

6.00 credits	40.0 h + 8.0 h	Q1
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Teacher(s)	Bogaert Patrick (coordinator) ;Defourny Pierre ;Hanert Emmanuel ;
Language :	English > French-friendly
Place of the course	Louvain-la-Neuve
Prerequisites	This project is open to any bioengineer master student (A, C, E or F) upon prior completion of the bachelor cycle.
Main themes	<p>The integrated project in Data Science requires the students from option 10 - Data Science - to mobilize their knowledge and skills in an integrated and transverse way whatever their specific master. The goal is to understand and analyze a problem which is relevant to the field of bioengineering and that involves data of various nature and sources.</p> <p>The project will cover topics that address the whole information processing chain, including data acquisition, data processing and communication issues directed towards various public or private stakeholders.</p> <p>The complexity and deadlines of the project correspond to situations that are expected to arise in a real professional context. The project will involve both written and oral communication of the results that can be understood and use by non-specialists.</p>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p>1. <u>Contribution of this activity to the learning outcomes referential :</u> 2.4, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 6.2, 6.3, 6.5, 6.6, 6.7, 6.8, 7.1, 7.2, 8.1, 8.2</p> <p>1. <u>Specific formulation of the learning outcomes for this activity</u> A the end of this activity, the student is able to :</p> <ul style="list-style-type: none"> <li>• Integrate various scientific knowledge and skills for addressing a real-world complex problem of bioengineering that relates to technologies and management of information and by accounting for technical, legal and economic constraints;</li> <li>1 • Design original and scientifically sound approach for solving a multidisciplinary problem in the bioengineering framework;</li> <li>• Plan the necessary steps of the projects by working efficiently and in a liable way within a team;</li> <li>• Work within a team by promoting initiative, commitment and adaptation in order to honor deadlines;</li> <li>• Communicate efficiently about the proposed solutions both in a written and oral way by using a rigorous approach that still remains accessible for non-specialists;</li> <li>• Interact in an efficient and respectful way with various stakeholders by promoting dialogue, empathy and assertiveness;</li> <li>• Understand the legal and technical aspects that are relevant for the acquisition, processing and communication aspects that are involved in the framework of the project</li> </ul>
Evaluation methods	Written report and oral presentation of the results at the end of the project.
Teaching methods	Students will work jointly within in a group and will be supervised on a weekly basis by the teaching team.
Content	<p>Each year, a different real-world and topical problem will be presented to the students. This presentation may involve various stakeholders. In order to mimic a real engineering office, the students will organize themselves into groups that are composed of 2 to 4 students. They will summarize the problem and plan the work to be done (steps and milestones, external resources to be used, deadlines to honor) in order to achieve a scientifically sound and realistic solution.</p> <p>Depending on the problem at hand, the work will include at least two priority tasks among the following list (other tasks are thus considered as subordinated) : data collection, data validation &amp; correction, management of the corresponding databases, statistical analyses and modeling, risk analysis about the project outcomes and proposed solution, written and oral communication towards stakeholders and scientists that are non-specialists, assistance for a proper diffusion of the results (indicators, computer interfaces, etc.).</p> <p>The students will have to report the intermediate outcomes of the project at key steps. A joint written report must be delivered by the end of the semester. This report will be orally presented during the examination session.</p>
Other infos	This course can be given in English and French.

Faculty or entity in charge	AGRO
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Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Environmental Bioengineering	BIRE2M	6		