System Biology I

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Teaching team : Etienne DELANNOY, Véronique BRUNAUD, Marie-Laure MARTIN MAGNIETTE, Dario MONACHELLO, Jean BIGEARD, Florence GONNET.

Course organization:

25h of lectures and practicals tutorials

Targeted learning Objectives:

Integrative approaches are key steps in the thorough exploitation of omics data and their translation into knowledge. In this module, students will have courses on the architecture and the machinery of the cell, and on the genome and epigenome organization. They will learn how to combine predictive and experimental approaches to decode the genomic information through the structural and functional annotation of genomes. The integration and the querying of heterogeneous data imply to perfectly know their origin in order to take into consideration their quality, relevance and confidence levels. The understanding of this approach is the basis of holistic analyses for systems biology. Students will see different methods to produce transcriptome, ORFeome, proteome and interactome resources and how to integrate them in modeling approaches to have new insights on cellular processes.

On completion of the course, students will be able to :

have a good understanding of the challenges posed by integration of omics data. They should be able to understand and summarize a scientific paper in the field.