CIS 4930/6930-002: Data Visualization

Department of Computer Science and Engineering

College of Engineering, University of South Florida

COURSE SYLLABUS

Instructor:	Paul Rosen	Term:	Sp 2018
Office:	ENB 311	Class Meeting Days:	M/W
E-Mail:	PROSEN@USF.EDU	Class Meeting Hours:	3:30-4:45 PM
Office Hours:	M/W 2-3:30PM	Class Location:	CHE 217

TA:	Ghulam Jilani Quadri	Office:	ENB 325
E-Mail:	GHULAMJILANI@MAIL.USF.EDU	Office Hours:	Tu/Th 2-3:30pm

I.   Course Overview

This course will introduce students to the principles and algorithms necessary for effective visual analysis of data. The course begins with an overview of principles from perception and design, continues with skills for critiquing visualizations, and then focuses on visualization techniques and algorithms for a broad range of data types. Students will acquire hands-on experience using state-of-the-art visualization systems as well as programming interactive visual analysis tools.

II.   Texts and Materials

Recommended: T. Munzner, *Visualization Analysis and Design*, A K Peters/CRC Press, ISBN 9781466508910

III.   Basis for Final Grade

CIS 4930-002	
Assessment	Percent of Final Grade
8 Projects (+ 8 self-assessments)	60%
24 Peer Reviews (3 per assignment)	5%
4 Paper Reviews	10%
Free points	5%
Final Exam	20%
	100%

CIS 6930-002	
Assessment	Percent of Final Grade
8 Projects (+ 8 self-assessments)	60%
24 Peer Reviews (3 per assignment)	5%
4 Paper Reviews	10%
1 Paper Presentation	5%
Final Exam	20%
	100%

IV.   Course Topics and Tentative Lecture Schedule

Date	Topic	Date	Topic
Jan 8	Introduction to Visualization	Jan 10	Working with Processing
Jan 15	No class (MLK)	Jan 17	Design *Due: Project #1*
Jan 22	Data and Visual Encoding	Jan 24	Data and Visual Encoding *Due: Peer Reviews & Self-Assessment (Project #1)*
Jan 29	No class (Dr. Rosen Travel) *Due: Project #2*	Jan 31	Color & Perception *Due: Paper Review #1*
Feb 5	Color & Perception / Task & Interaction *Due: Peer Review & Self-Assessment (Project #2)*	Feb 7	Task & Interaction / View & Focus+Context *Due: Project #3*
Feb 12	Visualizing Tables	Feb 14	Visualizing Tables *Due: Peer Review & Self-Assessment (Project #3)*
Feb 19	Visualizing Trees & Graphs *Due: Project #4*	Feb 21	Visualizing Trees & Graphs *Due: Paper Review #2*
Feb 26	Visualizing Text *Due: Peer Review & Self-Assessment (Project #4)*	Feb 28	Visualizing Text *Due: Project #5*
Mar 5	Visualizing Sets	Mar 7	Visualizing Sets *Due: Peer Review & Self-Assessment (Project #5)*
Mar 12	No class (Spring break)	Mar 14	No class (Spring break)
Mar 19	Visualizing Maps *Paper Presentations (x3)*	Mar 21	Visualizing Maps *Paper Presentations (x3)*
Mar 26	Visualizing High Dimensional Data *Paper Presentations (x3)* *Due: Paper Review #3*	Mar 28	Visualizing High Dimensional Data *Paper Presentations (x3)* *Due: Project #6*
Apr 2	Visualization & Statistics *Paper Presentations (x3)*	Apr 4	Visualization & Statistics *Paper Presentations (x3)* *Due: Peer Review & Self-Assessment (Project #6)*
Apr 9	Visualization & Machine Learning *Paper Presentations (x3)* *Due: Project #7*	Apr 11	Visualization & Machine Learning *Paper Presentations (x3)* *Due: Paper Review #4*
Apr 16	Visualization & Computational Topology *Paper Presentations (x3)* *Due: Peer Review & Self-Assessment (Project #7)*	Apr 18	Visualization & Computational Topology *Paper Presentations (x3)* *Due: Project #8*
Apr 23	Flex day *Paper Presentations (x3)*	Apr 25	Recap Lecture *Paper Presentations (x3)* *Due: Peer Review & Self-Assessment (Project #8)*

Final Exam: Wednesday May 2, 2018 12:30pm – 2:30pm

V.   Course Communication

Canvas should be your first source of communications. Grades, announcements, and other related materials will be posted only on Canvas. The following locations on Canvas will be used very often during this semester.

- **Announcements** where all course related announcements are posted.
- **Assignments** where assignments are posted.
- **Piazza** is where ALL assignment related questions should be posted.
- **Files** where lecture materials and readings posted.
- **Grades** where grades for assignments are posted.

Project submissions will occur on Bitbucket. More information about this will be included in Project 1.

VI.   Projects and Peer Review

- All assignments are individual, and the final submission must be your own work.
- NO LATE WORK ACCEPTED unless you have an official university excuse as the reason for the lateness.
- Homework solutions must be submitted electronically through Bitbucket. MOSS Code Checker will be used!
- Assignment grades will be 60% based on completion criteria and 40% instructor review.
- **Requests for re-grading must be submitted via email within one week of the grade being returned.**

VII.   Final Exam

- The final exam will be 2-hours.
- During exam, all electronics must be turned off. No discussion.
- Request for re-scheduling any of the exams must be approved by the instructor beforehand.
- **No make-up exams will be granted** unless an emergency is involved with a doctor note or a police report.

