

**Quantitative Finance**  
**Applicable to students admitted in 2021-22**

**Major Programme Requirement**

Students are required to complete a minimum of 72 units of courses as follows:

|   | Units     |
|---|-----------|
| 1. Faculty Package:<br>ACCT1111, DSME1030, 1040   | 9         |
| 2. Faculty Co-curricular Courses:<br>IBBA3040, MGNT2511, 2512[a]  | 3         |
| 3. Required Courses:  | 27        |
| (a) FINA2010, 3080  |           |
| (b) MATH1010 or 1018, MATH1030 or 1038, MATH2010# or 2018#  |           |
| (c) ACCT3142# or CSCI2100# or 2520# or DSME2051# or SEEM3550#   |           |
| (d) CSCI1510 or 1520 or 1530 or 1540 or 1580  |           |
| (e) {DSME2011# and (DSME2021# or FINA2020)} or {STAT2001# and 2006#}  |           |
| 4. Elective Courses:  | 33        |
| (a) At least 9 units of Quantitative Methods courses from the following:<br>CSCI3150#, 3160#, 3170#, 3230#, 3320#, 4130#, 4160#, 4180#, 4190#, 4230#,<br>DSME4070#, 4220#, ECON3121#, 4120#, FINA3220, 3221, 3222, 3290, 3295, 4210,<br>4211, 4220, 4221, 4250, MATH3215#, 3230#, 3240#, 3270#, 3280#, 3290#, 3310#,<br>3320#, 3330#, 4220#, 4230#, 4240#, 4280#, SEEM3440#, STAT3006#, 3007#,<br>3008#, 4001#, 4002#, 4003#, 4004#, 4005#, 4006#, 4008#, 4010#, 4012#    |           |
| (b) At least 12 units of Business courses from the following, including at least 6 units of<br>FINA courses, with at most 6 one-unit courses:<br>ACCT2121, 2151 or 3151#, 4212# or 4213# or 4214#, 4251#, FINA2210, 3010, 3020,<br>3030, 3040, 3060, 3070, 3090, 3110, 3210, 3230, 3240, 3310, 3320, 3330, 3340,<br>3350, 3360, 3370, 3398, 3399, 3420, 4010, 4020, 4030, 4040, 4050, 4060, 4310,<br>4320, 4330, 4340, 4350, 4400, 4410, MGNT1020, 2611, 4010#, MKTG2010# |           |
| (c) At least 12 units of Core courses from the following:<br>FINA4110, 4120, 4130 (capstone course), 4140 (capstone course), 4150 (capstone<br>course), 4160 (capstone course), 4190 (capstone course), 4370 (capstone course),<br>4380 (capstone course), 4390[b] (capstone course), 4420, 4430 (capstone course),<br>6232 (capstone course), 6242 (capstone course), 6252 (capstone course)   |           |
| <b>Total:</b>   | <b>72</b> |

**Explanatory Notes:**

1. FINA courses at 2000 and above level as well as those labeled with # will be included in the calculation of Major GPA for honours classification.
  2. Non-JUPAS admittees and JUPAS admittees without HKDSE Mathematics Extended Modules I or II are required to take MATH1530 before taking MATH1010 or 1018, except those who pass the Mathematics Placement Test arranged by the Programme.
  3. Completion of an eligible second major or minor programme from the Faculty of Engineering (Computer Science, Electronic Engineering, Information Engineering, Web and Cloud Computing) or the Faculty of Science (Mathematics, Physics, Risk Management Science, Statistics) is deemed to have satisfied 4(a) Quantitative Methods area of elective courses requirement. Only relevant courses listed under 4(a) will be included in the calculation of Major GPA.
- [a] Students are advised to take MGNT2512 once their Global Experiential Learning Activities are completed.
- [b] Subject to the approval of the major programme, students who have completed the Co-operative Education Programme are deemed to have fulfilled the core requirement FINA4390.

