







3.00 credits

10.0 h + 20.0 h

Q1

Teacher(s)	Baret Philippe ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	LBIR1271 Projet intégré en info et math appliquées <i>The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.</i>
Main themes	Systems analysis: definition, theory and background. Conceptual bases for modeling applied to systems analysis. Designing models for systems analysis: defining objectives, identifying hypotheses, mathematical formulation, programming, parameter estimation, and assessment of the model. Systems analysis examples will initially address different global issues, but a particular focus will be given to the problem food security as an illustrative example throughout the course. Other, different modeling exercises/ projects will be carried out on computers based on a specific modeling tool (Simulink), in order to address different problems/ challenges in the areas of agronomical, biological and environmental engineering.
Learning outcomes	At the end of this learning unit, the student is able to : a. <u>Contribution of instruction with regards to the referential of leaning outcomes</u> B2.2, B2.3., B3.2., B3.3, B4.4. b. <u>Specific formulation for this activity AA program (maximum 10)</u> At the end of this activity, the student is able to: 1 ' Understand key steps underlying the modeling work necessary for carrying out the systems analysis and distinguish key differences with a reductionist approach. ' Utilize a systemic approach to effectively address issues dealing with a biological, agronomical and environmental challenges/ problems.
Evaluation methods	Written exam and a programming exam.
Teaching methods	Instructions in a teaching room.
Content	The course consists of four introductory sessions (8 hrs) which aim is to familiarize the student with key concepts underlying systems analysis. Another segment of the course (20hrs) will be entirely dedicated to modeling exercises/ projects with the aim of helping the student develop key and basic skills in modeling applied to systems analysis.
Inline resources	Moodle
Bibliography	Le cours ne fait appel à aucun support particulier qui serait payant et jugé obligatoire. Les ouvrages payants qui seraient éventuellement recommandés le sont à titre facultatif.
Faculty or entity in charge	AGRO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Geography : General	GEOG2M	3		
Master [120] in Philosophy	FILO2M	3		
Bachelor in Bioengineering	BIR1BA	3	LBIR1271	
Master [120] in Ethics	ETHI2M	3		
Minor in Development and Environment	MINDENV	3		
Interdisciplinary Advanced Master in Science and Management of the Environment and Sustainable Development	ENVI2MC	3		
Master [120] in Environmental Science and Management	ENVI2M	3		