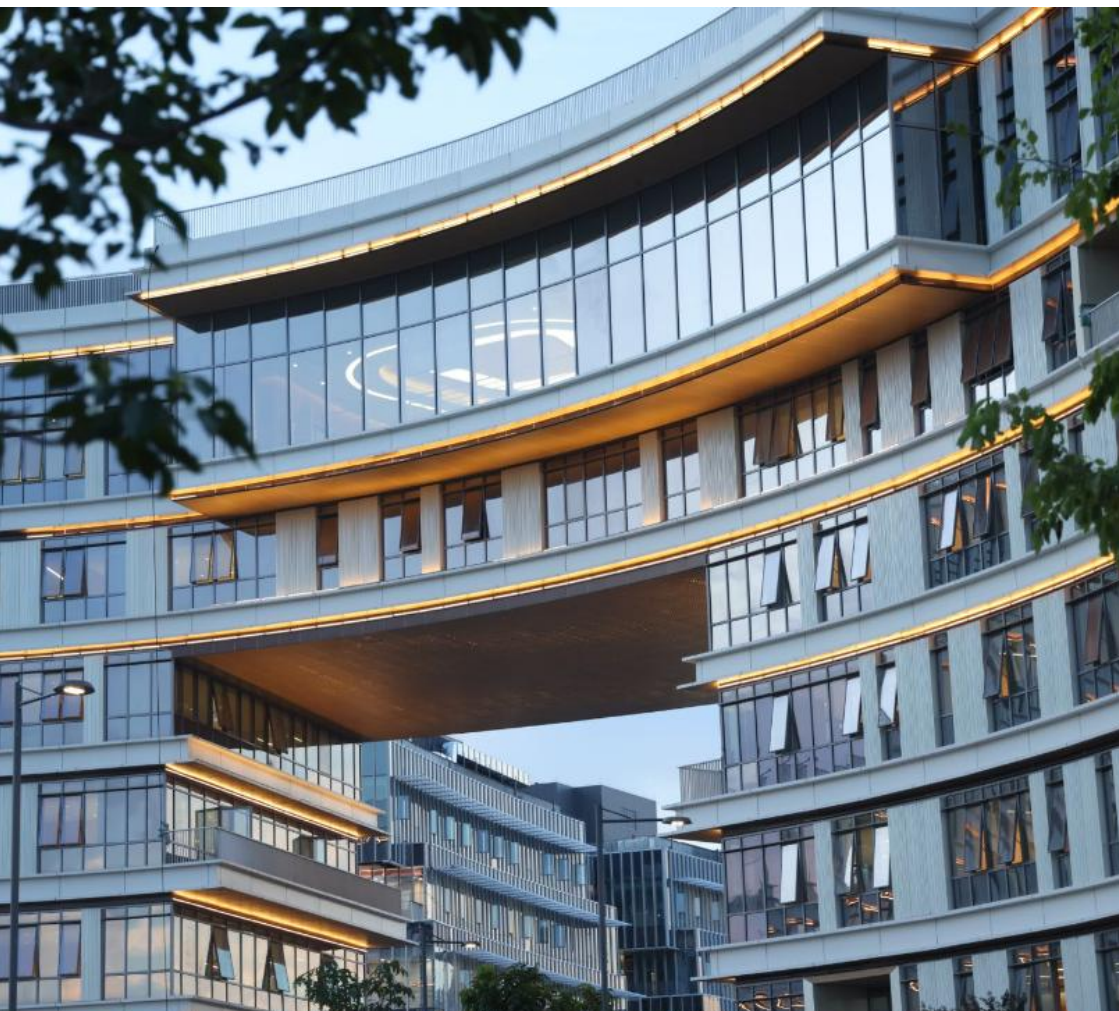


# HKUST(GZ) SOCIETY HUB FINANCIAL TECHNOLOGY THRUST

PH. D. PROGRAM



# ABOUT FINTECH THRUST

## Overview

**Financial Technology (FinTech)** is an important emerging area that has been developing rapidly in recent years. It refers to the application of cutting-edge technologies and advanced analytics on various financial services and financial challenges, such as digital payments, robo advising, algorithmic trading, blockchain technologies, big data analytics, and central bank digital currencies, aiming to improve service efficiency, promote financial innovations, and increase end-user satisfaction.

