Spring 2020 Syllabus
ECON 8900: Business Analytics – Simulation, Risk and Decision Analysis
Thursday 6:00-8:45 pm

Professor: Leo MacDonald  
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Office: BB-341  
Office Phone: (470) 578-6579
Office Hours: Thursday 3:00 - 5:30 pm or by appointment

The primary focus of the course is on the theory and application of quantitative decision models. General topics include basics of spreadsheet modeling, probability and probability distributions (discrete and continuous) and their properties, decision making under uncertainty, and risk analysis. Specific topics to be covered include Monte Carlo Simulation, Decision Trees, and Real Options Analysis. Emphasis is on the formulation, solution, and interpretation of models with application to a variety of business problems, and how quantitative techniques can provide for better decision making. The goal of the course is to learn to implement these tools, including the generation of parameters and the building of models for decision-making. A mixture of cases and in-class demonstrations will be used to develop your skill in applying management science approaches to decision making within a business environment. Throughout the course we will make extensive use of Excel and Excel add-ins, including the Palisade Decision Tools suite.

Central Course Objectives: Decision-making is a critical management function. While managers perform other tasks, their decision-making determines which enterprises flourish and prosper and which wither and die - being very difficult to recover from bad decisions. The primary goal is to convey a working knowledge of quantitative models to support decision-making under uncertainty. The objectives of this course are to further your decision analysis skills and to expose you to various approaches to decision-making and risk analysis.

Upon completion of the course, students will be able to formulate decision making problems that have multiple decisions in time, uncertain events, and conflicting objectives, then evaluate the various outcomes and propose feasible solutions to the problems at hand.

Required Text/Material: The textbook is a custom text, Decision Analysis Under Uncertainty, which is available through the KSU bookstore. The book is primarily based upon Making Hard Decisions with Decision Tools, 3rd Edition, by Clemen and Reilly, with two chapters on Quantitative Modelling and Excel from Practical Management Science, 5th Edition by Winston and Albright. I will provide additional handouts of material as needed throughout the semester. In addition, a software license for the Palisade Decision Tools Suite will be required to do assignments, in-class analysis and case-based tests. This is included with the custom text. I will discuss the installation of the software in our first class. Note that there is no version of the Palisade software available for Apple/Mac computers, and thus requires an emulator as well as a Windows version of Excel to run.

Other Essentials: Access to Excel. Basic competence with Microsoft Excel is assumed in this class as well as a basic understanding of probability.

Class Attendance: To maximize your learning, it is absolutely essential that you attend every class and come prepared to discuss assigned cases.
Course material available through D2L
- Technical handouts on topics covered throughout the semester
- All in-class examples/models
- Assignment problems and related graded work

Last day to withdraw without academic penalty: Wednesday February 26. Current KSU policy regarding withdrawals is in effect.

Determination of Grade in Course
Course Evaluation is comprised of the following components:

- Class contribution: 10%
- Assignments: 15%
- Mid-term test (date TBD): 15%
- In class quizzes/exercises: 15%
- Final Exam: 15%
- Final Project/Case Analysis: 30%

There will be regular assignments throughout the semester. The assignments will involve submission of detailed case analysis for cases discussed in class as well as short answer practice exercises. All submissions will involve a written component and a modeling component posted to D2L. In addition, there will be short in class quizzes/exercises covering recent classroom materials. The final exam will include a case analysis which will involve submission of a written report and an Excel model.

Make-up tests will be restricted to those students who missed a test due to required participation in a KSU-sponsored event, debilitating illness, or a death in the family.

Final grades will be determined as follows:

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<tr>
<th>Overall Grade</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>90 – 100</td>
<td>A</td>
</tr>
<tr>
<td>80 – 89</td>
<td>B</td>
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<tr>
<td>70 – 79</td>
<td>C</td>
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<tr>
<td>60 – 69</td>
<td>D</td>
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<tr>
<td>0 – 59</td>
<td>F</td>
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Receiving a Grade of Incomplete: Current KSU policies for receiving (and subsequently removing) a grade of incomplete are in effect.

Academic Integrity
All graded work—unless explicitly stated otherwise—is to be your independent work (with you neither giving nor receiving assistance). Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement.