

MIS 0855 Spring 2015 – Data Science *Day 1 – Introduction*

Min-Seok Pang

**Management Information Systems
Fox School of Business, Temple University
minspang@temple.edu**

Jan. 12th, 2015

Fighting Crimes with Data (1/2)

- What does she mean by “fighting a crime is all about information?”
 - What information?
 - Specifically, what information did NYPD use to catch “Sugar”?
- What does it mean by “connecting the dots”?



<http://www.tomchaveslaw.com/wrongful-arrest-civil-rights-violations/>

Fighting Crimes with Data (2/2)

- What if NYPD does not have the real-time crime information? How would or should its detectives solve the crimes?
- Where can NYPD get information they need for crime-solving?



<http://www.tomchaveslaw.com/wrongful-arrest-civil-rights-violations/>

Why Information?

- What kind of information do we need?
- Why do we need information at all?



<http://www.blackcareerzone.com/>
<http://www.bankingsense.com/buying-a-house-5-great-tips-for-getting-a-great-deal/>

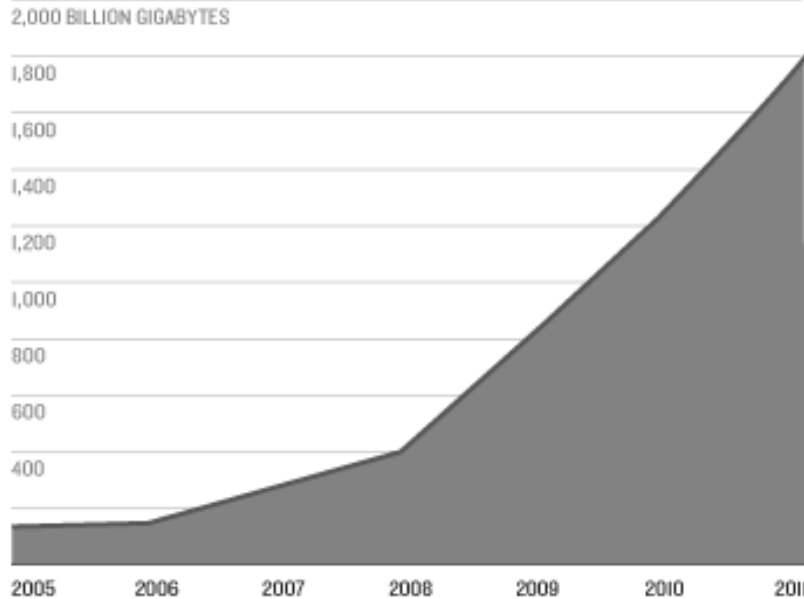
Data is Exploding! Is That a Good News?

65 billion
Location-tagged payments made in the U.S. annually

154 billion
E-mails sent per day

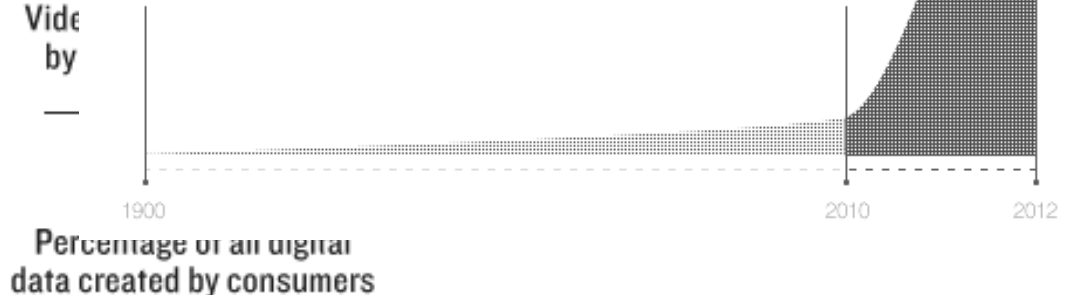
87%
U.S. adults whose location is known via their mobile phone

Digital Information Created Each Year, Globally



2,000%
90%

90 percent of the data in the world today was created in the last two years.



Sources: IDC, Radicati Group, Facebook, TR research, Pew Internet

<http://www.klcommunications.com/blog/anonymity-in-a-big-data-world/>
<https://www.novell.com/events/data-governance-webinars/>

ANALYTICS

Data Scientist: The Sexiest Job of the 21st Century

Harvard
Business
Review

by Thomas H. Davenport and D.J. Patil

FROM THE OCTOBER 2012 ISSUE

Big Data, Big Paycheck

Median salary for analytics professionals and those specifically within data science, by level of experience.



