1. Faculty Bio

Victor DeMiguel is the Class of 2008 Term Associate Professor of Management Science and Operations at London Business School. Victor teaches the core course *Decision and Risk Analysis* in the full-time and executive MBA programmes, the elective course *Financial Modelling with Spreadsheets*, and the *Decision Making* module in the Accelerated Development Programme of Executive Education. Victor is the recipient of the Junior Faculty Teaching Award for 2003/2004 and the Outstanding Core Course Teaching Award for 2008/2009.

Victor’s research focuses on the design, analysis, and application of quantitative models for managerial decision making. He has several publications in the area of financial portfolio management, including the paper "Optimal Versus Naive Diversification: How Inefficient is the 1/N Portfolio Strategy", which received the Best Paper Award from the Institute for Quantitative Investment Research and was published in *The Review of Financial Studies*.

2. Aims & Objectives

Important decisions cannot be left to intuition alone. We need to communicate the structure of our reasoning, defend it to adversarial challenge and make presentations that show we have done a thorough analysis. We also need to make sense out of various sources of data, organise the inputs of experts and colleagues, and use state-of-the-art business software to provide analytical support to our reasoning. To equip you to be more effective in these tasks is the overall objective of this course. The emphasis is not on the quantitative aspects, but on the qualitative insights that come from using models to aid managerial thinking and decision making.
You will be equipped with specific skills in the areas of data analysis, structuring decisions, building decision models, risk assessment, decision making under uncertainty, and business simulation, recognising the areas where business analysis can add value, selecting appropriate types of analyses and applying them in a small-scale, quick-turnaround fashion. The course is multi-disciplinary in nature and links to a number of other areas, including finance, operations management, marketing and accounting, through the choice of cases, thus adding an analytical dimension to the teaching of these areas.

Business Concepts covered:
- Enhancing your business intuition
- Focussing on relevant information
- Modelling complex decisions
- Decision making under uncertainty
- Understanding risk attitudes

Tools and Frameworks covered:
- Framing Decisions
- Risk Analysis
- Scenario Analysis
- Sensitivity Analysis
- Business Simulation
- Structuring decisions
- Decision Analysis
- Using software tools for decision making

3. Format & Teaching Methods

The course consists of a mixture of lectures, break-out sessions, and computer sessions. This is a practical course, which uses state-of-the-art decision support software to illustrate how to apply the methodologies introduced. The software used in the lectures and computer sessions is Microsoft Excel, with add-ins @Risk for simulation and Precision Tree for decision analysis. If you are not yet familiar with Excel, it would be a good idea to brush up your Excel skills before the course.

4. Assignments & Assessment

The assessment will be based on two assignments that will allow you to apply the tools learned in the course to solve practical problems using software tools. Each of the assignments will present you with a practical business problem for which you have to provide your analysis and advice. You will be asked to complete the first assignment individually and the second assignment in pairs. For each of the two assignments, you will be required to turn in a short report (of about 3-4 pages), individual for the first assignment and in pairs for the second. These reports will be graded and they will account for 50% of your final grade each.
<table>
<thead>
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<th>Type of assessment</th>
<th>Submission date</th>
<th>Weighing</th>
<th>Group / Individual</th>
<th>Requirement to pass this individual assessment piece?</th>
<th>Submission Information</th>
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<tbody>
<tr>
<td>Individual assignment</td>
<td>Two weeks after the end of Session 2</td>
<td>50%</td>
<td>Individual</td>
<td>Yes</td>
<td>Email report to <a href="mailto:ds-assigne@london.edu">ds-assigne@london.edu</a></td>
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<tr>
<td>Group assignment</td>
<td>Two weeks after the end of Session 5</td>
<td>50%</td>
<td>Group (in pairs)</td>
<td>No</td>
<td>Email report to <a href="mailto:ds-assigns@london.edu">ds-assigns@london.edu</a></td>
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5. Course materials and textbook

The course material consists of a binder, containing cases, relevant articles, and notes that will be distributed by the EMBA Office. Additional materials, including the lecture presentations, will be distributed in class and via the portal.

The Excel add-ins @Risk and Precision Tree can be downloaded from the Portal.

The course makes extensive use of the portal, providing Web-access to the course outline and schedule, cases, workshop assignments, teaching notes and lecture presentations. It will also be used to communicate messages concerning the course (e.g. last minute changes), so check these on-line resources regularly.

The following textbook is recommended:

<table>
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<th>Title</th>
<th>Year</th>
<th>Authors</th>
<th>Publisher</th>
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**Class Schedule**

**Session 1**  
Decision Analysis I

**Frameworks & Concepts covered**  
- “Freemark Abbey”  
- Framing and structuring decisions  
- Analysing decision trees  
- Using PrecisionTree for Decision Analysis

**Preparation**  
- Prepare “Freemark Abbey”, answering the questions in the case

**After-lecture reading**  
- Read the chapter on Decision Analysis from David Targett’s book “Coping with Numbers”  
- Winston & Albright chapter 8

**Session 2**  
Decision Analysis II

**Frameworks & Concepts covered**  
- “Freemark Abbey” continued  
- The value of information  
- Risk attitudes

**Preparation**  
- Review “Freemark Abbey”

**Session 3**  
Risk Analysis

**Frameworks & Concepts covered**  
- “Eagle Airlines”  
- Analysing business risks  
- Scenario analysis  
- Sensitivity analysis  
- Business Simulation using @Risk

**Preparation**  
- Prepare the “Eagle Airlines” case, answering the questions in the case  
- Read “Taking the Risk out of Uncertainty”

**After-lecture reading**  
- “Risk Analysis in Capital Investment”, an HBR Classic  
- Winston & Albright chapters 9&10
Session 4
Decision Making under Uncertainty

Frameworks & Concepts covered
- “Wellyntoy Products: The Dynatron”
- Decision making under uncertainty
- Risk Analysis using @Risk

Preparation
- Read “Wellyntoy Products: The Dynatron”
- Revise the @Risk tutorial that is included in the @Risk software package. After uploading @Risk, go to “Help” and “Getting started tutorial”.
- Read “Allowing for Risk in Spreadsheet Models – A Tutorial on Risk Analysis with @Risk”

After-lecture reading
- Winston & Albright chapters 9&10

Session 5
Workshop

Frameworks & Concepts covered
- Risk Analysis and Decision Making under Uncertainty using @Risk

Preparation
- Revise the @Risk tutorial that is included in the @Risk software package. After uploading @Risk, go to “Help” and “Getting started tutorial”.