## GENERAL INFORMATION

Dr. Jinghan MENG  
Email: mengj@hku.hk  
Office: K. K. Leung 1001  
Phone: 2219 4176  
Consultation times: TBA  
Tutor: TBA  
Semester: 1  
Lecture: Tuesday 13:30 – 16:20, KB113  
FINA0404A/ FINA3351A

Dr. Ronald Chung  
Email: rkchung@consulteqcc.com  
Office: TBA  
Phone: TBA  
Consultation times: TBA  
Tutor: TBA  
Semester: 2  
Lecture: Tuesday 13:30 – 16:20, MB142  
FINA0404B/ FINA3351B

Pre-requisites:  
1. FINA0301/FINA2322 Derivatives; and  
2. FINA2802/FINA2320 Investments and portfolio analysis or STAT2309/STAT3609 The statistics of investment risk

Co-requisites: None  
Mutually exclusive: None

Course Website: MOODLE via HKU portal  
Other important details: Please bring your laptop to the lectures and tutorial classes. You must install Microsoft EXCEL on your laptop.

## COURSE DESCRIPTION

This course studies the design and implementation of computer programs for financial modeling using spreadsheets and structured programming techniques. The course will focus on developing skills in translating financial models into spreadsheets and programs using Microsoft Excel and Visual Basic for Applications (VBA), examining popular financial and investment models, integrating spreadsheet functionalities, programming, and interfaces in financial applications, and hands-on experience in designing, coding, and debugging computer programs.

## COURSE OBJECTIVES

1. To understand basic and advanced financial models from both conceptual and computational perspectives.  
2. To develop skills in developing financial models to solve financial problems and solving them with Microsoft Excel and VBA.  
3. To utilize and integrate spreadsheet functionalities, programming, and interfaces in financial applications.  
4. To develop skills in designing, coding, and debugging computer programs.

## FACULTY GOALS
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

<table>
<thead>
<tr>
<th>COURSE LEARNING OUTCOMES</th>
<th>Aligned Faculty Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLO1. Understand the basic features of Excel spreadsheet functions.</td>
<td>Goal 1</td>
</tr>
<tr>
<td>CLO2. Analyze and provide optimal solutions for the financial problems related to firms’ cash flows, operations, and financial leverage.</td>
<td>Goal 1, 2, 3, 4</td>
</tr>
<tr>
<td>CLO3. Understand the basic features of VBA.</td>
<td>Goal 1, 2, 3, 4</td>
</tr>
<tr>
<td>CLO4. Understand simulation methods using spreadsheet and VBA and their application in financial models</td>
<td>Goal 1, 2, 3, 4</td>
</tr>
<tr>
<td>CLO5. Analyze and assess the fair values of various securities including stocks and bonds</td>
<td>Goal 1, 2, 3, 4</td>
</tr>
<tr>
<td>CLO6. Understand the pricing tools for European and American options, including Black-Scholes option formula and binomial trees.</td>
<td>Goal 1, 2, 3, 4</td>
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</tbody>
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<table>
<thead>
<tr>
<th>COURSE TEACHING AND LEARNING ACTIVITIES</th>
<th>Expected contact hour</th>
<th>Study Load (% of study)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;L1. Lectures</td>
<td>36 hours</td>
<td>27.27%</td>
</tr>
<tr>
<td>T&amp;L2. Assignments</td>
<td>36 hours</td>
<td>27.27%</td>
</tr>
<tr>
<td>T&amp;L3. Tutorials</td>
<td>12 hours</td>
<td>9.09%</td>
</tr>
<tr>
<td>T&amp;L4. Self-study</td>
<td>48 hours</td>
<td>36.36%</td>
</tr>
<tr>
<td>Total</td>
<td>132 hours</td>
<td>100%</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Assessment Methods</th>
<th>Brief Description (Optional)</th>
<th>Weight</th>
<th>Aligned Course Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. Assignment(s)</td>
<td></td>
<td>40%</td>
<td>CLO1, CLO2, CLO3, CLO4, CLO5</td>
</tr>
<tr>
<td>A2. Class/Tutorial Participation</td>
<td></td>
<td>10%</td>
<td>CLO1, CLO2, CLO3, CLO4, CLO5</td>
</tr>
<tr>
<td>A3. Final Exam</td>
<td></td>
<td>50%</td>
<td>CLO1, CLO2, CLO3, CLO4, CLO5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
**Course Grade Descriptors**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+, A, A-</td>
<td>Exhibited high level of understanding of the course materials through dedicated participations, completion of all assignments with almost perfect scores, and excellent performance in final examination.</td>
</tr>
<tr>
<td>B+, B, B-</td>
<td>Exhibited reasonably high level of understanding of the course materials through full participations, completion of all assignments with good scores, and good performance in final examination.</td>
</tr>
<tr>
<td>C+, C, C-</td>
<td>Exhibited fair level of understanding of the course materials through satisfactory participations, completion of most assignments with acceptable scores, and acceptable performance in final examination.</td>
</tr>
<tr>
<td>D+, D</td>
<td>Exhibited limited level of understanding of the course materials through limited participations, completion of only a part of assignments with acceptable scores, and acceptable performance in final examination.</td>
</tr>
<tr>
<td>F</td>
<td>Exhibited low level of understanding of the course materials through rare participations, completion of only a part of assignments with unacceptable scores, and poor performance in final examination.</td>
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</tbody>
</table>