## Mission of the FinTech Thrust

Financial Technology Thrust nurtures creative minds to explore frontiers in Financial Technology by employing advanced technologies to improve financial services, promote financial innovations, and establish more efficient financial systems.

## Head's Message



**Prof. Ning CAI**

**Thrust Head**

Financial Technology  
Thrust,  
HKUST(GZ)

FinTech, short for financial technology, is a burgeoning interdisciplinary field where novel technologies and financial innovations are employed to improve traditional financial services. Its rapid development has changed and will continue to change the global financial system as well as our lives profoundly, and the whole world has been witnessing growing needs for people with FinTech-related expertise. Located in Nansha, the geometric center of the Greater Bay Area, HKUST(GZ) has a unique advantage to develop the FinTech field because both finance and technology are strategically important in the Greater Bay Area. By drawing on the interdisciplinary expertise of our strong faculty, the FinTech Thrust of HKUST(GZ) aims to conduct original and influential research in various areas of FinTech and nurture outstanding researchers, practitioners, and policy makers in the FinTech field, thereby contributing to the economic development of the Greater Bay Area and playing an important role in shaping the future of the FinTech field.

# PHD IN FINTECH

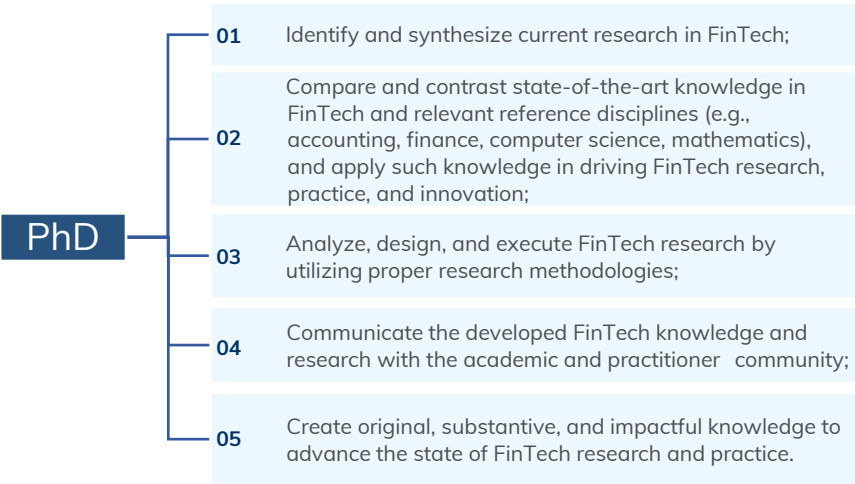
**Doctor of Philosophy (PhD) Program** in Financial Technology provides training and education for students to undertake advanced research and have a sound grasp of developments in FinTech. Students graduating from these programs should be able to conduct and apply high-quality research that makes an impact on FinTech research and practice in academia and/or industry. The programs focus on advanced research with an aim to place graduates in academia, research institutes, and industry jobs that appreciate research capability and quality.

## Cross-Disciplinary Focus Areas

- Blockchain technology, smart contracts, and digital currencies
- Robo advising, quantitative investing, and risk management
- Machine learning, artificial intelligence, and big data analytics in finance
- Technological innovations for financial services
- Regulatory issues and challenges in FinTech
- Digital economy and financial inclusion

