Business Analytics Case Seminar

ECB358 Block 8 2019

Cornell College

General

Location:	TBD
Time:	Monday thru Thursday 9:30 a.m. – 11:00 a.m. & 1:00 p.m. – 3:00 p.m. Friday: 9:30 a.m. – 12:00 p.m.
Instructor:	Cindy Bradley, Lecturer Business Analytics
Office Hours:	MTWTH: 3:00 – 4:00 p.m. Other times by appointment
Office:	College Hall 216
Office Phone:	319-895-4283
Email:	cbradley@cornellcollege.edu

Course Overview

The analytics case seminar is a hands-on opportunity to work through a major case study with an actual organization. For this course, student teams will be entering a data analytics competition sponsored by Teradata. Teradata is an enterprise software company that develops and sells database analytics software. Teradata is headquartered in San Diego, California with operations in North and Latin America, Europe, the Middle East, Africa and Asia. It is publicly traded on the New York Stock Exchange (NYSE) under the stock symbol TDC.

This is Teradata's 5th annual competition. This year, Teradata has partnered with **Hire Heroes USA**. The mission of this non-profit organization is to empower U.S. military members, veterans and military spouses to succeed in the civilian workforce. The goal of this competition is to provide students with an opportunity to demonstrate their data analytics and visualization skills through data philanthropy, doing good with data, to help this year's partner.

All student teams are provided with the same multiple data sets and questions from the non-profit partner. The teams will examine, analyze, and visualize the non-profit organization's data and business questions and present their findings and actionable recommendations to a panel of local professionals in the business analytics community.

The findings will also be submitted to the broader Teradata competition. If selected as finalists, students will have the opportunity to showcase their findings with not only to the charity partner, but also with the broader business analytics community through both formal presentations and poster sessions at the 2019 Teradata Analytics Universe Conference in Denver, CO, Oct 20-24, 2019.

Course Learning Objectives

The content of this course supports the Educational Priorities and Outcomes of Cornell College and places emphasis on the following educational priorities:

- *Knowledge* – You will develop knowledge by learning how methods drawn from disciplines within statistics and computer science can be applied to solve a real world problem.
- *Reasoning* – You will develop your analytical reasoning skills by learning how to evaluate and interpret results from various sources of data.
- *Inquiry* – You will learn by researching and developing a solution to a current problem(s) articulated by the non-profit partner of the competition, HireHerosUSA.
- *Communication* – You will develop your communication skills by learning how to explain results and analytical techniques to a set of business stakeholders.

Expectations of Students

Attendance Policy

Daily attendance is **required** and you are expected to arrive to class on time. This class involves a high degree of group collaboration and absence from class has a negative impact on the rest of your group members. Unexcused absences and/or tardiness will result in deductions from your participation grades. Excused absences for health, family-emergencies and college sponsored events are approved only with written documentation. If you need to miss class for any reason, you should notify me ahead of time.

Electronic Device Policy

Come to class prepared with your personal laptop fully charged prior to the start of class. Other electronic devices (especially cell phones) may not be used in our classroom while class is in session. We will spend considerable time on your laptops during this course. Random web browsing or any unrelated use of electronic devices during class time is not acceptable. Failure to adhere to these policies will negatively affect your participation grade.

Late Work Policy

No credit will be assigned to daily homework assignments that are turned in late. Weekly projects turned in late will receive 25% deduction if received within 24 hours of the deadline, 50% deduction within 48 hours and zero credit thereafter. **All assignments/projects are to be submitted through Moodle and a strict submission cutoff will be enforced (note that late projects will need to be submitted directly to me via email).** Keep in mind computers fail… at some point your computer will freeze/crash and you will lose something. This is **not** an excuse for late work. Get started early and save often!

Course Components

The course will follow the Cross-Industry Standard Process for Data Mining (CRISP-DM).

Business Understanding

a. Clearly enunciate project objectives & requirements in terms of the business
b. Translate these goals into the formulation of a data mining problem definition.
c. Prepare a preliminary strategy for achieving these objectives

Data Understanding

a. Collect the data
b. Using exploratory data analysis, familiarize yourself with the data and discover initial insights.
c. Evaluate the quality of the data.
d. Optional – select interesting subsets that may contain actionable patterns

Modeling

a. Select & apply appropriate modeling techniques.
b. Calibrate model settings to optimize results
c. Note: Several different techniques may be applied for the same data mining problem.

