building blocks and their interactions, and connecting this reductionist view with a holistic, systemic perspective. To understand biological functions, it often does not suffice to study single proteins, single genes, single cells, or single organism. Rather, the ability of living matter to perform amazing tasks relies on an ensemble of actors acting collectively. Those tasks, involving for example decision making or information processing, can thus be understood only at the system level.

The Teach Systems Biology project has the ambition to train students in new concepts (at the interface in life sciences) and teaching them how to communicate their knowledge (self-learning).

Briefly, following a short introduction lecture, students will have to prepare a 2-hour lecture and a 1-hour tutorial on a sub-theme of SB for the whole class.

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

• Describe biological systems at the system level as a list of units and their interactions, or as a combination of modules, and the resulting dynamics

• Self-evaluate their knowledge and ability to communicate on biological