VIII.   Course Policies: Grades

Grade Dissemination: Graded tests and materials in this course will be returned individually only by request. You can access your scores at any time using the Grade function of Canvas. Please note that scores returned mid-semester are unofficial grades.

Late Work Policy: Late work will not be accepted.

Extra Credit Policy: Limited extra credit may be offered. Don't ask for extra credit.

Grading Scale (%)	
90-100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

Grades of "Incomplete": The current university policy concerning incomplete grades will be followed in this course. Incomplete grades are given only in situations where unexpected emergencies prevent a student from completing the course and the remaining work can be completed the next semester. Your instructor is the final authority on whether you qualify for an incomplete. Incomplete work must be finished by the end of the subsequent semester or the "I" will automatically be recorded as an "F" on your transcript.

Group Work Policy: No group work is allowed. Having your friends help you is acceptable, but having others do your work is cheating!

Internet Code Policy: You're not getting a degree in using Stack Exchange. Write your own code. Use the internet if you're stuck, but understand what you're doing. Remember, the projects are for your benefit, not mine.

IX.   Course Policies: Student Expectations

Disability Access: Students in need of academic accommodations for a disability may consult with Students with Disabilities Services to arrange appropriate accommodations. Students are required to give reasonable notice prior to requesting an accommodation.

Sexual Misconduct/Sexual Harassment Reporting: USF is committed to providing an environment free from sex discrimination, including sexual harassment and sexual violence (USF System Policy 0-004). The USF Center for Victim Advocacy and Violence Prevention is a confidential resource where you can talk about incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence. This confidential resource can help you without having to report your situation to either the Office of Student Rights and Responsibilities (OSSR) or the Office of Diversity, Inclusion, and Equal Opportunity (DIEO), unless you request that they make a report. Please be aware that in compliance with Title IX and under the USF System Policy, educators must report incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence. If you disclose any of these situations in class, in papers, or to me personally, I am required to report it to OSSR or DIEO for investigation. Contact the USF Center for Victim Advocacy and Violence Prevention: (813) 974-5757.

Gender-Based Crimes: USF has a commitment to the safety and well-being of our students. Please be aware that educators must report incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence that come to their attention. I am required to report such incidents for the Office of Student Rights and Responsibilities or the Office of Diversity, Inclusion, and Equal Opportunity can investigate the incident or situation as a possible violation of the USF Sexual Misconduct/Sexual Harassment Policy and aid the student making the disclosure. If you disclose in class or to me personally, I must report the disclosure and will assist you in accessing available resources.

The Center for Victim Advocacy and Violence Prevention, the Counseling Center and Student Health Services are confidential resources where you can talk about such situations and receive assistance without the incident being reported.

Attendance Policy: There is no requirement to attend class. However, your experience and quality of work will be derived in part from your participation in the classroom.

Professionalism Policy: Per university policy and classroom etiquette; mobile phones, iPods, *etc*. **must be silenced** during all classroom lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, *etc*., and have been warned may suffer a reduction in their final class grade.

Academic Conduct Policy: Academic dishonesty in any form will not be tolerated. If you are uncertain as to what constitutes academic dishonesty, please consult the University of South Florida's Student Handbook for further details. Violations of these rules will result in a record of the infraction being placed in your file and receiving a zero on the work in question AT A MINIMUM. At the instructor's discretion, you may also receive a failing grade for the course. Confirmation of such incidents can also result in expulsion from the University

End of Semester Student Evaluations: All classes at USF make use of an online system for students to provide feedback to the University regarding the course. These surveys will be made available at the end of the semester, and the University will notify you by email when the response window opens. Your participation is highly encouraged and valued. The results of student feedback are sent to departments and faculty members only after semester grades are already submitted, and student responses are reported only anonymously and in the aggregate to faculty.

University Writing Center: The University Writing Center is a free resource for USF undergraduates and graduates. At the UWC, a trained writing consultant will work individually with you on anything you're writing (in or out of class), at any point in the writing process from brainstorming to editing. Appointments are recommended, but not required. For more information or to make an appointment, visit the UWC website at http://www.lib.usf.edu/writing, stop by LIB-125, or call 813.974.8293.

Campus Emergencies: In the event of an emergency, it may be necessary for USF to suspend normal operations. During this time, USF may opt to continue delivery of instruction through methods that include but are not limited to Canvas and email messaging and/or an alternate schedule. It's the responsibility of the student to monitor the Canvas site for each class for course specific communication, and the main USF, College, and department websites, emails, and MoBull messages for important general information.

X.   Important Dates to Remember

January 5	Last day to register without late registration fee
January 8	First day of Spring 2017 classes
January 8 – 12	drop/add week
January 15	No classes
March 12 – 17	Spring Break 2017
March 24	Last day to drop with "W"
April 26 & 27	Designated reading days
April 28 - May 3	Final exams

Religious Observances: All students have a right to expect that the University will reasonably accommodate their religious observances, practices and beliefs. If you observe religious holidays, you should plan your allowed absences to include those dates.