

**RISK ANALYTICS AND BEHAVIORAL SCIENCE**  
**RMI 660**  
**Spring 2016**

**CONTACT INFORMATION:**

Instructor: Professor Justin Sydnor, PhD  
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Course website: Moodle course available at [courses.bus.wisc.edu](http://courses.bus.wisc.edu)  
Office hours: 3:30 – 5:00 pm on Thursday or by appointment  
Lecture sections: (Lecture 2) MW 11:00 – 12:15 in Grainger 1195  
(Lecture 3) MW 1:00 – 2:15 in Grainger 2175 on 1/20 then in Grainger 3070 on remaining sessions except for February 24<sup>th</sup> (TBA for 2/24).  
Midterm Exam: Monday, March 14<sup>th</sup> (in class)  
Final Exam: (Lecture 2) Friday May 13<sup>th</sup>, 2:45 – 4:45 pm  
(Lecture 3) Wednesday May 11, 5:05 – 7:05 pm  
Group project due: Thursday, May 5<sup>th</sup> by 5:00 pm

**COURSE DESCRIPTION:**

Learning to effectively navigate uncertainty is a key issue for all areas of business and especially for those engaged in explicit risk-management activities. The skills for success in these environments include knowing how to formulate the right questions to ask, how to identify the information that is valuable for answering those questions, understanding how to process incoming information to distinguish signal from noise, and how to use that information to put structure to uncertain environments so that one can take good calculated risks. In addition, the explosion of information and computer processing are generating exciting new opportunities to use analytics to aid decisions involving substantial uncertainty.

Navigating uncertainty is inherently challenging. Our psychological and emotional reactions to outcomes can easily get in the way of making decisions that best address our stated objectives. We also have not evolved to be particularly good intuitive statisticians and often make inferences from observations of random events that are not in line with statistical principles or logical reasoning. Finally at a basic level, early in our careers most of us have little experience with making decisions in highly ambiguous environments and need to practice the inquisitive and critical-thinking processes needed to operate in these environments.

This course addresses common pitfalls in risk management. We organize ourselves around 8 critical risk-management questions we should ask ourselves, within our organizations, and for our clients. For each of these questions we review the behavioral evidence about biases that often affect how we make decisions and evaluate risk. We then discuss and practice using appropriate decisions-support processes and business analytics that can help temper how these biases affect our decisions and judgments. Throughout we draw on ideas from behavioral economics, behavioral finance, psychology and management science.

## STUDENT LEARNING OUTCOMES:

At the end of this course you should be able to...

- Recognize situations where potential biases in perceptions, understanding, and decisions related to risk management are likely to arise.
- Articulate the behavioral factors and psychological processes that may generate bias in that situation.
- Employ appropriate decision/evaluation process and business analytics to help improve decisions in the face of potential bias.

## COURSE TOPICS:

In this course we will present 8 critical risk-management questions that we should be asking of ourselves, our organizations and our clients. Each question is informed by significant behavioral evidence related to common biases in judgments and decisions in environments with risk and uncertainty.

The critical questions:

Dates:

- |  |            |
|--|------------|
| 1. Are we evaluating outcomes instead of decisions?  | 1/25-1/27  |
| 2. Are we too worried about taking a loss?           | 2/1 – 2/10 |
| 3. Are we using probability assessments effectively? | 2/15-2/22  |
| 4. Are we biasing our assessments of risk?           | 2/24-3/9   |
| 5. Are we over-reacting to random variation?         | 3/28-4/6   |
| 6. Are we ignoring relevant background information?  | 4/11-4/13  |
| 7. Are we overconfident?                             | 4/18-4/25  |
| 8. Are we ignoring strategic uncertainty?            | 4/27-5/4   |

## READINGS:

Text: “Thinking Fast and Slow” by Daniel Kahneman. Available from Amazon.com and other book sellers (paperback or kindle version recommended)

Additional readings: Additional readings from a range of business, academic, and popular sources will be posted to the course site.

## GRADED COURSE REQUIREMENTS:

Engaged learning assignments: These short assignments will be submitted online via the course site prior to many of the lecture sections. The purpose of these assignments is to encourage active engagement with course materials *prior* to our group sections so that we can have more in-depth and engaged class sections. Examples will include reaction questions to readings, survey questions, and demonstration of familiarity with basic analytics procedures. These will be graded for participation. However, credit will be reduced or eliminated if it is clear a true effort was not made.

