ENG 6938, Sec. 1 (19579)- Narrative Information Visualization (3 credits)
Spring 2015 Syllabus

Instructor: Sonia Stephens   **Office hours:** T/W/Th 10:30 am-noon
E-mail: sonia.stephens@ucf.edu (preferred method)   or by appt.
Phone number: (407) 823-5596 (department office)   **Office location:** CNH 408A
Meeting date/time: T/Th 4:30-5:45pm in BHC 127

This course will explore the theory and practice of information visualization. We will examine established and emerging data visualization genres, with an emphasis on narrative-based visualizations as interactive digital texts. Interactive visualizations can be important communication tools that facilitate users' discovery-based learning through data exploration. The choices made by designers during visualization construction both support guided understanding and constrain users' interpretation of the underlying data and their meanings.

Beginning with a grounding in the historical roots of the information visualization field, we will move to contemporary developments in the study and production of interactive information visualization. We will build a theoretical understanding of this field that draws from visualization rhetoric, interactive narrative, cognitive and perceptual theory, and discourse community theory. A second key aspect of the course will involve applying our theoretical understanding to the practice of working with large datasets to develop interactive narrative visualizations. Projects may involve working with numerical, geospatial, or textual data, among other sources.

Course Objectives:
- To understand the history of narrative information visualization and related theory from cognitive, rhetorical, and cultural perspectives.
- To become familiar with contemporary genres and trends in narrative visualization.
- To gain knowledge about data sources and tools for creating interactive visualizations.
- To develop technical skills for creating interactive visualizations.
- To be able to critically assess and evaluate interactive visualization projects.

Required Texts:
- Ferster, *Interactive Visualization: Insight through Inquiry*.
- Kostelnick & Hassett, *Shaping Information*.
- Headrick, *When Information Came of Age*.
- Tufte, *Visual Explanations*.
- articles available via Webcourses
  - Amar et al: "Low level components of analytic activity in information visualization"
  - Anscombe: "Graphs in statistical analysis"
  - Brewer: "Color use guidelines for data representation"
  - Gelman & Unwin: "Infovis and statistical graphics: Different goals, different looks"
  - Harrell & Zhu: "Agency play: Dimensions of agency for interactive narrative design"
  - Heer & Schneiderman: "Interactive dynamics for visual analysis"
  - Hullman & Diakopolous: "Visualization rhetoric: Framing effects in narrative visualization"
  - Hullman et al: "A deeper understanding of sequence in narrative visualization"
  - Kosara: "Visualization criticism–The missing link between information visualization & art"
  - Kosara & Mackinlay: "Storytelling: The next step for visualization"
  - Kostelnick: "The visual rhetoric of data displays: The conundrum of clarity"
  - Liu et al: "Distributed cognition as a theoretical framework for information visualization"
  - Liu & Stasko: "Mental models, visual reasoning & interaction in information visualization"
  - Manovich & Douglass: "Visualizing temporal patterns in visual media"

- o Plaisant: "The challenge of information visualization evaluation"
- o Roth: "Visualizing risk: The use of graphical elements in risk analysis and communications"
- o Segel & Heer: "Narrative visualization: Telling stories with data"
- o Shneiderman: "The eyes have it: A task by data type taxonomy for information visualizations"
- o Tversky et al: "Animation: can it facilitate?"
- o Tversky: "Spatial schemas in depictions"

Attendance and Participation: Appropriate classroom behavior is expected at all times. As a matter of common courtesy, please arrive on time prepared to stay for the entire class. Proper classroom conduct also entails creating a positive learning experience for all students; therefore, sexist, racist, homophobic, or other derogatory remarks will not be tolerated. My top priority is to provide a safe environment for learning.

Your participation in class discussions is required and is expected at every class meeting. This is a discussion-based, student-centered class; it only works if you take responsibility for your learning by showing up prepared and engaged. Full preparation includes reading assigned material and writing or thinking about it, as well as bringing course materials to class with you. Attendance is crucial because of the vital role discussion plays in this course. More than three unexcused absences will negatively affect your grade. Absences will be excused in cases of emergency or for prior arrangements of short duration. You must contact me ASAP once you know you will be absent. Students who will need accommodation for a religious holiday occurring during the semester should notify me during the first week of class. Be advised that we will cover materials in class that are not included on the syllabus; you are responsible for all material covered during your absence.

Cell phones, etc., should be muted before class begins. If needed for a critical situation, inform me before class. Digital devices are fine, as long as they are being used for legitimate class purposes.

You must have a KnightsMail account and check it regularly.

Financial Aid Activity: As of Fall 2014, all faculty members are required to document students' academic activity at the beginning of each course. In order to document that you began this course, please complete the "Financial Aid Discussion Post" activity on our Webcourses site by the end of the first week of classes, or as soon as possible after adding the course. Failure to do so will result in a delay in the disbursement of your financial aid.

Grading: Your grade will be determined by the following:
- *Class participation (12%):* In-class engagement, peer feedback, discussion preparation.
- *Discussion posts (12%):* Before class on most Thursdays, you will post a thoughtful 200-300 word response and synthesis of the week's readings. You may respond to a posted question, address a point from Tuesday's class discussion, or make connections to another area of inquiry. You should also thoughtfully respond to at least one classmate's post by the weekend.
- *Data visualization commentaries (8%):* We will build a class reference and commentary on: 1) insightful or provocative data visualizations, 2) example datasets for potential project use, and 3) tools that may help us construct visualizations.
- *Excel-based statistical visualization activity (3%):* Hands-on practice with some standard descriptive & inferential statistics.
- *Project proposal (18%):* Describe your plan for your infovis project, including questions to answer, data sources, type of software/coding to be used, narrative structure, interaction design, and planned appearance. You will need to draw on theory readings to defend your preliminary choices.

