Master of Science in
FINANCIAL TECHNOLOGY

Unchaining the Potential of FinTech

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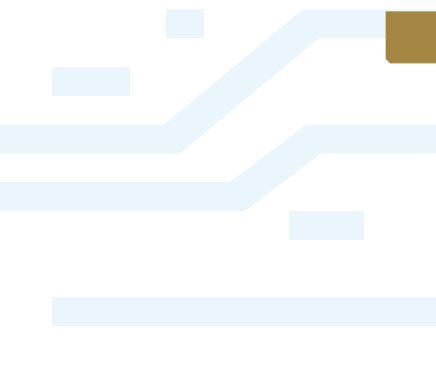
About the Schools

School of Business and Management

Established in 1991, the School of Business and Management (SBM) at the Hong Kong University of Science and Technology (HKUST) is young, dynamic, and well respected for the quality of its programs and the impact of its research. We are the first business school in the region to be accredited by both the U.S.-based Association to Advance Collegiate Schools of Business (AACSB) and the European Quality Improvement System (EQUIS). SBM is recognized as "Asia's youngest but most respected business school" (Financial Times), and our degrees are recognized worldwide. The joint EMBA program with the Kellogg School of Management at Northwestern University was ranked No. 1 in the world in 2022, and the full-time MBA program was ranked Hong Kong's No. 2 in Financial Times Global MBA Ranking 2023.

School of Engineering

The School of Engineering (SENG) is the largest of the five Schools within HKUST, with almost 40% of the University's student body. SENG has a strong international reputation and consistently ranks high among the major engineering schools around the world. HKUST was ranked No. 43 in the QS World University Rankings in Engineering and Technology in 2023. The School's research excellence is also globally recognized. Over the past decades, our faculty members have made significant discoveries in cutting-edge research and received major international honors. These achievements have made important contributions to the social and economic development of Hong Kong and its transition to a knowledge-based society.

School of Science

The School of Science (SSCI) comprises five academic units, covering Life Science, Chemistry, Mathematics, Physics, and Ocean Science. The School is committed to providing students with a high-quality, balanced education in an intellectually stimulating environment. To enhance students' university experience, the School continues to improve the curriculum by making it more diverse, interdisciplinary, and inquiry-driven. SSCI has recruited numerous outstanding faculty members, many of whom are leaders in their research fields and have attained international stature because of their scientific contributions. With their different backgrounds and research interests, the faculty members provide diverse, interdisciplinary perspectives on the fundamental questions in science. With a strong commitment to teaching and research, our faculty instills in students the importance of scientific rigor and ethics, while inspiring and encouraging them to achieve their full potential.

Message from the Academic Director

Professor Shiqing LING

Academic Director, MSc Fin Tech Program

Chair Professor,
Department of Mathematics

RGC Senior Research Fellow,
Hong Kong Research Grants Council

Welcome to our MSc Fin Tech program, designed to nurture financial technologists and entrepreneurs via the study of rigorous analytical skills and quantitative methodologies in finance and business. The program uniquely melds the strengths of HKUST's School of Business and Management, School of Engineering, and School of Science to offer a top-notch curriculum for students with courses ranging from foundational math and analytical tools to advanced applications such as artificial intelligence, blockchain, and Fintech regulation and compliance. It is truly interdisciplinary in nature and will serve as a powerful foundation for our students' future careers. Through these courses and a series of complementary extra-curricular activities, our students will be able to gain exposure to a wide range of Fintech topics and new ideas in the digital age, and gain insight into those timely Fintech developments. I believe that joining our program will be a key step to your future Fintech leadership in Hong Kong, the Greater Bay Area, China and even beyond.

Program

Program Design

FinTech is an emerging but important area that has been developing rapidly in recent years. The MSc Fin Tech program at HKUST is designed for talents and working professionals who want to combine technical and financial knowledge to generate innovative solutions that meet the challenges of this emerging field.

In view of the multi-disciplinary nature of FinTech, the MSc Fin Tech program, jointly run by the School of Business and Management, School of Engineering, and School of Science, draws expertise from timely areas such as information technology, blockchain, data science, machine learning, and decision analytics.

