Boardroom Analytics MGMT 5200

Master of Business Analytics (MSBA)

Albers School of Business & Economics

Seattle University

Spring, 2021

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Boardroom Analytics

Master of Business Analytics (MSBA)
Spring, 2021
April 1st – June 3rd

Faculty: Dr. Rubina´ Mahsud

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Venue: Zoom

Background

As soon to be graduating MSBAs', it would be in your favor to keep the sight of wisdom in search of knowledge, to keep the sight of knowledge in search of information, to keep the sight of information in search of data, and not to lose a sense of larger purpose of serving global society.

Course Description

Boardroom Analytics synthesizes and integrates the social and technical sciences. You will learn about 1) strategy formulation, 2) biases in decision making, 3) heuristics, and 4) the dangers of big data. Once exposed to these topics, you will be able to approach data and modelling with a holistic mindset cognizant of the foundational pillars of this class.

Partnering corporations will provide real world business problems. Through applying your knowledge to proprietary data, you will identify business problems, formulate a strategy, develop hypotheses, and generate alternative outcomes that are opportunity maximizing while risk minimizing to all stakeholders and society. Student teams will present their findings and recommendations to company executives to assist them in reaching optimized decisions.

Course Overview

This course is designed using Search Conference Methodology originally introduced by Fred Emery and Eric Trist (1959) to address strategy, tactics, and implementation of high-level decisions within organizations. Search Methodology Conference is a participative method that enables participants to create a plan for the most desirable future for an organization, a community, or the world. The Search Conference brings to life the concept called open systems suggesting that any system has an open and direct relationship with its larger social system. As graduating MSBAs you should be able to discern meta-level trends and build plans that are executive ready at the tactical level. For more information on this topic visit: http://www.elementsuk.com/libraryofarticles/searchconference.pdf.

The term system means that any organization, community, or a network that draws a boundary around itself to establish its relationship to its environment. Environment means everything outside the system. It includes all the aspects of global society that are changing fast (technology, information, and communication, etc.) and things that are unchanging such as human needs and aspirations (physiological needs of food and water, safety and security needs, the need for belongingness and worthiness, and reaching to the stage of self- actualization). Your goal will be how to blend the two ethically and justly with your newly acquired knowledge. You are called participants because you will bring relevant knowledge and acquired skills. You also possess diverse perspectives with different life experiences making this process richer and rewarding.

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Learning Outcomes

1. You will be able to discern how executive understand and makes data-based decisions.
2. You will synthesize (quantitative and qualitative information) and apply machine and data analysis sills to the real-world scenarios.
3. You will gain systems thinking and strategic perspective to your data analysis.
4. You will gain the ability to differentiate yourself from the competition by simultaneously applying strategy and data knowledge to your analysis – a combination that is rare and highly valued by employers.
5. You will be able to communicate technical information to both technical and non-technical audience in speech, in writing, and graphically.

Grading Criteria

Boardroom Analytics is designed with practitioner partnership. The academic angle helps participants develop systems thinking reasoning skills around the purpose, questions/hypotheses, pros and cons when preparing mathematical models, generating algorithms for finding solutions to complex problems. It will also prepare you to keep the timeline horizon in mind (short, medium, and long-term) in your decisions.

Exposure to designers will help you as participants to understand the complexity of working for an actual organization, the interrelatedness of issues/problems, the intended and unintended consequences of the data generated solutions, and finally its impact on firm's financial outcomes, employee satisfaction, customer confidence, and stakeholders. Since it is a partnership-based seminar, each session is graded separately due to the nature of each module addressing a different issue generated and designed by different designers.

To maintain a common theme across the modules below there are some general criteria for grading. These judging criteria may be modified for each module according to the project needs and requirement.

1. Does the team have a coherent/cogent thesis to the issue they are addressing?
2. Do they have enumerating statement/s (providing detail or specificity of the issue)?
3. What options/alternatives have they explored?
4. What final decision the team/individual came up with and why?

