

3.0 credits	10.0 h + 20.0 h	1q
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Teacher(s) :	Baret Philippe (coordinator) ; Hanert Emmanuel ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	iCampus
Prerequisites :	Background in applied mathematics.
Main themes :	<p>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.</p> <p>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.</p>
Aims :	<p>a. Contribution of instruction with regards to the referential of learning outcomes B2.2, B2.3., B3.2., B3.3, B4.4.</p> <p>b . Specific formulation for this activity AA program (maximum 10) At the end of this activity, the student is able to:</p> <ul style="list-style-type: none"> ' 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. <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods :	Written exam and a programming exam.
Teaching methods :	Instructions in a teaching room.
Content :	The course consists of 5 introductory sessions (10hrs) 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..
Bibliography :	No specific instruction material is requested.

<p>Cycle and year of study :</p>	<ul style="list-style-type: none"> > Master [120] in Environmental Science and Management > Master [120] in Geography : General > Bachelor in Information and Communication > Bachelor in Philosophy > Bachelor in Pharmacy > Bachelor in Computer Science > Bachelor in Economics and Management > Bachelor in Motor skills : General > Bachelor in Human and Social Sciences > Bachelor in Chemistry > Bachelor in Sociology and Anthropology > Bachelor in Political Sciences: General > Bachelor in History of Art and Archaeology : General > Bachelor in Mathematics > Bachelor in History > Bachelor in Biomedicine > Bachelor in Engineering > Bachelor in Religious Studies > Bachelor in Bioengineering > Master [120] in Philosophy > Master [120] in Ethics
<p>Faculty or entity in charge:</p>	<p>AGRO</p>