|   | <b>Recommended Course Pattern</b>   | <b>Units</b> |
|---|---|--------------|
| <b>First Year of Attendance</b>           | 1 <sup>st</sup> term<br>Faculty Package: ACCT1111, DSME1030<br>Faculty Co-curricular Courses: MGNT2511<br>Major Required: MATH1010 or 1018<br>Major Elective(s):  | 6<br>1<br>3  |
|   | 2 <sup>nd</sup> term<br>Faculty Package: DSME1040<br>Faculty Co-curricular Courses: IBBA3040<br>Major Required: FINA2010, MATH1030 or 1038<br>Major Elective(s):  | 3<br>1<br>6  |
| <b>Second Year of Attendance</b>          | 1 <sup>st</sup> term<br>Major Required: CSCI1510 or 1520 or 1530 or 1540 or 1580, DSME2011 or STAT2001, MATH2010 or 2018<br>Major Elective(s): 3 units from Quantitative Methods and Business electives                 | 9-10<br>3    |
|   | 2 <sup>nd</sup> term<br>Major Required: ACCT3142 or CSCI2100 or 2520 or DSME2051 or SEEM3550, DSME2021 or FINA2020 or STAT2006, FINA3080<br>Major Elective(s): 3 units from Quantitative Methods and Business electives | 9<br>3       |
|   |   |              |
| <b>Third Year of Attendance</b>           | 1 <sup>st</sup> term<br>Major Required:<br>Major Elective(s): 12 units from Quantitative Methods, Business, and Core electives  | 12           |
|   | 2 <sup>nd</sup> term<br>Major Required:<br>Major Elective(s): 12 units from Quantitative Methods, Business, and Core electives  | 12           |
| <b>Fourth Year of Attendance</b>          | 1 <sup>st</sup> term<br>Major Required:<br>Major Elective(s): 3 units from Quantitative Methods, Business, and Core electives   | 3            |
|   | 2 <sup>nd</sup> term<br>Faculty Co-curricular Courses: MGNT2512<br>Major Required:<br>Major Elective(s):  | 1            |
| <b>Total (including Faculty Package):</b> |   | <b>72</b>    |

| <b>Course List</b>            |   |                |
|-------------------------------|---|----------------|
| <i>Course Code</i>            | <i>Course Title</i>                         | <i>Unit(s)</i> |
| Faculty Package               |   |                |
| ACCT1111                      | Foundations in Financial Accounting         | 3              |
| DSME1030                      | Economics for Business Studies I            | 3              |
| DSME1040                      | Economics for Business Studies II           | 3              |
| Faculty Co-curricular Courses |   |                |
| IBBA3040                      | Business Lecture Series                     | 1              |
| MGNT2511                      | Global Experiential Learning I              | 1              |
| MGNT2512                      | Global Experiential Learning II             | 1              |
| Required Courses              |   |                |
| ACCT3142                      | Contemporary Accounting Information Systems | 3              |
| CSCI1510                      | Computer Principles and C Programming       | 3              |
| CSCI1520                      | Computer Principles and C++ Programming     | 3              |
| CSCI1530                      | Computer Principles and Java Programming    | 3              |
| CSCI1540                      | Fundamental Computing with C++              | 3              |
| CSCI1580                      | Visual Programming                          | 3              |