Grade Assessment:
*Companies Projects (3x20) – (60% total)
**Book chapters Presentation – 20%
**Seminar Participation – 20%

*External Project grades will be jointly determined by Professor and a project Designer. Even though each External Project might have another scoring assessment, overall contribution of every project will remain 15%.

** It is critical that you read assigned chapters even if you are not the presenting team. Grade is highly skewed towards discussion. Not contributing to the verbal discussions will impact final grade.

Readings

Two books need to be purchased – available at SU bookstore.
  A. **Book A** - Kathy O Neil (2016). Weapons of Math Destruction: Big data increases inequality and threatens democracy. The Crown Publishing Group - Penguin Random House LLC, New York.

B. **Book B** - Max Bazerman & Don Moore. (2013). Judgment in Managerial Decision Making. Wiley, 8th Edition, New York.
1. Total of five articles/cases are assigned from Harvard Business School. A course pack is created at HBR. Here is the link: https://hbsp.harvard.edu/import/813288

2. Bring in contemporary news on data and analytics from around the world to enrich discussion.

Seminar Activities and Deliverables

This seminar is comprised of two types of activities. One activity will be around meta-understanding of the data and the issues that come with it. The second activity will be around how organizations/analysts think, generate, clean, use, and interpret data. I call the meta-understanding or systems thinking approach an exploratory exercise. Whereas, the second activity I call the experiential exercise where actual data will be used to reach the systems understanding.

Book Chapters Presentations:

You will divide yourselves into teams (three in each team) with 10 teams. Each team is assigned two chapters to present, one from each book. You as a team of three will read, reflect, analyze, synthesize, relate, and **present in two slides only**. Based on the same readings, each audience team needs to generate TWO questions or comments for the presenting team. Participation grade will be determined by asking appropriate questions. These presentations will start the second week of the seminar. Each presentation will last for 20 minutes including Q&A (10 minutes presentation and 10 minutes Q&A). You will self-select for chapter teams. In case of Zoom or online teams will introduce themselves when asking question or commenting. It will be good if each chapter team give an interesting name to their team to make it easy to remember and relate to.

Note: For chapter presentation, start with an outline of your presentation (what your presentation is about? What and why you are going to cover? What are the lessons learned, examples, conclusions, and recommendations). Please provide only main points from each chapter that relate to you as a data analysts (guiding you, informs you, make you learn, important aspects about data and decision making etc.). Provide examples to those main points from the real world including corporations, governments, universities, classes, general knowledge, personal life etc. The quality of a team presentation will be judged through content, research rigor, reflection, and audience engagement.

Project Presentations:

For project presentations with companies you will be divided into six teams with five members in each. Again, you will self-select. The companies after signing NDA from each one of you will provide you with the data and introduction to the questions and issues. You will work on the data problem and present the following week to the company's executives. For each company an issue or a problem, each one you are expected to work 4-7 hours outside the seminar time.

Attendance: I expect each one of you to be present for each module for the following reasons: Firstly, it will reflect poorly on SU if the executives (your prospective employers) come and bring their data to the seminar and instead of seeing you they see empty seats. Secondly, it will affect our chances to get such high-profile executives in the future. Please bring your laptop to each class and if you don't have one, then let me know in advance to make necessary arrangements. Missing a class is not an option.

Board Book: This is a **One Page** (500 words max.) executive summary that your Project Team needs to submit for every company to the company executives. This one page should comprise of following sections: **Problem Identified**, **Analysis** that describe what model/s you have used and why you have used those models, **Conclusion** that describes alternative solutions the you have considered and final recommendation.

Tentative Outline

Class starts April 1st. Book chapter presentations starts April 15th. Two teams present each week. Teams will record and upload their 15 minutes presentations.

April 01 – Strategy

Strategy & Systems Thinking

(a) Wilburn, K. M., and Wilburn, R. H. (2016). Asking "What Else?" To identify unintended negative consequences. Business Horizon, 59, 213-221.

