



5.00 credits	30.0 h	Q2
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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	Continuous assessment without examination in June in three modes: knowledge tests (40% of final grade), asynchronous individual work (40% of final grade), and group work in session (20% of final grade). In September, custom-made individual assignment to be handed in on the first day of the session.
Teaching methods	<p>The pedagogical approach is blended teaching, which alternates face-to-face classroom teaching with online distance learning via Microsoft Teams. Teaching methods include flipped classroom and project-based learning:</p> <ul style="list-style-type: none"> <li>• Flipped classroom: students study or complete an assignment at home and then meet with teachers and peers in a classroom to ask questions, get extra help or work in groups;</li> <li>• Project-based learning: students develop a project by combining online learning (e.g. watching tutorials or completing assignments) 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 Microsoft Teams (live): calendar, meetings, documents, discussion, lecture notes Web links: how-to videos, websites, online software 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 Communication	<a href="#">CORP2M</a>	5		
Master [120] in Information and Communication Science and Technology	<a href="#">STIC2M</a>	5		
Master [60] in Information and Communication	<a href="#">COMU2M1</a>	5		