Instructor

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Office hours: Mondays 5-5:45pm, Tuesdays 8:10 – 8:55am

Course Information

Class times: Mondays, 5:45-9:00 PM
Campus: Loop, Room: Daley 206
Course homepage: d2l.depaul.edu

Course Summary

This course discusses the basic problems and techniques of visualizing quantitative and qualitative data. Topics include: perception, types of information, representation of univariate and multivariate data and relational information, analysis of representations, presentation, and dynamic and interactive visualizations. You will learn to organize data using Microsoft Excel and design visualizations using graphical software.

Learning Domain Description

ISM 222 Data Analysis is included in the Liberal Studies program as a course with credit in the Scientific Inquiry domain. Courses in the Scientific Inquiry domain are designed to provide students with an opportunity to learn the methods of modern science and its impact on the world around us. Courses are designed to help students develop a more complete perspective about science and the scientific process.

Learning Objectives

By the end of this course students should be able to:

1. Analyze and evaluate how information is represented or misrepresented.
2. Find appropriate representations for a given data set.
3. Build visualizations for specific purposes.
4. Understand and appreciate the interrelationships among science, technology and math
5. Understand and appreciate the role of science in society and in their lives.

Required Texts

*   Ben Jones (2014) Communicating Data with Tableau, O'Reilly Media, Inc. (Jones)

*   Cole Nussbaumen Knaflic (2015) Storytelling with Data: A Data Visualization Guide for Business Professional, John Wiley & Sons, Inc.

*   **Note**: Each text is also available online through the DePaul Libraries Web site, http://library.depaul.edu/ , in the Safari database. Campus Connection login is required to access the Safari eBook.

*   **Selected Chapters from (provided)**

    *   Yau, Nathan (2013), Data Points: Visualizations That Mean Something

Software (required)

Students request a free student license from Tableau. Students should also download a free copy of Tableau:
http://www.tableau.com/academic/students

Other Software

- Microsoft Excel
- Adobe Illustrator, Photoshop, or any paint program
- Datasets: http://libguides.depaul.edu/c.php?g=253574&p=2102537 , http://opendataday.org/#resources, https://driven-by-data.net/

<u>Prerequisites</u>

None

<u>Time Requirement</u>

Students should allow for approximately 10-12 hours of work outside of class each week. Team-related assignments may require additional time for meetings and assignment content review.

<u>Class Format</u>

Class meetings will involve a combination of lectures, discussions, hands-on activities, presentations of projects, and group work (during and outside of class). Success and enjoyment of this class depends on your participation. I strongly encourage and expect participation and cooperation from each student. I find that students get more from the course if they are willing to collaborate and learn from one another.

Coursework Components & Evaluation

The following section presents the evaluation metrics that will be used to determine your grade. The table highlights what features of your work and participation that I will be grading, and how each component will contribute to your final grade. Following the table, I provide a brief description of the evaluation metrics.

Coursework includes the following components.

	Qty	Ea	Total Points
Weekly Participation	10	5	50
Visualization Presentation	1	60	60
Lab Assignments	7	20	140
Midterm	1	100	100
Dashboard Project	1	150	150
Total			**500**

<u>Weekly Participation</u>

Students: are expected to attend every class session and participate in all class activities. Attendance will be taken. Unexcused absences should not exceed two during the quarter. **A third absence will reduce your final grade by one letter grade**. Tardiness that exceeds 30 minutes is counted as an absence. Two late arrivals or early departures, or a combination of both, are counted as one absence. Please communicate with me if you must be absent for any

reason. Students are individually responsible for material they may have missed due to absence or tardiness.

Weekly Discussion: Weekly discussion points are earned for in-class and online participation. Students should be active participants in the class discussion and weekly online visualization polls. Answering other students' questions on the Q & A discussion board also counts towards participation.

Visualization Presentation

Each week a team of students will present an issue of interests related to a weekly theme. As part of the presentation, the team will present a visualization from an external source and a visualization they created using data from the class. The goal of the visualization presentation is to educate the class about a specific issue and use visualization to enhance the class's understanding of the topic.

Lab Assignments

Every week we will have a lab assignment to develop your ability to use excel, Tableau to create effective information visualizations. Labs will start in class but be completed outside of class. Lab assignments are expected to be individual efforts. Labs are meant to prepare you for the in-class quizzes and projects. Details about each of these assignments will be posted on d2l.depaul.edu.

Midterm

The purpose of the midterm is to check for your understanding of concepts, methods and techniques. You are free to reference your lab assignments, books, and lecture notes during the in-class midterm.

Dashboard Project

Writing is integral for communicating ideas and progress in science, mathematics and technology. The form of writing in these disciplines is different from most other fields and includes, for example, mathematical equations, computer code, figures and graphs, lab reports and journals. Courses in the SI domain must include a writing component where that component takes on the form appropriate for that course (e.g., *lab reports, technical reports, etc.)*. All projects in this class will consist of creating an informative visualization. In addition to creating a visualization, students must include a complementary paper that explains more about the selected topic and why the visualization was constructed in the particular manner. Although projects are meant to be done individually, students are encouraged to discuss and support each other.

Dashboard Project: Dashboards are interactive, multifaceted visualizations. They tell a story of real world events, issues, and opportunities. They allow the audience to interact with data through animations, text, and data filters. You will work in a team to design a visualization for a specific audience and issue.

Assignment & Grading Policies

Assignment Submission

Unless otherwise specified, all assignments must be submitted to D2L (https://d2l.depaul.edu/) and are due by 11:59 PM (unless otherwise stated) on the assignment due date.

