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Spring 2-1-2018

BMKT 591.01: Data Analytics and Innovation

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Mohr, Jakki J., "BMKT 591.01: Data Analytics and Innovation" (2018). *Syllabi*. 7200.

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Data Analytics and Innovation
BMKT 591 (2 credits)

Professor Jakki Mohr

email: jakki.mohr@business.umt.edu

Class Time: 12:30-1:50 M

Office Hours: 1:30-3:30 Tuesdays and Thursdays and by appointment.

Office: GBB 324

Phone: 406.544.5837

Class Location: L09

Required Readings: Available on Moodle.

Course Content: At its core, this course focuses on a strategic perspective: the power of big data to unleash new insights and innovations. This class offers students the opportunity to reflect on how data science can be leveraged for innovation and for solving “big problems”.

In addition, the course affords an important managerial perspective on the challenges organizations face in harnessing the power of data analytics—leveraging the technical capabilities of data science/data scientists—and how to overcome those challenges. The goal is to train students, future managers, to think strategically and innovatively about data, about opportunity, about value. It will ensure that graduates are proficient in strategy, customer value, and insights so they are prepared to be promoted to leadership positions in their organizations.

More specifically, this course addresses two of the five learning objectives for the MSBA program. As such, students will be expected to demonstrate proficiency for both of them:

1. **Innovation** → Ability to innovate beyond answers existing questions and solutions known problems—harnessing data analytics to identify new sources of value; to see patterns and anomalies; and to reveal new insights.
2. **Ethics/Data Stewardship** → ... to secure data, develop policies for ethical use of data, respect of data privacy.

Sprinkled through-out the course will be readings, guest lectures, right-brain sensory activities, and extemporaneous assignments.

<u>Specific learning objectives include:</u>	<u>Learning Outcomes:</u>
Being informed about the progression/trajectory of data science in business	Articulate knowledge about how the field of data science has progressed and evolved over time. ⇒ The past informs the future
Understanding the various types of innovation and disruption	Convey a nuanced understanding of different types of innovations and their pros/cons
Integrating knowledge of data science and business analysis to develop innovations	TBD

Stimulating right-brain thinking through learning creativity protocols, applying them to specific problems, and other “creative” activities	Apply creative thinking and innovation models to datasets to surface new insights
Understanding the challenges organizations face in harnessing the power of big data and solutions to overcome those challenges	Articulate sophisticated insights of these challenges as well as solutions
Exploring tensions in data privacy from multiple perspectives	Convey a nuanced understanding of privacy concerns from the business, customers, societal, and policy perspectives
Understand the unintended consequences of data science from multiple perspectives	Ditto
Understand how data science can be leveraged for “social good”	For your own personal benefit

Course Requirements

Requirements	Weight
1. Two Provocative, Insightful Blog Posts based on class readings/learnings	30% (15% each for initial draft) 10% (5% each for edits based on feedback)
2. In-class contributions	20% (10% first half/ 10% second half)
3. a. Creativity training write-up/reflection b. Presentation* (Powerpoint required)	10% 5%
4. Data privacy paper (Presentations* decided by classmates)	15%
5. Your thoughtful, substantive, constructive evaluation of three of your peers’ work	10%
	100%

* 5% bonus if selected to present in class.

Minimum Expectations: All work in this course must exhibit technical competency (from your other courses), writing competency for business executives, and competency in the innovation concepts from this course.

All your written work in this class will be submitted anonymously/by number.

1. Two Provocative, Insightful Blog Posts based on class readings/learnings. 30% (15% each) for initial draft; another 10% (5% each) for final edited version incorporating feedback. Students will select two topics (each has a corresponding due date) and submit a blog post of roughly 1500 words –about 4-5 pages (spacing for me of 1.5, not single spaced).

Grading criteria:

- Explicit knowledge of key points/issues from the readings/lectures (may use a table or figures to demonstrate key knowledge) – don’t be superficial; show insights via detail.

- Insights/implications of readings for your own data science journey (key quotes, meaning, etc.)
- Professional writing skills (clear, concise, accurate) and quality formatting.

DUE DATES vary by topic.

Peer feedback on three blogs due twice during the semester one week after due dates.

2. In-class contributions 20%. (10% first half; 10% second half). This component will be my assessment of your engagement and contribution to the content and spirit of the class via **VERBAL CONTRIBUTIONS** exhibiting:
 - knowledge of readings,
 - quality of insights,
 - questions asked,
 - examples shared, etc.

This is a **QUALITY** assessment and not quantity. It includes being respectful of your classmates' different styles of communication and needs for time to formulate/share their thoughts. See Peer Evaluation on last page of syllabus—turn in self-evaluation on March 12th.