The program provides students with fundamental knowledge and important skills relating to popular financial technologies and their engineering and financial principles, thereby enhancing their market competitiveness in the booming FinTech field.

Our graduates are able to analyze the engineering mechanisms and financial principles of new and emerging financial technologies, and to formulate and solve FinTech-related problems using practical means supported by the latest engineering methodologies and quantitative techniques.

Program Schedule

The MSc Fin Tech program is offered in one-year full-time and two-year part-time study modes. Both full-time and part-time students are required to complete a total of 30 credits# in core courses and electives.

Full-time Sample Schedule (One-year)

Fall Term (Sep – Dec)

Core Courses
(8 courses, 16 credits)

• AI for FinTech	(2 credits)
• Blockchain	(2 credits)
• Corporate Finance	(2 credits)
• Data Analysis	(2 credits)
• Financial Data Mining	(2 credits)
• FinTech Regulations and Compliance	(2 credits)
• Foundations of FinTech	(2 credits)
• Investment Analysis	(2 credits)

Required Courses
(2 credits)

• FinTech Enrichment Workshops	(0 credit)

SSCI

• Mathematical Foundation of FinTech	(2 credits)#

Spring Term (Feb – May)

Electives*
(a selection of 14 credits)

• Selected Special Topics in Financial Technology	(1-3 credits)

SBM electives

• Economics of Financial Technology	(2 credits)
• Entrepreneurship and Innovation in FinTech	(2 credits)
• FinTech: The Future of the Financial Industry	(2 credits)
• Portfolio Management with Fintech Applications	(2 credits)

SENG electives

• Decision Analytics for FinTech	(3 credits)
• Optimization in FinTech	(3 credits)

SSCI electives

• Statistical Machine Learning	(3 credits)
• Statistical Methods in Finance	(3 credits)

* The electives offered in a particular year will be announced at the beginning of each academic year. Students have to take at least one elective course from each of SBM, SENG and SSCI. The offering of elective courses is subject to availability.

Subject to the decision of the Program Director, promising students who do not have a strong mathematics background may be required to take the required course - Mathematical Foundation of FinTech (2 credits) on top of the graduation requirement of 30 credits.

Part-time Sample Schedule (Two-year)

Year 1
Year 2
Fall (Sep – Dec); Spring (Feb – May)

Core Courses	Electives*	Required Course#
(8 courses, 16 credits)	(a selection of 14 credits)	(2 credits)

Year 1

Core & Electives* Courses
+
Required# Courses

Year 2

Core & Electives* Courses

Curriculum

Core Courses (8 courses, 16 credits)

AI for FinTech

This course covers the basic theories of artificial intelligence and machine learning, and their applications to FinTech. Topics include natural language understanding and sentiment analysis using various deep learning architectures. The course also covers basic natural language processing methods for applications such as event and anomaly, fraud, and fake news detection. The course also relates sentiment and affect analysis to stock market trading, market monitoring, and compliance and regulatory-related adverse events.

Corporate Finance

This course covers the valuation of cash flow streams (PV of cash flow streams, annuities, and perpetuities), valuation of bonds, valuation of stocks using the dividend discount model, capital budgeting decisions (NPV, IRR, payback), capital structure, limits on the use of debt (trade-off models), estimation of the cost of debt and equity, WACC, and terminal value.

Blockchain

This course introduces the basic concepts and technologies of blockchain from an engineering perspective, such as the Bitcoin architecture, consensus protocol of Bitcoin, proof of work, Ethereum, Hyperledger, smart contracts, and the blockchain applications. The course also covers the limitations of and possible improvements to the blockchain system.

Data Analysis

This course covers the basic and advanced statistical approaches to data analysis and the application of these techniques in analyzing financial data with statistical packages, such as Python and R. The key topics are reading and describing data, categorical data, time series data, correlation, nonparametric comparisons, ANOVA, multiple regressions, general linear models, and quantile regression models.

