IIMT3636 Decision and risk analysis I  
2020-2021, Semester 2

GENERAL INFORMATION
Instructor: Dr. Hu, Xing, and Prof. Wan, Zhixi
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Consultation times: by appointment
Tutor: TAM, Eric / CHAN, Ian
Email: eriktam@hku.hk / ikwchan@hku.hk
Consultation times: TBA (check MOODLE course page)
Course Page: MOODLE
Pre-requisites: STAT1008/STAT0302 Business statistics or STAT1003 Introductory statistics or STAT1004 Probability and statistics or STAT1001 Elementary statistical methods or STAT1301 Probability & statistics I or STAT1306 Introductory Statistics or ECON1003 Analysis of economic data or equivalent (STAT1602 Business statistics or STAT1603 Introductory statistics or STAT2601 Probability & statistics I or ECON1280 Analysis of economic data or equivalent)

COURSE DESCRIPTION
Business decision making involves considerable complexity and uncertainty. This course introduces the basic concepts in quantitative business analysis to help you gain a clear understanding of the key elements in the decision making process. We discuss methods that are used extensively in business organizations. These methods provide you with the tools and the skills to approach, analyze, and solve problems of varying scales. Furthermore, this course aims at improving a decision-maker’s overall problem solving ability by stressing approaches to 1) understand and question assumptions, 2) consider a richer set of solution alternatives, and 3) consider diverse measures of performance. The teaching methods will include lectures, skill-building exercises, qualitative class discussions, and a project with the support of several software packages in Microsoft Excel.

COURSE OBJECTIVES
By introducing rigorous quantitative methods and theories, this course demonstrates ways to apply structured thinking on loosely defined business problems in reality. Upon successfully completing this course, you should be able to

1. employ basic statistical methods to decision making,
2. understand how to apply basic models and theories in business,
3. solve management problems effectively, and
4. use software tools to model decision problems.
FACULTY GOALS (FG)

Goal 1: Acquisition and internalization of knowledge of the programme discipline
Goal 2: Application and integration of knowledge
Goal 3: Inculcating professionalism and leadership
Goal 4: Developing global outlook
Goal 5: Mastering communication skills

COURSE LEARNING OUTCOMES (CLO)

| CLO1: Clearly identify and define a loosely structured business problem | Goal 1 |
| CLO2: Select and use effective techniques to address the major challenges presented | Goal 2 |
| CLO3: Use IT tools to verify, validate, and provide solutions to the decision process | Goal 2, 4 |
| CLO4: Communicate and support your solution with qualitative explanations | Goal 3, 5 |

TEACHING AND LEARNING ACTIVITIES

**Lecture:** I will present the fundamental concepts and the related business examples. However, I intend the lectures to be highly interactive to motivate active learning and continuous participation. You will learn the class topics by following the presentation as well as interjecting with your questions and responses to the questions I pose. A portion of class time will involve demos of Excel exercise. You will build your Excel skills by following my demos.

**Skill-Building Exercise:** To reinforce the class topics, I will provide in-class problems. This is a chance to check your knowledge and practice approaching decision problems. Instead of providing the instructor’s solution, students may be asked to demonstrate their work and explain their approach clearly to the class. The idea of these exercises is to allow you to immediately apply the models and theories presented in lectures to relevant business problems; and the interactive classroom environment invigorates the learning process. *Students who are able to present their answers correctly will be awarded higher in-class participation points.*

**Assignments and Tutorial Sessions:** Assignments will be assigned biweekly and answers will be given at the tutorial sessions. Assignments should be submitted online through Moodle before the specified deadlines. Late assignments are not accepted. Assignments will be graded for both effort and accuracy, and you should devote considerable time to solving these problems and showing detailed steps of the solutions. Practicing the problem-solving skills is essential for truly acquiring them. The tutorial sessions are valuable complements to the practice questions, as you will learn through active participation in the discussion carried out by Mr. Eric Tam. Additional problems may also be discussed every week during the tutorial. Tutorial participation will be assessed based on students’ performance.

**Project:** The project will be an in-class business competition that will take place on April 14. No reports will be submitted, and your performance will be evaluated based on the outcome of the competition. You will need to join a group of three to four people and discuss with group members to find a reasonable strategy for the competition. To prepare for the competition, you need to play the game by yourselves many times beforehand. Collaboration is important for learning and doing well on this project.

