Impact the world with the limitless power of AI
Deep Learning

Neural Network

Input Layer  
Hidden Layers  
Output Layer

BIG DATA

Lots of data

Data representations (feature hierarchy)

Deep & Large Networks

GPU A100

Deep Learning
Bachelor of Arts and Sciences (Applied AI)

Interdisciplinary programme co-offered by:

New option for elite students
Formal training to elite students who wish to join the AI profession

Interdisciplinary training
Provides a wide range of courses in mathematics, statistics, computer science, geography, psychology, and urban studies

Interdisciplinary programme co-offered by:

- Science
- Faculty of Architecture
- Faculty of Social Sciences
- Faculty of Engineering
- Department of Statistics & Actuarial Science
- Department of Mathematics
Bachelor of Arts and Sciences (Applied AI)

- Highlights diverse AI applications with a philosophical and ethical dimension
  - develops intellectual capacity for meeting new challenges

- Nurtures to transfer interdisciplinary scientific knowledge into integrated applications and technological innovations

- Emphasizes problem-based learning

- Delivers both fundamental and practical knowledge to fit into different career settings
Bachelor of Arts and Sciences (Applied AI)

AI Applications

- AI in Business and Finance
- AI in Medicine
- AI Technology
- AI in Smart City
- AI in Neurocognitive Science
AI Technology

Computer Vision

Natural Language Processing

High-performance Computing

Robotics
AI in Medicine

HKU statisticians develop online diagnostic system for screening COVID-19 with AI technologies based on chest CT dataset

02 Jun 2020
AI in Business and Finance

Robot advisors

Financial data analytics

Final year projects directed by researchers from the Artificial Intelligence Research Group of the Faculty of Business and Economics, e.g. Prediction of Stock Returns from Social Media Using Deep Learning
AI in Smart City

Students may work with researchers from the Institute of Transport Studies of HKU
AI in Neurocognitive Science

Understanding your brain

Cognition
Memory
Perception

Behaviour
Brian disorder
Parkinson’s disease
Alzheimer’s disease

Students may work with researchers from Department of Psychology and Faculty of Education.
Curriculum Structure & Course Selection
General Structure

Forty 6-credit courses spanning over 4 years of full-time study

(240 Credits)

UNIVERSITY EDUCATION
Language Courses
Common Core Courses (36 credits)

PROGRAMME CORE
Core Courses
Concentration & Electives
Capstone Course (96 credits)

2nd MAJOR / MINOR(S) / ELECTIVES
(90 credits)

BASc HORIZONTAL COURSES
(18 credits)

Remarks:
- Programme Core: MUST take
- 1 course = 6 credits
- 1 semester = 30 credits = 5 courses
- Variations are possible (+ - credits)
- Total number of credits cannot exceed 288 credits
Programme Core Courses  (96 credits)

BASc(AppliedAI) Curriculum*

Core Courses (66 credits)

- APA10001 Artificial intelligence: foundation, philosophy and ethics
- COMP1117 Computer programming
- COMP2119 Introduction to data structures and algorithms
- COMP2123 Computer organization
- COMP2340 Applied deep learning
- MATH1013 University mathematics II
- MATH2014 Multivariable calculus and linear algebra
- MATH3004 Introduction to optimization
- STAT2801 Probability and statistics I
- STAT2802 Probability and statistics II
- STAT3612 Statistical machine learning

Concentration (24 credits)

(For fulfilling the requirement of a concentration, students should choose at least 18 credits, with at least 6 credits of which should be at advanced-level, from the corresponding list)

