UCLouvain

lboe2292

2026

Individual-based modelling in ecology

4.00 credits	15.0 h + 45.0 h	Q1

Teacher(s)	Wesselingh Renate ;
Language :	English
Place of the course	Louvain-la-Neuve
Prerequisites	The student has a basic knowledge of ecology, evolution and statistics. Some experience with writing code (in R or other) is useful, but not strictly necessary
Main themes	Simulations models, population- and individual-based models, spatial models
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 **Contribution of the teaching unit to the program's AA reference framework** In line with the BOE2M program's competency framework, this teaching unit contributes to the development and acquisition of the following skills: 3 (3.1, 3.2, 3.3, 3.5), 4(4.3, 4.4) 2 **Course-specific learning outcomes :** The student is able to formulate a relevant question (biological or other) that can be used to make a population- or individual based model, to write an ODD (overview, design concepts, details) protocol for a simple model, to construct the simple model in NetLogo, using the visual interface and writing code to make a working model, to run the model with different values for important variables and extract results; and to analyse the results (graphically and/or statistically)
Evaluation methods	The evaluation consists of an oral presentation that explains the steps in the development of the model, after which the students hand in their files (code and presentation). The work is evaluated on the basis of the originality of the question, the way of translating it into a model and the interpretation of the results obtained.
Teaching methods	Group learning of NetLogo, discussion sessions on topics, individual work.
Content	In the first part of the course, students learn the principles of modeling using NetLogo software. The second part is an individual assignment, in which each student builds a model to find an answer to an original biological question.
Inline resources	site web Moodle LBOE2292 site web pour livre Railsback & Grimm
Bibliography	Railsback, S.F. & V. Grimm (2019) Agent-based and individual-based modelling, 2nd edition. Princeton University Press, Princeton, NJ, USA.
Faculty or entity in charge	BIOL

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Biology of Organisms and Ecology	BOE2M	4		
Master [60] in Biology	BIOL2M1	4		
Interdisciplinary Advanced Master in Science and Management of the Environment and Sustainable Development	ENVI2MC	4		