

NewsReel

2017-1-HU01-KA203-036038

Data Journalism and Visualization

A syllabus for Journalism
& Mass Communication
programmes



Erasmus+



1. Data on the programme

1.1 Field of study	Journalism / Communication and Media Studies
1.2 Recommended level [<i>Bachelor/ Masters</i>]	Bachelor
1.3 Recommended study programme/ qualification	Journalism / Mass communication

2. Data on the discipline

2.1 Name	Data Journalism and Visualization
2.2 Recommended qualifications for the teacher [<i>practitioner, theoretician, PhD holder in a certain field of study, etc.</i>]	Academic, Journalist, PhD
2.3 Year of study [<i>entry level/ advanced</i>]	Advanced
2.4. Evaluation type [<i>examination/ project/ portfolio</i>]	Project

3. Preconditions (if applicable)

[*Who are the intended students*]

3.1 curriculum preconditions (recommended previous courses)	Gathering information techniques, Online journalism, Web design/Multimedia, Investigative journalism, Data Analytics/Statistics
3.2 competences preconditions	Excel

4. Infrastructure needed (if applicable)

5.1 for the course	Laptop, Projector, Screen, Audio System, Internet access
5.2 for the seminar/laboratory	Laptop, Projector, Screen, Audio System, Internet access

5. Specific abilities

[*What do we want students to be able to do*]

5.1. Professional competencies <i>[job skills to be developed]</i>	To collect data from public sources To store and organize data using available digital tools
---	---

	<p>To analyse data using basic statistical methods</p> <p>To extract relevant information from the data set</p> <p>To visually present data using graphic design and visual tools</p> <p>To tell a journalistic story</p>
<p>5.2. Transversal competencies</p> <p><i>[team work, critical thinking, global citizenship, etc.]</i></p>	<p>Teamwork, critical thinking</p>

6. Discipline's objectives

[related to developing abilities & competencies]

<p>6.1 General objective</p>	<p>The objective is to teach the future journalists to be able to present stories in a visual digital manner using data, adapted to new media and new technological tools.</p>
<p>6.2 Specific objectives</p> <p><i>[Learning outcomes – observable, measurable]</i></p>	<p>By the end of the semester, students in this course will:</p> <ul style="list-style-type: none"> • Use online and offline tools (most of them free) to create visual stories, articles with data and graphics.

7. Content

[for 12-14 weeks]

Course/Seminar/Laboratory	Teaching methods	Observations
	<p><i>[connected to professional & transversal competencies]</i></p>	<p><i>[Homework/ Readings due]</i></p>
<p>Course intro. Introduction, syllabus.</p> <p>What is data? Why data journalism matter.</p>		
<p>Why the numbers count? Instruments for finding public data. Public records and databases. Finding stories and ideas.</p>	<p>Students work together to discover and analyse examples of best practices. Assigning working teams.</p>	<p>Find a dataset, explain the steps you made to find it and explain why the data could be relevant for a news story. Upload the homework on the blog.</p> <hr/> <p>Gray, Chambers, Bounegru (eds., 2012), chapters: The</p>

		<p>ABC's Data Journalism Play, Data Journalism at the BBC, How the News Apps Team at Chicago Tribune Works, Behind the Scenes at the Guardian Datablog, Data Journalism at the Zeit Online, Case studies</p> <p>Berret, & Phillips, 2016, 15-27: Defining the field of stud.</p>
<p>How to tell a story using numbers. How to store, organize and clean data using spreadsheets. From data analysis to storytelling: premises, 10 must-to-know about data, evolution.</p>	<p>Students work together to discover samples of best practices. Critical approach of the examples of bad vs. good works and of the available self-teaching resources.</p> <p>Tips, open discussion, open scenarios for homework</p>	<p>Find a story, argue why the story matters and make pre-reporting. Upload the homework on the blog.</p> <hr/> <p>- Berret, & Phillips, 28-39 State of the field;</p> <p>- Meyer, 1991, Chapters 1 Journalism and Scientific Tradition, 2. Some Elements of Data Analysis, 3. Harnessing the power of Statistics, 6. More about Data Analysis, 7. Reld Experiment</p>
<p>Presenting homework.*</p> <p>Discuss: How to build charts using Excel, Google Charts, Illustrator etc.</p> <p>Organizing working teams.</p>	<p>Tips, open discussion, open scenarios for homework</p>	<p>Clean and organize a dataset in a spreadsheet. Building story draft using charts. Human sources are required. Upload the homework on the blog.</p> <hr/> <p>Cohen, 2001: 1-57</p> <p>Ch. 1-4: What's a number? A newsroom Math Guide, Working with Graphics, The standard stories</p> <p>- Stray, Jonathan 2016, chapter Quantification</p>
<p>Presenting homework*.</p> <p>Discuss: How to design the story (hierarchies, grids).</p>	<p>Tips, open discussion, open scenarios for homework</p>	<p>Uploading the final story on the blog.</p> <hr/>

