








Due to the COVID-19 crisis, the information below is subject to change, in particular that concerning the teaching mode (presential, distance or in a comodal or hybrid format).

4 credits	15.0 h + 5.0 h	Q1
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Teacher(s)	Francq Bernard ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	- Statistical tools for quality insurance - Principles and classes of Shewhart control charts - CUSUM and EWMA control charts - Control charts for autocorrelated and multivariate data - Capability analysis - Decomposition of sources of variability. Gauge analysis. - Reception sampling
Aims	<p>At the end of this course, the students will have gain knowledge and a critical view of the statistical tools usefull in the setup of quality insurance policy, in process control and daily follow up of analytical devices. They will be able to apply these tools to industrial data sets.</p> <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	<b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b> The evaluation is based on a project, a written exam and an oral exam.
Teaching methods	<b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b> Lectures (15h) <ul style="list-style-type: none"> <li>• Methods presentation on the basis of real-life situations.</li> <li>• Formal but intuitive discussion of theoretical concepts and formulae for most methods.</li> <li>• Interpretation of software outputs.</li> <li>• Interactive lectures: students are encouraged to participate during the course.</li> </ul> Computer labs (5h) <ul style="list-style-type: none"> <li>• Case studies on JMP, methodological exercises, and JMP Output interpretation.</li> </ul>
Content	The themes discussed in this course are : <ul style="list-style-type: none"> <li>• Statistical tools for quality insurance</li> <li>• Principles and classes of Shewhart control charts</li> <li>• CUSUM and EWMA control charts</li> <li>• Control charts for autocorrelated, multivariate and short run data</li> <li>• Capability analysis</li> <li>• Reception sampling</li> </ul>
Inline resources	See the Moodle site: <a href="https://moodleucl.uclouvain.be/course/view.php?id=9935">https://moodleucl.uclouvain.be/course/view.php?id=9935</a>
Bibliography	D. C. Montgomery, Statistical Quality Control. New York: Wiley.
Other infos	Prerequisite : First course in statistical inference
Faculty or entity in charge	LSBA

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Certificat d'université : Statistique et sciences des données (15/30 crédits)	STAT2FC	4		
Minor in Statistics, Actuarial Sciences and Data Sciences	MINSTAT	4		
Master [120] in Mathematical Engineering	MAP2M	4		
Advanced Master in Nanotechnologies	NANO2MC	4		
Approfondissement en statistique et sciences des données	APPSTAT	4		
Master [120] in Statistic: General	STAT2M	4		
Master [120] in Statistic: Biostatistics	BSTA2M	4		
Master [120] in Biomedical Engineering	GBIO2M	4		