Note: Data do not include managers Source: Burtch Works

The Wall Street Journal

<https://hbr.org/2012/10/data-scientist-the-sexiest-job-of-the-21st-century/>
<http://www.wsj.com/articles/SB10001424052702304819004579489541746990638>

Course Goal

- After taking this course, you are expected to be able to
- Make sense of the world through data
 - Select the right data
 - Prepare the data for analysis
 - Derive insights and knowledge from the data
- Be able to “do it”
 - Hands-on work with real tools (Tableau Desktop, Piktochart, Excel)
 - Identify where data plays a role in the world around us

Module 1 – Data in Our Daily Lives

Day	Date		Topic
1	Jan-12	M	Introduction
2	Jan-14	W	Data, Information, Knowledge
3	Jan-16	F	Data and Science
	Jan-19	M	<i>No class (MLK Day)</i>
4	Jan-21	W	Data and Metadata
5	Jan-23	F	Identifying Sources of Data
6	Jan-26	M	Identifying Data Sources
7	Jan-28	W	In Data We (Mis)Trust
8	Jan-30	F	Prep for Assignment #1

Schedule subject to change

Module 2 – Telling Stories with Data

Day	Date		Topic
9	Feb-02	M	Introduction to Tableau Public
10	Feb-04	W	Introduction to Tableau Public
11	Feb-06	F	Communicating Data
12	Feb-09	M	Storytelling with Infographics
13	Feb-11	W	Prep for Exam #1
14	Feb-13	F	Exam #1
15	Feb-16	M	Prep for Assignment #2

Schedule subject to change

Module 3 – Working with Data in Real World

Day	Date		Topic
16	Feb-18	W	Dirty Data
17	Feb-20	F	Data Cleansing
18	Feb-23	M	Key Performance Indicators
19	Feb-25	W	Key Performance Indicators
20	Feb-27	F	Prep for Assignment #3
	Mar-02 ~ 06		<i>No class (Spring Break)</i>
21	Mar-09	M	Integrating Data
22	Mar-11	W	Creating Interactive Dashboards
	Mar-13 ~ 16		<i>No class (Instructor travels for conference)</i>
23	Mar-18	W	Creating Interactive Dashboards
24	Mar-20	F	Prep for Exam #2
25	Mar-23	M	Exam #2

Schedule subject to change

Module 4 – Analyzing Data

Day	Date		Topic
26	Mar-25	W	Aggregating Data
27	Mar-27	F	Aggregating Data
28	Mar-30	M	Designing Data
29	Apr-01	W	Designing Data
30	Apr-03	F	Beyond Numbers
31	Apr-06	M	Beyond Numbers
32	Apr-08	W	Predictive Analytics
33	Apr-10	F	Predictive Analytics
34	Apr-13	M	Data Science and Your Career
35	Apr-15	W	Prep for Exam #3
36	Apr-17	F	Exam #3
37	Apr-20	M	Prep for Assignment #4 (due by May 1)

Schedule subject to change

Evaluation

Assignments	30%
Exams	45%
In-Class Exercise	10%
Participation	10%
Attendance	5%

90% - 100%	A or A-
80% - 89%	B+, B, or B-
65% - 79%	C+ or C
below 65%	C- or lower

Assignments (30%)

- Four individual assignments will be given throughout the semester.
 - #1 Creating a Data Analysis Plan (due by Feb 6)
 - #2 Analyze a Data Set Using Tableau (due by Feb 23)
 - #3 Cleaning a Data Set (due by Mar 11)
 - #4 Data Analysis Final Project (due by May 1)
- Late submission is allowed, but there will be 10% penalty per each 12 hours.

Software Tools to Use

- Microsoft Excel
- Tableau Public (A free education copy will be provided.)
- Piktochart (We will use a free version.)
- A basic-level of skills in Excel is desired

Three Exams (45%, 15% each)

- based on readings, class slides, in-class exercises, and assignments
- All three exams are closed-books-closed-notes and not cumulative.
- consists of multiple-choices and short-answer questions.
- Prep sessions before the exams

Academic Integrity

- ZERO TOLERANCE
- Plagiarizing others' work without references will be reported to the University immediately.
- All assignments are on *an individual basis*.
- If deliverables submitted by multiple students are suspected to be work of one single person, the instructor will report to the University as a cheating.
- DO NOT SHARE ANY FILE THAT YOU CREATE WITH ANYONE.