- *Project progress report (8%):* Describe what you have accomplished, tasks and challenges remaining, any shifts in execution or modifications, and plans for completion.
- *Information visualization project (21%):* You will research and construct a narrative interactive visualization using data and software of your choice. Possible starting points for this project include a specific dataset, visualization genre, topical situation or question, or theoretical argument. Regardless of starting point, you are expected to give thoughtful consideration to all the aspects of design we cover in the course.
- *Project reflection (18%):* This will be a 10-12 page scholarly paper describing the empirical construction and theoretical justification for your project.

Grade Scale (%):   94-100 = A   93-90 = A-   89-87 = B+   86-83 = B   82-80 = B-   79-77 = C+
                          76-73 = C   72-70 = C-   69-67 = D+   66-63 = D   62-60 = D-   >60 = F

Written Grading Standards:
- An A text is exceptional. It presents sophisticated and significant critique and is guided by a meaningful argument. It contains the required elements of the assignment, is written in an engaging style, is arranged in a logical manner, is memorable, and is visually appealing. It is free of mechanical errors.
- A B text is strong. It contains all required elements of the assignment. It is generally above average in terms of the criteria mentioned above, but falls short of excellence in one or more category. It has only minor mechanical errors.
- A C text is competent. It contains all required elements of the assignment. It is generally average in terms of the major criteria listed above. It has a few mechanical errors.
- Low C or D work is weak. It does not include the required elements of the assignment and it falls below average in terms of one or more of the major criteria.
- F work fails in terms of one or more of these criteria.

Late Work: Assignments are due at the beginning of the class on their due date. All work is due in class on the announced date except in the event of an emergency, and if you have notified me about this before class. For all final drafts, one letter grade will be deducted for each day late until a grade of F is reached.

Plagiarism: All work must be original by the student. Undocumented use of another's words, ideas, images, or other media is plagiarism, as is allowing someone else to write or edit your work for you. If you are caught plagiarizing, depending on the severity, you will fail the assignment. You also risk automatically failing the course, disciplinary referral to the appropriate dean, and possible expulsion from UCF. See the UCF Golden Rule for further information. Papers written for this course may be submitted to Turnitin.com at my discretion.

Disability Statement: UCF is committed to providing reasonable accommodations for all persons with disabilities. Students with disabilities who need accommodations in this course must contact the professor at the beginning of the semester to discuss needed accommodations. None will be provided until the student has met with the professor to request them. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116.

Copyright: This course may contain copyright-protected materials such as audio or video clips, images, text materials, etc. These items are being used with regard to the Fair Use doctrine in order to enhance the learning environment. Please do not copy, duplicate, or distribute these items outside of the classroom environment. All copyright materials are credited to the copyright holder.

Disclaimer: *Changes to the syllabus or schedule will be made at my discretion and will be announced in class.*

Week	Date	Topic	Reading	Assignment due
1	1/13	course intro	--	
	1/15	defining the field	Gelman & Unwin; Ferster ch 1	
2	1/20	history	Headrick ch 1-3	
	1/22	history	Headrick ch 4-7	reading response
3	1/27	storytelling	Kosara & Mackinlay; Segel & Heer	
	1/29	questions & data	Ferster ch 2 & 3	viz example commentary
4	2/3	social conventions	Kostelnick/Hassett intro-ch 3	
	2/5	social conventions	Kostelnick/Hassett ch 4-conclusion	tool commentary
5	2/10	rhetoric	Kostelnick; Hullman & Diakopolous	
	2/12	statistical design	Tufte ch 1 & 4	dataset commentary
6	2/17	statistical design	Ferster ch 10 & 11	
	2/19	statistical design	www on statistics mistakes	excel activity
7	2/24	statistical design	Tufte ch 5-7	
	2/26	info structure/design	Ferster ch 4-5	reading response
8	3/3	distributed cognition	Liu et al; Liu & Stasko	
	3/5	distributed cognition	Harrell & Zhu; Dove & Jones	project proposal
9	3/10	spring break	--	
	3/12	spring break	--	
10	3/17	storytelling, redux	Ferster ch 6-7	
	3/19	info architecture	Ferster ch 9, 12	reading response
11	3/24	genres & functions	Heer & Schneiderman; Amar et al.	
	3/26	color & space	Brewer; Tversky	reading response
12	3/31	time & sequence	Manovich & Douglass; Hullman et al; Tversky et al	
	4/2	peer feedback day	--	reading response
13	4/7	veracity	Tufte ch 3; www on infographics	project progress report
	4/9	risk & uncertainty	Tufte ch 2; www critique of Tufte	
14	4/14	risk & uncertainty	Skeels et al; Spiegelhalter et al	
	4/16	risk & uncertainty	Kostelnick et al; Roth	reading response
15	4/21	access	Ferster ch 13	
	4/23	application/evaluation	Ferster ch 8; Kosara; Plaisant	reading response
16	exam week		--	project & reflection due; project presentations