

4.00 credits

35.0 h + 15.0 h

Q1

Teacher(s)	Elens Laure (coordinator) ;Haufroid Vincent ;
Language :	English
Place of the course	Bruxelles Woluwe
Prerequisites	The prerequisites for this Unit of Study (UE) are specified at the end of this document, in relation to the programs/ courses that offer this UE.
Main themes	The course will provide an in-depth understanding of how toxic agents are distributed in the environment and various ecosystems, as well as their accumulation in plants, animals, and humans. This course will also introduce the concept of the exposome and the implications this innovative concept has on toxicology research. The principle of biomonitoring will also be integrated into this UE, allowing students to become familiar with measurement techniques, their practical applications, and methods for evaluating acute and chronic toxicity.
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <ul style="list-style-type: none"> <li>• Describe the different human biomonitoring methods and their application to cases of chronic or acute intoxication.</li> <li>• Define and understand the main factors influencing the distribution and accumulation of toxic agents, including environmental, chemical, physical, physiological, and ecological factors.</li> <li>• Define and apply the different methods used to monitor exposure to toxic agents in ecosystems and humans, as well as describe the extent of absorption and biomagnification.</li> <li>• Characterize and master exposure and accumulation models, statistical tools in ecotoxicology, and understand the different accumulation metrics and how to calculate them.</li> <li>• Integrate these different concepts to address the exposome concept.</li> </ul>
Evaluation methods	<p>There are three components to the assessment:</p> <ul style="list-style-type: none"> <li>• Evaluation of the practical components of the training through a laboratory notebook related to the practical sessions (25%),</li> <li>• Continuous assessment during group sessions of autonomous learning and an oral presentation on an ecotoxicology topic (25%),</li> <li>• Theoretical assessment through a written exam (25%).</li> <li>• A written report on the issue of metal toxicity as addressed in the problem-based learning activity (25%).</li> </ul>
Teaching methods	<p>The courses will be delivered in the form of MOOCs and lectures with group sessions and evaluations. Students will work autonomously, at their own pace, guided by the teaching team. Students will also participate in practical sessions where they will demonstrate their ability to master analytical techniques for measuring metals in biological matrices and analyze the results against 'reference' values.</p> <p>In addition, the section on metal toxicity will be addressed using active teaching through problem-based learning in groups.</p>
Content	The course offers an overview of how toxic agents are distributed in the environment, accumulated by humans and other organisms, and the measurement methods that quantify this exposure to evaluate its impact. The course focuses on the mechanisms and processes important for understanding the distribution and accumulation of toxic agents, and how these processes are affected by other factors. The course covers different ecosystems, including organisms and humans, as well as the new concept of the exposome and its applications in toxicology research.
Faculty or entity in charge	FASB

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Biomedicine	<a href="#">SBIM2M</a>	4		