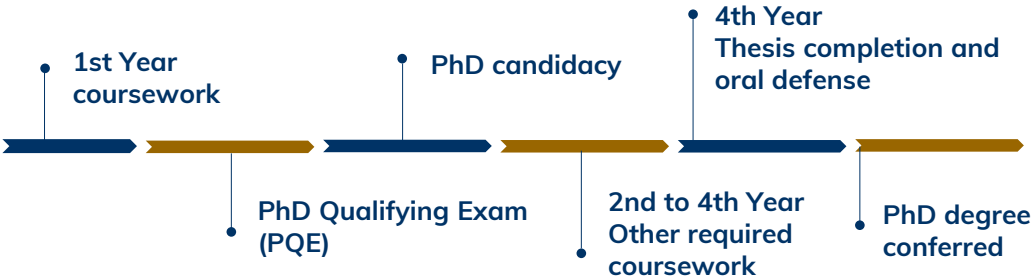
## Learning Outcomes

On successful completion of the PhD program, graduates will be able to:



# PHD IN FINTECH

Normative PhD duration: 4 years



## GENERAL INFORMATION

### Admission to HKUST(GZ)

Award Title	Doctor of Philosophy in Financial Technology
Program Short Name	PhD(FinTech)
Mode of Study	Full-time
Normative Program Duration	PhD Full-time: 3 years (with a relevant research master's degree), 4 years (without a relevant research master's degree)
Offering Unit	Financial Technology Thrust Area Society Hub
Program Advisor	Program Director: Prof Ning CAI, Professor of Financial Technology
Website	<a href="https://soch.hkust-gz.edu.cn/academics/ftec/">https://soch.hkust-gz.edu.cn/academics/ftec/</a>
Enquiry	<a href="mailto:ftect@hkust-gz.edu.cn">ftect@hkust-gz.edu.cn</a>

# HIGHLIGHTS OF FINTECH PQE GUIDELINE

## PhD Qualifying Examination (PQE)

The objective is to assess whether students are qualified to proceed to pursue PhD degrees.

**Comprehensive  
Written Exam**  
(Fin part + Tech part)



**1<sup>st</sup> year critical  
survey paper &  
paper  
presentation**



**A Pass/Fail  
grade will be  
given**

### Written comprehensive examination

- Students are required to take the written comprehensive examination in two sessions. a) The first session focuses on the Tech part. b) The second session focuses on the Fin part.
- The PG committee will make a Pass/Fail decision based on the graded examination.

### Critical survey paper

- Students should discuss and ask for advice from their supervisor(s) on the critical survey paper topic. The paper is due by October 7th following the first-year summer. The paper will be presented to the faculty in a 45-minute presentation followed by a 15-minute Q&A session in October following the first-year summer.
- The paper should be at least 20 pages long (including references), double-spaced with 1" margin on all sides, and written in academic English. It should be spell-checked and proof-read. The student should provide a cover page with title and an abstract with no more than 100 words. The paper should cite sources appropriately and be checked for plagiarism.
- After the presentation, the PG committee will evaluate both the written critical survey paper and the oral presentation, which are of equal importance. A Pass/Fail grade will be given.

(1) The Tech part mainly focuses on the materials covered in the following three courses:

- FTEC 5030 Statistical Methods for Financial Technology
- FTEC 5031 Advanced Probability Theory
- FTEC 5032 Optimization Theory

(2) The Fin part mainly focuses on the materials covered in the following three courses:

- FTEC 5100 Research in Corporate Finance
- FTEC 5101 Microeconomic theory
- FTEC 5110 Research in Asset Pricing

**Both Tech part and Fin  
part will be given a grade  
of P/MP/F.**

'P'=Pass, 'MP'=Marginal  
Pass, 'F'=Fail

To pass, the student should  
obtain one P plus one MP or  
above in sub-category  
grades

# PHD PROGRAM IN FINANCIAL TECHNOLOGY THRUST CURRICULUM DESIGN

- Core Courses + Required Course + Electives = 21 credits for PhD in minimum
- To meet individual needs, students will be taking courses in different areas, which may include but not limited to courses and areas listed below.