<p>Ethical issues – gathering data, responsible using of data, avoiding misrepresentation.</p>		<p>- Cairo, Alberto 2013. Why Visualize: From information to Wisdom, 3. The Beauty Paradox: Art and Communication Part III (practice) Part IV (Profiles)</p>
<p>Presentation of homework. Feedback and discussions.</p>	<p>Open workshop.</p>	
<p>Presentation of homework. Feedback and discussions.</p>	<p>Open workshop.</p>	<p>Preparing ideas for a new story.</p>
<p>Data visualization. Power of visualization. Definitions. Trends.</p>	<p>From data analysis to storytelling. Infographic - examples of good practice.</p> <p>Assigning new teams.</p>	<p>Find a dataset in order to build up for it a data visual presentation. Upload the homework on the blog.</p> <hr/> <p>- Walter, Gioglio, Jessica, 2014: 7-23, 125-177</p> <p>Ch. 1. The Rise of Visual Storytelling, ch. 4 Developing a Visual Storytelling Road Map 125-177</p>
<p>Presenting homework. Tools and technologies. Visualization types (types of graphs and charts), mappings, infographics.</p>	<p>Overview of the tools. Discuss the differences between static, interactive and animated infographics. Explore and rearrange data.</p>	<p>Find the story and choose the presentation angle. Upload the homework on the blog.</p> <hr/> <p>- Wolfe, 2014, ch.1,2 &4: Introduction to Data Visualization, Planning a Visualization, Tools to create Visualizations</p> <p>- Lankow, 2012, Introduction, Ch. 1 Importance and Efficacy, Ch. 2 Infographic Formats, Ch.3 The Visual Storytelling Spectrum</p>

<p>Presenting homework.</p> <p>Visualization Design. Explaining, exploring, contextualizing. Choosing the right data for visualization. Visual coding of data. Ethics of data visualization.</p>	<p>Students learn how to prepare an infographic and how to avoid errors in design. Choosing the right tools for the job. Remake of a wrong infographic.</p> <p>Students must also present one of the optional reading-due (or other tools which they consider relevant in their applied homework).</p>	<p>Clean and organize a dataset in a spreadsheet. Choose a visualization tool and prepare the first visual draft. Upload the homework on the blog.</p> <p>-----</p> <p>- Mazza, 2009, Ch. 1,2 & 3: Introduction to Visual Representations, Creating Visual Representations, Perception</p> <p>- Kirk, 2016 Ch. 1&5: The context of data visualisation, Taxonomy of Data Visualisation Methods</p>
<p>Presenting homework.</p> <p>How to use mapping in a news story. Principles of mapping. Customizing maps, using colours, interactive presentation tools. Building static maps and interactive maps.</p>	<p>Students must also present one of the optional reading-due (or other tools which they consider relevant in their applied homework)</p>	<p>Building the story first draft using maps</p> <p>-----</p> <p>- Keranen and Malone, 2017, Ch. 2, 3, 4: Mapping Is for Everyone, Tell Your Story Using a Map, Great Maps Need Great Data</p> <p>- Chen, 2006, Ch. 5: Knowledge Domain Visualisation (Mapping Science)</p> <p>- Kirk, 2016, Ch. 6: Constructing and Evaluating Design Solution (Tools for mapping)</p>
<p>Presenting homework.</p> <p>Discuss: The relevance of networks in visualization stories, timelines</p>	<p>Animated infographics - tools. Introduction to AR and immersion virtual reality and its potential usage in journalism.</p> <p>Students must also present one of the optional reading-due (or other tools which they consider relevant in their applied homework)</p>	<p>Uploading the final story on the blog.</p> <p>-----</p> <p>Lester, 2016, Ch. 5, 6: Visual Stereotypes, Visual Analysis</p>
<p>Presentation of homework. Feedback and discussions.</p>	<p>Final evaluation.</p>	

