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Office hours: TBD

Description
Social Dynamics and Network Analytics (Social-DNA) covers cutting edge research on social media, network analytics, big data, and crowdsourcing, and provides you with the tools to practically apply this research in your own career. By the end of the course you will know how to: measure volume and location of Internet search data to understand and forecast trends; collect network data and create meaningful network visualizations; and use the wisdom of crowds to create better forecasts. The course counts towards a major in Entrepreneurship and Management and Organizations.

Grading
Assignments (65%) A series of individual and group assignments will give you experience applying the tools from class. The per assignment weighting is indicated in the assignment summary table at the end of the syllabus.

All assignments are due by 11:59 pm on the day indicated, plan accordingly.
Late assignments will be penalized 20%. Assignments more than 24 hours late will not be accepted.
This policy will be strictly enforced, and absolutely no exceptions will be granted.

Group work will include peer evaluations, your final assignment grade for group assignments will be adjusted according to the amount your group mates indicate you contributed to the final product.

Attendance and Participation (5%) Sharing insights and participating in class discussions is integral to success in the course. Attendance will be randomly taken, while participation will be recorded every class.

Final exam (30%) A final exam will test your cumulative understanding of the course material. The exam is a take-home exam and will be turned in through Canvas on the date provided.

FINAL EXAMS WILL NOT BE ACCEPTED LATE.

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 both the individual assignments and group assignment with your fellow students; however, the finished product that you submit should be entirely your own work. If you have any questions regarding how the honor code applies to this course, please ask.
Readings
All readings are available on Canvas. There is no course packet or textbook for the course. Readings marked as (Reference) are optional and repeat material that will be covered in class – they are intended for you to refer to if you need to revisit a concept. Readings marked as (Advanced) are more difficult and are provided for those interested in exploring a specific topic in more depth.

Summary of Assignments
(subject to change)
All assignments are due by 11:59pm on the day indicated.

<table>
<thead>
<tr>
<th></th>
<th>Title</th>
<th>Distributed</th>
<th>Due</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>1</td>
<td>Individual #socialDNA</td>
<td>April 3</td>
<td>June 4</td>
<td>2%</td>
</tr>
<tr>
<td>2</td>
<td>Individual Visualizing influence</td>
<td>April 24</td>
<td>April 30</td>
<td>8%</td>
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<tr>
<td>3</td>
<td>Individual Collecting and mapping network data</td>
<td>April 30</td>
<td>May 7</td>
<td>8%</td>
</tr>
<tr>
<td>4a</td>
<td>Group Collect and map network data – Idea</td>
<td>April 30</td>
<td>May 7</td>
<td>2%</td>
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<tr>
<td></td>
<td>Submissions</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4b</td>
<td>Group Collecting and mapping network data</td>
<td>April 30</td>
<td>May 15</td>
<td>10%</td>
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<tr>
<td>5</td>
<td>Group Identifying target markets and</td>
<td>May 15</td>
<td>May 29</td>
<td>12%</td>
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<td></td>
<td>influentials with Twitter</td>
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<tr>
<td>6</td>
<td>Individual Predicting the present with Google</td>
<td>April 10</td>
<td>April 16</td>
<td>8%</td>
</tr>
<tr>
<td>7</td>
<td>Individual The curious case of Chips Ahoy!</td>
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<td></td>
<td>5%</td>
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Schedule

Warning: This schedule is subject to change

Week 1 — Social Dynamics

Session 1. Unpredictability and Inequality in a Connected World.


Matthew Salganik, Peter Sheridan Dodds and Duncan Watts, “Experimental Study of Inequality and Unpredictability in an Artificial Cultural Market,” Salganik, Science, 311(5762), 854–856. (Advanced)

Session 2. Superstars.
Power law distributions. Network effects and winner-take-all markets. Information cascades.


Week 2 — Explosive Growth in a Connected World

Session 1. Going Viral.
Why do some things take-off while others don’t? Modeling contagion and the viral tipping point.

Jill Lepore, “It’s Spreading,” The New Yorker, June 1, 2009.


Session 2. Creating Contagions.
Passive and active viral features. Big seed viral campaigns for subcritical contagions.


Week 3 — Networks

Session 1. Networks.

* In Class Activity. Mapping the Social Network of the Class.


Session 2. Network Data.
What is network data? What data should you collect? How do you collect it?
Week 4 — Viral Networks

**Session 1. Mapping Networks.**
An introduction to Gephi and mapping networks.

**Session 2. Viral Networks.**

*In Class Activity. The Degree Distribution of the Class.*

Nicholas A. Christakis and James H. Fowler. “Changing What We Do, or Changing What We Think?” Connected, 2011.

Week 5 — Network Influentials

**Session 1. Identifying Influentials.**
Six degrees revisited. The influentials hypothesis. Identifying the most important people in a network. Degree centrality and eigenvector centrality.


**Session 2. The Myth of the Influential.**
Tracking cascades on Twitter. Influencer ROI. The Fundamental Attribution Error. Referral incentives versus seeding strategies.


Week 6 — Complex Contagion and Communities

**Session 1. Complex Contagions.**
Threshold contagion, critical mass, and the cascade window.
*In Class Activity. The Quarterly Professor Pah “Winner Takes All” Tournament of Network Seeding.*


**Session 2. Network Communities and Social Segmentation.**
Modularity and community detection. Identifying target markets and tracking cascades with Twitter.

Assignment 5. *Identifying influentials and influenceables with Twitter. Due Sunday, May 29 at 11:59pm.*

Week 7 — An Uncertain World

**Session 1. Network Presentations.**
Groups will present the networks that they collected in Assignment 4 in a blitz format. Each group will have 5 minutes (strictly enforced) to present their work, your slide decks will be ready for you and you may use any additional props that you bring.

**Session 2. Decision-making in an uncertain world.**
*In Class Activity. The Wisdom of the Class.*


David Easley and Jon Kleinberg. *Networks, Crowds, and Markets.* Chapter 22. (Reference)
Week 8 — Changing the Frame

Session 1. Predicting the Present and the Measure and React Strategy.
The Billion Prices Project. The “Measure and React” strategy at Zara. Predicting box office success, the DJIA, and election outcomes with Twitter. Sentiment analysis with Amazon Mechanical Turk. Twitterbombs, Astroturfing, and Truthy.


Session 2. Googling.


Week 9 — The Madness of Crowds?

Session 1. The Wisdom of Crowds.


Session 2. Crowdsourcing
How to tell if a model was photoshopped. Training computers with crowds. Processing unstructured data with Amazon Mechanical Turk.

Week 10 — Open Innovation

Session 1. Problem Solving with Crowds and Open Innovation
Using crowds for solving complex problems and discovering innovations. The Netflix Prize, Fold-It, Top Coder. When and why diverse groups outperform high ability groups.


Session 2. Gestalt.
An overview of class concepts, their interdependencies, and how you can apply them in the future.