Course Type	Course Code	Course Title	Credits
Core Courses (6 credits)	IIMP 6030 OR IIMP 6010	IIMP 6030 Cross-disciplinary Design Thinking I OR Cross-disciplinary Research Methods I	2
	SOCH 5000	Technological Innovation and Social Entrepreneurship	2
	XXXX 5000	Hub Core Course of other 3 Hubs	2
Required Course (3 credits)	FTEC 5040	Financial Technology Research	3
PhD QE courses (18 credits)	FTEC 5030	Statistical Methods for Financial Technology	3
	FTEC 5031	Advanced Probability Theory	3
	FTEC 5032	Optimization Theory	3
	FTEC 5100	Research in Corporate Finance	3
	FTEC 5101	Microeconomic Theory	3
	FTEC 5110	Research in Asset Pricing	3
GTA training (0 credit)	PDEV 6800	Introduction to Teaching and Learning in Higher Education	0
Professional Development Course (2 credits)	PDEV 6770	Professional Development for Research Postgraduate Students	1
	SOCH 6780	Professional Development in Innovation, Technology, and Social Responsibility	1
Thesis Research Course (0 credit)	FTEC 6990	MPhil Thesis Research	0
	FTEC 7990	Doctoral Thesis Research	0

# PHD PROGRAM IN FINANCIAL TECHNOLOGY THRUST CURRICULUM DESIGN

Course Type	Course Code	Course Title	Credits
PhD Electives	FTEC 5050	Machine Learning and Artificial Intelligence	3
	FTEC 5060	Stochastic Processes	3
	FTEC 5061	Stochastic Calculus for Financial Technology	3
	FTEC 5120	Text Mining in Finance and Economics	3
	FTEC 5210	Quantitative Models for Financial Derivatives	3
	FTEC 5220	Monte Carlo Simulation in Finance	3
	FTEC 5230	Financial Risk Management	3
	FTEC 5310	Blockchain Technology	3
	FTEC 5320	Decentralized Finance	3
	FTEC 6000	FinTech Attachment	2-4
	FTEC 6101	FinTech Program Seminar	0
	FTEC 6910E	Game Theory	3
	FTEC 6910F	Machine Learning for Finance	3
	AIAA 5024	Advanced Deep Learning	3
	AIAA 5025	Deep Reinforcement Learning	3
	DSAA 5009	Deep Learning in Data Science	3
	DSAA 5013	Advanced Machine Learning	3
	DSAA 5022	Data Analysis and Privacy Protection in Blockchain	3
	IOTA 5501	Convex and Nonconvex Optimization I	3
	IPEN 5130	Economics of Technology Innovation and Entrepreneurship	3
	IPEN 5200	Uncertainty, Information and Decision Making	3
	IPEN 5250	Text Analysis and Machine Learning	3
	IPEN 5300	Experimental Economics and Organizational Behavior	3
	IPEN 5900	Policy and Technology for Carbon Neutrality	3
	UGOD 5020	Quantitative Social Science	3

# OUR FACULTY

## Regular Faculty at Fintech Thrust

(All names are arranged in alphabetical orders)



### Ning CAI

Head / Professor  
FTEC

✉ [ningcai@hkust-gz.edu.cn](mailto:ningcai@hkust-gz.edu.cn)

PhD in Operations Research  
Columbia University, 2008

Research Interests:  
FinTech, Financial Engineering,  
Risk Management, Green Finance,  
Stochastic Modeling



### Lionel Ming-Shuan NI

President / Chair Professor  
FTEC | DSA

✉ [ni@hkust-gz.edu.cn](mailto:ni@hkust-gz.edu.cn)

PhD in Electrical Engineering  
Purdue University, 1980

Research Interests:  
Big Data, High-performance  
Computing, Internet Technologies,  
Mobile Computing, Wireless  
Networking, Intelligent Computing



### Yue Kuen KWOK

Professor  
FTEC

✉ [maykwok@hkust-gz.edu.cn](mailto:maykwok@hkust-gz.edu.cn)