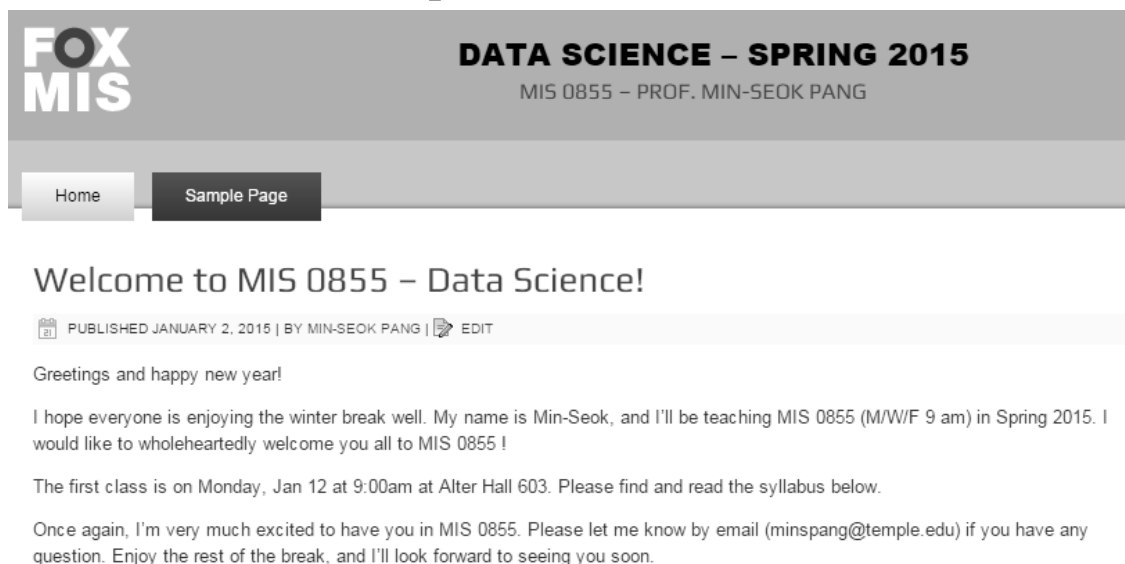
In-Class Exercises (10%)

- There will be in-class exercises (either group or individual) almost everyday.
- All in-class exercises will be counted toward the grade.
- Deliverables from in-class exercises will be graded by success or fail.

Participation (10%)

- You are expected to actively participate in class discussions, activities, and debates.
- Both frequency and quality are considered in participation grading.
- To get full credits in participation, students are expected to speak up once a day, excluding prep sessions for exams and assignments (or write three times per week on the class site).
- (Self-Reporting Participation Grading) After each class, please submit a note with a name, TUID, and remarks.
 - If you did not say anything today, do not write a note.

Online Class Participation at MIS Community



The screenshot shows a website header with the 'FOX MIS' logo on the left and the text 'DATA SCIENCE – SPRING 2015' and 'MIS 0855 – PROF. MIN-SEOK PANG' on the right. Below the header is a navigation bar with 'Home' and 'Sample Page' buttons. The main content area features a welcome message: 'Welcome to MIS 0855 – Data Science!' followed by a metadata line: 'PUBLISHED JANUARY 2, 2015 | BY MIN-SEOK PANG | EDIT'. The text continues with 'Greetings and happy new year!', a paragraph about the instructor Min-Seok Pang, the first class date (Monday, Jan 12 at 9:00am at Alter Hall 603), and a closing statement about being excited to have students in the class and providing contact information (minspang@temple.edu).

- MIS Community as an online class participation forum (<http://community.mis.temple.edu/mis0855002spring2015/>)
- This will be a good venue for those who miss a chance to participate in-class or feel hesitated to speak up.
- The instructor will weigh online participation as much as in-class participation.

Attendance (5%)

- You are allowed to miss up to four sessions.
 - Use these chances only when it's necessary!
- Don't be late. It will disrupt class discussions and your classmates' learning.
- Don't forget sign in on an attendance sheet every day.
- Leaving the classroom before a class finishes without the instructor's prior consent will void the attendance.

Class Policies (1/2)

- Keep monitoring announcements at the class site.
- Using laptops or tablets is allowed only for class-related activities.
 - Should close laptops while the instructor plays a video.
- Please use @temple.edu account for all correspondents with the instructor. Email messages sent from a non-Temple account may not be responded.

Class Policies (2/2)

- Please turn off or mute cell phones. Do not send emails, texts, or tweets during class.
- In case of severe weather, we will meet as long as the University is open.
- No foods