



5.00 credits

30.0 h

Q2

Teacher(s)	Kieffer Suzanne ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	<ul style="list-style-type: none"> <li>· Visual perception</li> <li>· Representation (encoding of values, of relations)</li> <li>· Presentation (visualization techniques) and interaction</li> <li>· Design principles (Gestalt, Bertin, color theory)</li> <li>· Dashboards and visual analytics</li> </ul>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <ol style="list-style-type: none"> <li>1. Describe data visualizations in terms of data type, data representation, presentation and interaction technique, and user task ;</li> <li>2. Explain the different stages involved in the development of interactive visualizations by illustrating each step through its typical results (e.g. deliverables) ;</li> <li>3. Apply Information Visualization principles and techniques to design and develop an interactive visualization of a large data set ;</li> <li>4. Evaluate a visualization using criteria and propose improvements.</li> </ol>
Evaluation methods	<p>Continuous assessment without examination in June. The evaluation includes three modes: individual assignments, group assignments and knowledge tests. Each mode represents 33.33% of the final grade.</p> <p>September session: individual custom assignment due on the first day of the September session.</p>
Teaching methods	<p>The pedagogical approach is blended teaching, which alternates face-to-face classroom teaching with online distance learning via Microsoft Teams. The distribution between face-to-face and distance learning is adapted according to the health situation and mobility conditions. For example, in case of strike (TEC, SNCB), the sessions are held remotely. Moreover, some sessions are replaced by autonomous work activities, carried out individually (e.g. following online tutorials) or in groups (e.g. cleaning a dataset).</p> <p>The teaching methods are flipped classroom and project-based teaching:</p> <ul style="list-style-type: none"> <li>• Flipped classroom: students study the material at home and then meet their teacher and peers in a classroom to ask questions and get additional help or to work with their peers;</li> <li>• Project-based teaching: students develop a project by combining online learning and face-to-face meetings.</li> </ul>
Content	<p>Visual perception Processing, representation and presentation of data Interaction with data Design principles Trends: dashboards and visual analytics</p>
Inline resources	<p>Moodle (asynchronous): course slides, bibliographic resources, calendar, models and rubrics, H5P exercises, tests, assignments, workshops with peer assessment, group choice, Q&amp;A forum</p> <p>Microsoft Teams (live): calendar, meetings, documents, discussion, lecture notes</p> <p>Web links: how-to videos, websites, online software</p> <p>Tableau software (<a href="https://www.tableau.com/">https://www.tableau.com/</a>) : online tutorials, academic license with UCLouvain email address.</p>

<p>Bibliography</p>	<p>Bateman, S., Mandryk, R. L., Gutwin, C., Genest, A., McDine, D., &amp; Brooks, C. (2010, April). Useful junk?: the effects of visual embellishment on comprehension and memorability of charts. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 2573-2582). ACM.</p> <p>Bertin, J. (1983). Semiology of graphics; diagrams networks maps (No. 04; QA90, B7.).</p> <p>Cairo, A. (2015). Graphics lies, misleading visuals. In New Challenges for Data Design (pp. 103-116). Springer, London.</p> <p>Heer, J., Bostock, M., &amp; Ogievetsky, V. (2010). A tour through the visualization zoo. Commun. Acm, 53(6), 59-67.</p> <p>Fox, W. Statistiques sociales. Traduction et adaptation de la troisième édition américaine par Louis Imbeau, De Boeck, 1999.</p> <p>Spence, R. Information Visualization: Design for Interaction. 2007.</p> <p>Tufte, E. The visual display of quantitative information, 2nd edition. Graphics Press. 2001.</p> <p>Ware, C. Information Visualization, 3rd Edition, Perception for Design. Morgan Kaufmann. 2012.</p>
<p>Other infos</p>	<p>All relevant information regarding these modalities and the progress of the activities (calendar, detailed instructions, evaluation criteria, etc.) are presented during the first course and are available on Moodle.</p> <p>Some resources (e.g. bibliographic resources, slides, explanatory videos) are in English.</p>
<p>Faculty or entity in charge</p>	<p>COMU</p>

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Information and Communication Science and Technology	STIC2M	5		
Master [120] in Communication	CORP2M	5		
Master [60] in Information and Communication	COMU2M1	5		