Description
Today’s business world is more complex and interconnected than ever before. This offers both a challenge and an opportunity for today’s managers. In this course we will take a scientific approach based on models and randomized controlled trial experiments to understand how we can take advantage of social dynamics. The course emphasizes specific cutting edge tools that students can apply in their workplace today to help spread products and information through word of mouth, social media, and other social networks; to make better predictions by capturing crowd wisdom and mining web data on collective behavior and consumer sentiment; and to speed problem solving and innovation through crowdsourcing and open innovation platforms. Topics covered include social networks, social media, tipping points, social contagion, herd behavior, the wisdom of crowds, crowdsourcing, and prediction markets.

Grading
Your grade will be based on homework assignments that will give you practice using the tools discussed in class and a take home final exam that will evaluate your understanding of the class concepts and how those concepts can be applied in your own workplace. The assignments will determine 30% of your final grade and the final exam will count for 70%.

Late exams and assignments will be penalized 20%. Exams and assignments more than 72 hours late will not be accepted. Absolutely no exceptions to this policy will be granted.

Readings
The course packet readings reinforce and supplement the material from the lectures. All of the readings are optional. Readings labeled as reference repeat material covered in class.

Honor Code
As with all Kellogg courses, by enrolling in this course, you agree to abide by the Kellogg Honor Code (http://www.kellogg.northwestern.edu/stu_aff/policies/honorcode.htm). In this course, you may (and are encouraged to) discuss the individual assignments with your fellow students; however, the finished product that you submit should be entirely your own work. The final exam is to be done individually without discussion with anyone. You may use the course pack, slides, and handouts, as well as your own notes for reference, but any work that you submit should be entirely your own.
**Schedule**

*Warning: This schedule is subject to change*

**Day 1 — Social Dynamics**

**Session 1. Social Dynamics.**
How social influence creates unpredictable successes, catastrophic failures, and radical transformations.


**Session 2. Predicting the Present.**
The Billion Prices Project. Predicting box office success, the DJIA, and election outcomes with Twitter. Sentiment analysis with Amazon Mechanical Turk. Twitterbombs, Astroturfing, and Truthy. The “Measure and React” strategy.

Hal Varian, “Predicting the Present,” *Google Think Quarterly: The People Issue*.


**Day 2 — Big Data**

**Session 1. Googling.**

*In Class Activity. Predicting the Present with Google.*

Hal Varian, “Predicting the Present,” *Google Think Quarterly: The People Issue*.

**Session 2. Big Data and The Wisdom of Crowds.**
Prediction markets, the averaging principle, and the wisdom of crowds. The relative benefits of accuracy and diversity in crowd forecasts.

*In Class Activity. How Fast Can a Cheetah Run the Hundred Meter Dash?*

Day 3 — Crowdsourcing and Open Innovation

Session 1. Crowdsourcing and Unstructured Data.
How to tell if a model was photoshopped. Training computers with crowds. Running experiments with Amazon Mechanical Turk.


Session 2. Leveraging Crowds for Problem Solving and Innovation.
When and why diverse groups outperform high ability groups. The NetFlix Prize. Fold-It.


Day 4 — Going Viral

Session 1. Going Viral.
Why do some things take-off while others don’t? Modeling contagion and the viral tipping point. Passive and active viral features. Big seed viral campaigns for subcritical contagions.


Session 2. An Introduction to Networks.
*In Class Activity. Mapping Your Own Network.*

Day 5 — Network Analytics: Influentials and Social Segmentation

Session 1. Network Analytics.
Collecting and analyzing network data. Network metrics. Centrality measures. Degree distributions, and scale-free networks. The degree distribution of the class.
※ In Class Activity. Mapping the Social Network of the Class.
※ In Class Activity. How Many Walters Do You Know? Computing the Degree Distribution of the Class.

David Easley and Jon Kleinberg. *Networks, Crowds, and Markets*. Section 2.4.


Session 2. The Myth of the Influential and Social Segmentation.
How much is an influential worth? Community detection and modularity.