Risk analytics assignments: There will be a series of short assignments, typically Excel based and often using Palisade Decision Tools such as @Risk and PrecisionTree. The purpose of these assignments is to give you practice using the analytics tools we discuss and develop in the course. These will be graded for correctness.

Midterm and Final Exams: We will hold an in-class midterm (date listed at top of syllabus) as well as a final exam at the scheduled date/time from the University (listed at the top of the syllabus). The midterm will cover critical questions 1 through 4. The Final exam will be cumulative, but will focus on critical questions 5 through 8 covered after the midterm. Exams will focus on a combination of short-answer and word-problems that assess understanding of the key concepts in the course.

Critical risk-management assessment group project: This is a group project – target group size of 3. The purpose of this assignment is to give you an opportunity to bring together all of the concepts we develop through the course of the class. Each group will identify an instance of a *potential risk management failure in an organization* from news accounts. The goal of the project is to critically evaluate whether the identified problem does or does not appear to point toward a failure of proper risk management. Details of the project will be provided throughout the course. The end product is a report of up to 10 pages detailing the team’s critical assessment. The due date for the report is listed at the top of the syllabus.

#### **GRADE WEIGHTING:**

The final grade for the course will be based on a weighted average of the percentage scores in each of the assessment categories with the weights given by:

|   |     |
|---|-----|
| Engaged learning assignments (participation): | 15% |
| Risk analytics assignments (correctness):     | 15% |
| Midterm exam:                                 | 20% |
| Group project:                                | 20% |
| Final exam:                                   | 30% |

#### **GRADING CUTOFFS:**

|     |                |
|-----|----------------|
| A:  | 91%+           |
| AB: | 89% - 90%      |
| B:  | 81% - 88%      |
| BC: | 79% - 80%      |
| C:  | 70% - 78%      |
| D:  | 60% - 69%      |
| F:  | 59% and below. |

Grading cutoffs may be revised downward at instructor discretion, but will not be revised upward.

## **POLICIES ON MISSED/LATE ASSIGNMENTS AND EXAMS:**

Engaged learning assignments and risk analytics assignments have strict online submission deadlines and will not be accepted late except in the case of documented medical or family emergencies. I encourage you to use good risk-management practices and submit these assignments early to avoid any issues that might arise.

There will be no make-up exam in the case of a missed midterm. If you miss the midterm for a documented medical or family emergency, the weight from the midterm will be transferred to the final exam. If you will be traveling as part of an approved university athletics trip during the midterm period, it may be possible to arrange for the exam to be administered during your travel. Accommodations for other types of travel, including interview travel, are not possible.

The class has two final exam sections scheduled. If you have 3 or more final exams scheduled within a 24 hour period of your final exam, you may request permission from me to take the final exam at the session for the other lecture section. No other alternative times will be available.

## **ATTENDANCE POLICY:**

I encourage regular attendance in lecture. However, attendance is not required or graded. Active participation in class will be used as a subjective criteria for bumping up the grade of those whose final class score falls just below a grade cutoff.

## **TECHNOLOGY AND COMMUNICATION DEVICES:**

I follow the Wisconsin School of Business policy of *not* allowing electronic devices during lecture or exams. I realize that some students prefer to take notes on laptops, but my experience is that the distraction they present to you and especially to other students around you outweighs that convenience.

## **NOTE TAKING AND SLIDES:**

We will make use of power-point slides during the course. These are meant to be visual aids for enhancing class discussion and understanding. They are *not* meant to be all-inclusive course notes. The lecture slides will be posted *after* lectures have been completed and will not be an adequate substitute for note taking. In this course you should work to develop good note-taking skills.

## **ACADEMIC INTEGRITY:**

You are responsible for maintaining the highest standards of honesty and integrity in every phase of your academic career. The penalties for academic dishonesty are severe and **ignorance is not an acceptable defense**. All students must abide by the code of academic honesty of the University of Wisconsin ([http://students.wisc.edu/saja/misconduct/academic\\_misconduct.html](http://students.wisc.edu/saja/misconduct/academic_misconduct.html)) and the Wisconsin School of Business BBA and MBA honor codes. I will uphold these standards in this course.