PhD in Applied Mathematics  
Brown University, 1985

Research Interests:  
Financial Mathematics,  
Computational Mathematics,  
Financial Engineering



### Yingying LI

Chair Professor  
FTEC | ISOM | FINA

✉ [yyl@ust.hk](mailto:yyl@ust.hk)

PhD in Statistics  
The University of Chicago, 2008

Research Interests:  
Financial Big data, Statistical  
Learning, Portfolio Analysis, Risk  
Management



### Ziteng CHENG

Assistant Professor  
FTEC

✉ [zitengcheng@hkust-gz.edu.cn](mailto:zitengcheng@hkust-gz.edu.cn)

PhD in Applied Mathematics  
Illinois Institute of Technology,  
2021

Research Interests:  
Risk-Averse Decision Making,  
Reinforcement Learning, Inverse  
Reinforcement Learning, Mean  
Field Games, Mathematical  
Finance



### Bingyan HAN

Assistant Professor  
FTEC

✉ [bingyanhan@hkust-gz.edu.cn](mailto:bingyanhan@hkust-gz.edu.cn)

PhD in Statistics  
Chinese University of Hong Kong,  
2020

Research Interests:  
FinTech, Optimal Transport,  
Mathematical Finance





### Siguang LI

Assistant Professor  
FTEC

✉ [siguangli@hkust-gz.edu.cn](mailto:siguangli@hkust-gz.edu.cn)  
PhD in Economics  
Cornell University, 2022  
Research Interests:  
Fintech, Digital Economies, Social  
Media, Industrial Organization,  
Applied Theory



### Xiaoyu WANG

Assistant Professor  
FTEC

✉ [xiaoyuwang@hkust-gz.edu.cn](mailto:xiaoyuwang@hkust-gz.edu.cn)  
PhD in Mathematics  
Florida State University, 2021  
Research Interests:  
Theoretical Machine Learning,  
Financial Engineering, Stochastic  
Systems



### Xuechao WANG

Assistant Professor  
FTEC | IOT

✉ [xuechaowang@hkust-gz.edu.cn](mailto:xuechaowang@hkust-gz.edu.cn)  
PhD in Electrical & Computer  
Engineering  
University of Illinois at Urbana-  
Champaign, 2023  
Research Interests:  
Blockchain, Decentralized Finance



### Zixuan YUAN

Assistant Professor  
FTEC | AI

✉ [zixuanyuan@hkust-gz.edu.cn](mailto:zixuanyuan@hkust-gz.edu.cn)  
PhD in Information Technology  
Rutgers University, 2023  
Research Interests:  
Data Science and Artificial  
Intelligence, Financial Technology,  
Text Analytics, Recommendation  
Systems



### Chao ZHANG

Assistant Professor  
FTEC

✉ [chaoz@hkust-gz.edu.cn](mailto:chaoz@hkust-gz.edu.cn)  
PhD in Statistics  
University of Oxford, 2022  
Research Interests:  
Machine Learning in Finance



### Guang ZHANG

Assistant Professor  
FTEC

✉ [guangzhang@hkust-gz.edu.cn](mailto:guangzhang@hkust-gz.edu.cn)  
PhD in Economics  
Boston University, 2021  
Research Interests:  
FinTech, Financial Econometrics,  
Machine Learning, Empirical  
Finance



### Leifu ZHANG

Assistant Professor  
FTEC

✉ [leifuzhang@hkust-gz.edu.cn](mailto:leifuzhang@hkust-gz.edu.cn)  
PhD in Finance  
Washington University in St. Louis,  
2021  
Research Interests:  
FinTech, Information Economics in  
Financial Markets,  
Adversarial/Strategic ML/AI & Its  
Applications, Decentralized  
Finance (DeFi)



### Yi ZHANG

Assistant Professor  
FTEC

✉ [ethanyizhang@hkust-gz.edu.cn](mailto:ethanyizhang@hkust-gz.edu.cn)  
PhD in Finance  
Imperial College London, 2023  
Research Interests:  
Theoretical and Empirical Climate  
Asset Pricing, Climate Finance,  
Macro Finance, ESG, Text Mining,  
China Economy, Applied Machine  
Learning



