Data Visualization

Indian School of Business
Advanced Management Programme in Business Analytics
Data Visualization

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"Use a picture. It's worth a thousand words." – Arthur Brisbane

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Course Description

Enormous amounts of data are created every day, and this data creation continues to grow at an amazing rate. While humans are good at interpreting a few data points as numbers, understanding the relationships, patterns, and potential insights in large data sets requires additional tools. One set of tools falls under the category of data visualization. Data visualization tools convert numbers and text into visual representations – pictures. While data visualization techniques have evolved for more than a century, the sheer volume of modern data sets requires new techniques and tools to create understandable visualizations.

This course covers basic theories of cognition and data visualization, including understanding how data types influence the decision to use a particular representation, when to us various chart types, how to structure data visualizations, and visualization evaluation. Importantly, we will focus on the ethical use of visualization throughout the course. Visualization is a powerful tool, and must be used appropriately. Pictures are persuasive, use them well.

This course will assume that you are working on data that has been properly collected, cleansed, and prepared. Those issues are the purview of other courses. We will focus primarily on how to choose the "correct" method to visualize your data for the purpose you choose.

Text Books

Required

There are **NO required textbooks** for this course.

The required readings are posted on LMS (see below).

Recommended

Now you see it – Stephen Few

http://www.amazon.com/Now-You-See-Visualization-Quantitative/dp/0970601980/

This book will include several of the required readings and a wealth of additional information

Software

Required

Tableau

Course Evaluation Breakdown

Evaluation Component	Weight	Coding Scheme
Individual Exercises/Tutorials	30%	3N-b
Individual Assignment	30%	3N-b
Final Exam	40%	3N-b

The final grades for the course will be *curved* to an established baseline that is consistent across the AMPBA program. This means that the grading on assignments and exams is competitive.

Quizzes/Exercises

You are expected to either attend the lectures at the scheduled times, or to view the recorded lectures before the next session. In order to ensure that you are keeping up with the reading, there will be a combination of short exercises or quizzes given. You must complete these quizzes or exercises BEFORE the class session for which they are assigned. If you have been paying attention to the lecture, and keeping up with the readings, these will be both straightforward and useful.

Each lecture will include a discussion of relevant theoretical guidance for data visualization, either a demo or hands-on that applies that theory, as well as discussions of assignments and other course coordination items.

Individual Assignments

There will be one individual assignment. This will test your ability to apply the key concepts of the course content to an actual data visualization exercise.

LATE SUBMISSIONS

For any component which needs to be submitted on LMS there will be a penalty associated with the late submission. Below is the penalty distribution we follow in AMPBA:

Late Submission	Late Submission Penalty
Delayed by 1 day	10%
Delayed by 2 days	20%
Late Submission > 2 day	100 % Penalty

Exam

The Exam will be completed as scheduled by ISB. A portion of the final exam will be *applied*, meaning that you will complete data visualization exercises as a component of the exam, in addition to answering the exam questions.

Course Schedule

You are expected to have completed the reading assignments *prior to* the beginning of lecture. It will be assumed that you have read the chapter, and that the concepts covered in the readings are familiar to you. This does not mean that the lectures will avoid reference to the topics in the readings, but that the lectures will build on and go beyond the readings.

Session/Date	Content (General Plan)	Readings
Weekend One Weekend Two	**Principles of Data Visualization** **Data Basics in Tableau** **Time Series & Part to Whole** **Deviation, Distribution & Correlation** **Color and Maps** **Level of Detail Expressions**	Posted on LMS
Weekend Three	**Tutorial: Dashboards and Stories**	

(Tutorial)	**Optimal Graphs for Dashboards**	
DATE TBA	**Assignment #1 (Individual)**	
DATE TBA	**Exam**	

Appendix I: Coding scheme for ALL course work

	What kinds of collaborative activities are allowed?		What material can be referred to? 1	
References/Coding Scheme	Can I discuss general concepts and ideas relevant to the assignment with others?	Can I discuss specific issues associated with the assignment with others?	Can I refer to external material? 2	Can I refer to the case-study solutions or problem set solutions?
4N	N	N	N	N
3N- a	Y	N	N	N
3N-b	N	N	Y	N
2N-a	Y	Y	N	N
2N-b	Y	N	Y	N
2N-c	N	N	Y	Y
1N	Y	Y	Y	N
0N	Y	Y	Y	Y

- Students are responsible for submitting original work that reflects their own effort and interpretation. Remember that any submission should be your own work and should not be copied in part or verbatim from any other source whether external or internal.
- An honor code violation is an honor code violation. A violation under coding scheme 0N is not less severe than others. A 0N coding scheme submission is judged against a 0N coding scheme, and a 4N coding scheme submission is judged against a 4N coding scheme; therefore, any honor code violation is equally severe irrespective of the coding scheme of the submission.
- Students can discuss cases and assignments with the course instructor and the Academic Associate for the course.
- Required and recommended textbooks for the course and the course pack can be used to answer any individual or group assignment.
- Although not all submissions may be subject to academic plagiarism checker (e.g. turn-it-in), in retrospect, if the Honor Code committee feels the need, any of the previous submissions of an individual or a group can be subjected to turn-it-in or any other academic plagiarism checker technology.
- When in doubt, the student should contact the instructor for clarifications.

[1] Any referencing needs to be accompanied with appropriate citations

[2] A non-exhaustive list includes journal articles, news items, databases, industry reports, open courseware

SEE LMS FOR ALL DUE DATES

Announcements