








5.00 credits

30.0 h + 30.0 h

Q1

Teacher(s)	Mouraux André ;Verleysen Michel ;
Language :	English
Place of the course	Louvain-la-Neuve
Learning outcomes	<p>With respect to the AA referring system defined for the Master in Biomedical Engineering, the course contributes to the development, mastery and assessment of the following skills :</p> <p>1</p> <ul style="list-style-type: none"> • AA1.1, AA1.2, AA1.3 • AA2.1, AA2.2, AA2.3, AA2.4 • AA3.2 • AA6.1, AA6.2, AA6.3 <p>-----</p> <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	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</p> <p>The assessment consists of two parts.</p> <p>1) An assignment to be completed during the semester, which is the subject of questions in the oral examination;</p> <p>2) An oral examination on the course and practical sessions.</p> <p>Part 1) counts for 20% of the final assessment points, part 2) for 80%.</p> <p>The oral examination may be converted into a written examination depending on external circumstances, including the number of students enrolled in the course.</p>
Teaching methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</p> <p>Ex-cathedra course organized physically if sanitary conditions permit, and broadcasted or recorded if required by sanitary rules. Practical sessions on computers. Meetings with biomedical instrument users and/or manufacturers (hospitals, pharmacology industry, and instrument manufacturers) if feasible according to sanitary rules.</p>
Content	<ul style="list-style-type: none"> • specifics of measurements and instruments in clinic and biology • electric and magnetic stimulation and recording • use of other energy types (indications, methods and interest) • safety notions (patient and user protection, asepsis and sterilization, device compatibility) • application examples, especially those requiring a mathematical analysis (ECG, EEG, evoked potentials, etc..) • descriptive methods of data analysis • single- and multi-variable analysis • linear and non-linear regression • classification • principal components analysis • frequency analysis of signals, spectrum and sampling
Inline resources	Course: LGBIO2020 - Bioinstrumentation (uclouvain.be)
Bibliography	Les transparents présentés lors des exposés théoriques, de même que quelques articles scientifiques de référence, sont disponibles sur Moodle.
Other infos	/
Faculty or entity in charge	GBIO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Chemical and Materials Engineering	KIMA2M	5		
Master [120] in Electrical Engineering	ELEC2M	5		
Master [120] in Computer Science and Engineering	INFO2M	5		
Master [120] in Electro-mechanical Engineering	ELME2M	5		
Master [120] in Statistics: Biostatistics	BSTA2M	5		
Master [120] in Biomedical Engineering	GBIO2M	5		
Master [120] in Chemistry and Bioindustries	BIRC2M	5		
Master [120] in Mathematical Engineering	MAP2M	5		