### Ying ZHANG

Assistant Professor  
FTEC

✉ [yingzhang@hkust-gz.edu.cn](mailto:yingzhang@hkust-gz.edu.cn)

PhD in Mathematics

University of Edinburgh, 2020

Research Interests:

Numerical Algorithms Design,  
Machine Learning and Finance,  
Stochastic Optimization



### Zimu ZHU

Assistant Professor  
FTEC

✉ [zimuzhu@hkust-gz.edu.cn](mailto:zimuzhu@hkust-gz.edu.cn)

PhD in Applied Mathematics

University of Southern California,  
2021

Research Interests:

Stochastic Control and Games,  
Mathematical Finance, Principal-  
Agent Problem, Machine Learning



### Ruiting ZUO

Assistant Professor  
FTEC

✉ [ruitingzuo@hkust-gz.edu.cn](mailto:ruitingzuo@hkust-gz.edu.cn)

National University of Singapore,  
2022

Research Interests:

Finance-Operations Interface, E-  
Commerce and Marketplace  
Analytics, Operations-Marketing  
Interface, Game Theory, Optimal  
Control, Data-driven Decision  
Making

## **Professor of Practice and Industry Advisors**

**QI Lei 齐磊 博士** – *Associate Professor of Practice with Fintech*

*Co-Founder and CEO* 创业合伙人兼总经理

Wizard Capital Research Ltd. 蔚泽资本

**CHENG Rocky 郑松岩博士**

*General Manager of Information Technology Department* 资讯科技部总经

理兼首席信息官

Bank of China (HK) 中国银行（香港）

**GUO Jian 郭健 博士**

*Assistant President and Chief Scientist of AI Finance & Machine Learning* 助理院长兼

人工智能金融与机器学习首席科学家

International Digital Economy Academy at GBA(IDEA) 粤港澳大湾区数字经济研究院

**JIA Hongrui 贾红睿 博士**

*CEO* 行政总裁

SPDB International 浦银国际

**MA Henry 马智涛 先生**

*Executive Vice President and Chief Information Officer* 副行长兼首席信息官

WeBank微众银行

**MA Jian 马坚 博士**

*Executive Director of Quantitative Research* 量化研究总监

J.P. Morgan 摩根大通

**XIAO Jing 肖京 博士**

*Chief Scientist* 首席科学家，执委

Ping An Group 平安集团

**XU Xiaohong 徐晓红 博士**

*Partner and Chief Executive Officer* 创业合伙人及总经理 兼任国家外汇管理局中央外汇业务中心顾问

Zhuhai Defen Financial Technology Co. 珠海得分金融科技有限公司

# RESEARCH SEMINAR

## Thrust Seminars

Thrust Seminars are offered each term every **Friday 9:00 am-10:30 am**

Improving academic communications and enhancing PG students' access to cutting-edge FinTech research



Fintech Thrust Seminar

### Finance Lease and the Capital Allocation Efficiency in China

Date: March 1st (Fri.), 2024  
Time: 09:00 – 10:20 am  
Venue: E1, 1F, Room 134



Speaker – Prof. Kai Li  
Peking University JSBC Business School  
(PHBS)



Fintech Thrust Seminar

### Replicating and Digesting Anomalies in the Chinese A-share Market

Date: April 18th (Thu.), 2024  
Time: 02:30 – 4:00 pm  
Venue: E1, 1F, Room 134



Speaker – Professor K.C. John Wei  
The Hong Kong Polytechnic University

## Public Seminars

Previous public seminars:

Fintech Thrust – Public Seminar



Speaker - Prof Kay Giesecke  
Professor of Management Science & Engineering  
Stanford University

### Deep Learning for MBS Prepayments

Date: September 28 (Wed), 2022  
Time: 10:30 am – 11:30 am  
Zoom ID: 926 2186 1328  
Passcode: Fintech



