

# BSc in Biotechnology and Business (BIBU)

Jointly developed by HKUST's School of Science and School of Business and Management, the BIBU program is the first undergraduate program in Hong Kong that connects biotechnology to business. The interdisciplinary curriculum equips students with a solid foundation of essential technical knowledge (life science, biotechnology) and business know-how (accounting, finance, economics, operations management, etc.). Ideal candidates will be students who are technically competent and interested in biotechnology applications, and who are eager to develop a leadership career in the biotech or life science-related industries.



## Program Overview

- A unique undergraduate program specifically designed to groom competent students who are interested to pursue a managerial or leadership career in the biotechnology or life science-related industries in the global and particularly the Greater China market
- Broad-based learning experience that cuts across biotechnology, life science applications and business management, providing students a solid foundation to serve and lead in the biotech industry
- Internship opportunities for students to gain practical industry experience, which helps increase chances of employment after graduation
- No. 1 in Hong Kong and Top 5 in Asia in three business-related disciplines (QS World University Rankings 2020); No. 11 in Natural Science (QS Asian University Rankings 2020)
- 78% of Business / 60% of Biological Sciences research activity at HKUST graded as world leading or internationally excellent (UGC Research Assessment Exercise 2014)

## Program Structure

The holistic BIBU curriculum cuts across multiple disciplines, including various domains of life science and biotechnology, as well as foundational business subjects including accounting, economics, finance, marketing, and operations management.

This is a 4-year program with a total of 118-122 credits:

Subject Area	Credits
Life Science	22-25
Science Core	12-17
Business Core	29
Interdisciplinary (BIBU)	10-13
Biotechnology/Business Elective	9
English for Science/Business	6
University Common Core	30

Interdisciplinary courses such as “Biotechnology and Business Seminar” and “Biotechnology Entrepreneurship and Business Operations” represent unique elements in the curriculum. These courses allow students to make connections between ideas and concepts across the disciplinary boundary of biotechnology and business, deepen their learning experience, and develop their cognitive skills, critical thinking and creative problem-solving skills.

### Exclusive courses for BIBU students:

- BIBU 1010 – Biotechnology and Business Seminar
- BIBU 4820 – Biotechnology Entrepreneurship and Business Operations
- BIBU 4830 – Biotechnology Management
- BIBU 4840/4850 – BIBU Capstone Project

## Program Highlights

- The broad-based learning experience helps equip students with a solid foundation of knowledge and skills to function effectively in the biotechnology industry
- Internship opportunities and industrial visits provide students with a global outlook on biotechnology development and applications in a business setting
- Enhance students' creativity and critical thinking skills
- The holistic curriculum nurtures students to become effective managers and leaders in the biotechnology industry

## Enrichment Activities

To help students develop a global perspective as well as sharpen their interpersonal skills, the School of Science (SSCI) and the School of Business and Management (SBM) of HKUST run a wide variety of enrichment activities such as international exchange, career training and internship program, and social service projects.

Students enrolled under the joint-school BIBU program are eligible to:

- sign up for professional seminars and co-curricular programs organized by both Schools;
- join either School's international exchange program; and
- access the job banks and career services provided by both Schools.



## Career Prospects

The holistic BIBU experience prepares students to excel in any career path they aspire to. Diversified career opportunities are available in both public and private sectors in Hong Kong and Greater China.

Talents equipped with both biotech knowledge and a business mind are scarce in the region. The balanced biotechnology and business curriculum prepares students to develop a managerial or leadership career in the biotech or life science-related industries. Potential employers include:

- Multinational pharmaceuticals
- