2018

496-02 Business Analytics Capstone

Joel Asay
Xavier University

INFO 496: Business Analytics Capstone

COURSE SYLLABUS (Spring 2017)

CLASS LOCATION AND TIME: Smith Hall 251, W/F 3:00pm – 4:15pm

INSTRUCTOR

Name:	Joel Asay
Email:	asayj@xavier.edu
Office Location:	Room 204 Smith Hall
Section:	01
Office Hours:	**M/W/F: 9:00AM – 11:00AM** Or by appointment
Telephone:	513-745-2938 (office)
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Xavier University Vision Statement

"Xavier men and women become people of learning and reflection, integrity, and achievement, in solidarity for and with others."

Williams College of Business Mission

"We educate students of business, enabling them to improve organizations and society, consistent with the Jesuit tradition."

Text and Materials

All materials provided via Canvas

Pre-requisites

Completion of or concurrent enrollment in all other business analytics courses

Course Description

This course is intended to bring together the lessons learned in other business analytics courses and expand upon the skills you have gained thus far. We will use a case-based, project-oriented approach to data driven decision making.

Learning Objectives

- Bring together the lessons learned in other BA courses with experiences students can reference on a resume or in an interview.
- Introduce new topics BA graduates should be familiar with but are not currently offered in other BA courses. This includes, but is not limited to:
    - Deployment of database systems in the cloud
    - New analytics tools including market basket analysis, social media mining, latent semantic analysis and others
    - R as a means of performing analysis and data management
- Prepare students to pass the INFORMS Certified Analytics Professional (CAP) examination once reaching the experience requirements for the certification.

Course Content
This class will consist of three primary modules that will build on each other. Each module will require students to work in teams on unique case scenarios. Each case will require you use the skills gained in previous BA courses, augmented by new content delivered in this capstone course. The modules are as follows:

Module 1: Cloud computing, collaborative databases and new market research methods
This module will introduce AWS as a cloud computing asset and require groups to build a database in the cloud capable of receiving query requests from separate software systems using via ODBC compatibility. Students will be given a large dataset as a series of ASCII files and a scenario from an EVP level manager asking groups to analyze some facet of firm performance. Performance will also be considered using new analytical tools including market basket analysis and other methods.

Module 2: Intro to R as a tool for managing data, extracting data from social media and analysis
Students will learn the basics of data management using the R programming language. This section will focus on familiarizing BA students to R for the first time and using R for tasks not easily accomplished with JMP or another package learned in BA courses. For example, extracting data from a web source using an API or scraping HTML data. Once unstructured data is extracted, text analysis tools will be taught including basic text data structures, topic analysis, single-value decomposition, latent class associations and other methods.

Module 3: Predictive analytics competition
A Kaggle style competition with a descriptive-analytics component. All student groups will be given the same business dataset and the same task. Groups will complete by using a training data set to predict values on a test set where the dependent variables have been removed. In addition to the predictive component of the assignment, groups will need to prepare an explanatory analysis explaining the dependencies and predictors. Prizes will be awarded to winning team members and grades will be scaled accordingly.

Academic Assessment
Performance on the case projects will constitute the majority of each student's grade. Group scores will be based on a rubric specified for each module's tasks. Group scores will be scaled for each individual student according to his or her peer evaluations.

Other methods of assessment will include weekly participation in discussions, in-class activites, attendance and sitting for the ETS examination required of all senior students before graduation.

Class Attendance
More than two unexcused absences from all-class scheduled meetings will result in a grade of 0 for class participation. While you are expected to be available for scheduled class meetings every Wednesday and Friday, the entire class may or may not meet on a weekly basis, depending on need. Your involvement in group meetings held outside of all-class meetings will be reflected in your individual peer evaluations. I encourage group members to communicate any group dysfunctions to the me as they arise—just as you would likely do in a real working environment. I unfortunately can't fire students from the class, but I do have means of encouraging better participation.

Course Grading
Student performance will be evaluated on the following basis:

Module 1 Project	20%	A	93 - 100
Module 2 Project	20%	A-	90 - 92.9
Module 3 Project	20%	B+	87 - 89.9
Class participation and involvement	30%	B	83 - 86.9
ETS examination	10%	B-	80 - 82.9
		C+	77 - 79.9
		C	73 - 76.9
		C-	70 - 72.9
		D	60 - 69.9
		F	0 - 60

General Course Policies

- Deliverables must be submitted on the due date. If your group is not fully prepared by the deadline, you must submit whatever materials you have and nothing else will be considered for assessment except in extreme situations.

- All communication from me will be through Canvas and email. I usually respond to email within an hour of receipt if I'm not sleeping. I always respond within 12 hours. If I do not respond within 12 hours, I may have missed your email, and you should bother me again. I expect others to respond with 24 hours (we aren't all addicted to our electronic notifications like me!)

Class Technology Policies
All software and technology services used in this class will be provided to students for free. It is **STRONGLY** recommended that students bring and use their own laptop computers in class for assignments and class work. If you do not have a personal laptop available to you, accommodations will be made so you can still succeed in the class. **I expect technology use to be appropriate in nature.** If I observe another student becoming distracted with your non-class-related technology use, I may ask you to stop the behavior.

Plagiarism, Cheating and group work
Please do not be tempted to submit a classmate or other group's data files as your own! Direct and unattributed use of another's efforts is prohibited as is the use of any work untruthfully submitted as one's own. The penalty for violation of this policy will be a zero for that assignment if it is a first offense. **Subsequent violation will result in an F for the course.**

Qualified students with disabilities who will require disability accommodations in this class are encouraged to make their requests to me by sharing their Accommodation Letters with me at the beginning of the semester either during office hours or by appointment. Disability related information is confidential. If you have not previously contacted Disability Services, I encourage you to do so by phone at 513-745-3280, in person on the Fifth Floor of the Conaton Learning Commons, Room 514, or via e-mail to Cassandra Jones at jonesc20@xavier.edu, to coordinate reasonable accommodations as soon as possible as accommodations are not retroactive.

It is my goal that this class be an accessible and welcoming experience for all students. If you are a student with a disability who may have trouble participating or effectively demonstrating learning in this course, contact me to arrange an appointment to share your Accommodation Letters from Disability Services and to discuss your needs. Disability related information is confidential. If you have not contacted Disability Services (located in the Learning Assistance Center) to arrange accommodations, I encourage you to do so by contacting Cassandra Jones, by phone at 513-745-3280, in person on the Fifth Floor of the Conaton Learning Commons, Room 514, or via e-mail at jonesc20@xavier.edu as soon as possible as accommodations are not retroactive.

Proposed Class Schedule

Confirm with Canvas for any updates or changes

Week	Wednesday	Friday	Topic
1	1/10	1/12	Syllabus, Introduction to AWS
2	1/17	1/19	Module 1 Introduction, AWS and MySQL
3	1/24	1/26	MySQL, Module 1 Consultations
4	1/31	2/2	Market Basket and Association Analysis
5	2/7	2/9 (Group work)	Module 1 Consultations, Group work
6	2/14	2/16	Module 1 Conclusion, Module 2 Introduction
7	2/21	2/23	Introduction to R, R work
8	2/28	3/2	First R Group Projects, Extracting Text data
9	3/7 (No Class)	3/9 (No Class)	**SPRING BREAK (No Class)**
10	3/14	3/16	Methods of interacting with text data
11	3/21	3/23 (Group work)	Introduction of module 2 cases, Group work
12	3/28	3/30 (No Class)	Module 2 Consultations
13	4/4	4/6	Module 2 Consultations, Module 2 conclusion
14	4/11	4/13	Introduction of Module 3 competition
15	4/18	4/20	Module 3 Consultations
16	4/25	4/27 (Group work)	Module 3 Consultations, Group Work
17	**Scheduled Final Exam Time**		Competition Results, Final Presentation