Fintech Thrust – Public Seminar



Speaker - Prof Yin GUO  
Coleman Fung Chair Professor in Financial Modeling  
University of California, Berkeley

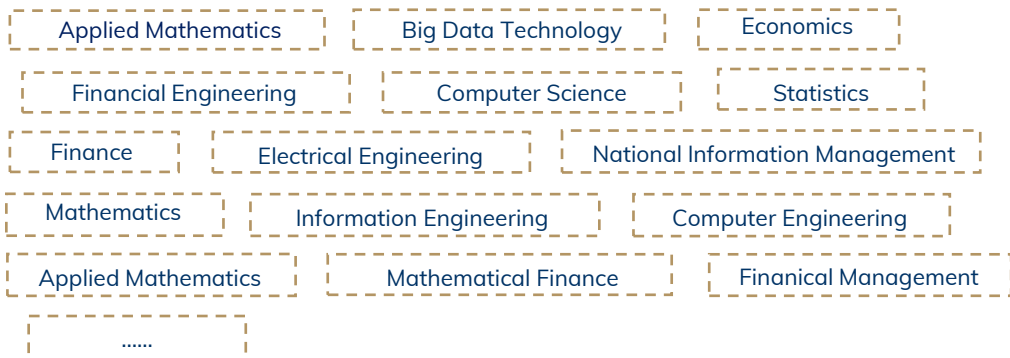
### Mathematics of Transfer Learning and Transfer Risk, with Applications to Finance

Date: December 22 (Fri), 2023  
Time: 3:00 – 4:30 pm  
Venue: W1 – Room 101

# OUR STUDENTS

## Educational/Academic background of current Fintech Students

### Academic Backgrounds



### Graduate Universities/Colleges

#### *Undergraduate Studies:*



#### *Postgraduate Studies:*



# ADMISSION REQUIREMENTS

## General Admission Requirements

**Applicants seeking admission to a doctoral degree program should have:**

Obtained a bachelor's degree with a proven record of outstanding performance from a recognized institution; or presented evidence of satisfactory work at the postgraduate level on a full-time basis for at least one year, or on a part-time basis for at least two years.

## English Language Admission Requirements

**Applicants have to fulfill English Language requirements with one of the following proficiency attainments:**

- ◆ TOEFL-iBT: 80\*
- ◆ TOEFL-pBT: 550
- ◆ TOEFL-Revised paper-delivered test: 60 (total scores for Reading, Listening and Writing sections)
- ◆ IELTS (Academic Module): Overall score: 6.5 and All sub-score: 5.5\*
- Refers to scores in one single attempt only. Test at home option is not accepted.

**Applicants are not required to present TOEFL or IELTS score if**

- ◆ Their first language is English, or
- ◆ They obtained the bachelor's degree (or equivalent) from an institution where the medium of instruction was English, or

You are not required to take the English Proficiency Test if you obtained a master's degree (or above) from an institution where the medium of instruction was English.

# Research Postgraduate Programs (PhD)

Application Fees  
**CNY 150**

## Tuition

Research Postgraduate Programs (with PGS)  
Full-time  
**CNY 40,000**  
per academic year

Research Postgraduate Programs (self-financing)  
Full-time/Part-time  
**CNY 150,000**  
per academic year

Visiting Postgraduate Students  
**CNY 3,300** per credit  
Visiting Research Students  
**CNY 1,500** per credit

Postgraduate Studentship (PGS)  
**CNY 15,000**  
per month, up to 4 years for full-time PhD students

### Useful QR code

For Program Details



Contact Proposed Supervisors



Submit Online Application



HKUST(GZ) SOCIETY HUB

# FINANCIAL TECHNOLOGY THRUST

PH. D. PROGRAM

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🌐 Website: <https://www.hkust-gz.edu.cn/academics/hubs-and-thrust-areas/society-hub/financial-technology/>

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