Peer feedback due on three classmates on March 19th

3. Creativity Training Write-up and Reflection (15%):

Students will be divided into three groups for creativity training. Creative Problem Solving; Biomimicry; TRIZ. (You will specify your first, second, and third choice of protocol). You will “prep” outside of class for about 2-4 hours via outside reading, and then participate in a hands-on workshop (with a professional) the week of Feb. 5/ 7th in class.

Students will take a creativity pre-test prior to being trained in the protocol.

Students will take a creativity post-test. Students will analyze the class data as part of your write-up and grade.

- a. Write up a 2-3 page analysis of your personal experience/insights from the training. What did you like? What was hard? What did you learn about yourself? **10%**
 - b. Student teams will prepare a 15-minute presentation for their classmates (suggested outline: 5 minute overview of what the protocol is; who tends to use it for what; 5 minute overview of the process of using that protocol/steps; 5 minute on pros/cons and personal reflections)
- Powerpoint presentation: **5% for slide deck. Due February 12** in class.
ORDER: CPS, Biomimicry, TRIZ

Peer feedback due on two presentations by Wednesday, Feb. 14th at noon.

Grading criteria:

- Quality visuals
- Quality delivery (clear explanation; excellent delivery; effective time management, etc.)
- Quality insights

4. Data Privacy Analysis 15%: Details on separate page.

Due: March 12th

In-class debate/presentation: 3-5 students/teams selected/present March 19th

5. Quality, rigor, tone, and timeliness of peer grading (10%). As business professionals and managers, you must be skilled at both giving and receiving feedback. Peer grading is common in executive programs and in MOOCs. I will provide specific evaluation sheets for all your peer grading.

Final Grades: Plus/Minus grading will be used for final grades on the following scale.

93 - 100% A / 90 - 92% A-

A = Demonstrates thorough, sophisticated understanding of the subject, displays mastery of material; analysis and writing demonstrate compelling logic, critical insights, and careful attention to detail; communicates with professional/excellent oral and written communication skills.

87 - 89% B+ / 83 - 86% B/ 80-82% B-

B = Good understanding of the material (possible occasional oversight of key facts/ issues) and/or minor issues with clear/concise written/ oral communication; lacks supporting detail/sophisticated insights.

77-79% C+ / 73-76% C/ 70-72% C-

C = Basic/rudimentary comprehension of terms (some inaccuracies); unclear communication skills that need significant attention/improvement.

67-69% D+ / 63-66% D/ 60-62% D-

D = Lack of knowledge/proficiency with class concepts and/or inability to communicate your degree of learning about class material.

Below 60% F = Dereliction of class responsibilities.

General: You are encouraged to discuss your work and progress with me at any time in order to cover specific problem areas, to further clarify material, or to provide you with concrete suggestions on how to improve your performance. I'm also happy to discuss course planning and career advising at your request.

Preliminary Course Outline: Will be updated regularly.

<i>Date</i>	<i>Topic/Article</i>	<i>Deliverables</i>
Week 1 - January 22	Course Introduction/Expectations	Take Creativity Training (VCAI) online Research TRIZ, Biomimicry, and CPS to prioritize your selection
Week 2 Jan. 29	Readings/discussion: Creativity & Big Data: 1. Netflix Reading 2. Atlantic Monthly Reading 3. Creativity as an important leadership trait Begin Lecture: Types of innovation; sources of innovation; innovation models	
Week 3 February 5 AND 7 th	Creativity training both days! Biomimicry: 352 TRIZ: L09 Creative Problem Solving: L11	
Week 4 February 12	Creativity training protocol presentations Complete Lecture: Types of innovation; sources of innovation; innovation models	Read Data Privacy chapter; start position paper
Week 5 Feb 19	No Class Monday (Presidents' Day)	Creativity Post Tests
Week 6 February 26	"Big Data Revolution" Analytics Gap What type of data scientist are you?	
Week 7 March 5	Tom Cullen, Data Scientist at Starbucks	Blog Post Due R2C/Michelle Cardinal here Thursday/Friday
Week 8 March 12	Readings/discussion: Value & Big Data	Data Privacy Position Papers Due Self evaluation of participation due
Week 9: March 19	Data Privacy Presentations	

Week 10 March 26	Spring Break	
Week 11 April 2	Readings/discussion: Role of Company Culture & Big Data	Blog Post Due
Week 12 April 10/12	Readings/discussion: Unintended Consequences of data analytics	
Week 13 April 16	Readings/discussion: Analytics for Societal Good	
Week 14 April 23	Speaker	
Week 15 April 30	Course Wrap Up! Course evaluations	
Tuesday, May 8	Final Exam: 3:20-5:20	Blog Post Due / Feedback provided during final exam period. Re-do required by Thursday, May 10th

Readings:

For Monday, January 29th:

<https://thenextweb.com/insider/2016/03/20/data-inspires-creativity/>

<http://www.cmo.com/opinion/articles/2017/1/30/no-house-of-cards-big-data-fuels-big-creativity-at-netflix-.html#gs.E7CnM6M>

<https://www.forbes.com/sites/berlinschoolofcreativeleadership/2015/01/27/the-rise-of-creativity-is-a-key-quality-in-modern-leadership/#5d4665a87d1a>

<https://www.forbes.com/sites/berlinschoolofcreativeleadership/2015/01/27/the-rise-of-creativity-is-a-key-quality-in-modern-leadership/#5d4665a87d1a>

<https://www.theatlantic.com/magazine/archive/2017/11/x-google-moonshot-factory/540648/>

Data Privacy Position Paper* (May be done in pairs or solo)

Your mission is to write a 5-page (double-spaced, 1" margins, 12 point font)) position paper / blog post exploring the data privacy controversy. I expect your analysis to be thoughtful, meaningful, and constructive.

1. Succinctly introduce the controversy and offer a statement of purpose for your paper
2. Research the controversy and its dimensions/perspectives. **You should have at least 2 citations for each dimension of the controversy.** Controversial issues involve nuance and multiple dimensions (versus a simple pro and con) and you'll need to both identify and clearly explain these dimensions.
3. Take a stance on the privacy debate and persuasively argue your position. This means providing credible support and reasoning for the position. This is NOT an opinion piece!
4. Visual support: Tables and figures. Please convey your points and perspectives both with a visual figure and a summary table. Any tables or other exhibits, as well as your references, do not count toward the page limit.
5. Works Cited (does not count in page limit).

Rough ball park, expectations: The assignment should take approximately 2-3 hours for research and another 2-3 hours to write.

Goals

1. To be conversant in the data privacy controversy from multiple angles/dimensions
2. To hone your critical thinking skills;
3. To **develop** your writing skills – a successful Position Paper must be thoroughly researched, concise and persuasive.

Due Date: March 12th / Peer feedback due by Friday at noon.

In-class debate: 3-5 students/teams selected/present March 19th

Grading Criteria

- How comprehensively you explain the various dimensions and perspectives of the controversy.
- The credibility and support for your position. Do you use compelling logic and evidence in the stance you take?
- Writing skills. Is your writing clear, organized and coherent?

* Alternative assignment options: Take a specific case of data privacy violations and analyze what happened; Do a book club on a data privacy book;

The *fine print*:

Classroom Environment/Goals: In order to provide an enjoyable, provocative learning experience, this course will provide a mix of lecture, discussion, and guest speakers. Regular attendance, active learning, and participation are expected. Contributing to a quality learning environment is the job of each individual student, and *you can do so only if you are well-prepared for each class* (by having read and done the assignments in advance). My hope is to foster a challenging yet supportive environment where you can flourish and learn.

Classroom Etiquette & Professionalism – Professional behavior is expected at all times. Respect for your classmates is also required in order to provide the best learning environment—this includes not only respect for diversity, but also not hogging the airtime, and being respectful of students who need a bit more time to formalize and articulate their thoughts. Please: no sidebar discussions during lecture or class discussion, no newspapers or crossword puzzles, no cell phone use during class (e.g., under-the-table text messaging), no surfing the web, and no other disruptive actions (i.e. leaving abruptly during class without prior notification). If you are disruptive in class (talking, text messaging, etc.), you will be asked to leave class and any points awarded that day will be forfeited (attendance, participation, extra credit).

Academic Misconduct -- Integrity and honesty are basic expectations for behavior. It is your duty to act honestly and ethically in your coursework, and it is my duty to ensure a fair classroom environment for all students. *Cheating of any sort will not be tolerated.* Cheating, failure to follow instructions, and/or failure to follow course policies may result in a reduced grade or a failing grade.

The following message about academic integrity comes from the Provost's office: "*All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.* It is the student's responsibility to be familiar the Student Conduct Code (found online at http://www.umt.edu/vpsa/policies/student_conduct.php).

Students are expected to:

- Be knowledgeable of activities that are considered academic misconduct, as defined in the UM Student Conduct Code,
- Practice academic honesty on all exams, quizzes, homework, in-class assignments, and all other activities that are part of the academic component of a course,
- Encourage other students to do the same.

If you are unsure if a behavior will be viewed as academic misconduct, please ask. *A good rule of thumb is that any credit-earning activity in a course should represent the true skills and ability of the individual person receiving the credit.* A partial list of situations that are considered academic misconduct is in the SoBA Professional Code of Conduct (found online at <http://www.business.umt.edu/Soba/SoBAEthics/CodeofProfessionalConduct.aspx>). If at any point a student is unsure if working with another student is permissible, that student should contact the instructor before doing so.