Presentation of homework. Feedback and discussions.	Final evaluation.	
--	-------------------	--

8. Software requirements (Windows or MacOS)

MS Office (especially Excel) - Not free - Win/Mac

Tableau Public - Free (Win/Mac) - the free version allows the use of data not bigger than 100.000 rows

QGIS - Free - Win/Mac - mapping

Google Fusion Tables - Free/online - mapping

Optional:

R Studio - Free

Other tools (online & offline):

Adobe Illustrator - Not free

Google Charts - Free/online

Tabula - Free - Tabula is a tool for liberating data tables locked inside PDF files. (Win/Mac)

Gephi - Free (Win/Mac) - Gephi is the leading visualization and exploration software for all kinds of graphs and networks.

Wordle - Free/online - Creates word clouds

Odyssey.js - Free/online - A simple way for journalists, designers, and creators to weave interactive stories

Timeline.knightlab - Free/online - Tool for creating timelines

Word Tree - Free/online - create word trees from text

Tools for applied works

VIS - <https://vis.occrp.org/> (tutorial: <https://www.youtube.com/watch?v=RzVx9t-r7jQ>)

Online infographic makers (various online available resources):

infogr.am - online tool for creating infographics - Free version is with limited functionality

Piktochart - Free, but with limited functionality - Online infographic maker

Video tools:

Moovly - 30 days trial Free (limited functionality, low quality video) - video creation tool

Powtoon - Free with limited functionality - video creation tool

GoAnimate Animaker - Free with limited functionality - animated charts and graphs

Adobe AfterEffects CC - Not free

9.1. Compulsory (core) bibliography

Berret, Charles & Phillips, Cheryl, 2016, [Teaching Data and Computational Journalism](#), USA: Columbia Journalism School-Knight Foundation;

Cairo, Alberto 2013, [The Functional Art: An Introduction to Information Graphics and Visualization](#), Bekerly: New Riders;

Cohen, Sarah, 2001, [Numbers in the Newsroom: Using Math and Statistics in News](#), online, e-book, 1-55;

Gray, J., Chambers, L., Bounegru, L., *Data visualisation Handbook*, 2012, [The Data Journalism Handbook](#), Beijing, Cambridge, Fllillham, Koln, Sebastopol, Tokyo: O'Reilly Media (available online at <http://datajournalismhandbook.org/>);

Lankow, Jason 2012, *Infographics: The Power of Visual Storytelling*, New Jersey: John Wiley & Sons;

Meyer, Philip 1991, [The New Precision Journalism](#), Indiana University Press;

Stray, Jonathan 2016, [The Curious Journalist's Guide to Data](#), University of Columbia, the chapter Quantification, online;

Walter, Ekaterina, Gioglio, Jessica, 2014, *The Power of Visual Storytelling: How to Use Visuals, Videos and Social Media*. McGraw Hill Professional (eBook), 7-23, 125-177;

Wolfe, Rebecca 2014, [Data Visualization. A practical guide to producing effective visualizations for research communication](#) , online, available at <[http://resyst.lshtm.ac.uk/sites/resyst.lshtm.ac.uk/files/docs/reseources/Guide to data-viz.pdf](http://resyst.lshtm.ac.uk/sites/resyst.lshtm.ac.uk/files/docs/reseources/Guide%20to%20data-viz.pdf)>.

