

5.00 credits

30.0 h + 30.0 h

Q2

Teacher(s)	Germany Morrison Enrique Ignacio (compensates Verleysen Michel) ;Mouraux André ;Verleysen Michel ;
Language :	English > French-friendly
Place of the course	Louvain-la-Neuve
Learning outcomes	At the end of this learning unit, the student is able to : 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 : • AA1.1, AA1.2, AA1.3 • AA2.1, AA2.2, AA2.3, AA2.4 • AA3.2 • AA5.3 • AA6.1, AA6.2, AA6.4
Evaluation methods	The assessment consists of two parts. 1. An assignment to be completed during the semester, which is the subject of questions in the oral examination. 2. An oral examination on the course and practical sessions. Part (1) counts for 20% of the final grade, part (2) for 80%. The oral examination may be converted into a written examination depending on external circumstances, including the number of students enrolled in the course.
Teaching methods	• Ex-cathedra course. • Practical sessions on computers supervised by teaching assistants. • Meetings with biomedical instrument users and/or manufacturers (hospitals, pharmacology industry, and instrument manufacturers). • Project to be carried out by group of 1-2 students aiming to apply concepts covered during the lessons and practical sessions.
Content	• 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 Biomedical Engineering	GBIO2M	5		
Master [120] in Electrical Engineering	ELEC2M	5		
Master [120] in Chemistry and Bioindustries	BIRC2M	5		
Master [120] in Computer Science and Engineering	INFO2M	5		
Master [120] in Computer Science	SINF2M	5		
Master [120] in Electro-mechanical Engineering	ELME2M	5		
Master [120] in Mathematical Engineering	MAP2M	5		