UCLouvain

lbrai2219

2021

Systems Biology Modelling

3.00 credits	30.0 h	Q2

Teacher(s)	Couvreur Valentin (compensates Javaux Mathieu) ;Draye Xavier (coordinator) ;Javaux Mathieu ;Lobet Guillaume ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	Mathematics, informatics, biology, physiology and genetics (typ. masters BIRA et BBMC).
Main themes	- Introduction to systems biology - Introduction to notions of dynamic and compartmentalized networks - Mathematical formalisms and software tools for the exploration of omics data - Initiation to modelling (practicals)
Learning outcomes	**At the end of this learning unit, the student is able to :** a. Contribution of this activity to the program learning outcomes M1.1, M1.2, M2.2, M2.3, M3.1, M3.6, M4.4, M6.1, M6.3, M6.4 b. Learning outcome specifics for this activity At the end of the course, the student is able to : 1 · approach the functioning of an organism in a systems framework and at multiple scales ; · explain the specifics of systems biology · recognise and understand a systems biology methodology · explore the litterature with professional databases (e.g. Scopus), contact and discuss with researchers in the field · present a subject in a synthetic and pedagocis way to the student room
Evaluation methods	The student is evaluated in groups on the basis of the quality and rigour of the project they present at the end of the course.
Teaching methods	The course takes the form of project-based learning. Students observe plants in the field, quantitatively describe their architecture taking into account information found in the literature and formalize their growth and development based on a mathematical model of the FSPM type provided to them at the beginning of the course.
Content	Introduction to systems biology and biological systems modeling. The models considered are plant structure-function models (FSPM) and crop growth models (CGM).
Inline resources	FSPM executable and source code.
Other infos	This course can be given in English.
Faculty or entity in charge	AGRO

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Agricultural Bioengineering	BIRA2M	3		
Master [120] in Environmental Bioengineering	BIRE2M	3		
Master [120] in Chemistry and Bioindustries	BIRC2M	3		