<table>
<thead>
<tr>
<th>Teaching and Learning Activities</th>
<th>Expected contact hour</th>
<th>Study Load (% of study)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;L1. Interactive lectures</td>
<td>36</td>
<td>30%</td>
</tr>
<tr>
<td>T&amp;L2. Tutorials</td>
<td>12</td>
<td>10%</td>
</tr>
<tr>
<td>T&amp;L3. Group project and assignments</td>
<td>36</td>
<td>30%</td>
</tr>
<tr>
<td>T&amp;L4. Self-study</td>
<td>36</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>120</strong></td>
<td><strong>100%</strong></td>
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<tr>
<td>Assessment Methods</td>
<td>Weight</td>
<td>Aligned CLO</td>
</tr>
<tr>
<td>------------------------------------------</td>
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</tr>
<tr>
<td>Midterm exam (No make-up exam)</td>
<td>30%</td>
<td>CLO1, 2, 4</td>
</tr>
<tr>
<td>Final exam</td>
<td>40%</td>
<td>CLO1, 2, 4</td>
</tr>
<tr>
<td>Assignments</td>
<td>10%</td>
<td>CLO1, 2, 3, 4</td>
</tr>
<tr>
<td>In-class and tutorial participation</td>
<td>10%</td>
<td>CLO1, 2, 4</td>
</tr>
<tr>
<td>Project</td>
<td>10%</td>
<td>CLO1, 2, 3, 4</td>
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<tr>
<td><strong>Total: 100%</strong></td>
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**Course Grade Descriptors**

**A+, A, A-**
- Demonstrate a strong understanding of all relevant knowledge
- Handling questions professionally
- High participation in discussions
- Present arguments that have an element of originality
- Achieve a standard of excellent performance in the exams with very accurate computation and very good analytical and problem solving skills
- Excellent writing report

**B+, B, B-**
- Demonstrate a good understanding of all relevant knowledge
- Handling questions in a logical way
- Good participation in discussions
- Present arguments that go beyond the lecture and textbook
- Achieve a standard of good performance in the exams with accurate computation and good analytical and problem solving skills
- Good writing report

**C+, C, C-**
- Demonstrate a basic understanding of the concepts involved
- Fairly address questions as set
- Some participation in discussions
- Present arguments in a well-structure manner
- Meet a standard of acceptable performance in the exams with reasonably accurate computation and acceptable analytical and problem solving skills
- Acceptable writing report

**D+, D**
- Demonstrate a minimum understanding of the concepts involved
- Barely address questions as set
- Minimal or no participation in discussions
- Present arguments in a marginally acceptable manner
- Meet a standard of marginally acceptable performance in the exams with some errors in computation and barely adequate analytical and problem solving skills
- Marginally acceptable writing report

**F**
- Demonstrate a poor understanding of the concepts involved
- Unable or unwilling to handle questions
- Minimal or no participation in discussions
- Present arguments poorly
- Fail to meet a standard of passing the exams with major errors in computation and inadequate analytical and problem solving skills
- Poorly writing report
### Assessment Rubrics for written group project and exams

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
</table>
| A+, A, A- | • Demonstrate a strong understanding of all relevant knowledge  
• Present arguments that have an element of originality  
• Achieve a standard of excellent performance in the assessments with very accurate computation and very good analytical and problem solving skills  
• Excellent writing report |
| B+, B, B- | • Demonstrate a good understanding of all relevant knowledge  
• Present arguments that go beyond the lecture and textbook  
• Achieve a standard of good performance in the assessments with accurate computation and good analytical and problem solving skills  
• Good writing report |
| C+, C, C- | • Demonstrate a basic understanding of the concepts involved  
• Present arguments in a well-structure manner  
• Meet a standard of acceptable performance in the assessments with reasonably accurate computation and acceptable analytical and problem solving skills  
• Acceptable writing report |
| D+, D | • Demonstrate a minimum understanding of the concepts involved  
• Present arguments in a marginally acceptable manner  
• Meet a standard of marginally acceptable performance in the assessments with some errors in computation and barely adequate analytical and problem solving skills  
• Marginally acceptable writing report |
| F | • Demonstrate a poor understanding of the concepts involved  
• Present arguments poorly  
• Fail to meet a standard of passing the assessments with major errors in computation and inadequate analytical and problem solving skills  
• Poorly writing report |