|                      |   |   |
|----------------------|---|---|
| CSCI2100             | Data Structures   | 3 |
| CSCI2520             | Data Structures and Applications                        | 3 |
| DSME2011             | Statistical Analysis for Business Decisions             | 4 |
| DSME2021             | Applied Econometrics for Business Decisions             | 3 |
| DSME2051             | Business Information Systems                            | 3 |
| FINA2010             | Financial Management                                    | 3 |
| FINA2020             | Introduction to Empirical Methods in Finance            | 3 |
| FINA3080             | Investment Analysis and Portfolio Management            | 3 |
| MATH1010             | University Mathematics                                  | 3 |
| MATH1018             | Honours University Mathematics                          | 3 |
| MATH1030             | Linear Algebra I  | 3 |
| MATH1038             | Honours Linear Algebra I                                | 3 |
| MATH2010             | Advanced Calculus I                                     | 3 |
| MATH2018             | Honours Advanced Calculus I                             | 3 |
| SEEM3550             | Fundamentals in Information Systems                     | 3 |
| STAT2001             | Basic Concepts in Statistics and Probability I          | 3 |
| STAT2006             | Basic Concepts in Statistics and Probability II         | 3 |
| Elective Courses     |   |   |
| Quantitative Methods |   |   |
| CSCI3150             | Introduction to Operating Systems                       | 3 |
| CSCI3160             | Design and Analysis of Algorithms                       | 3 |
| CSCI3170             | Introduction to Database Systems                        | 3 |
| CSCI3230             | Fundamentals of Artificial Intelligence                 | 3 |
| CSCI3320             | Fundamentals of Machine Learning                        | 3 |
| CSCI4130             | Introduction to Cyber Security                          | 3 |
| CSCI4160             | Distributed and Parallel Computing                      | 3 |
| CSCI4180             | Introduction to Cloud Computing and Storage             | 3 |
| CSCI4190             | Introduction to Social Networks                         | 3 |
| CSCI4230             | Computational Learning Theory                           | 3 |
| DSME4070             | Data Management and Big Data Analytics                  | 3 |
| DSME4220             | Data Mining for Business Intelligence                   | 3 |
| ECON3121             | Introductory Econometrics                               | 3 |
| ECON4120             | Applied Forecasting Methods                             | 3 |
| FINA3220             | Life Contingencies I                                    | 3 |
| FINA3221             | Basic Long-term Actuarial Mathematics                   | 3 |
| FINA3222             | Basic Short-term Actuarial Mathematics                  | 3 |
| FINA3290             | Linear Models for Actuaries                             | 3 |
| FINA3295             | Advanced Statistical Modeling for Insurance and Finance | 3 |
| FINA4210             | Life Contingencies II                                   | 3 |
| FINA4211             | Advanced Long-term Actuarial Mathematics                | 3 |
| FINA4220             | Non-life Actuarial Models                               | 3 |
| FINA4221             | Advanced Short-term Actuarial Mathematics               | 3 |
| FINA4250             | Applications of Risk Models                             | 3 |
| MATH3215             | Operations Research                                     | 3 |
| MATH3230             | Numerical Analysis                                      | 3 |
| MATH3240             | Numerical Methods for Differential Equations            | 3 |
| MATH3270             | Ordinary Differential Equations                         | 3 |
| MATH3280             | Introductory Probability                                | 3 |
| MATH3290             | Mathematical Modeling                                   | 3 |
| MATH3310             | Computational and Applied Mathematics                   | 3 |
| MATH3320             | Foundation of Data Analytics                            | 3 |
| MATH3330             | Big Data Computing                                      | 3 |
| MATH4220             | Partial Differential Equations                          | 3 |

