Syllabus: Using Info Design To Think

Instructor: Dr. Maximilian Schich, Associate Professor
ATEC6353.001.14S - Visualization Research

General information

The course meets in the *Spring 2014*, *Thursdays 4:00–6:45pm* in room *ATC 3.914*.
Coursebook: http://go.utdallas.edu/atec6353.001.14s
Course website: http://elearning.utdallas.edu

Instructor contact

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Email note: **Please prefix ATEC6353.S14 to your email subject for prompt attention!**
Office hours: Please meet me right after the course or make an appointment via email.

Mission

Understanding and doing Information Design and Visualization are now essential parts of our literacy and skill-set. Relevant areas related to ATEC and EMAC range from industry and academia to broad-audience newspaper consumption and dashboards in computer games. Wherever we look, we are confronted with ever-increasing amounts of data that cannot be understood without more-or-less sophisticated aesthetic representations.

In this course we will understand and do visualization as a cognitive feedback process, where we have to learn how to read, do, re-read, and re-do in order to reach an optimum of insight from given sets of data. We will both look at and discuss striking examples of information design. We will also do and discuss our own visualizations.

The key learning objective of this course is both theoretical and practical Visual Literacy.

Requirements

Typical assignments in this course are *weekly visualization exercises*. In the first half of the semester the instructor will provide datasets that will function as a common starting point. Weekly assignments in the second half of the semester will iterate and cumulate into a *semester-long visualization project*, which can either be done as an individual or in a group. Project suggestions to make progress in a given area of enthusiasm are welcome. As we do not focus on a specific method, you can choose and work with your favorite tools. Students are equally welcome to the course, no matter if they are *qualitatively oriented yet to make their first quantification*, if they aim to *"misuse" their game engine skills to do information visualization*, or if they are *data science wizards that aim to use High Performance Computing* to solve their project. Our goal is *a productive multidisciplinary conversation*. Project results will be summarized in *a scientific poster*.

The *academic calendar*, *project assignments*, *readings*, and *presentation requirements* are discussed and defined together and will feed into the final course summary. Preliminary summaries as necessary for the completion of assignments are provided to students via email.

Grading policy

Percentages: Project 40% + Assignments 40% + Attendance & Participation 20%
Grading scale: A = 100 - 90 B = 89 - 80 C = 79 - 70 D = 69 - 60 F = 59 - 0

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Required texts

For our discussion of *striking examples in information design*, we will mostly rely on the two books mentioned below:

1. Isabel Meirelles: *Design for Information: An introduction to the histories, theories, and best practices behind effective information visualizations*. (Beverly/MA: Rockport Publishers, 2013).
    Book: http://www.amazon.com/Design-Information-Isabel-Meirelles/dp/1592538061
    Review: http://eagereyes.org/criticism/review-isabel-meirelles-design-information

2. Julie Steele and Noah Iliinsky (eds.): *Beautiful Visualization. Looking at Data Through the Eyes of Experts*. (Sebastopol/CA: O'Reilly 2010).
    Book: http://www.amazon.com/Beautiful-Visualization-Looking-through-Practice/dp/1449379869
    Review: http://flowingdata.com/2011/03/09/review-beautiful-visualization-looking-at-data-through-the-eyes-of-experts/

Please feel free to contact the instructor for *specific readings regarding specific tools*. Particularly useful tools include pencil & paper, applications such as Excel, Cytoscape, Gephi, and Illustrator, as well as coding tools such as D3, Processing, Python, and R.

Further selected readings will be provided by the instructor.

Course & instructor policies (aka the fine print)

Class policies
– *All announcements will be sent via email.* Students are responsible for reading each announcement in detail.
– All students will participate in the discussion. Observers are expected to participate in the discussion equally.
– Students need to read all the assigned readings or complete homework prior to the class discussion. *Homework assignments need to be handed in before the respective class.* The nature of an assignment including deliverables will be defined together and announced in class or sent out as an announcement.
– Students have the *responsibility of backing up all their data, code, and preliminary work*. When writing code, it is highly encouraged to use a version control system, such as github, bitbucket, etc.
– Please contact the instructor if you have a disability that requires some arrangements so that appropriate arrangements can be made.

UT Dallas Syllabus Policies and Procedures
– The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to http://go.utdallas.edu/syllabus-policies for these policies.
– The principles of academic honesty and ethics will be enforced. *You should credit all your sources.* Plagiarism (see UTD syllabus policies for definition) in final presentations, papers, or posters results will not be tolerated.
– Excessive unexcused non-attendance (see UTD syllabus policies for definition) will lower your grade.

The descriptions and timelines contained in this syllabus are *subject to change* at the discretion of the instructor.

Instructor Bio

Dr. Maximilian Schich joined UT Dallas ATEC as Associate Professor in January 2013. He studied Art History, Classical Archaeology, and Psychology at LMU-Munich (M.A. 2001), HU-Berlin (PhD 2007), and Max-Planck in Rome (PhD-fellow 2002-2004). Since 1996, Maximilian also was a project consultant for large-scale cultural graph data. From 2008 to 2012 he explored the Ecology of Complex Networks in Art Research with Albert-László Barabási at Northeastern University and Dirk Helbing at ETH Zurich. He received generous funding from the Special Innovation Fund of the President of Max-Planck-Society (2008) and a Research Grant from German Research Foundation (2009-2012). Maximilian has collaborated, presented, and published in prestigious venues in Archeology, Art History, Computer Science, Complexity, Sociology, Physics, and Visualization. He is an Editorial Advisor at Leonardo Journal (MIT-Press) and chairs a popular symposium series on Arts, Humanities, and Complex Networks (14.5% acceptance). Maximilian was invited to SciFoo twice (2009/2013).