



Course MIS 6380.002 Data Visualization
Instructor Naser Islam
Term Spring 2020
Meetings Tuesday & Thursday 1:00 PM to 2:15PM.
Join meetings via Blackboard Collaborate

Instructor: Naser Islam

Office Hours: Mon thru Thu 11:30am to 12:30PM
or by appointment and via email.

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Webex or skype meeting

Prerequisites

1. While this course has no pre-requisites nor co-requisites, students without prior database, ETL and coding exposure will face a steeper learning curve.
2. An introductory course in information technology covering spreadsheets, databases, data extraction, and digital representation of data will help.
3. Basic skills in Microsoft Excel – working with tables, formulae, sorting, filtering and charting.

Course Description

This course provides the student with in depth knowledge of Foundations, Techniques, and Applications of Data Visualization principles.

The growth in the volume of data collected by organizations has resulted in the need for a broad range of data analysis techniques such as data visualization. In this we examine data presentation and exploration primarily through the tools of Excel, Tableau, Qlik Sense, Lumira and SAP S/4 HANA.

Learning Outcomes

1. Students should be able to create meaningful general purpose, analytic, and dynamic data visualizations through a variety of data visualization tools.
2. Students should be able to identify appropriate business-oriented opportunities for the application of data visualization
3. Analyze data to generate information and knowledge that lead to informed decisions for businesses.
4. Author enterprise dashboards that are used to summarize and visualize data in a way that supports insight into trends and “what-if” analysis in real time.
5. Show how business intelligence can be derived from data.
6. Apply the latest in analytics technology in real world case studies in the areas of business, entertainment, climate change etc.
7. Students will develop competency in query development and essential business data presentation.

Suggested Texts & Materials

Textbook:

Interactive Data Visualization: Foundations, Techniques, and Applications. Second Edition
By Matthew O. Ward, Georges Grinstein, Daniel Keim.
ISBN-13:9781482257373.

Articles will be assigned through the semester (posted in eLearning)

Suggested Text, Readings and Materials:

Teutonico, D. (2105) ggplot2 Essentials (available online via library)

King, R.S. (2014) Visual Storytelling with d3 (available online via library)

Technology Proficiency and Hardware & Software Required:

Students can use their own laptop or use JSOM lab computers. Most of the data visualization tools/software required for the class is Windows based. Specifically, you will be using Excel, MS Analysis, Tableau, Python, and SAP HANA.

Textbooks and some other bookstore materials can be ordered online or purchased at the UT Dallas Bookstore.

Technical Requirements

In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the Getting Started with eLearning webpage.

Course Access and Navigation

This course can be accessed using your UT Dallas NetID account on the eLearning website.

Please see the course access and navigation section of the Getting Started with eLearning webpage for more information.

To become familiar with the eLearning tool, please see the Student eLearning Tutorials webpage.

UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The eLearning Support Center includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Communication

This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester. For more details, please visit the Student eLearning Tutorials webpage for video demonstrations on eLearning tools.

Student emails and discussion board messages will be answered within 3 working days under normal circumstances.

Distance Learning Student Resources

Online students have access to resources including the McDermott Library, Academic Advising, The Office of Student Access Ability, and many others. Please see the eLearning Current Students webpage for more information.

Server Unavailability or Other Technical Difficulties

The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the online eLearning Help Desk. The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Course Note:

All course materials will be made available through eLearning. Lectures are delivered face to face in classroom.

Technology Proficiency and Hardware & Software Required:

Students can use their own laptop or use JSOM lab computers. Most of the data visualization tools/software required for the class is Windows based. Specifically, you will be using Excel, MS Analysis, Tableau, Python, and SAP HANA.

Description and Assessment of the Assignments:

Homework – Most homework is computer based. Homework should be turned in to eLearning on time. Grading will be based on completeness, accuracy, and timeliness.

Case Studies – Require students to read, assess, compare, and evaluate a real business case. Then they should use the tools they have learned in the class to argue their findings and recommendations in the form of a quantitative report.

Exams – Are combination of written, MCQ, and True/False in UTD testing Center. They are based on concepts and not on particular tools.

Assignment Submission Policies:

It is the responsibility of the student to make sure case studies and assignment are turned in on time. Make sure you follow the procedures outlined in each assignment or case study (Blackboard submissions).

Late assignment submissions will be subject to a late penalty of 25% per day. No assignments will be accepted later than four days from the due date.

Additional Policies

No make-up exams (except for documented medical or family emergencies) will be offered nor will there be any changes made to the Final Exam schedule, except as permitted by university rules. Lecture attendance is not mandatory however it is recommended that students not miss any lecture.

Course Schedule, Assignments, and Due Dates

This is a tentative class schedule; changes to the schedule will be posted in eLearning.