Sample Electives (a selection of 14 credits)

Portfolio Management with FinTech Applications

This course will focus on the key dimensions of Portfolio Management with FinTech Applications, and will give a predominant place to Artificial Intelligence, as a way to process and leverage the "Big Data" and automate the Portfolio and Wealth Management processes. The course will begin by a brief review of the fundamentals of Portfolio Management, FinTech and Artificial Intelligence and the advances in technology and data that has led the industry to where it is today. It will then delve into the Asset Management and Wealth Management value chains through a series of applications that enable students the critical skills they need to operate as expert actors in FinTech.

Economics of Financial Technology

This course focuses on the use of economic concepts to analyze the macroeconomic implications of financial technologies, and addresses the policy implications of FinTech in relation to financial stability, central banking, and monetary policy. The aim is to highlight the importance of formulating appropriate policies to foster the healthy development of the FinTech sector while ensuring economic stability.

Financial Data Mining

In this course, students first learn the basic concepts and techniques of data mining, including data preprocessing, data cleaning, clustering, classification, and outlier detection. The students then learn how to apply these techniques to financial data, such as via sentiment analysis and social network mining.

Foundations of FinTech

This course aims to provide a foundational introduction to financial technologies. More specifically, this course covers various important financial technologies and innovations, including investment and financing technologies such as P2P lending and crowdfunding, payment technologies such as mobile payments, wealth management technologies such as robo-advisors, blockchain technologies such as cryptocurrencies, and other technologies such as InsurTech and RegTech.

FinTech Regulations and Compliance

This course provides students with the frameworks, concepts, and background needed to understand the roles that regulation, compliance, and assurance play in the FinTech markets from the technology and business perspectives. The course also examines the perspectives of government officials, investors, managers, and consumers in terms of how they benefit from, guide, and influence the evolution of regulations and the associated compliance activities.

Investment Analysis

An introduction to the fundamental concepts of investment analysis. The first part of this course covers the risk and return tradeoff, portfolio diversification, and modern portfolio theory, including the capital asset pricing model and arbitrage pricing theory. The second part covers the basic analytical tools used in analyzing fixed income securities. Topics include interest rates and yield curve mathematics, duration, and convexity.

Decision Analytics for FinTech

This course aims to introduce decision analytics instruments and their applications in FinTech. Main topics covered in this course include basic probability and statistics, predictive analytics, prescriptive analytics such as linear programming, integer programming, dynamic programming and sequential decision making, stochastic models, quality control, Monte Carlo simulation, game theory, and their applications in various areas of FinTech.

Statistical Machine Learning

This course provides students with an extensive exposure to the elements of statistical machine learning in supervised and unsupervised learning with real world datasets. Topics include basic models in regression and classification, resampling methods, model selection/assessment, and some standard techniques in unsupervised learning such as clustering and dimensionality reduction.

Faculty

School of Business and Management

Professor Weiyin HONG
Associate Professor,
Department of Information Systems,
Business Statistics and Operations Management

PhD, The Hong Kong University of Science and Technology

Research interests:
Human Computer Interaction (HCI),
Financial Technology , Internet Privacy Concern,
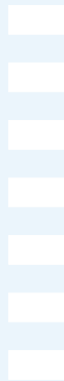Human-AI collaboration

Professor Ekkachai SAENYASIRI
Associate Professor of Business Education,
Department of Finance

PhD, The City University of New York

Research interests:
Corporate finance, Investments, International
financial markets, Asset pricing

Professor Garvin Percy DIAS

Associate Professor of Business Education,
Department of Information Systems,
Business Statistics and Operations Management

PhD, Fudan University

Research interests:
IT auditing, IT governance, Computer networking,
FinTech

Professor Entela BENZ-SALIASI

Adjunct Associate Professor, Department of Finance

PhD, Finance Institute & HEC University of Lausanne

Research interests:
Pricing venture capitalist contracts; asset allocation;
credit risk pricing

School of Engineering

Professor Rachel Quan ZHANG

Chair Professor, Department of Industrial Engineering and Decision Analytics
Chair Professor, Department of Information Systems,
Business Statistics and Operations Management
Co-Director, MSc Fin Tech Program

PhD, Northwestern University

Research interests:
Blockchain operations, Operations management, Operations research,
Supply chain management, Operations-finance interface