### Assessment Rubrics for in-class and tutorial participation

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
</table>
| A+, A, A- | • High participation in discussions  
• Always attend the tutorials and in-class discussions  
• Demonstrate a strong understanding of all relevant knowledge  
• Handling questions professionally  
• Present arguments that have an element of originality  
• Respect others and follow the class rules (no chatting and do not use cell phone) |
| B+, B, B- | • Good participation in discussions  
• Often attend the tutorials and in-class discussions  
• Demonstrate a good understanding of all relevant knowledge  
• Handling questions in a logical way  
• Present arguments that go beyond the lecture and textbook  
• Respect others and follow the class rules (no chatting and do not use cell phone) |
| C+, C, C- | • Some participation in discussions  
• Sometimes attend the tutorials and in-class discussions  
• Demonstrate a basic understanding of the concepts involved  
• Fairly address questions as set  
• Present arguments in a well-structure manner  
• Respect others and follow the class rules (no chatting and do not use cell phone) |
<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
</table>
| D+, D | Minimal or no participation in discussions  
Rarely attend the tutorials and in-class discussions  
Demonstrate a minimum understanding of the concepts involved  
 Barely address questions as set  
Present arguments in a marginally acceptable manner  
Respect others and follow the class rules (no chatting and do not use cell phone) |
| F | Minimal or no participation in discussions  
Almost never attend the tutorials and in-class discussions  
Demonstrate a poor understanding of the concepts involved  
Unable or unwilling to handle questions  
Present arguments poorly  
Behave poorly in class (often chatting with others, using cell phones, or being late) |

**COURSE POLICY**

An orderly learning environment is extremely important for this course. Disruptive behaviors are inconsiderate to other students as well as to the instructor, and are absolutely unacceptable. Talking during lectures, arriving to class late, and any other disruptions of mobile devices are not allowed; students who are responsible for any of these actions will be subject to academic penalty and will be asked to leave the classroom.

Any dishonesty—such as cheating, false representation, plagiarism, etc.—that comes to my attention will result in an F in the course.

Academic dishonesty includes cheating, plagiarism, unauthorized collaboration, falsifying academic records, and any act designed to avoid participating honestly in the learning process. Scholastic dishonesty also includes, but is not limited to, providing false or misleading information to receive a postponement or an extension on an exam or other assignment. The responsibilities of both students and faculty with regard to scholastic dishonesty are described in detail in the [Disciplinary Committee Regulations](#). By teaching this course, I have agreed to observe all of the faculty responsibilities described in that document. By enrolling in this class, you have agreed to observe all of the student responsibilities described in that document. If the application of that policy statement to this class and its assignments is unclear in any way, it is your responsibility to ask me for clarification.

Students are encouraged to give feedback on the course through mid-term survey in additional to SETL around the end of the semester and online interaction via Moodle site.
<table>
<thead>
<tr>
<th>Week</th>
<th>Monday</th>
<th>Topic</th>
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<tbody>
<tr>
<td>2</td>
<td>Jan 27</td>
<td>- Introduction to Quantitative Analysis</td>
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<tr>
<td></td>
<td></td>
<td>- Basic Probability &amp; Statistics (Ch. 2)</td>
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<tr>
<td>3</td>
<td>Feb 3</td>
<td>- Basic Probability &amp; Statistics (Ch. 2)</td>
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<td>- Decision Theory (Ch. 3)</td>
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<tr>
<td>3</td>
<td>Feb 7-10pm</td>
<td>- Regression Models (Ch. 4)</td>
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<tr>
<td>4#</td>
<td>Feb 10</td>
<td>- Decision Theory (Ch. 3)</td>
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<td>- Project group member list due on Feb 8</td>
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<tr>
<td>5</td>
<td>Feb 24</td>
<td>- Regression Models (Ch. 4)</td>
</tr>
<tr>
<td>6#</td>
<td>Mar 3</td>
<td>- Simulation (Ch. 13)</td>
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<tr>
<td>7</td>
<td>Mar 10</td>
<td>- Reading / Field Trip Week</td>
</tr>
<tr>
<td>8</td>
<td>Mar 17</td>
<td>- Simulation (Ch. 13)</td>
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<tr>
<td>9#</td>
<td>Mar 24</td>
<td>- Simulation (Ch. 13)</td>
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<tr>
<td>10</td>
<td>Mar 31</td>
<td>- Linear Programming (Ch. 7,8,9)</td>
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<tr>
<td>11</td>
<td>Apr 7</td>
<td>- Buffer session: Project prep</td>
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<tr>
<td>12#</td>
<td>Apr 14</td>
<td>- Project due in class on Apr 14</td>
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<tr>
<td>13</td>
<td>Apr 21</td>
<td>- Linear Programming (Ch. 7,8,9)</td>
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<tr>
<td>14#</td>
<td>Apr 28</td>
<td>- Linear Programming (Ch. 7,8,9)</td>
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<td>- Review</td>
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</tbody>
</table>

**Exams**

- Midterm exam: 10 a.m. to 12 p.m. on March 6th (Sat)
- Final exam: TBA

* Due dates and exam dates are subject to change. Please check Moodle for updated information.

# Individual assignment due in that week.