DSBA/MBAD 6278 (U90): Innovation Analytics (IA)

Semester: Spring 2015
Time & Room: Thu 5:30pm-8:15pm @ Center City 801 (Lab)
Course Website: Moodle 2 (moodle2.uncc.edu)
Instructor: Associate Professor Sangkil Moon
Instructor’s Homepage: http://belkcollege.uncc.edu/directory/sangkil-moon
Office: Friday Building 249A
Office Hours: Thu 4:00-5:00pm & 8:15-9:15pm (that is, before & after each class) @ Center City 801,
           Fri 10:00-11:00am in my office, and by appointment
           (In most cases, the best time to talk to me would be right after class.)
E-mail: smoon13@uncc.edu
Office Phone: 704-687-7672

[Course Description]
For the past few years, Big Data has been emerging as an essential tool in doing business. As Big Data of various forms come out rapidly, organizations of various types are trying to make use of this new type of data to achieve competitive advantages against their primary competitors. For example, using social media (e.g., twitter, facebook) is already a major way to promote products and services, which is named Social Media Analytics. After all, in this new environment, organizations cannot compete effectively without understanding how to use a large amount of data coming out of everywhere. To respond to this Big Data business environment, this course is focused on applying Big Data Analytics to innovation and marketing-related problems. Among a variety of Big Data Analytics tools, the primary focus of this seminar is the comprehension and applications of Text Analytics as innovative analytical tools to examine unstructured qualitative information (e.g., consumers’ text product reviews posted on social media) coupled with structured quantitative information (e.g., consumers’ product ratings, sales). In other words, we want to use real-world innovation and marketing examples to learn about how innovative big data analytics tools can be used to tackle practical business problems. In this context, “Innovation” implies both innovation-related problems and innovative analytics (e.g., Text Analytics and Visual Analytics) to solve such problems.

[Course Objectives]
The pedagogical philosophy in this course embraces the principle of learning by doing. Most concepts that we cover have software (SAS) implementation and an exercise whose solution can be enhanced through empirical analysis. Students are expected to struggle at times, attempting to apply SAS, which is the learning by doing process. Unlike most marketing and innovation courses that focus on conceptual materials, this course provides quantitative skills to translate conceptual understanding into specific operational plans.
[Course Requirements]
- You should have some basic statistics knowledge (e.g., standard deviation, correlation, linear regression).
- The course is primarily composed of hands-on SAS operation.

[Optional Course References]

[Academic Integrity]
Students have the responsibility to know and observe the requirements of The UNC Charlotte Code of Student Academic Integrity. This code forbids cheating, fabrication or falsification of information, multiple submissions of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Any special requirements or permission regarding academic integrity in this course will be stated by the instructor, and are binding on the students. Academic evaluations in this course include a judgment that the student’s work is free from academic dishonesty of any type, and grades in this course therefore should be and will be adversely affected by academic dishonesty. Students who violate the code can be expelled from UNC Charlotte. The normal penalty for a first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases the course grade is reduced to F. Copies of the code can be obtained from the Dean of Students Office. Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty to the course instructor.

[The Belk College’s Statement of Diversity]
The Belk College of Business strives to create an inclusive academic climate in which the dignity of all individuals is respected and maintained. Therefore, we celebrate diversity that includes, but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.

[Course Requirements]

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<tr>
<th>Task</th>
<th>Points</th>
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<tbody>
<tr>
<td>[1] Exercises</td>
<td>300</td>
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<tr>
<td>[2] Team Project</td>
<td>500 (= Proposal Presentation 100 + Final Presentation &amp; Report 400)</td>
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<tr>
<td>[3] Final Exam</td>
<td>200</td>
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<tr>
<td>Total</td>
<td>1000</td>
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* Submitting your assignment on time is important. Therefore, there will be a penalty for a late submission, which will be determined by the instructor.*
[1] Exercises
There will be multiple exercises throughout the semester. The exercises will be a combination of in-class and at-home activities. These exercises will be given roughly once every two or three weeks. In each exercise, students are expected to solve specific innovation and marketing analytics problems relevant to corresponding topics. Solving these exercises will require students to learn of various types of SAS components such as Text Miner, Sentiment Analysis, Visual Analytics, and JMP.

[2] Team Project
The team project is a major requirement of this course. You need to make up a team who will jointly work on it. Each team will be composed of 4 or 5 members. The objective of this task is to have students apply some innovation and marketing concepts and innovative analytics techniques to the project. Your team wants to select a project of interest. While a variety of projects are acceptable, I would encourage you to do the following. Develop a project plan to address a specific business problem (e.g., using social media to upgrade your business, using graphs to gain business insights) for a specific brand or organization. It is your responsibility to identify a suitable brand or organization and suitable business problems.