- Artificial intelligence: Robotics
- Artificial intelligence: Image processing and computer vision
- Artificial intelligence: Natural language processing
- Artificial intelligence: High-performance computing
- Artificial intelligence: Special topics of applied AI
- Electronic commerce technology
- Operations research I
- Financial calculus
- Marketing analytics
- Time-series analysis
- Special topics of applied AI
- Survival analysis
- Bayesian learning
- Modern biostatistics
- Omics data analysis
- Medical image analysis
- Special topics of applied AI
- Theories and global trends in urban development
- Urban problems, interventions and design thinking
- Introduction to geographic information systems
- GIS in environmental studies
- Transport and society
- Special topics of applied AI
- Introduction to psychology
- Cognitive psychology
- Perception
- Foundations of cognitive science
- Seminars in cognitive science
- Special topics of applied AI
- Design and analysis of algorithms
- Introduction to database management systems
- Numerical analysis
- Game theory and strategy
- Network models in operations research
- Linear statistical analysis
- Data visualization
- Multivariate data analysis

Capstone Requirement (6 credits)

- At least 6 credits selected from the following courses:
  - APAIS799 Directed studies in applied AI
  - APAI4786 Applied AI internship
  - APAI4798 Applied AI project (12-credit)

AI Technology

- COMP3271 Computer graphics
- COMP3356 Robotics
- APAI4010 Image processing and computer vision
- APAI4011 Natural language processing
- APAI4012 High-performance computing
- APAI4099 Special topics of applied AI

AI in Business and Finance

- MATH3901 Operations research I
- MATH3906 Financial calculus
- STAT3613 Marketing analytics
- STAT4601 Time-series analysis
- APAI4099 Special topics of applied AI

AI in Medicine

- STAT3655 Survival analysis
- STAT4610 Bayesian learning
- APAI4021 Modern biostatistics
- APAI4022 Omics data analysis
- APAI4023 Medical image analysis
- APAI4099 Special topics of applied AI

AI in Smart City

- URB31003 Theories and global trends in urban development
- URB31005 Urban problems, interventions and design thinking
- GEOG2090 Introduction to geographic information systems
- GEOG3202 GIS in environmental studies
- GEOG4240 Transport and society
- APAI4099 Special topics of applied AI

AI in Neurocognitive Science

- PSYC1001 Introduction to psychology
- PSYC2007 Cognitive psychology
- PSYC2051 Perception
- PSYC2068 Foundations of cognitive science
- PSYC2067 Seminars in cognitive science
- APAI4099 Special topics of applied AI

Other Elective Courses

- COMP3250 Design and analysis of algorithms
- COMP3278 Introduction to database management systems
- MATH3601 Numerical analysis
- MATH3911 Game theory and strategy
- MATH3943 Network models in operations research
- STAT3600 Linear statistical analysis
- STAT3622 Data visualization
- STAT4002 Multivariate data analysis

* The curriculum and course offering are subject to changes. Each course is 6-credit bearing unless otherwise stated.
* Course code and course title are to be confirmed.

Students are reminded to take 3 BASc core courses to fulfill the BASc core course requirement.

- BASC3001 Approaching interdisciplinarity: Knowledge beyond disciplines;
- DESN3002 Sustainable leadership; and
- STAT1016* Data Science 101

* Course code and course title are to be confirmed.
BASc HORIZONTAL COURSES
(18 credits)

★ BASC9001 Approaching Interdisciplinarity: Knowledge Beyond Disciplines
★ DESN9001 Leadership Beyond Borders
★ STAT1016 Data Science 101