**Assessment Rubrics for Each Assessment** (same as course grade descriptors)

**COURSE CONTENT AND TENTATIVE TEACHING SCHEDULE**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 1</td>
<td>Discussion of syllabus; Introduction to Excel spreadsheet functions</td>
</tr>
<tr>
<td>Topic 2</td>
<td>Corporate finance – Financial statement analysis with spreadsheet; modelling structure</td>
</tr>
<tr>
<td>Topic 3</td>
<td>Introduction to VBA</td>
</tr>
</tbody>
</table>
| Topic 4 | Stock pricing  
  – Stock and index returns;  
  – Capital allocation and portfolio theory;  
  – CAPM and multifactor models;  
  – Introduction to Monte Carlo Methods  
  – Simulating stock returns and prices using Excel and VBA;  
  – Bootstrapping methods in stock simulation |
| Topic 5 | Equity option pricing using Excel and VBA  
  – Basic option strategy and payoff structure  
  – Black-Scholes model  
  – Binomial option pricing  
  – Greeks parameters  
  – Implied volatility |

**REQUIRED/RECOMMENDED READINGS & ONLINE MATERIALS** (e.g. journals, textbooks, website addresses etc.)

Required readings:

1. Lecture Notes prepared by the instructor, which will be made available on Moodle
Recommended readings:


MEANS/PROCESSES FOR STUDENT FEEDBACK ON COURSE

- √ conducting mid-term survey in additional to SETL around the end of the semester
- Online response via Moodle site
- Others: __ Course Evaluation at the end of the course ______________ (please specify)

COURSE POLICY (e.g. plagiarism, academic honesty, attendance, etc.)

**Class Conduct**

Students are required to attend all classes on time. If you miss a class, it is entirely your responsibility for what you have missed. In case you have to leave the class early, please inform the instructor beforehand and leave quietly.

No use of mobile phone or chatting is allowed when the class is in session. Remember to turn off or mute the phone before each session. The instructor has the discretion to give penalty in case of class misconduct.

Respect your instructors and your fellow students. Be considerate to others.

**Special Examinations**

Please be reminded that student enquiries and applications for special examinations should be forwarded to the School Office to be handled in a formal and consistent manner. The School and the Chief Examiner may approach individual instructors for their recommendation if necessary. Controversial cases may need to be further discussed in the Internal Examiners’ meeting and the Board of Examiners meeting.

In general, special examinations are not granted to students taking up summer internships. Teachers should advise their students to avoid starting their internships before the end of the examination period.

By default, special examinations would be approved:

1. if incoming/outgoing exchange students have time clash with the next academic semesters in their home/host universities;
2. due to compassionate reasons; and
3. on extraordinary medical situation.

**Academic Dishonesty**

The University Regulations on academic dishonesty will be strictly enforced! Please check the University Statement on plagiarism on the web: [http://www.hku.hk/plagiarism/](http://www.hku.hk/plagiarism/)

**ADDITIONAL COURSE INFORMATION** (e.g. e-learning platforms & materials, penalty for late assignments, etc.)

**Assessment:**

1. **Final exam**: in-class computer-based exam (during the revision period at the computer lab)
2. **Participation**: Tutorials will take attendance after add/drop period.
3. **Four assignments**: Due dates and times for assignments are FINAL. Late submission of assignments will not be accepted.

Announcement, assignments, and lecture slides will be posted on the course MOODLE website. Hard copy of lecture notes will not be provided.

Teaching assistants will offer weekly tutorials to review lecture materials, assignment solutions, and discuss supplementary topics.