Importantly, you need to consider data availability for the project in selecting your research topic and determining research problems. One place to start with may be your employer. Other possibilities include contacting local companies. Although this secondary data approach using existing data seems to be easy, it has a couple of major weaknesses. First, almost always, you will find that some key information you optimistically expect to have is missing. Second, data cleaning for your analysis to achieve your research objectives can be technically challenging and time-consuming. Alternatively, you can develop your own survey to collect data customized to your case. This primary data approach requires you to invest a significant amount of time for survey design. However, once you have a good-quality survey, you can benefit substantially from the customized data.

Because text analytics is a primary component of this course as an essential part of Big Data, your analysis should include some text analytics. This also means that your project data should include some text information to apply some text analytics. You can use web scraping techniques to collect such data.

There are three distinct stages in this team project.
- First, you will have an opportunity to find your team members and explore potential topics for your team project. You want to determine your topic well ahead of your proposal presentation.
- Second, your team needs to present a proposal to the entire class. Each team will have approximately 30 minutes for the presentation. Be prepared to deal with questions and criticisms from your classmates and instructor. The instructor’s formal feedback will be provided afterwards. What should be included in the proposal presentation will vary project to project. Generally, you want to determine what object (i.e., brand or organization) and topic (e.g., target market...
identification, promotional campaign) you want to work on. You also need to
describe your data and analysis models as much as possible. **You should submit a
hard copy of your PowerPoint slides to me before your presentation.** Your work
will be graded based on content quality and presentation performance. All the
members on the team should participate in the presentation in order to receive
your team presentation points.

- Finally, your team will present the whole project work to the entire class. Your
presentation is expected to last approximately 30 minutes. Be prepared to deal
with questions and criticisms from your classmates, as in your earlier proposal
presentation. **You should submit a hard copy of your PowerPoint slides to the
instructor before your presentation, too.** All the members on the team should
participate in the presentation in order to receive your team presentation points.
Based on the discussion on your project during this presentation,** your team
should revise and complete a written final report.** The final report should
include analysis results and an actionable business strategy arising from the
empirical results.

* More details on each step will be provided as each step nears.

** At the end of the semester, you will be asked to evaluate each of your members’
contribution to the team project. You should be honest and impartial in your
evaluations. (*Please, no free-riders!*)

[3] Final Exam
There will be a comprehensive take-home exam that covers all the materials discussed in
this course. To prepare well for this crucial exam, you should actively participate in class
activities. This exam is much more than the SAS exercises. In other words, you should
note that just getting a good grade on the SAS exercises is not good enough to do well in
this exam. Ultimately, this exam will test your abilities to analyze and interpret typical
marketing/consumer data independently without any support.

[Grade Breakdown]
The final course grade will be determined by your total score based on all the class
activities above. Your course grade will be assigned according to the following table.
*Once the course grades are released, unfounded requests for better grades would be
denied.*
A (90.0% – 100.0%); B (80.0% – 89.9%);
C (70.0% – 79.9%); D (60.0% – 69.9%); F (0.0% – 59.9%)
[Tentative Course Schedule]
* The standards and requirements set forth in this syllabus may be modified at any time by the course instructor. In particular, because this semester is only the second time the instructor teaches this course, students should expect some significant changes to the schedule provided here.

<table>
<thead>
<tr>
<th>Week (Thu)</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Week 1 (1/8)</td>
<td>Course Overview and Organization</td>
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<tr>
<td>Week 2 (1/15)</td>
<td>Visual Analytics – JMP</td>
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| Week 3 (1/22)| Visual Analytics – SAS Visual Analytics  
*Project Team Makeup* |
| Week 4 (1/29)| Conjoint Analysis                                                     |
| Week 5 (2/5)| Text Analytics: Text Clustering                                      |
| Week 6 (2/12)| Text Analytics: Text Categorization                                  |
| Week 7 (2/19)| Text Analytics: Ontology Management                                 |
| Week 8 (2/26)| Text Analytics: Sentiment Analysis                                  |
|             | (3/2Mon – 3/7Sat) Spring Recess (no classes)                         |
| Week 9 (3/12)| **Project Proposal Presentations**                                    |
| Week 10 (3/19)| Factor Analysis                                                      |
| Week 11 (3/26)| Factor Analysis                                                      |
| Week 12 (4/2)| Partial Least Squares Regression                                    |
| Week 13 (4/9)| **Project Data Analysis Meetings**                                   |
| Week 14 (4/16)| Structural Equation Modeling                                       |
| Week 15 (4/23)| **Final Project Presentations**                                      |
| Week 16 (5/7)| (5-7:30pm) **Final Exam**                                           |