ISOM 1500 Insightful Decisions
Fall 2017

Department of Information Systems, Business Statistics and Operations Management

COURSE:
ISOM1500 Insightful Decisions (3-0-0:3)
This course helps students develop better analytical and critical thinking tools for decision-making within the context of business and socio-economic organizations. Students will derive solutions or conclusions that require critical thinking, creativity, quantitative analysis, and common sense. We will discuss common kinds of mistakes in decision-making, the differences between analytical, critical, and emotional reasoning. We will also learn of practical tools such as spreadsheet and data analytics together with important concepts in statistical reasoning and probabilistic decision-making. The course will be delivered in a blended learning format.

Fall 2017
L04: Mon 9:00-10:20AM, Classroom 5620.
L01: Mon 1:30-2:50PM, Classroom 4582.
L02: Mon 3:00-4:20PM, Classroom 4582.
L03: Mon 4:30-6:00PM, Classroom 4582.

INSTRUCTOR:
Prof. Suri Gurumurthi (imsuri@ust.hk)
Office: LSK-6041; Phone: 3469-2637
Office hours: 3:00 – 5:00 pm Tue & Thursdays, or by appointment

TEACHING ASSISTANT:
Section L1&L2: Stacy Deng (imsdeng@ust.hk):
Section L3&L4: Athena Chau (imachau@ust.hk)
Office: LSK-4065; Phone: 2358-8746

REFERENCE TEXT:
Online content Canvas Modules posted on canvas.ust.hk. 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.

GRADING POLICY:
Final course grade will be determined by the following criteria and point distribution:
- Class Participation: 20
- Assignments (2): 12
- Midterm Exam: 15
- Group Project: 13
- Final Exam: 40
- Total: 100

Note: No makeup will be given for the midterm exam. If you miss the midterm exam for a valid reason approved by the instructor, a more comprehensive final exam will be weighted at 55% of the course grade instead. Your participation points are partly determined by in-class exercises and attendance each week (total 10 points). Excellent class discussion and questions raised or answered, will also
contribute to the class participation grade (total 10 points). If you miss any in-class exercise, you can make it up, given a valid and approved reason approved by the instructor and/or TAs.

**COURSE GRADE DISTRIBUTION:**

In determining the final course grade, your instructor will consider the recommended grade distribution at HKUST, i.e.,

- A 10% - 20%
- B 25% - 40%
- C 35% - 45%
- D 5% - 10%
- F 0% - 5%

**COURSE GOALS:**

This course is designed in such a way that, after completing it, you will be able to:

1. Understand different ways we make decisions in our personal lives, professional settings, and policy spheres.
2. Understand and explain what goes into effective or for that matter poor decision-making.
3. Identify the key steps or process involved in making effective decisions to achieve personal, business or socio-economic goals. Remember that a good decision-making process does not eliminate bad outcomes, however a bad decision-making process increases the likelihood of bad outcomes.
4. Apply a wide range of tools towards practical effective decision-making including analytical, critical thinking, probabilistic or statistical reasoning, and spreadsheet data tools.

**ACADEMIC INTEGRITY:**

Students at HKUST are expected to observe the Academic Honor Code at all times (see [http://www.ust.hk/vpao/integrity/](http://www.ust.hk/vpao/integrity/) for more information). Zero tolerance is shown to those who are caught cheating on the assignments or exam. Any act of cheating in this course will result in a XF grade for the course. This XF grade will stay with your record until graduation. If you receive another XF or X grade, you will be dismissed from the University.

**BLENDED LEARNING:**

This course will follow a blended learning format. Blended learning involves the use of classroom lectures, technology in the form of online Canvas tools, and out of class self-study to deliver effective and comprehensive learning. Practically what this means is that we will meet for one 80 minute lecture only once per week per section. The time we have saved for the other lecture, will be used by students to absorb content delivered online via Canvas tools and to perform preparatory exercises in anticipation of the week’s lecture. We will also use Canvas to complete assignments and to provide feedback on assignments. Blended learning, in my experience only works when students understand that there is greater emphasis on self-study and preparation prior to the lecture (and sometimes after the lecture also). **Missing this crucial point will lead to frustration and poor performance throughout the course!**

**COURSE MAP:**
Course Outline and Readings for Each Week

Course Outline and Readings for Each Week: Note that I may choose to cover a certain topic over two consecutive weeks, leaving less time for a subsequent topic. The schedule below is an overarching framework, and not a strict one. So you should read ahead, rather than fall behind...

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Sept 4</td>
<td>1. How We Make Decisions</td>
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<td>Week 2</td>
<td>Sept 11</td>
<td>2. Elements of Decision Processes and Common Errors</td>
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<td>Week 3</td>
<td>Sept 18</td>
<td>3. Different Problem or Decision Classes</td>
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<td>Week 4</td>
<td>Sept 25</td>
<td>4. Critical Thinking Skills in System 1 and System 2</td>
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<td>Week 5</td>
<td>Oct 9</td>
<td>5. Analytical Skills for System 2 Decisions</td>
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<td>Week 6</td>
<td>Oct 16</td>
<td>6. Analytical Methods: Optimization</td>
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<td>Week 7</td>
<td>Oct 23</td>
<td>Midterm Exam</td>
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<td>Week 8</td>
<td>Oct 30</td>
<td>7. Decision-Making Under Uncertainty</td>
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<td>Week 9</td>
<td>Nov 6</td>
<td>8. Analytical Methods: Decision Trees</td>
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<td>Week 10</td>
<td>Nov 13</td>
<td>9. Analytical Methods: Simulation Modeling</td>
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<td>Week 11</td>
<td>Nov 20</td>
<td>10. Big Data: Concepts and Challenges</td>
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<td>Week 12</td>
<td>Nov 27</td>
<td>11. Is Artificial Intelligence a Possible Future?</td>
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Assignment and Exam Schedule

- Group Assignment 1, Due Sept 24, worth 6 points
  - Online Canvas assignment format
- Group Assignment 2, Due October 15 worth 6 points
  - Online Canvas assignment format
- Midterm Exam, October 23rd worth 15 points
  - Multiple Choice Exam. Location: LTA; Time: 7PM-8:30PM
- Group Project Video, Due December 1 worth 13 points
  - 8-10 minute Youtube video (audio/video, and presentation format). Think of it as a recorded presentation with some audio/video appended.
  - The topic is to be decided by the group no later than October 30th. The objective is to analyze the key decisions at the day-to-day, or tactical, or strategic level for any organization, company, or business.
  - Groups will also submit a 1 1/2 page proposal due by Nov 3rd (worth 3 points out of the total 13), and they can expect some basic feedback, but not substantial amount of help. The group project is an independent activity, and groups are expected to be creative and take responsibility and ownership for their work.
  - There should be three parts to the study: (i) the description of the decision-making environment, (ii) the key decisions and decision processes that drive success (or failure) in that environment, and (iii) any tools and technologies that either currently help them improve performance or that could help improve performance if implemented.
  - Field work is recommended for this group project, with data acquired first hand through observation or interviews.
  - Projects that (correctly and relevantly) apply the concepts discussed in this course are likely to be graded more favorably, since the goal of the project work is to apply the course concepts to real-life business and organizational contexts.
  - All students in a group will receive the same grade unless negative (or positive) feedback is received from team-mates as to the level of participation.