**Brief Description**

- This course focuses on fundamental theories, concepts, methods and applications of network analysis.
- Assignments feature social, socio-technical and information networks.
- I will learn to approach network analysis in an informed, systematic and analytically rigorous fashion.
- I will be able to design, manage and execute network analysis projects for scholarly and commercial use, and to critically assess network studies.

**Learning Objectives**

- To understand fundamental concepts and theories about networks.
- To apply this knowledge to solve real-world, network-centric problems.
- To use advanced network analysis methods and tools to visualize and analyze networks.
- To interpret the results with respect to exploratory, quantitative and substantive questions.

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**Wholesale Drug Vendor**

- I analyzed an inventory from a drug vendor and detected the community among these “customers” to find hidden segments.
- I made recommendation to the drug vendor regarding what he should do to maximize his revenue, and offered him suggestions to target his customers in future deals.
- I generated some business insights based on the clustering analysis.

**2015 U.S. Senators’ Voting Behavior**

In this first assignment of the course,

- I conducted a centrality analysis on a dataset containing U.S. senators’ voting patterns in 2015 with the help of network visualization.
- I focused on applying basic network concepts and metrics on the senator dataset and revealing data structures with a network visualization tool called Gephi.
- I measured degree centrality, eigenvector centrality, closeness centrality in this analysis.
- I found the key senator who votes similarly to people in both parties, who was responsible for the connection.

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**A Network Model of Psychopathology**

- Examined an application of network analysis in psychology.
- Gave an oral presentation in Distress Math Dissertation about “the Small World of Psychopathology” written by Borsboom et al (2011).
- Introduced a new way to interpret psychiatric comorbidity from the network perspective.

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**Personal Growth**

Throughout the PIS course,

- I met difficulties such as not being able to follow up with my work at Maassmedia due to the infrequent visits (once a week).
- I communicated with my colleagues over email and other tools to keep track of my progress.
- I learned to be responsible for my own work and followed work ethics at all times.
- My communication skills improved as I talked with my academic supervisor and my field supervisor about a topic that they were not familiar with.

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**Challenges**

- Network analysis is a very new field.
- There is very little application in the digital marketing world.
- Making this independent course mutually beneficial to me and my field supervisor has been a big challenge.

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**Opportunities**

- There is a great potential to apply network analysis on solving business problems.
- In my second assignment, I utilized clustering analysis to generate business insights.
- I imagine it is possible to use visualization anomaly in a network structure to conduct an anomaly detection study.