Note: We will have: (1) Introduction (2) syllabus clarification and expectations (3) Dr. RM Presentation
   (a) Management and the world work (b) Strategic Management
   Process

April 08 – Strategy

1. External Environmental Analysis
2. Internal Environment

April 15 – Strategy

Competitive Advantage through Positioning Strategies

April 22 – Strategy

Diversification and vertical integration

April 29 – Strategy

Blue Ocean Strategy
Kim & Mauborgne, "Creating new market space: A systematic approach to value innovation can help companies break free from the competitive pack" (*HBR* Jan - Feb1999).

May 06 – Voglio

Data Warehouses Project Report

Readings: Ross, C., Beath, M., & Quaadgras, A. (2013). *You May Not Need Big Data After All.* HBR. Online Course pack.

Designer: Griffin Deebach, Director of Analytics - Voglio Global Marketing

Project Description: While other courses in the MSBA program may have discussed the technical aspects of data warehousing, this module will provide the business value proposition of data warehousing. The discussion will cover tangible benefits of data warehousing, such as automated reporting/analytics, as well as intangible benefits such as the value created from having a common "language" about a company's data. The Designer will give a primer on what data warehousing is, explain some real-life examples of data warehousing success and failures, and cover some best practices. We will discuss an academic case (Ross, et al.) that supports the Designer's philosophies on data warehousing. Lastly, we will work through an in-class project case based on real Business Analyst scenarios. In the project, we will learn about a company that has good analysts and strong technology, but nonetheless finds themselves with little faith in their data. We will answer the question, why is this happing? The project will allow participants toapply some of the ideas from the primer on data warehousing and give them a chance to write some SQL in thePeriscope Data tool using a very simple data warehouse schema. Each one of you will need to turn in one-page reflection on the above case.

Scoring Rubric:

Component	% of Grade	Expectation
Ross, et al.	30%	One page or more with **5 thoughts** about the case. Individual assignment.
Task 1 – In class case *	20%	5 reasons. One page handed in as team. Bullet points are acceptable.
Task 2 – In class case *	30%	Everyone should get the same numbers for this one as in Exhibit I.
Task 2 – In class case *	20%	Numbers do not matter for these, just show some curiosity with the tool.

* These tasks may not make sense until in class case is presented. This is by design.

Project Duration: Entire Class

May 13 – PACCAR Parts
PACCAR Parts

Readings:
1. David Simchi-Levi, "Find the Weak Link in the Supply Chain" (*HBR* June 2015).

Designers: Brett Durfee, Director IT Solutions and Brooke Valdez, Director Materials, PACCAR Parts

Exploratory Presentation: Team 2 presentation and Q&A (30 mins – 15 mins presentation and 15 mins Q&A)

Note: We will have: (1) Team 2 presentation and Q&A (2) Discuss HBR Articles, Provide a PACCAR Overview and Data Walkthrough (Brett Durfee & Team) (3) breaks, contingencies, and Q&As.

Project Duration: 2 hours

May 20 – PACCAR Parts
PACCAR Parts

Readings
1.   David Simchi-Levi, "Find the Weak Link in the Supply Chain" (*HBR* June 2015).

Designers: Brett Durfee, Director IT Solutions and Brooke Valdez, Director Materials, PACCAR Parts

Note: We will have: (1) Presentations to PACCAR Parts (2) breaks, contingencies, and Q&As.

Project Description: You are part group of data analysts who work for the PACCAR Parts Materials team, an aftermarket planning team which manages the dealer parts inventory for PACCAR products used in vehicles (brands: Kenworth, Peterbilt and DAF) globally. As a group of data analysts, your jobs are to ensure that all dealer globally have parts inventory on hand to service the vehicle. If the dealership doesn't have the part in inventory the part has to be delivered within hours to the Dealer using a centralized distribution network. Since all dealers are independently owned, a dealer may sell other trucks products, aftermarket parts and services for competing brands (e.g. Volvo, Mack, Toyota, Mercedes, Tesla, etc.). There are some common parts that are shared across all brands of vehicles (air filters, lubricants, nuts, bolts, etc.). In addition, the same suppliers used to support the aftermarket are also used in manufacturing new products.