- Multidisciplinary training in leadership, design thinking
- Introduction to foundations of human knowledge and data science
- Networking with fellow students from other BASc programmes
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<tr>
<th>Year</th>
<th>Semester</th>
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<td></td>
<td>Discipline Core</td>
<td>APAH1001 Artificial Intelligence: Foundation, Philosophy and Ethics</td>
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<td>COMP1117 Computer Programming</td>
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<td>MATH3014 Multivariable Calculus and Linear Algebra</td>
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<td>STAT3604 Introduction to Optimization</td>
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<td></td>
<td>COMP1113 Programming Technologies (Prerequisite of COMP2119)</td>
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<td>COMP1119 Introduction to Data Structures and Algorithms</td>
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<td>MATH3004 Computer Organization</td>
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<td>STAT3942 Statistical Machines Learning</td>
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<td>University Mathematics II</td>
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<td>STAT2001 Probability and Statistics I</td>
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<td>COMP2119* Computer Organization</td>
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<td>Other</td>
<td>COMP2113 Programming Technologies (Prerequisite of COMP2119)</td>
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<td>STAT3604* Linear Statistical Analysis</td>
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<td>(available in both semesters)</td>
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<tr>
<td></td>
<td>BASc Core (in purple font) and Disciplinary Elective (in blue font)</td>
<td>BACSC9001 Approaching Interdisciplinarity: Knowledge Beyond Disciplines</td>
<td></td>
<td>STAT1101 Data Science 101 (admission: 2023 and thereafter)</td>
<td></td>
<td>DESN9002 Sustainable Leadership (admission: 2020 and thereafter)</td>
<td></td>
<td>At least 24 credits from the following courses in Lists A1, A2, and B (For fulfilling the requirement of a concentration, students should choose at least 18 credits, with at least 6 credits of which should be at advanced-level, from the corresponding list):</td>
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<td>AI Technology (List A1)</td>
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<td>COMP3271 Computer Graphics</td>
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<td>COMP3385 Robotics</td>
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<td>APAB3016 Image Processing and Computer Vision</td>
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<td>APAB4011 Natural Language Processing</td>
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<td>APAB4012 High-Performance Computing</td>
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<td>APAB4099 Special Topics of Applied AI</td>
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<td>AI in Business and Finance (List A2)</td>
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<td>COMP3320 Electronic Commerce Technology</td>
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<td>MATH3901 Operations Research I</td>
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<td>MATH3906 Financial Calculus</td>
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<td>STAT3615 Marketing Analytics</td>
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<td>STAT4011 Time Series Analysis</td>
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<td>APAB4099 Special Topics of Applied AI</td>
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<td>AI in Medicine (List A3)</td>
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<td>STAT3605 Survival Analysis</td>
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<td>STAT4010 Bayesian Learning</td>
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<td>APAB001 Modern Biostatistics</td>
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</tbody>
</table>
AI Projects

Generalizable machine learning technology with application in medical image analysis

AI Video Analytics Tool for Human Behavioural Intelligence
AI Projects

Generalizable training algorithms for deep learning based image Classification

Prediction of Stock Returns from Social Media Using Deep Learning
Recognition of imagined handwritten content from brain signals
Information & supports
The programme connects the exploding demand of the AI market in diverse areas, such as:

- Science & technology
- Environmental protection
- Medical informatics
- Healthcare
- Business
- Banking & finance
- Urban development
- Neurocognitive science
Career Support and Activities

- Centre of Development and Resources for Students (CEDARS) (www.cedars.hku.hk)
- Departmental Internship/Job Online-application System
- Career Advising Programme (CAP)
  - Professional Preparation Programme (PPP)
  - Individual consultation on cover letter, CV and interview skills
  - Corporate Mentorship Programme (CMP)
  - Market information workshop
  - Firm visits and alumni sharing
  - SAAS Career Fair
SAAS Career Fair 2023
Support for internships
Partner with Industrial Leaders
(in year 3 or year 4)
Admissions Requirements
Minimum Programme Entrance Requirements:

- **ENG** English Language
- **CHI** Chinese Language
- **MATH** Mathematics
- **Citizenship and Social Development / Liberal Studies**
- **Elective Subjects**
- **M1 or M2 in Mathematics**

<table>
<thead>
<tr>
<th>Level</th>
<th>English Language</th>
<th>Chinese Language</th>
<th>Mathematics</th>
<th>Citizenship and Social Development / Liberal Studies</th>
<th>Elective Subjects</th>
<th>M1 or M2 in Mathematics</th>
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</table>

Selection principle: **BEST 5**

- English Language \( \times 2 \)
- Mathematics \( \times 2 \)
- M1 or M2 \( \times 2 \)
- The BEST 2 of remaining Category A Subjects^ 