|          |  |   |
|----------|--|---|
| MATH4230 | Optimization Theory  | 3 |
| MATH4240 | Stochastic Processes   | 3 |
| MATH4280 | Innovation and Design in Big Data Analytics                        | 3 |
| SEEM3440 | Operations Research II   | 3 |
| STAT3006 | Statistical Computing  | 3 |
| STAT3007 | Introduction to Stochastic Processes                               | 3 |
| STAT3008 | Applied Regression Analysis  | 3 |
| STAT4001 | Data Mining and Statistical Learning                               | 3 |
| STAT4002 | Applied Multivariate Analysis                                      | 3 |
| STAT4003 | Statistical Inference  | 3 |
| STAT4004 | Actuarial Science  | 3 |
| STAT4005 | Time Series  | 3 |
| STAT4006 | Categorical Data Analysis  | 3 |
| STAT4008 | Survival Modelling   | 3 |
| STAT4010 | Bayesian Learning  | 3 |
| STAT4012 | Statistical Principles of Deep Learning with Business Applications | 3 |
| Business |  |   |
| ACCT2121 | Introductory Management Accounting                                 | 3 |
| ACCT2151 | Legal Environment for Business                                     | 2 |
| ACCT3151 | Business Law   | 3 |
| ACCT4212 | China Business Valuation and Analysis                              | 3 |
| ACCT4213 | Financial Statement Analysis and Valuation                         | 3 |
| ACCT4214 | Applied Financial Statement Analysis                               | 3 |
| ACCT4251 | Regulation and Compliance in the Financial Markets                 | 3 |
| FINA2210 | Interest Theory and Finance  | 3 |
| FINA3010 | Financial Markets  | 3 |
| FINA3020 | International Finance  | 3 |
| FINA3030 | Management of Financial Institutions                               | 3 |
| FINA3040 | Central Banking and Regulations of Financial Institutions          | 3 |
| FINA3060 | Real Estate Finance and Investment                                 | 3 |
| FINA3070 | Corporate Finance: Theory and Practice                             | 3 |
| FINA3090 | Understanding China's Financial System                             | 3 |
| FINA3110 | Issues in Finance  | 3 |
| FINA3210 | Risk Management and Insurance                                      | 3 |
| FINA3230 | Life and Health Insurance  | 3 |
| FINA3240 | Corporate Property and Liability Insurance                         | 3 |
| FINA3310 | Introduction to Investment Banking                                 | 1 |
| FINA3320 | Introduction to Credit Rating                                      | 1 |
| FINA3330 | Introduction to Alternative Investment                             | 1 |
| FINA3340 | Trading Strategies: Behavioral and Technical Analysis              | 1 |
| FINA3350 | Foreign Exchange Market Practices                                  | 1 |
| FINA3360 | Derivative Warrants, Proprietary and Arbitrage Trading Concepts    | 1 |
| FINA3370 | Introduction to Bloomberg and Reuters                              | 1 |
| FINA3398 | Special Issues in Finance  | 1 |
| FINA3399 | Current Issues in Finance  | 1 |
| FINA3420 | Credit Rating in Global Economy                                    | 3 |
| FINA4010 | Security Analysis  | 3 |
| FINA4020 | Fund Management and Asset Allocation                               | 3 |
| FINA4030 | Selected Topics in Finance   | 3 |
| FINA4040 | Cases in Corporate Finance   | 3 |
| FINA4050 | Mergers and Acquisitions   | 3 |
| FINA4060 | China Finance  | 3 |
| FINA4310 | China Banking and Financial System                                 | 1 |

|          |   |   |
|----------|---|---|
| FINA4320 | China Equity Securities Market                    | 1 |
| FINA4330 | China Derivative Securities Market                | 1 |
| FINA4340 | Structured Products: Fundamentals and Analysis    | 1 |
| FINA4350 | Bond Markets: Analysis and Strategies             | 1 |
| FINA4400 | Behavioral Finance                                | 3 |
| FINA4410 | Current Developments in FinTec                    | 3 |
| MGNT1020 | Management  | 3 |
| MGNT2611 | Business Sustainability                           | 2 |
| MGNT4010 | Strategic Management                              | 3 |
| MKTG2010 | Marketing Management                              | 3 |
| Core     |   |   |
| FINA4110 | Options and Futures                               | 3 |
| FINA4120 | Fixed Income Securities Analysis                  | 3 |
| FINA4130 | Empirical Finance                                 | 3 |
| FINA4140 | Computational Finance                             | 3 |
| FINA4150 | Quantitative Methods for Financial Derivatives    | 3 |
| FINA4160 | Intermediate Financial Theory                     | 3 |
| FINA4190 | Research Project in Quantitative Finance          | 3 |
| FINA4370 | Derivatives Trading: Analysis and Strategies      | 3 |
| FINA4380 | Algorithmic Trading Strategies, Arbitrage and HFT | 3 |
| FINA4390 | Banking and Finance Practicum                     | 3 |
| FINA4420 | Financial Markets from Macro Perspective          | 3 |
| FINA4430 | Computerized Trading and Big Data                 | 3 |
| FINA6232 | Seminar in Asset Pricing                          | 3 |
| FINA6242 | Seminar in Corporate Finance                      | 3 |
| FINA6252 | Empirical Methods in Asset Pricing                | 3 |