WEEK	CONTENT / LEADINGS	ACTIVITIES
Week – 12 03/31 & 04/02	<p>8. Visualization Technique for Multivariate Data: Techniques of visualization of data that does not generally have an explicit spatial attribute.</p> <p>9. Narrative Visualization: Telling stories with visualization. How data can be used to tell stories and keep the audience engaged.</p> <p>Research Presentation: Group 7 (Thursday, 04/02) (Record your video presentation and upload on eLearning by 04/02 02:15 PM)</p>	<p>Reading: Slides & Materials</p> <p>Reading: Slides & Materials</p>
Week – 13 04/07 & 04/09	<p>10. Visualization Technique for Trees, Graphs, and Networks: Data visualization – conveying relational information. Hierarchical, Connectedness, derived from, Shared Classification, similarities in Value, and Similarities in attribute.</p> <p>Assignment: 4</p> <p>Research Presentation: Group 8 (Thursday, 04/09) (Record your video presentation and upload on eLearning by 04/09 02:15 PM)</p> <p>Quiz – 3: Subjective test based on material covered after quiz 2</p>	<p>Reading: Slides & Materials</p> <p>Assignment: 4</p> <p>Due: 04/13 by 11:00 PM</p>
Week – 14 04/14 & 04/16	<p>11. Text and Document Visualization: Huge resources of information – from libraries, to e-mail archives, to all facets of applications running on World Wide Web.</p> <p>Research Presentation: Group 9 (Thursday, 04/09)</p> <p>Research Presentation: Group 10 (Thursday, 04/16) (Record your video presentation and upload on eLearning by 04/16 02:15 PM)</p>	<p>Reading: Slides & Materials</p>
Week – 15 04/21 & 04/23	<p>12. Designing Effective Visualization: Designing successful visualization – Exploration, Confirmation, and Presentation.</p> <p>Classwork: 5</p> <p>Assignment: 5</p> <p>Quiz – 4: Subjective test based on material covered after quiz 3</p> <p>04/23: Group Project Presentations (Group 1 thru 10)</p>	<p>Reading: Slides & Materials</p> <p>Classwork: 5</p> <p>Due: 04/23 by 04:00 PM</p> <p>Assignment: 5</p> <p>Due: 04/30 by 11:00 PM</p> <p>All groups: upload your group presentation on eLearning by 4/23 11:00 PM</p>
Week – 16 04/30	<p>Exam II: Thursday, April 30, 2020 between 1:00pm to 1:30pm via eLearning. Detail will be announced soon.</p>	

Assignment Guidelines

- All reading is to be completed before class on the date posted.
- All assignments must be submitted at the beginning of class. Late assignments are **NOT** accepted.
- Written assignments must adhere to the APA style guide of formatting, citing, and referencing.
- Descriptions of assignments will be posted as they are assigned.
- The exams will consist of multiple choice, fill-in-the-blank, and short essay questions. The final exam is not comprehensive. Make-up exams will be in the form of essays.
- No extra credit assignments are available
- General grading criteria can be found in eLearning. Assignment specific grading criteria will be included with the assignment instructions.
- **All assignments will be submitted via eLearning. I do NOT accept assignments via email. If you submit an incorrect assignment or need to resubmit your assignment in eLearning you will be allowed to resubmit as long as it is before the due date. Send me an email 24 hours prior to the due date and I will clear your submission. Upon doing so, you will be able to resubmit.**
- **DO NOT CHEAT and DO NOT PLAGIARIZE.**

Grading

This course will feature a mix of activities and written and verbal assignments that may be in class or on campus. Homework will include readings from the text, assignments, and activities that usually require the student to complete some type of task. The instructor will provide detailed instructions as well as the grading criteria for each assignment. Please consult the course schedule for deadlines.

Grading Scheme

Grade Component	Points
Assignments	10%
Classwork	5%
Group Project	10%
Group Research & Presentation	8%
Pop Quizzes	10%
Attendance & Class Participation	7%
Exams I and II	50%
Total	100%

Scoring

Final Point Total	Letter Grade
93-100	A
90-92.99	A-
87-89.99	B+
83-86.99	B
80-82.99	B-
77-79.99	C+
73-76.99	C
70-72.99	C-
67-69.99	D+
63-66.99	D
60-62.99	D-
0-59.99	F

Proctored Final Exam Procedures

If your course has a proctored exam requirement, please see the [UTD Testing Center](#) webpage and [Distance Learning Proctored Exams](#) webpage to make arrangements.

Course & Instructor Policies

- **Professional Conduct** - expected at all times from all students.
Examples of unprofessional conduct includes, but is not limited to:
 - Trying the “game the system”
 - Coming late to class (without good reason)
 - Leaving early from class (without good reason)
 - Talking in class
 - Working on other subjects while in class
 - Using electronic devices for other than the course materials
 - **Make-up Exams** – restricted to documented emergencies with sufficient written proof provided. Make-up exams will be in essay format and content will differ from the regular exams. Since make-up exams will differ in content, no curve fitting may be applied at either the exam level or the semester level.
 - **Extra Credit** – no extra credit assignments are available.
 - **Class Attendance** – required, except for legitimate emergencies. Please be on-time and remain until class is dismissed.
 - **Late Work** – 24-hour grace period to allow for technical problems with assignment submission. After the grace period, reduced by 25 % per 24-hour period. Please do not ask for any extensions or lifting of late penalties, unless it is a documented emergency with sufficient written proof provided.
 - **Instructor Response Policy:**
 - For questions about course material, before contacting the instructor, please follow the following protocol:
 - If in class, ask questions in class so everyone can benefit.
 - If between classes, if possible, wait until the next class to ask questions so everyone can benefit.
 - Come to the office hours (instructor’s or the TA’s) to ask questions.
 - If it’s urgent and/or cannot be done using one of the methods above:
 - First, email the TA with the question
 - Allow 24 hours (not including weekends, nor holidays, nor breaks) for the TA to respond. TA will not be available during breaks.
 - If the TA’s answer does not satisfy you, please forward the email to instructor (Please do not send emails to instructor unless you have tried to resolve it with the TA first)
 - Instructor may save them until the next class and read and answer them at the start of class so everyone can benefit.
 - For personal questions or issues that only pertain to you, please follow the following protocol:
 - Come to instructor’s office hour
 - If it cannot be handled in office hours, please email the instructor
 - Instructor will attempt to reply to all emails within 48 hours, not including weekends, nor holidays, nor breaks. Instructor will not generally be available during breaks.
 - eLearning – will be used for class content and any changes to class content.
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Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

“As a Comet, I pledge honesty, integrity, and service in all that I do.”

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