Please note that it is a form of academic misconduct to submit work that was also used in another course, aka "*double dipping.*" **Don't do it.** If you are trying to get synergies across your classes/assignments, just ask a professor for advice. Don't try for a two-fer without approval!

I also have a history of treating any plagiarism (from the Internet or any other source) quite severely. Always cite your sources appropriately. It actually makes your work more credible.

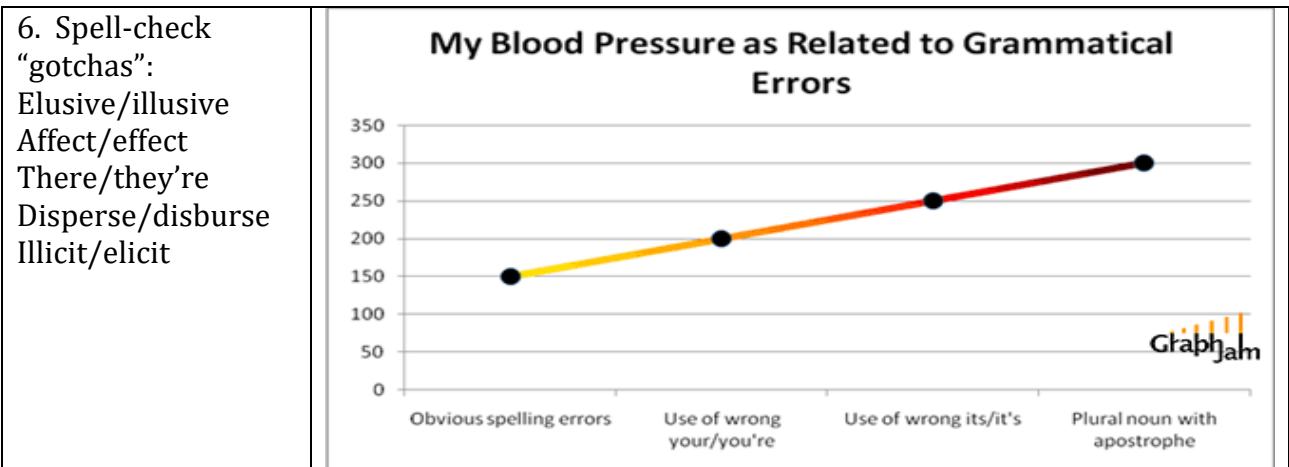
Disability Services for Students -- Students with disabilities will receive reasonable modifications in this course. The student's responsibilities are to request the modification from me with sufficient advance notice and to be prepared to provide official verification of disability and its impact from Disability Services for Students. To respect your privacy, please speak with me during my office hours about your needs.

Common Grammar Problems:

1. Avoid (Do Not Use) "You" (second person) in any professional paper.
Instead, use "the consumer," or "the company," or a noun for whatever referent "you" was referring to.
2. Use correct forms of possessives. Here are two examples:
 - its (as in "look at its hair"). (It's = it is)
 - a company's strategy (not a companies strategy)
3. Use correct punctuation. Here are some examples:
A semi-colon (;) is used to separate two complete sentences (each with its own noun,verb, and complete thought). "The product strategy makes sense; however, the pricing strategy seems a bit off."

A colon (:) is used when a list is to follow: There were a variety of marketing tools used by the company: product, price, promotion, and distribution.

Use commas to set off phrases (one at the start, and one at the end of the phrase): It was hard to tell, based on my understanding, just what she meant.
4. Eliminate sentence fragments. Each sentence should have its own noun and verb and should express a complete thought.
Bad: "Like my dad, for example." Or "When the company reorganized."
Good: "People, like my dad for example, would be offended by that strategy." Or "When the company reorganized, profits soared."
5. Cite appropriately the references and sources you use in writing your paper.



Self-Evaluation of Class Participation
(Due Monday, March 12)

Name:

Class Participation is a function of:

- Voicing your ideas: do you attempt to *articulate your ideas* about the assigned reading and class concepts (description of class concepts; elaboration on assigned readings)?
 - Sharing examples: do you bring up *current events* in the news, and/or *relevant examples* that are related to class tied to class concepts?
 - Asking questions: Do you ask questions to clarify material and/or probe on topics?
 - For “active” students: Do you give your classmates a chance to talk? Do you prioritize your contributions? How?
 - For “quiet/shy” types: Are the contributions you would like to make written down in advance of class? (Examples, questions, most interesting..., etc.)
-

Please assign yourself a participation grade (0-100%)

My Score: _____

What are you doing that you think is very good with respect to your participation record?

What are you doing that you think is not as good as you wish it were with respect to your participation record? What steps will you take to improve it?

PS I will include in my evaluation of your participation *class respect*: do you respect the class environment (supportive of others’ comments, respectful when they are talking; respectful of need to share “air time,” maintain continuity of discussion, not buried in your laptop, etc.)?