Kirk, Andy 2016, *Data Visualization: A Successful Design Process*

Lester Paul Martin 2013, *Visual Communication: Images with Messages*

Smiciklas, Mark, 2012, *The Power of Infographics*, Pearson Education, Indianapolis

9.2. Additional bibliography

- Blog: [Information is Beautiful](#)

- Blog - The Guardian: [The best of infographics: designers pick their favourites](#)

- Creativebloq.com: [The best 62 infographic](#)

- Houston, Brant 2015, [Computer-Assisted Reporting: A Practical Guide](https://gijn.org/2015/03/05/digging-for-truth-with-data-computer-assisted-reporting/), online, article available at <https://gijn.org/2015/03/05/digging-for-truth-with-data-computer-assisted-reporting>/
- Hubspot: [Data Visualization 101: How to Design Charts and Graphs](#)
- National Institute for Computer-Assisted Reporting
- Reuters Institute, University of Oxford: [VR for News: The New Reality?](#)
- Murray, Scott, 2013, [Interactive Data Visualization for the Web](https://doc.lagout.org/programmation/JavaScript/Interactive%20Data%20Visualization%20for%20the%20Web_%20An%20Introduction%20to%20Designing%20with%20D3%20%5BMurray%202013-04-05%5D.pdf), online, available at <https://doc.lagout.org/programmation/JavaScript/Interactive%20Data%20Visualization%20for%20the%20Web_%20An%20Introduction%20to%20Designing%20with%20D3%20%5BMurray%202013-04-05%5D.pdf> [Nota Manu: mi se pare cam prea tehnica, de aceea am trecut-o la optionale; dar cum crezi si tu]
- Tufte, Edward 1983, [The Visual Display of Quantitative Information, online](http://www.humanities.ufl.edu/pdf/tufte-aesthetics_and_technique.pdf), available at http://www.humanities.ufl.edu/pdf/tufte-aesthetics_and_technique.pdf
- [Visual Loop](#)
- Visual Storytelling Institute: [Visual.ly](http://visual.ly)
- Mazza, Ricardo 2009 - Introduction to Information Visualization
- Keranen Kathryn, Malone Lyn 2017: The ArcGIS Book: 10 Big Ideas about Applying the Science of Where
- Chen Chaomei, 2006: Information Visualization: Beyond the Horizon
- Floyd, Matt; Nandeshwar, Ashutosh; Ohmann, Ashley; Stirrup, Jen, 2016, Tableau: Creating Interactive Data Visualizations, Packt Publishing

10. How is the discipline connected to the expectations of the professional /epistemic community

The pressure for decisional transparency and the resulting increased access to all kinds of information of public interest allow journalists to be able to work with an impressive volume of data. Withal, the apps and tools for data processing make some stories based on numbers much easier to say and understand.

Data journalism is the conjunction of a set of competencies in diverse areas, such as statistics or computing, used to diversify the journalistic content and to make it more relevant. On the other side, data visualization (visual journalism) includes graphic design techniques to present data, such as graphics, charts or maps, that help journalists tell a news story better for their public.

11. How is the discipline connected to the rest of the journalistic / communication studies curriculum

This Data Journalism & Visualization course introduces students to new techniques of telling news stories based on numbers and visual design, from data gathering and analysis, to visualization.

12. Evaluation

[How to measure students' acquired abilities, through different instruments, such as: tests; analyses of existing journalistic examples; essays, suggested portfolio]

Type of activity	11.1 Evaluation criteria	11.2 Evaluation methods
Course	Bonuses	Ongoing evaluation
Seminar/ laboratory	50% for data journalism, 50% data visualisation	Homework assignments
11.3 Minimum performance standard <i>[linked to specific objectives/ learning outcomes]</i> All the assignments will be uploaded on a blog with private visualisation.		



This syllabus is under the Attribution 4.0 International ([CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)) license.

NewsReel

2017-1-HU01-KA203-036038

Data Journalism and Visualization

A syllabus for Journalism
& Mass Communication
programmes

The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



Erasmus+

New Skills for the Next Generation of Journalists
NewsReel

