

## Course Description Form

ISOM1500 Insightful Decisions	
Credit Value	Medium of Instruction
3	English
Common Core Area	
Quantitative Reasoning and Social Analysis	
Course Description	
<p>The course helps students develop better analytical and decision making skills in approaching practical and important social and business issues. Students will derive solutions or conclusions that require critical thinking, creativity, quantitative analysis, and common sense. Cover topics in decision traps, quantitative decision models, statistical reasoning, computer tools, data-analysis techniques, etc. and, more importantly, how these decision analysis concepts and tools can be applied in a broad set of social and business problems.</p>	
Course Intended Learning Outcomes (CILO)	
CILO 1	Apply the critical thinking process to solve social and business problems, evaluate solutions, and to make actionable decisions.
CILO2	Learn how to avoid and correct common decision errors that occur because of faulty assumptions or process.
CILO3	Develop more confidence and appreciation using quantitative methodologies in the process of solving complicated social and business problems.
CILO4	Use computer spreadsheets effectively for analysing data and presenting the conclusions.
Course Syllabus	
Week1	<p>Introduction: How we make Decisions (Online asynchronous reading)            In-Class Activities: Discussion of common decisions we make every day; versus common decisions we make that are significant and require analytical effort</p>
Week 2	<p>Elements of Decision Processes and Common Errors            In-Class Activities:            (a) Discuss common decision illusions; how people make the same decision error over and over            (b) How bad decisions can be learned from peers and becomes ingrained in society            (c) Online survey to be completed in class</p>
Week 3	<p>Different Problem or Decision Classes            In-Class Activities:            (a) Define and identify different problem classes            (b) Categorize decision examples into these problem classes</p>
Week 4	<p>Critical Thinking Skills in System 1 and System 2            In-Class Activities:            (a) Cash in the Hat Game            (b) Critical thinking examples in interactive (or team) decision-making</p>

Week 5	<p>Analytics Skills for System 2 Decisions</p> <p>In-Class Activities:</p> <p>(a) Golden Ball Game</p> <p>(b) Pirate Game</p>
Week 6	<p>Analytical Methods: Optimization</p> <p>In-Class Activities:</p> <p>(a) Lego Game for optimization</p> <p>(b) Spreadsheet Modeling and Excel Solver</p>
Week 7	<p>Decision Making under Uncertainty</p> <p>In-Class Activities:</p> <p>(a) Simple card games and common errors</p> <p>(b) How uncertainty can be a perception rather than reality</p>
Week 8	<p>Midterm Exam (To be confirmed in September)</p> <p>(The midterm exam will be held sometime in the week of 21 October, in the evening hours between 6:00pm and 9:00pm)</p>
Week 9	<p>Analytical Methods: Decision Trees</p> <p>In-Class Activities:</p> <p>(a) Envelope Game</p> <p>(b) Multi-stage decision-making with recourse</p>
Week 10	<p>Analytical Methods: Simulation Modelling</p> <p>In-Class Activities:</p> <p>(a) Random walks</p> <p>(b) Spreadsheet simulation model building</p>
Week 11	<p>Big Data: Concepts and Challenges</p> <p>In-Class Activities:</p> <p>(a) Identify uses of big data</p> <p>(b) How can we make better decisions with Big Data</p>
Week 12	<p>Is Artificial Intelligence a Possible Future?</p> <p>In-Class Activities:</p> <p>(a) Discuss examples of the use of AI/AR/VR</p> <p>(b) Will AI replace human decision-making</p>
<b>Required Readings</b>	
<p>Online content prepared solely for this course will be made available on canvas.ust.hk as one of the Canvas modules. A mostly identical course booklet will be provided (at cost) after the add-drop period for convenience. There may be some differences in the booklet from the online content given that certain material such as videos and interactive material cannot be readily printed.</p>	
<b>Recommended Readings (if applicable)</b>	
N/A	

**Teaching and Learning Activities**

<b>Teaching Type</b>	<b>Hours per week / Total hours</b>
Classwork	___ Hours per week / Total hours (please circle where appropriate.)
Debate	___ Hours per week / Total hours (please circle where appropriate.)
Discussion	___ Hours per week / Total hours (please circle where appropriate.)
Exercise	___ Hours per week / Total hours (please circle where appropriate.)
Field Studies/Field-trip	___ Hours per week / Total hours (please circle where appropriate.)
Laboratory	___ Hours per week / Total hours (please circle where appropriate.)
Lecture	<u>18</u> <del>Hours per week</del> / Total hours (please circle where appropriate.)
Project	<u>18</u> <del>Hours per week</del> / Total hours (please circle where appropriate.)
Interactive Tutorial	___ Hours per week / Total hours (please circle where appropriate.)
Web-enhanced Teaching	___ Hours per week / Total hours (please circle where appropriate.)
Workshop	___ Hours per week / Total hours (please circle where appropriate.)
Independent Study	<u>36</u> <del>Hours per week</del> / Total hours (please circle where appropriate.)
Practicum	___ Hours per week / Total hours (please circle where appropriate.)
Seminar	___ Hours per week / Total hours (please circle where appropriate.)
Studio	___ Hours per week / Total hours (please circle where appropriate.)
Thesis Monitoring Course	___ Hours per week / Total hours (please circle where appropriate.)
Visit	___ Hours per week / Total hours (please circle where appropriate.)
Assembly	___ Hours per week / Total hours (please circle where appropriate.)
Other activities (if applicable): <u>Online activities: 36 Total hours</u>	

**Assessment Methods and Weighting**

<b>Assessment Methods</b>	<b>Weighting in final course grade (%)</b>
Participation	20
Written Assignments (2)	12
Midterm exam	15
Group Project	13
Exams	40
<b>Total</b>	<b>100</b>