**SOCIAL MEDIA ANALYTICS**

**MIS 184N Unique: 04254/04255 Spring 2019**

**Monday 3:00 - 6:00 p.m. (GSB 3.130)**

**Instructor:** Professor Anitesh Barua

**Office:** CBA 5.236

**Email: aniteshb@gmail.com**

**Tel:** 512-471-7895

**Office hours:** M 10:30 a.m. – 1:30 p.m. (or by appointment)

**TA:** Vasundhara Sharma ([vasundhara383@gmail.com](mailto:vasundhara383@gmail.com))

**Course Overview**

The rapid proliferation of social media has created an unprecedented opportunity for enterprises to engage in real-time interactions with customers, and to enhance brand, customer loyalty, competitiveness, growth and profitability. Facebook statistics, which include over a billion users, 130 billion connections, 300 million daily photo uploads and 3.1 billion daily likes, suggest that companies can ill-afford to ignore the potential of social media. According to one source, LinkedIn adds two new users every second, Instagram gets over 600 likes per second, and as a country, Twitter would be the 11th largest in the world. Such numbers make it imperative to develop strategies to create and extract value from this rapidly growing phenomenon. This course is designed to showcase the virtually unlimited opportunities that exist today to leverage the power of social media. It focuses on a gamut of questions ranging from strategic to operational matters pertaining to a firm’s social media initiatives, metrics to capture relevant outcomes, and predictive analysis to link social media chatter to business performance.

**Learning Objectives**

Students taking this course will develop expertise in the following areas:

1. Strategic aspects of social media analytics
2. Metrics for assessing the effectiveness of social media strategies
3. Collecting, analyzing, deriving insights from, and dash-boarding social media chatter
4. Practical analytical and technical skills that differentiates you in any modern enterprise
5. Real world social media applications

**Course Material (some readings will be posted on Canvas, links are provided for the rest)**

# We will use some chapters of the book “Networks, Crowds and Markets” by David Easley and Jon Kleinberg, available for free from Cornell University at <https://www.cs.cornell.edu/home/kleinber/networks-book/networks-book.pdf>; however, in all fairness to the authors, please consider buying the book from Amazon (rent: $17, Kindle version: $33). Not posted on Canvas, access directly from the above link or buy the book.

* “Measuring User Inﬂuence in Twitter: The Million Follower Fallacy” <http://snap.stanford.edu/class/cs224w-readings/cha10influence.pdf>

# “High Note” (Case study + data to be posted on Canvas)

* “Randomization Tests for Distinguishing Social Inﬂuence and Homophily Effects” <http://ra.ethz.ch/CDstore/www2010/www/p601.pdf>

# “The clustering coeﬃcient and community structure of bipartite networks” (to be posted on Canvas)

# “The architecture of convolutional neural networks demystified” <https://www.analyticsvidhya.com/blog/2017/06/architecture-of-convolutional-neural-networks-simplified-demystified/>

# “Fake News Detection on Social Media: A Data Mining Perspective” <https://arxiv.org/pdf/1708.01967.pdf>

* “It is not the size of a customer’s network that matters; it’s what they do with it.” <http://www.wired.co.uk/news/archive/2012-08/13/customer-network-lifetime-value>

**Grading**

Your course grade will be based on the following:

|  |  |  |
| --- | --- | --- |
| Item | Date(s) due | Weight |
| Group assignments 1, 2 | 2/11, 2/18 | 30% |
| Final group project | 2/25 | 20% |
| Final exam (individual work) | TBA | 40% |
| Class participation |  | 10% |

**Class participation**

In this class much of the learning is dependent on the accessing the combined knowledge and experience of the group. It is everyone’s job to keep the discussion productive and moving forward. In evaluating your class participation grade, I take the following into consideration:

* useful arguments expressed coherently and succinctly
* good analysis supported by case facts or your own experience
* relevance to previous contributions, i.e. ability to listen and build on what others say
* constructive disagreement
* regard, respect and acknowledgment of others’ contributions
* readiness to contribute to class discussions

**Group assignments 1, 2 (30% of course grade)**

All assignments in this course are group based. Students will be responsible for creating their own groups. The ideal group size is 4 to 5. The group membership should remain unchanged throughout the course, unless there is a truly compelling reason to do so.

**Final group project (20% of final grade)**

Throughout the course, groups will work on a social media analytics project dealing with real world data. Topics can vary widely depending on student experience and interest, and can include how social media affects brand, sales and other business outcomes, what type of messages are effective in social media, and analysis of customer networks and influence value. Groups will make their final presentations on 2/25.

**Course Agenda**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Date** | **Topic** | **Readings + Due Dates** | **Learning outcomes** |
| 1 | 01/28 | * Introduction * Structure of social networks | Chapter 3, Networks, Crowds and Markets, <https://www.cs.cornell.edu/home/kleinber/networks-book/networks-book.pdf> | * Course structure, focus, and overview of assignments. Learn about the importance of network centrality measures in identifying key members of an online community. |
| 2 | 02/04 | * Attention & influence in social media * Homophily versus social influence * Discussion of assignment 1 | * “Measuring User Inﬂuence in Twitter: The Million Follower Fallacy” * “High Note” ( to be posted on Canvas) * Chapter 4, Networks, Crowds and Markets, up to page 90. * “Randomization Tests for Distinguishing Social Inﬂuence and Homophily Effects” | * Understand why attention and influence are important in social networks, how to measure them and how businesses can use attention scores * Learn about the distinction between social influence versus adoption due to similarity (homophily), which may be mistakenly assumed as social influence, why it is important to make the distinction when looking for champions for your brand |
| 3 | 02/11 | * Bipartite (affiliation) networks * Image analytics * Discussion of assignment 2 | “The clustering coeﬃcient and community structure of bipartite networks” (to be posted on Canvas)https://www.analyticsvidhya.com/blog/2017/06/architecture-of-convolutional-neural-networks-simplified-demystified/Assignment #1 due on Canvas by 11:59 p.m. | * Learn about affiliation networks, and how to develop prediction models with such networks. * Learn about using images to derive insights and predict business outcomes |
| 4 | 02/18 | * Detecting fake news in social media * Final project discussion | “Fake News Detection on Social Media: A Data Mining Perspective” <https://arxiv.org/pdf/1708.01967.pdf>Assignment #2 due on Canvas by 11:59 p.m. | * Learn about approaches to fake news detection in social media |
| 5 | 02/25 | * Justifying ROI of Social Media spend * Project presentations | * “It is not the size of a customer’s network that matters; it’s what they do with it.” <http://www.wired.co.uk/news/archive/2012-08/13/customer-network-lifetime-value> * **(PowerPoint Slides & data sets due on Canvas by the start of class)** | * Learn to assess the return on influence from social media spend. |
| 6 | **TBA** | **Final in-class Exam** | Time & location to be TBA |  |