UCLouvain

lbir1351

2026

Introduction to systems analysis

The version you're consulting is not final. This course description may change. The final version will be published on 1st June.

3.00 credits	10.0 h + 20.0 h	Q1

Teacher(s)	Baret Philippe ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	*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.*
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 illustratory 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. Contribution of instruction with regards to the referential of leaning outcomes B2.2, B2.3., B3.2., B3.3, B4.4. b . Specific formulation for this activity AA program (maximum 10) 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	Assessment is based on three modalities: (1) a computer modeling exercise in the computer room (in pre-session and usually in S13) [13 points], (2) an examination on theoretical concepts based on a QRM (4 points), (3) a system implementation exercise during the second part of the term (3 points). Attendance at practical work is compulsory. In the event of unjustified absences, a penalty will be applied to the overall grade. In the event of failure to pass the exam (final grade), all three exam modalities must be represented.
Teaching methods	Lectures and practical sessions in computer rooms.
Content	The course consists of lectures (10 hours) that aim to familiarise the student with the key concepts underlying systems analysis. Another segment of the course (20 hours) will be entirely dedicated to practical modelling work with the aim of helping the student to develop key and basic modelling skills applied to systems analysis. This second part of the course is compulsory. Each unjustified absence from a practical session will result in a penalty.
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.
Other infos	The course does not make use of any particular material that would be subject to payment and considered compulsory. Any books recommended for sale are optional.
Faculty or entity in charge	AGRO

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Minor in Development and Environment	MINDENV	3		🔍
Interdisciplinary Advanced Master in Science and Management of the Environment and Sustainable Development	ENVI2MC	3		🔍
Bachelor in Bioengineering	BIR1BA	3	LBIR1271	🔍