Program in Applied Economics
Advanced Academic Programs
Zanvyl Krieger School of Arts and Sciences
The Johns Hopkins University

Real Risk
440.619
Fall 2014 Course Syllabus

Instructor
Prof. David Blum

Email and Phone
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Class
Saturdays 10am-12:45pm, location TBA

Office Hours
Ad hoc, generally Wednesdays 8pm at the Washington DC Campus, or by appointment

Objective

The objective of this class is to introduce you to a set of methods and tools that have been developed to analyze risky events (in other words, events whose occurrence is uncertain and that have consequences associated with them) as they occur in the real world. Outside of the imaginations of classical modelers, trials are not repeated under identical conditions (if at all), there is no such thing as random Gaussian error, and there are very few probabilities that one could argue are objective in any sense of the word. In light of this, the notion of risk as the variance of return is of limited use beyond the financial sector. We approach uncertainty from the point of view of an odds maker, and we employ a logic that treats all uncertainties consistently regardless of their apparent subjectivity. This logic has a variety of applications, from engineering reliability, to ecology and medicine, to government policy, to business, project investment, and finance. My professional experience is in the field of national security, and several of the assigned readings focus on national security applications.

What to Expect

There will be no textbook. Your readings will consist entirely of journal articles that I have selected (all freely and electronically available through the Sheridan Libraries) to teach the core concepts as well as illustrate actual application of those concepts to solve problems, usually three per week, sometimes four. Class time will be spent alternating between seminar-style facilitated discussion and lecture, the goal of both being to flesh out the concepts introduced in the readings.

Grading Basis

Primary basis: final exam 40 / midterm exam 35 / homework 25
Alternative basis: 60 / 15 / 25

I will grade you using both bases and will assign your grade for the course using whichever basis gives
you the higher score. If you don't do very well on the midterm, a high score on the final will still yield a high grade. The final exam will be December 13. The format of the midterm (in-class or take-home) is still TBD, although I have set aside Week 9 (November 1) for an in-class midterm. If the midterm is in-class, it will be open-note/open-reading. Class participation is not graded explicitly but, it is a “differentiator”. If you participate in class discussion and in the Blackboard online forum, I will give you the benefit of the doubt if your grade is borderline.

Most weeks I will assign homework problems to go along with your readings. The assignments will be short, since the readings will take up a lot of your time. Their purpose is to get you thinking about new concepts as well as how you might apply the theory to solve real world problems. Problems will be graded on a 4 point scale. A rough interpretation of each point is:

4 - you clearly demonstrated grasp of the concepts and/or how to apply them
3 – you demonstrated partial grasp of the concepts, or else I cannot tell whether you grasp them (for instance because you did not show enough of your work)
2 - you did not demonstrate that you grasp the concept
1 - you skipped the problem or made no effort

Homeworks will be due at the time of class and should be submitted electronically (see below). I will post answers to the problems a few days after class. Late homeworks will be accepted before the answers are posted but will result in a 10% penalty in the number of possible points. Once the answers are posted, late homeworks will no longer be accepted regardless of reason. If you have a significant extenuating circumstance, contact me before class and I will consider delaying posting the answers.

**Technology**

We will utilize Blackboard whenever possible. Your assigned readings and homeworks will be posted to Blackboard, as will class announcements and homework solutions. Blackboard is also my preferred method for you to submit your homework for grading, although email is also an acceptable form of submission. Finally, I encourage you to use Blackboard to discuss class-related topics and to ask questions. (Please use good “netiquette.”) I will monitor the forums, and you should do the same.

You will be expected to utilize the following software to solve certain homework problems:

- Norsys Netica, available at [www.norsys.com](http://www.norsys.com), the free version suffices for class purposes
- Mathworks MATLAB, academic license $99 through [www.mathworks.com](http://www.mathworks.com), possibly available free to JHU students (contact [software@jhu.edu](mailto:software@jhu.edu) for details)

Additionally, you should use MS Excel to solve decision trees, and you are encouraged to obtain a plug-in to automate computation and generate graphics. Two such plug-ins are:

- Treeplan (plugin for MS Excel), cost $59, available at [www.treeplan.com](http://www.treeplan.com)
- Simple Decision Tree, free, available at [sites.google.com/site/simplesoftware/site/simpledecisiontree/](http://sites.google.com/site/simplesoftware/site/simpledecisiontree/)

**Policy on collaboration**

You are welcome to work in groups on your homework, but you must write up your answers individually. Please do not abuse this policy -- a “divide-and-conquer” strategy to homework collaboration is not acceptable. If I assign a take-home midterm, it is expected that you will not collaborate to solve the midterm questions, as described in the Johns Hopkins University AAP Code of

**Schedule**

The following schedule is tentative and subject to change. Please note that I expect you to come to the first class on September 6 having completed the assigned readings. In the event that we hold a take-home midterm, it will be due on November 1.

Readings are marked with three different letters to assist you in deciding how to approach them.

**C: Core** You are responsible for knowing the material in these readings. Exam questions will draw on them, and subsequent weeks' readings may build on this material.

**E: Examples** These readings demonstrate the implementation of some of material presented in the core readings. They are assigned to assist you in understanding how one might use that material in practice.

**O: Optional** These readings go into greater depth on some facet of the core material. We will discuss this material in the classroom, but it will not be tested on the exams.

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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<tbody>
<tr>
<td>3</td>
<td>09/20/14</td>
<td>NO CLASS</td>
<td>(get started on ID readings)</td>
</tr>
<tr>
<td>9</td>
<td>11/01/14</td>
<td>MIDTERM EXAM</td>
<td></td>
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<tr>
<td>12</td>
<td>11/22/14</td>
<td>TBD</td>
<td></td>
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<tr>
<td>FALL BREAK</td>
<td>11/29/14</td>
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<tr>
<td>14</td>
<td>11/13/14</td>
<td>FINAL EXAM</td>
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We have a very aggressive schedule and are covering material that could fill several graduate level courses. I anticipate that we might fall behind somewhere. Accordingly, week 12 is labeled TBD, and my intention is to use that week to catch up. Finally, please note that there is no class on September 20,
as I will be traveling that week.

**Other Notes**

Students with documented disabilities and who require reasonable accommodations should contact the AAP accommodations coordinator list at [http://advanced.jhu.edu/current-students/current-students-resources/disability-accommodations/](http://advanced.jhu.edu/current-students/current-students-resources/disability-accommodations/)

If you encounter any technical difficulties with Blackboard, including accessing course materials or submitting homeworks, please contact the 24hr help desk at 866-311-6658, and also please email me.

**Readings**