^ Subject Weighting(s): 1.5 x Biology / Chemistry / Physics / Combined Science / Integrated Science / Information and Communication Technology

2023 JUPAS Weighted Admissions Score:

**Total score of Best 5 with M1/M2**

46.5 ~ 73.5

HKDSE ‘level to score’ conversion

| Category A Core and Elective Subjects and Extended Module 1 or Module 2 of Mathematics |
|---------------------------------|---|---|---|---|---|---|---|
| Level                           | 1 | 2 | 3 | 4 | 5 | 5* | 5**|
| Score                           | 1 | 2 | 3 | 4 | 5.5 | 7 | 8.5|

*Candidates with level 4 in English Language, if admitted, will be required to take 6 additional credits in Core University English to complete their degree studies.

2024 Admissions Quota

15
## Science Entrance Scholarship

<table>
<thead>
<tr>
<th>HKDSE Examination Results in one-sitting (total score in best 5 subjects in Category A or Extended Module 1 or Module 2 of Mathematics)</th>
<th>Scholarship Amount (HK$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score = 42.5</td>
<td>$70,000</td>
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<tr>
<td>Score ≥ 41</td>
<td>$60,000</td>
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<tr>
<td>Score ≥ 39</td>
<td>$50,000</td>
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<tr>
<td>Score ≥ 37</td>
<td>$40,000</td>
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<tr>
<td>Score ≥ 35</td>
<td>$20,000</td>
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<tr>
<td>Score &lt; 35 with 5** in at least 2 subjects from Biology/ Chemistry/ Physics/ Combined Science/ Integrated Science/ Mathematics/ M1/ M2</td>
<td>$15,000</td>
</tr>
<tr>
<td>Score &lt; 35 with 5** in at least 1 subject from Biology/ Chemistry/ Physics/ Combined Science/ Integrated Science/ Mathematics/ M1/ M2</td>
<td>$10,000</td>
</tr>
</tbody>
</table>
Bachelor of Arts and Sciences (Applied AI)

2023 Admissions Statistics – Non-JUPAS

(for reference)

GCEAL
(Further Mathematics required)
Lowest admissions score
3A*

IB
(Higher Mathematics required)
Lowest admissions score
39 (out of 45)

No. of students admitted in 2023:
JUPAS: 25
Non-JUPAS & Mainland Gaokao: 10
Who’s who?

Programme Co-Directors

Dr. Lequan Yu (Statistics, RRS 226)
Prof. Patrick NG (Mathematics, RRS 424)
Prof. Yizhou YU (CS Coordinator)

Course Selection Advisers

Dr. Liangqiong QU (RRS 121)
Dr. Yuenwen LEI (RRS 319)
Dr. Zheng QU (RRS 419)

Internship Adviser

Dr. Eric LI (RRS 117)

Administration
General Office (RRS, 3rd floor)
Department of Statistics & Actuarial Science
HKU SAAS Data Science Lab: AI and Big Data Science Tools Invention, School/Company Trainings, Virtual Internship & Mentorship Program, Virtual Entrepreneurship and Local and International Competition

Join our “We Innovation Together in Metaverse” Project in 23/24!

22/23 “We Together In Metaverse” Project

Enquiry: Dr Adela Lau at adelalau@hku.hk

23/24 “We Innovate Together In Metaverse” Project

https://saasweb.hku.hk/datasci/2324

Scan me!

- Company and School Trainings
- Virtual Entrepreneurship
- Local and International Competition
- Virtual Internship & Mentorship Program

https://dslab.saas.hku.hk/cgi-bin/application1.cgi/

https://saasweb.hku.hk/datasci/2223-metaverse.php

https://saasweb.hku.hk/datasci/competitions.php

Enquiry:
Dr Adela Lau
adelalau@hku.hk

Join our “We Innovation Together in Metaverse” Project in 23/24!