Evaluation

a. Models must be evaluated for quality and effectiveness.
b. Determine the model does in fact achieve the objectives.
c. Establish whether an important facet of the business problem has not been sufficiently accounted for.
d. Come to a decision regarding use of the data mining results.

Communication of Results

The data analytics competition outlines two deliverables:

1. A power point presentation of no more than 10 slides capturing the visualizations and analytical work of the team.
2. An executive summary utilizing the competition designated template. Detailed instructions for using the template and formatting are provided in the **Data Challenge Submission Template**.

Your team will prepare and submit these to deliverables to the competition at the conclusion of the class. Prior to submission, your team will present your findings to a panel of local professionals in the business analytics community. These presentations will be hosted on campus and deliverables for submission to the competition may be adjusted based upon their feedback.

Contribution to Team Success

The success of a team is based upon the contribution of its members. The majority of the work in this course will be team based. At the conclusion of the course, team members will evaluate their teammates on three parameters: 1) technical contribution, 2) resourcefulness and initiative, and 3) leadership and team interaction. Points will be awarded based upon a rubric to be provided in class.

Grading Policy

Demonstration of Business Understanding	100 points
Exploratory Visualization of Data Sets	100 points
Generation of a problem definition & an analytics plan	100 points
Execution and evaluation of analytics plan	200 points
Initial Submission Deliverables	200 points
Presentation to Local Professionals	100 points
Final Competition Submission Deliverables	100 points
Contribution to Team Success	100 points
Total Points	1,000 points

Course grades will be based upon the following grading scale:

A	94-100%	B+	87-89%	C+	77-79%	D+	67-69%
A-	90-93%	B	84-86%	C	74-76%	D	64-66%
		B-	80-83%	C-	70-73%	D-	60-63%

Academic Integrity

Cornell College expects all members of the Cornell community to act with academic integrity. An important aspect of academic integrity is respecting the work of others. A student is expected to explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is her or his work unless there is a citation of a specific source. If there is no appropriate acknowledgement of sources, whether intended or not, this may constitute a violation of the College's requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in The Catalogue, under the heading "Academic Honesty."

Equality of Opportunity

Cornell College makes reasonable accommodations for persons with disabilities. Students should notify the Coordinator of Academic Support and Advising and their course instructor of any disability related accommodations within the first three days of the term for which the accommodations are required, due to the fast pace of the block format. For more information on the documentation required to establish the need for accommodations and the process of requesting the accommodations, see http://www.cornellcollege.edu/academic-support-and-advising/disabilities/index.shtml.

Resources

Textbook

N/A

Software

This course is expected to utilize the following software:

MS Office: Data preparation, narratives, and presentations
(Tentative) **SQL Server Management Studio:** Data acquisition and query
(Optional) **Tableau**: Data visualizations and exploratory analysis.
(Optional**) XLMiner by Frontline Systems**: Predictive model build and evaluation.

Students are encouraged to utilize their personal laptops for this course. Software licenses and installation will be discussed on Day 1. Laptops in the Economics and Business Laptop Cart will be available as an option.

Schedule Outline

Note: This is likely to change based upon daily progress of the case study

Week 1: Introduction to Business Partner, Problem, Dataset & Tools

- Course and competition introduction
- Review CRISP-DM process
- Introduction to business partner and problem statements
- Exploratory Data Analysis
- Generation of an analytics Plan
- Software license and installation

Week 2: Generation and Execution of Data Analytics Plan

- Generation of an analytics Plan
- Execution of analytics plan
- Evaluation of initial results
- Iterate on analytics plan as needed

Week 3 – Final Data Mining Activities, Evaluation of Results, Initial Draft of Deliverables

- Come to a conclusion regarding analytics results
- Prepare initial draft of deliverables
- Present initial draft of deliverables to peers in class

Week 4 – Project Presentation and Final Submission

- Presentation of deliverables to local data analytics professionals
- Adjust deliverables based upon feedback from panel of local professionals
- Final submission of deliverables to Teradata competition