



Lincoln University

BA 355 - Special Topics in MIS (Data Visualization)

COURSE SYLLABUS

Spring 2019

Instructor: Prof. Miron Yoffe, PhD
Lecture Schedule: Saturday, 12:30 PM – 3:15 PM
Credits: 3 units / 45 lecture hours
Level: Mastery 2 (M2)
Office Hours: Saturday 15:30 – 16:15
For additional office hours by appointment
e-mail: myoffe@lincolnuca.edu
☎ 617-928-1966
Last revision: December 29, 2018

CATALOG DESCRIPTION

The course focuses on important areas of information systems not covered by the regularly offered courses. A specific topic for it is chosen by the instructor and announced in the syllabus. (3 units)

Prerequisites: Instructor's permission and BA 160 or BA 350

COURSE OBJECTIVES

- Provide an overview and brief history of the practice of data visualization
- Introduce students to the key design principles and techniques for visualizing data
- Develop an understanding of the fundamentals of communication and alignment around concepts that are required for effective data presentation
- Provide an overview and develop an introductory level of competency on the use of visualization software tool - Tableau
- Allow for project-based opportunities to identify, understand, analyze, prepare, and present effective visualizations on a variety of topics

COURSE LEARNING OUTCOMES¹

	Course LO	Program LO	Institutional LO	Assessment
1	Students are expected to develop and interpret a wide range of charts and graphs including spatial data in Tableau	PLO 1	ILO 1b, ILO 2b, ILO 7b	Assignments, project, exams
2	Students are expected to collect and process data, create an interactive visualization, and use it to demonstrate or provide insight into a problem, situation, or phenomenon.	PLO 2	ILO 1b, ILO 2b, ILO 4b	Assignments, project, presentations
3	Communicate and present critiques	PLO 3	ILO 2b, ILO 7b	Project, teamwork, presentations
4	Demonstrate autonomy, creativity, and responsibility in managing professional practices	PLO 4	ILO 4b, ILO 5b, ILO 6b	Course Project

COURSE MATERIALS

The materials for this course are drawn from various sources including two courses from Tableau for Teaching course curriculum:

- [Data Visualization](#)
- [Tableau Desktop Training](#)

and all will be made available free of charge for students in this course. There is no required textbook. Many excellent books are available for students interested in optional reading related to visualizing data. A subset of recommended materials is listed below:

- *Tableau Your Data!: Fast and Easy Visual Analysis with Tableau Software*, 2nd Edition (Dan Murray)
- *Now You See It: Simple Visualization Techniques for Quantitative Analysis* (Stephen Few)
- *The Visual Display of Quantitative Information* (Edward Tufte)
- *The Big Book Dashboards: Visualizing Your Data Using Real-World Business Scenarios* (Steve Wexler, Jeffrey Shaffer, Andy Cotgreave, Wiley, 2017)
- *Business Intelligence, Analytics, and Data Science*, 4th Edition (Ramesh Sharda, Dursun Delen, Efraim Turban, 2017)

¹ Detailed description of learning outcomes and information about assessment procedure are available at the Center of Teaching and Learning website (ctl.lincolnuca.edu)

REQUIRED SOFTWARE

A significant amount of time that students spend completing their assignments will involve the use of visualization software. Instruction will be focused and directed based on the capabilities/features of:

- Tableau Desktop Professional (TFT License), Student License or Tableau Public
- Microsoft Excel (Win 2007/Mac 2008 or Win 2010/Mac 2011 or Win 2013) - Optional

PROCEDURES AND METHODOLOGY

This is a direct classroom instruction course.

Lecture method is used in combination with a supervised business case study. The emphasis will be on learning by doing. Every student must participate in an intensive classroom activity.

Assignments and projects require students to actively use resources of the library. Detailed guide to business *resources of the library* as well as the description of Lincoln University approach to *information literacy* are available at the [Center for Teaching and Learning](http://ctl.lincolnuca.edu) website (ctl.lincolnuca.edu).

Continuous assessment is emphasized. In-class and homework assignments will be given each week. Students must complete all assignments and exams on the dates due. Plagiarism will result in the grade “F” and a report to the administration.

Steps to Take When You Have Technical Questions

When learning any new software package, you are bound to have technical questions. Investigating and solving these questions is an important part of learning the software. When you have a question about Tableau that you cannot answer on your own, you should follow the following steps:

1. Check the course discussion board to see if this question has already been resolved by your classmates
2. If you did not find the solution in Step 1, consult Tableau’s extensive online resources and training videos:
 - a. <https://onlinehelp.tableau.com/current/pro/desktop/en-us/default.htm>
 - b. <http://www.tableau.com/learn/training>
3. If you did not find the solution in Step 2, check Tableau’s community discussion forum to see if the solution has been posted there. If your question has never been posted on the forum, then post it yourself and see if you get a response.
 - a. Home page: <https://community.tableau.com/welcome>
 - b. Beginner: <https://community.tableau.com/groups/newbie-tableau-desktop>
 - c. Advanced: <https://community.tableau.com/community/viz-talk/tableau-community-library/calculation-reference-library>
 - d. Tips for an effective post: <https://community.tableau.com/docs/DOC-5471>
4. If you did not find the solution in Step 3, ask a classmate for help
5. If you did not find the solution in Step 4, ask your instructor or teaching assistant for help
6. **Post the question that you encountered, along with the solution you found, on the course discussion board.**

Following the above steps will help you develop the ability to research and answer Tableau questions autonomously, while also fostering collaboration among your peers to find and share solutions. These skills will serve you well as you continue to use Tableau after this class is completed.

