

# School of Business

THE GEORGE WASHINGTON UNIVERSITY

DEPARTMENT OF DECISION SCIENCES  
Decision Making and Data Analytics

Course Number:	MBAD 6224
Course Title:	Decision Making and Data Analytics
Course Description:	Elements of decision making that enable managers to characterize their strengths, assess the competition, and forecast the future. Deterministic and probabilistic decision models. Analytical approaches involving uncertainty, multiple objectives, and multiple stakeholders. Probability concepts are used to develop and apply statistical models, with both exploratory and inferential statistical techniques used, including sampling, estimation, and hypothesis testing.
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Office Hours:	By Appointment: See <a href="http://ProfessorForman.com">http://ProfessorForman.com</a>
Textbooks & Materials	1) <i>Principles: Life and Work</i> by Ray Dalio <a href="#">Bloomberg Podcast with Ray Dalio</a> - Listen to before class begins  <a href="#">(Kindle edition of Book -- not necessary but you may want to)</a> 2) <i>Decision By Objectives</i> <a href="#">Download</a> or Purchase on Amazon 3) HBR Case: <a href="#">Decision Making At the Top: The All-Star Sports Catalog Division.</a> 4) <i>JMP Start Statistics - Sixth Edition</i> (Fifth Edition is ok as well) Supplemental/Recommended Dan Ariely, <i>Predictably Irrational -- The Hidden Forces That Shape our Decisions</i> , Harper Perennial, 2010 (Start Reading before class begins if possible) <a href="#">Youtube Video</a> Daniel Kahneman, <i>Thinking, Fast and Slow</i> , Farrar, Straus and Giroux, 2011

<p>Course Goals:</p>	<p>By the end of this course, you will be able to:</p> <p>Understand the basic concepts of probability as a way of incorporating uncertainty into your decision making</p> <p>Make better complex choice decisions (individually and as a group) by:</p> <ul style="list-style-type: none"> <li>Focusing on objectives</li> <li>Structuring objectives into a hierarchy of homogeneous clusters</li> <li>Measuring the importance of objectives and the preferences of alternatives with respect to the objectives</li> <li>Incorporating quantitative and qualitative data and judgment, values, ethics, and politics</li> <li>Synthesizing to arrive at a preferred alternative</li> <li>Investigating the sensitivity of the decision to changes in objective importance and alternative preferences</li> <li>Presenting and justifying the decision to others</li> </ul> <p>Understand how to evaluate and select an optimum combination (portfolio) of alternatives/projects</p> <p>Understand and apply the basic concepts of linear and integer optimization</p> <p>Understand Monte Carlo Simulation as a way to deal with non-linear uncertainties</p> <p>Understand and apply the basic concepts of risk analysis</p> <p>Develop and apply statistical models including:</p> <ul style="list-style-type: none"> <li>Confidence Interval and Hypothesis Testing</li> <li>Simple and Multiple Regression</li> <li>Analysis of Variance</li> <li>Categorical Models</li> <li>General Linear Mode</li> </ul> <p>Note: Many of the topics covered in this course are each the subject of a complete course that you might want to take later in your program.</p>
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