School of Science

Professor Can YANG

Associate Professor, Department of Mathematics

PhD, The Hong Kong University of Science and Technology

Research interests:
Computer Age Statistical Inference; Data Science with Statistical
Machine Learning; Empirical Bayes and Scalable algorithm;
Statistical Genetics and Genomics

Professor James KWOK

Professor, Department of Computer Science and Engineering

Co-Director of Risk Management and Business Intelligence Program

PhD, The Hong Kong University of Science and Technology

Research interests:
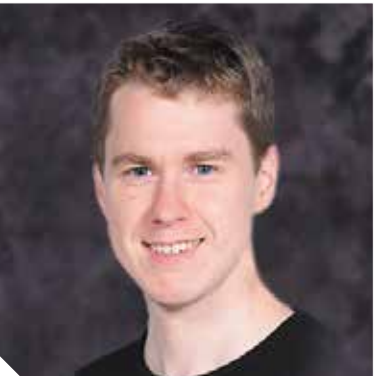Artificial intelligence

Professor Daniel PALOMAR

Professor, Department of Electronic and Computer Engineering

Fellow, IEEE

PhD, Technical University of Catalonia

Research interests:
Big data, Financial econometrics, Financial risk management, Optimization, Signal processing

Professor Eric Paul MARBERG

Associate Professor, Department of Mathematics
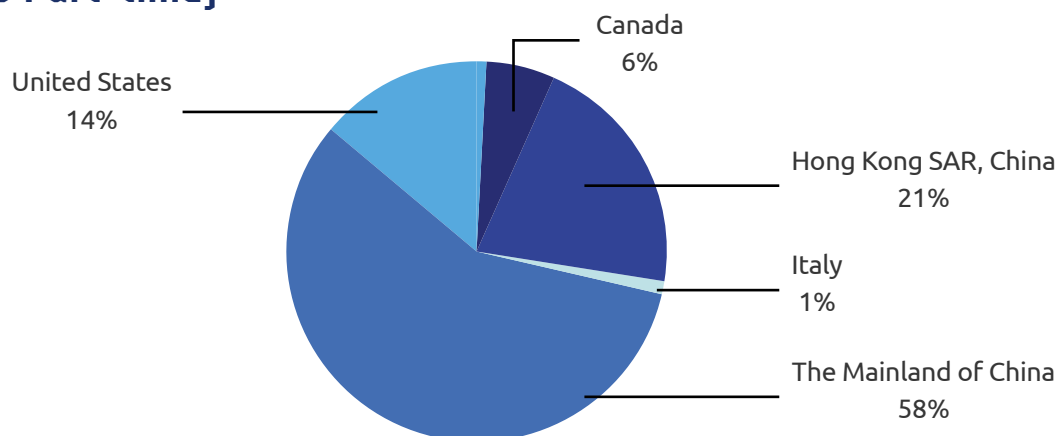
PhD, Massachusetts Institute of Technology

Research interests:
Combinatorics, Representation theory, Hopf algebra, Discrete mathematics and combinatorics, Algebras and quantum groups
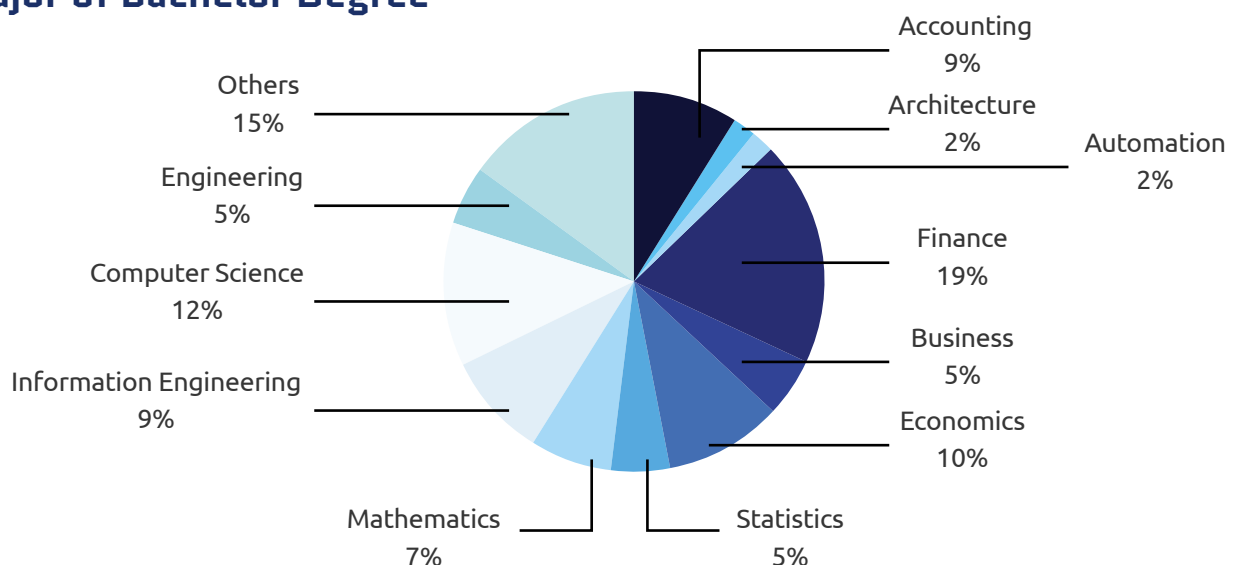
Students and Alumni

Around 70 students were admitted to the MSc Fin Tech program in the 2023-24 intake. The students in the full- and part-time streams are from diverse educational backgrounds and countries. Over 70% of the class are graduates with diverse undergraduate majors from universities outside of Hong Kong.
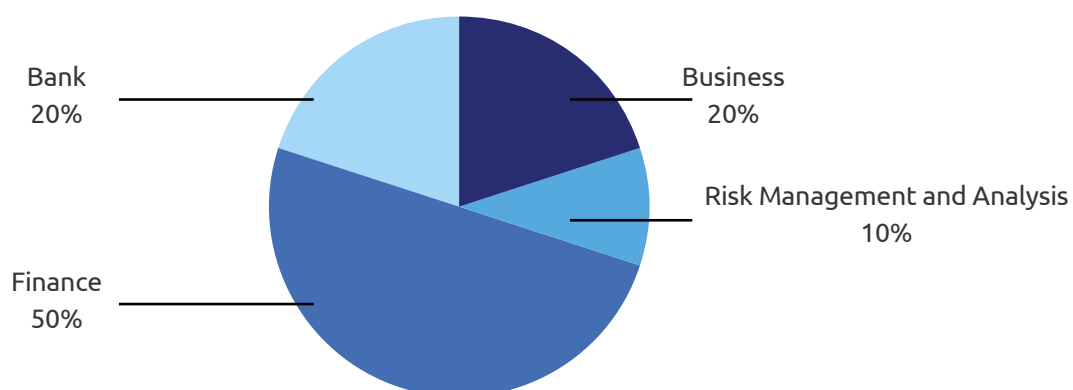
Country of First Degree Institution
(Full-time & Part-time)

Canada
6%

United States
14%

Hong Kong SAR, China
21%

Italy
1%

The Mainland of China
58%

Major of Bachelor Degree

Accounting
9%

Architecture
2%

Automation
2%

Others
15%

Engineering
5%

Computer Science
12%

Information Engineering
9%

Finance
19%

Business
5%

Economics
10%

Mathematics
7%

Statistics
5%

Industry [Part-time]

Bank
20%

Business
20%

Risk Management and Analysis
10%

Finance
50%

List of Employers

- Bank of China (Hong Kong)
- Hong Kong Exchange and Clearing Limited
- Thunes Hong Kong Limited
- Hong Kong Huawei International Co., ltd
- Rabobank Hong Kong
- Guotai Junan Capital Limited

- Bloomberg L. P.
- HSBC
- JP Morgan
- Standard Chartered Bank
- Education Bureau
- CITIC / CLSA

- Hang Seng Bank
- IHS Markit
- OCGIO
- Hong Kong Jockey Club
- PwC HK
- Deloitte

Alumni Testimonial

TSE, Chung Yan Joanne

2021-22 intake, Full-time
Company: PwC HK
Current Position: Manager

The HKUST MSc Fin Tech program has been challenging but rewarding. The high calibre of the students and the quality of the facilities from the three main schools, School of Business, School of Engineering, and School of Science, contributed to a great learning experience. The highly practical MSc Fin Tech program does not only equip me with latest FinTech knowledge from finance to technology, but also allows me to pursue career advancement by extending myprofessional network in the FinTech field. Looking forward, I am better prepared to take on challenges in my professional life as I acquired the ability for persistent refinement and development from the MSc Fin Tech program. As a TPg Fellowship awardee, I am extremely grateful for this opportunity and experience, which definitely marks a new milestone in my life. I highly recommend the MSc Fin Tech program to people who are interested in the FinTech sector.

CAI, Yunsheng

2021-22 Intake, Full-Time

I think HKUST MSc in Fin Tech is an excellent program. It covers finance, machine learning, and the most cutting-edge blockchain technology, which allows me to explore different fields in FinTech and develop my interests. It also gives me a better understanding of the future of FinTech in various financial markets. In addition, MSc Career Team provided a lot of help in my career development, such as workshops, 1-1 coaching, mock interviews, etc., which enhanced my employability. Finally, I am very grateful for the support of the TPg Fellowship, which allows me to focus more on my studies and complete the whole year of study.
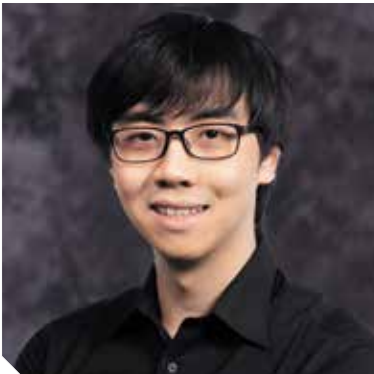
CHOY, Chun Yee Joel

2020-21 Intake, Full-Time
Company: JLL Technologies
Current Position: Director, Data Management and Delivery (Cyber Security Operations)

The HKUST FinTech program has well-equipped me in terms of both technical skills and business acumen by offering a variety of data analysis projects as well as enrichment workshops. I am glad to learn more on using programming languages like Python and R to perform data analysis while listening to guest speakers on how these AI models or automations are performing in the workplace.

Most of the courses require group work and serve as a good chance to know people from different cultures and backgrounds, and you can even learn more about their career path and visions. It is great that we stay connected after graduation.

Lastly, I greatly appreciate this program is enlisted as one of the programs eligible for the Targeted Taught Postgraduate Programs Fellowships. The fellowship is definitely one of the important factors encouraging me to pursue a Master degree. Overall, the entire journey for completing the program is fruitful and rewarding.

ZHANG, Yuling Silvia

2020-21 Intake, Full-Time
Company: Deloitte Consulting
Current Position: Analyst

The MSc Fin Tech program comprises courses from three schools i.e., School of Business and Management, School of Engineering, and School of Science. This diverse program structure gives me opportunities to explore FinTech from different perspectives. We have technical courses, such as AI, Blockchain, Data Mining. These courses not only prepare us with technical knowledge but also give us abundant hands-on opportunities to try various FinTech ideas of our choice by utilizing these latest technologies. In addition to technical courses, this program also offers business-oriented courses. Professors with rich industry experience stimulate us to think innovatively and comprehensively about the future of FinTech, which is inspiring.

Besides our diverse program structure, our classmates also come from a very diversified learning environment and different fields, such as finance, mathematics, computer science, law, and environment. We form course project groups with people from different backgrounds, which largely resembles the actual working environment and also broadens my horizons. The program also offers a number of enrichment workshops, which are informative, cutting-edge, and worth attending. The vibrant campus life at HKUST is also one of the most unforgettable memories of my master study.

Alumni Testimonial

FUCHS Alexander, Alex

2019-20 Intake - Full-Time
Company: Amazon
Current Position: Software Development Engineer

My education at HKUST was highly focused on the practical application of the material covered in the course. The different projects allowed me to explore the class topics in more detail and form better connections with my classmates.

The MScFinTech program has equipped me well for the professional career I strive to achieve. Because I am looking to work for a FinTech company or established financial institution as a product owner, it was very important to me to gain domain knowledge in finance as well as technical knowledge. The program offered exactly this, in addition to highlighting the current market trends. I also took advantage of the many extracurricular activities offered by the Career Center, Entrepreneurship Center, and program office to further explore my career opportunities and extend my professional network.
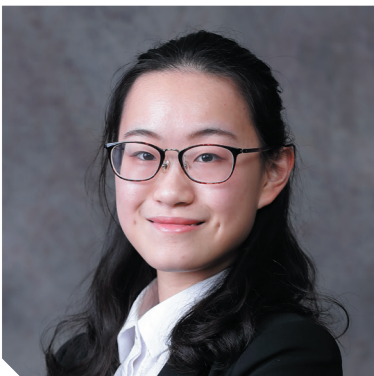
SUN Yiying

2019-20 Intake - Full-Time
Company: MinSheng Securities
Current Position: Analyst

The FinTech program comprises finance-related and tech-related courses. The finance-related courses allow students to build a solid theoretical foundation, while the tech-related courses equip us with programming skills. My favorite courses were Optimization in FinTech and Statistical Machine Learning.

The MSc Career Centre provides various kinds of support in career development, including one-on-one coaching, mock interviews, assessment practice, and enrichment activities. I recommend that every student attend a compulsory one-on-one coaching session at the beginning of the first semester. A team of experienced career coaches will help you revise your resume and provide useful suggestions on career paths and interview tips, which can help you ace the job application process.
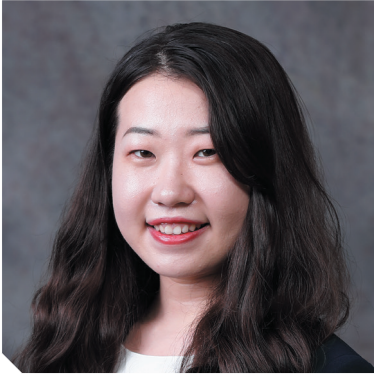
WANG Xiaolin, Clara

2019-20 Intake - Full-Time
Company: Unilever
Current Position: Intern

Academically, this program equips students with both solid fundamental knowledge and the latest bold ideas in this cutting-edge FinTech field. Some professors have attained academic excellence, while others have the latest practical industry experience.

Professionally, the career services offered by the MScFinTech program are very useful. The MSc Career Center hosts specific recruitment events for FinTech related jobs and intern opportunities. I personally benefited a lot from the workshops and one-on-one coaching sessions. The career consulting, resume editing, and mock interview sessions are also very useful.

I am also grateful for the opportunities I had to learn with other students from different cultures and backgrounds. They shared their fascinating experiences and ideas with me and offered help and encouragement in my study, career, and life.

LEE Chun Man, Vincent

2019-20 Intake - Part-Time
Company: Aozora Asia Pacific Finance Limited
Current Position: Senior Vice President

The MScFinTech program was a challenging but rewarding experience for me. I am glad to have chosen this program, as it combines the faculty members and resources of three main schools of HKUST—the School of Business, School of Engineering, and School of Science—and offers a wide range of core and elective courses ranging from finance to technology and the theories behind them. The MScFinTech program allows students to build a solid foundation in both finance and the related technological field.

The highly practical program provides an intellectually stimulating environment in which students can innovate and endeavor to solve real world finance problems through adapting technology. The guest talks and site visits also enabled me to meet leading industry experts and practitioners, which helped me keep updated on the FinTech community and broaden my networking platforms. I recommend this program to people who would like to pursue career advancement or acquire the latest knowledge related to FinTech.

Careers and Enrichment

" **The MSc Fin Tech program helps prepare students for their FinTech careers.**

HKUST Business School's MSc Career & Professional Development team provides career guidance and support services for all full-time MSc students, including:

• Identifying students' unique career-related interests, values, and capabilities;

• Enhancing students' job searching skills and developing their workplace and career management skills;

• Accessing opportunities for internships and full-time employment with a diverse group of recruiting firms and organizations.

• One-on-one career coaching and career-related training/workshops are provided for students after they have joined the program.

The MSc Program Office also arranges various enrichment workshops and luncheon talks for students. These activities provide a platform for students to network with industry practitioners and senior leaders in Hong Kong and mainland China.

Campus Life

HKUST is more than just a place to learn. We aim to develop our students to their full potential and prepare them to take the next step toward career success. We focus on creating a unique learning experience for each of our students, and developing future business leaders in Asia for the world.

Spread over 60 hectares in a beautiful setting in Clear Water Bay, the HKUST campus provides students with a relaxing environment in which to study and grow. Students enjoy all the benefits of a full-scale university campus with a wide range of facilities and support services.

Student amenities such as banks, postal services, medical clinics, a supermarket, a bookstore, a hair salon, a souvenir shop, and Asian and Western catering outlets are located on campus. Other facilities include a five-story library with over 700,000 books, periodicals, and microfilms, 100 electronic databases, computer barns, wireless Internet access, a language- learning center, a self-access center with multimedia resources, swimming pools, a fitness center, tennis courts, an athletic track, and a soccer pitch.

A wide range of facilities are also provided to encourage engagement in extra-curricular activities and hobbies, and to enhance the quality of campus life. These include conference and meeting rooms, common and quiet rooms, workshops and a darkroom, karaoke and music rooms, and a performance stage.

Public transportation is conveniently available, with the campus located less than 30 minutes away from the city center. HKUST is near Hang Hau, home to Tseung Kwan O Public Hospital, major supermarkets, an impressive range of restaurants, various shopping malls, and a wet market. Only 10 minutes from the main campus by bus, Sai Kung is famous for its seafood restaurants, water sports facilities (including one of Hong Kong's two yacht clubs), and country parks, with a wealth of hiking, mountain biking, and camping options.

Admissions

Admission Requirements

Applicants to the MSc Fin Tech program are expected to have the following credentials:

1. A Good First Degree
Applicants should have obtained a Bachelor's degree from a recognized institution, or an approved equivalent qualification. Applicants preferably should have a programming and mathematics background.

2. English Proficiency
Applicants whose first language is not English, and whose Bachelor's degree or equivalent qualification* was awarded by an institution where the medium of instruction was not English, are required to fulfill the minimum English Language admission requirements of the University.

3. GMAT/GRE
Applicants are highly recommended to have a satisfactory GMAT/GRE score, but it is not compulsory.

4. Work Experience
For full-time applicants, no minimum work experience is required. However, any relevant work or business experience will add weight to the application under consideration.

For part-time applicants, at least two years of full-time post-qualification work experience is highly recommended, but it is not a compulsory requirement.

* Qualification with duration equivalent to a full-time Bachelor's degree (i.e. at least 3 years)

Program Fee / Scholarship / Financial Support

Please refer to program website https://seng.hkust.edu.hk/academics/taught-postgraduate/msc-fintech for the most updated program fee, scholarship and financial support.

Various scholarships are available including:

• Admission Scholarship
• Targeted Taught Postgraduate Programmes Fellowships Scheme
• CEF Reimbursement

APPLY ONLINE NOW !
www.ab.ust.hk/applyPG

Application Materials

Applicants should include the following materials in their applications:

• Application fee
• Academic transcript(s)
• Completed online application form, including a personal statement
• CV/resume with photos
• Degree certificate(s)
• Offical GMAT or GRE score report (if applicable)
• Offical TOEFL or IELTS score report (if applicable)
• Professional qualifications (if applicable)
• Two academic reference letters

Applicant profiles are reviewed upon full completion of the online application and full payment of the application fee. Shortlisted applicants may be invited for an interview upon request.

Unchaining the Potential of FinTech

The Hong Kong University of Science and Technology
Master of Science in Financial Technology

Email: mscfintech@ust.hk
Website: https://seng.hkust.edu.hk/academics/taught-postgraduate/msc-fintech

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