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ENQUIRY:

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PROGRAMME LEADER
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DEPUTY PROGRAMME LEADER
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Ms Ida Man Tel: 2766 6948

DEPARTMENT OF APPLIED MATHEMATICS
Room TU732, 7/F, Core T, Yip Kit Chuen Building
The Hong Kong Polytechnic University
Hung Hom, Kowloon, Hong Kong

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

Minor in Applied Mathematics
副修應用數學 (Programme code: 63421)

APPLIED MATHEMATICS: YOUR GATEWAY TO THE WORLD OF AI

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The Department of Applied Mathematics offers a Minor Programme in Applied Mathematics to Year 2 students of PolyU. Undergraduate students* from any UGC-funded full time degree programme are welcome to apply to this Minor Programme. Subject to approval, students may count up to 6 credits from their Major/ GUR towards this Minor.

PROGRAMME CHARACTERISTICS

The Minor in Applied Mathematics empowers students to complement their degree with the essential quantitative skills that form the foundation of artificial intelligence. By developing a strong background in mathematics, students showcase their ability to think critically, logically, and creatively—skills that are vital for success in AI. This programme cultivates expertise in pattern recognition, abstract reasoning, data analysis, and problem-solving, all of which are central to building and understanding intelligent systems. With formal training in applied mathematics and its real-world applications across business, finance, management, social sciences, science, and engineering, students open the door to exciting opportunities in AI-driven industries and innovation.

OBJECTIVES

The specific aims of this programme are:

(i) To expand students' academic horizons beyond their major discipline by providing a solid foundation in applied mathematical techniques that are essential for solving complex problems in artificial intelligence and data-driven fields.

(ii) To equip students with rigorous training in applied mathematics—including operational research, risk analysis, statistics, and financial computing—with a strong emphasis on real-world applications that underpin AI technologies and innovation across diverse industries.

ELIGIBLE APPLICANTS

Year 2 students from any UGC-funded full time degree programme of PolyU with GPA of 2.5 or above

** Exclusion: students of the programmes below*

- BSc(Hons) in Investment Science and Finance Analytics (63426/63426-SY/63428-IFA)

- BSc(Hons) in Data Science and Analytics (62428-SYD/62428-DSA)

- BSc(Hons) in Investment Science and Finance Analytics with a Secondary Major in AI & Data Analytics (63428-XAF)

- BSc(Hons) in Data Science and Analytics with a Secondary Major in Innovation and Entrepreneurship (62428-XID)

HOW TO APPLY

- In semester 1 of their 2nd year of study, students may submit applications to their Major Department for endorsement
- The endorsed application will be sent to AMA for final approval.

APPLICATION PERIOD

- 8-16 October 2025

CREDIT REQUIREMENT

(a) Core (compulsory) subjects	6 credits
(b) Electives	12 credits
Total credit required	**18 credits**

SUBJECT LIST [1]

(a) TWO core (compulsory) subjects

One Statistics course from below[2]		
AMA1501[4]	Introduction to Statistics for Business (For FB and SHTM students only)	Level 1
AMA1602	Introduction to Statistics	Level 1
AND One Calculus course from below[3]		
AMA2111[4]	Mathematics I	Level 2
AMA2131	Mathematics for Engineers	Level 2
AMA2380	Engineering Mathematics	Level 2
AMA2707	Intermediate Calculus and Linear Algebra	Level 2
AMA2882	Mathematics for Scientists and Engineers	Level 2

1. *All subjects carry 3 credits except for AMA2882 (4 credits).*
2. *Students who have completed AMA2104 should not take AMA1501/AMA1602 thereafter. They are required to apply for exemption and take ONE elective subject to replace AMA1501/AMA1602.*
3. *Students who have completed AMA2511, AMA2512 or AMA290 should not take AMA2111, AMA2131, AMA2308, AMA2380, AMA2707 or AMA2882. They are required to take ONE elective subject to replace AMA2111, AMA2131, AMA2308, AMA2380, AMA2707 and AMA2882 instead.*
4. *Students who have compulsory subject AMA1501 or AMA2111 double counting towards their Major and Secondary Major in AIDA, should apply for exemption and take ONE elective subject to replace AMA1501 or AMA2111.*

(b) Electives: Choose FOUR subjects from the following lists, THREE at level 3 or above

Applied Statistics		
AMA2104	Probability and Engineering Statistics	Level 2
AMA2691	Probability and Distributions	Level 2
AMA3602	Applied Linear Models	Level 3
AMA3640	Statistical Inference	Level 3
AMA3658	Stochastic Processes for Investment	Level 3
AMA4363	Loss Models	Level 4
AMA4381	Econometrics	Level 4
AMA4602	High Dimensional Data Analysis	Level 4
AMA4650	Forecasting and Applied Time Series Analysis	Level 4
Applied Mathematics		
AMA2112	Mathematics II	Level 2
AMA3201	Computational Methods	Level 3
AMA3231	Numerical Methods and Computing	Level 3
AMA3707	Real Analysis	Level 3
AMA3708	Differential Equations	Level 3
AMA3724	Further Mathematical Methods	Level 3
Financial Mathematics		
AMA3304	Theory of Interest and Portfolio Analysis	Level 3
AMA4325	Derivative Pricing	Level 4
AMA4380	Algorithmic and High Frequency Trading	Level 4
AMA4390	Quantitative Finance and Financial Technology	Level 4
Operational Research		
AMA3820	Operations Research Methods	Level 3
AMA4688	Simulation	Level 4
AMA4840	Decision Analysis	Level 4
AMA4850	Optimization Methods	Level 4