Late Assignments

A late assignment receives 80% of its on-time grade and should be submitted to D2L. An email must be sent to the instructor with an explanation for the late submission. No assignment is eligible for credit beyond 48 hours after its due date; students are nevertheless encouraged to complete and submit all assignments. **Late assignments are reviewed and graded when time permits.** The late assignment penalty may be waived under exceptional

circumstances (see **Other Course Policies,** *Exceptional Circumstances*, following) and only with proper documentation (*e.g.,* doctor's note, employer's note on company letterhead, etc.).

Coursework Grade Review Requests

Assignment, quiz, or exam grade disputes are expected to be handled in a civil and professional manner. Every effort is made to grade in a fair and consistent manner. Should a disagreement arise about a coursework grade, the student may submit a grade review request in writing to the instructor. The request must be submitted **within 48 hours** after the assignment grade has been posted. The request must include the student's argument for a different grade evaluation, based on verifiable evidence presented by the student. The instructor handles grade review requests and responds to the student with a review decision as soon as possible.

Grading Scale

If the final numeric grade is less than:	And greater than or equal to:	Final Letter Grade
-	94	A
94	90	A-
90	87	B+
87	83	B
83	80	B-
80	77	C+
77	73	C
73	70	C-
70	67	D+
67	63	D
63	60	D-
60	-	F

Incomplete Grades

An incomplete grade is given only for an exceptional reason such as a death in the family, a serious illness, etc. Any such reason must be documented. Please note that University guidelines require that you must be earning a passing grade at the time you request an incomplete grade. You should have completed most of the course, with at most one or two major forms of evaluation missing. Any incomplete request must be made at least two weeks before the final, and approved by the Dean of the College of Computing and Digital Media. Any consequences resulting from a poor grade for the course will not be considered as valid reasons for such a request.

Grade Responsibility

Every effort is made to provide the student with the resources and support needed to succeed in the course. Grades are assigned fairly and impartially based on the coursework submitted by the student, without regard to external circumstances such as GPA goals or employer tuition reimbursement minimum grade requirements. It is the student's responsibility to earn his or her final grade.

Student Resources and Communication

Student Support

Support for both in-class and online students is provided through weekly office hours dedicated to the course and through online question-and-answer discussion forums on D2L. Students in the Chicago area may come to the instructor's posted office hours. Online students may call during these posted office hours or contact me through Skype; however, it is recommended that such calls be scheduled in advance in order to ensure a place in the queue.

Online discussion forums are available to all students for posting general coursework questions and comments. The instructor makes every effort to respond to postings within 24 hours. However, due to schedule issues, it occasionally may take longer to receive an instructor response. Email should be used only for personal issues or for student-specific coursework questions. Make all questions clear and specific.

Note: The instructor does not preview homework assignments.

Resources for Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.

To ensure that you receive the most appropriate

Accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted either:

- PLuS Program (for LD, AD/HD) at 773-325-4239 in SAC 220

- The Office for Students with Disabilities (for all other disabilities) at 773-325-7290 Student Center 307

Special Circumstances

Every effort is made to accommodate students who encounter exceptional personal circumstances during the quarter. Students who experience *unanticipated* personal, work, health, or family emergencies should notify the instructor by email or phone as soon as possible with a brief explanation of the circumstances and any anticipated impact these might have on coursework. Students who have *anticipated* exceptional circumstances such as secular or religious holiday observances, medical treatment, or travel should notify the instructor as early as possible of these circumstances and any anticipated impact these might have on coursework. In both unanticipated and anticipated cases, a suitable plan for dealing with the coursework impact is agreed upon by the student and instructor. In some cases, the instructor may request suitable documentation of the exceptional circumstances.

Communication

All correspondence and communication, such as email and phone messages, must include your full name, course number, and section (in-class or online).

Further, all communication should follow proper informal business correspondence etiquette. Although it may be informal, it must be civil and professional. Any form of inflammatory or discriminatory language in email, online chat, or discussion forums is considered unacceptable. The instructor makes every effort to deal with such situations by providing constructive feedback and guidance should an incident occur; however, in extreme cases, appropriate administrative action may be mandated by DePaul University policy. The goal of the instructor's communication policy is not to stifle debate or to impose a regimen of political correctness, but rather to encourage an open, non-inhibiting learning environment.

Online Instructor Evaluation

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over two weeks. Students do not receive reminders once they complete the evaluation.

Academic Policies & Expectations

Guidelines for Class Behavior
- Take an active role in class discussions and activities.
- Be on time.
- Be a respectful participant by keeping phones in silent mode.
- Please do not use laptops or other electronic devices during the class. They detract from participation in the class and are distracting to other students.

Academic Integrity Policy
This course will be subject to the faculty council rules on the Academic Integrity Policy. Cheating includes plagiarism, fraud, and other forms of academic dishonesty. University guidelines on academic integrity and plagiarism can be found at http://academicintegrity.depaul.edu.

Plagiarism
The university and school policy on plagiarism can be summarized as follows: Students in this course, as well as all other courses in which independent research or writing play a vital part in the course requirements, should be aware of the strong sanctions that can be imposed against someone guilty of plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as his/her own work a report, examination paper, computer file, lab report, or other assignment, which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials, be sure to consult the instructor.

Assignments submitted to D2L will be electronically checked for plagiarism (using specialized software built in to D2L).

Changes to Syllabus
This syllabus is subject to change as necessary during the quarter. If changes are made, they will be thoroughly addressed during class.