Discussion Board

Each week, all students are required to actively participate in the course discussion board, which can be found on the course website in Canvas. Weekly posts can include, for example: tips or new techniques that you have learned while exploring Tableau, interesting public vizzes that you have discovered, a summary of a valuable training video that you watched, etc. Each student must make one meaningful contribution to the discussion board each week (either a new post or a comment on an existing post). Students will vote on the most valuable contributions to the discussion board at the end of the course, and these votes will be the primary determinant of each student’s discussion board grade.

Final Project *Option 1*

Each team will deliver a final project that uses Tableau to visualize a complex dataset. The deliverable for this project is an executive dashboard or story point that enables a user to explore the data. Students can use one of the many example datasets posted on the course website, or their own data (disguised if necessary, for confidentiality). In addition, you must submit a one-page user manual describing how to use your viz to explore the data. Finally, each team will have <<15-30>> minutes during the final class meeting to present their project. Presentations can cover the power of the viz to reveal new insights as well as the technical details regarding how the viz was created.

Final Project *Option 2*

Each team <<(or individual)>> will select a visualization from among the top-rated submissions to [Tableau Public](#) (links to eligible vizzes will be provided by the instructor). Students will then deconstruct and recreate the entire visualization in order to understand exactly how it was created. After this “reverse engineering” process, each team will have <<15-30>> minutes during the final class meeting to give a presentation to the class in which they describe the most innovative, unique, and useful aspects of their selected visualization.

Group Member Feedback and Grading

For group projects, the instructor may allow for members to provide feedback on contributions and work effort of other group members. This feedback may be taken into account in issuing individualized grades for group projects. In other words, the input of your group members may positively or negatively affect your grade on these projects.

ATTENDANCE

Students are expected to attend each class session. If you cannot attend a class due to a valid reason, please notify the instructor prior to the class.

EXAM

There is one midterm exam that will cover the concepts and material covered in the first 5 classes. Students will be expected to apply the class readings and lectures in answering the test questions.

GRADING AND SCORING

All activities will be graded according to the points as shown below.

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Points	94-100	90-93	87-89	84-86	80-83	77-79	74-76	70-73	67-69	60-66	0-59

The final grade for the course will be given as the total weighted score for all activities according to the percentage shown in the table below.

Activity	Time	Percent
Classroom activities	Every week	10%
Homework assignments	According to schedule	20%
Mid-term exam	According to schedule	20%
Discussion Board Contributions	Every week	20%
Final Project	According to schedule	30%

If both grades for the midterm and final exams are “F” the term grade for the course is “F” regardless of the grades for the project and classroom activities.

COURSE SCHEDULE

#	Date	Topics covered in class
1	01/19/19	Introduction to Data Visualization (J. Shaffer, Module 1)
2	01/26/19	Connecting to Data (M. Galbreth, Module 2) Data Types and Data Quality (J. Shaffer, Module 2)
3	02/02/19	Tableau Desktop Overview (M. Galbreth, Module 2), Tableau Tutorial
4	02/09/19	Working with Discrete vs Continuous Data (M. Galbreth, Module 4)
5	02/16/19	Basic Charts (M. Galbreth, Module 5)
6	02/23/19	Dashboards & Stories (M. Galbreth, Module 6) Formatting Dashboards (M. Galbreth, Module 7)
7	03/02/19	Calculated Fields (M. Galbreth, Module 8)
8	03/09/19	Mapping Data (M. Galbreth, Module 9), (J. Shaffer, Module 8)
	03/16/19	Spring Recess
9	03/23/19	Midterm Exam
10	03/30/19	Project Samples (J. Shaffer, Module 9)
11	04/06/19	Explore Final Project Option 2 – “reverse engineering”
12	04/13/19	Work on projects in-class
13	04/20/19	Work on projects in-class
14	04/27/19	Work on projects in-class
15	05/04/19	Project Presentations

CHEATING AND PLAGIARISM

Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit. Acts of cheating include, but are not limited to, the following:

- (a) plagiarism;
- (b) copying or attempting to copy from others during an examination or on an assignment;
- (c) communicating test information with another person during an examination;
- (d) allowing others to do an assignment or portion of an assignment;
- (e) using a commercial term paper service.

Penalties for cheating and plagiarism range from a 0 or F on an assignment, through an F for the course, to expulsion from the university. Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Dean of Students, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action.

LETTERS OF RECOMMENDATION

Letters of recommendation will be provided upon request to students, who have completed all course requirements and received grade “A” for the course.

OTHER COMMENTS

- Please participate. What you put into the class will determine what you get out of it – and what others get out of it.
- Please come on time. Late arrivals disturb everyone else.
- If you miss a class, you are responsible for getting notes/slide printouts on the material covered from a classmate or the instructor.
- To avoid distracting noise in class, cellular phones must be turned off or the ringing mode silenced.
- Questions and comments during the class are welcome. Do not hesitate to ask questions – do not leave anything unclear for you.

MODIFICATION OF THE SYLLABUS

The instructor reserves the right to modify this syllabus at any time during the semester. Announcements of any changes will be made in a classroom.

Last Update: December 29, 2018.