During an economic slowdown which typically increases the demand for aftermarket parts, you establish an improvement process in managing the supply chain and improve your distribution center fill rate. You recently were notified that PACCAR manufacturing build rates are increasing, and you want to maintain the improvements in the distribution chain process that you and your team achieved during an economic slowdown. Your job is to use a common set of data to determine options for maintaining a complex network and maintaining or improving fill rates as the manufacturing teams increase vehicle production.

Project Duration: Entire class

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May 27 – Amazon
Amazon

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Readings: Dino Knolla, Marco Prüglmeierb & Gunther Reinharta, "Predicting Future Inbound Logistics
   Processes using
Machine Learning". (https://www.sciencedirect.com/science/article/pii/S2212827116308770)

Designer: Vivek Jain, Senior Manager, Amazon, AWS

Project Duration: Entire class duration

Project Description: We run a less-than-truckload pickup operation within Amazon that collects pallets from people in our Fulfilled by Amazon (FBA) program destined for one of our fulfillment centers. The program is in expansion mode meaning that it's expanding across the USA after a successful test in Los Angeles. Every Monday, we create capacity plans for the week following based on a moving average forecast which performs poorly. Objective is to create a more sophisticate model that predicts how many pallets we expect to collect from each ZIP3 location. The primary focus will be on the t+1-week time horizon (7-12 days lag)but t+2, t+3, etc. would also help the business if we're able to solve. Your primary challenge will be how un-patterned the data looks at first glance.

Note: Will have student presentation to Amazon

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June 03 - Amazon

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Designer: Vivek Jain, Senior Manager, Amazon, AWS

Project Duration: Entire class duration

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<u>**Logistics**</u>

University resource and polices:

Library and learning commons (http://www.seattleu.edu/learningcommons/): Resources include the Research [Library] Services, Learning Assistance Programs, Writing Center, and Math Lab.

Academic integrity tutorial (https://www.seattleu.edu/academic-integrity/resources-for-students/)

Academic policies (https://www.seattleu.edu/redhawk-axis/academic-policies/): Academic Integrity Policy, Academic Grading Grievance Policy, and the Performance Criteria for the Albers School of Business & Economics Policy.

Disabilities services (https://www.seattleu.edu/disabilities-services/): If you have, or think you may have, a disability (including an 'invisible disability' such as a learning disability, a chronic health problem, or a mental health condition) that interferes with your performance as a student in this course, you are encouraged to arrange support services and/or accommodations through Disabilities Services staff in Loyola 100, (206) 296-5740. Disability-based adjustments to course expectations can be arranged only through this process. You are responsible for seeking help in a timely fashion to obtain disability-based adjustments to course expectations.

Datasets: You will be provided with the relevant datasets from each designer. If you would like to incorporate additional datasets, start by looking at Kaggle (https://www.kaggle.com/datasets).

IMPORTANT: This class was designed for face to face interaction with businesses. Now due to Coronavirus closure, I will be working closing with businesses to come up with best format for learning and to gain competitive advantage for both constituents in businesses and students.

<u>**Chapters Presentation schedule**</u>

<u>**April 15 – Teams 1 & 2**</u>

Team 1 Presents:
- Neil - Chapters 1
- Bazerman – Chapters 1

Team 2 Presents:
- Neil - Chapters 2
- Bazerman – Chapters 2

<u>**April 22 – Teams 3 & 4**</u>

Team 3 Presents:
- Neil - Chapters 3
- Bazerman – Chapters 3

Team 4 Presents:

- Neil - Chapters 4
- Bazerman – Chapters 4

April 29 – Teams 5 & 6

Team 5 Presents:
- Neil - Chapters 5
- Bazerman – Chapters 5

Team 6 Presents:
- Neil - Chapters 6
- Bazerman – Chapters 6

May 06 – Teams 7 & 8

Team 7 Presents:
- Neil - Chapters 7
- Bazerman – Chapters 7

Team 8 Presents:
- Neil - Chapters 8
- Bazerman – Chapters 8

May 13 – Team 9 & 10

Team 9 Presents:
- Neil - Chapters 9
- Bazerman – Chapters 9

Team 10 Presents:
- Neil - Chapters 10
- Bazerman – Chapters 10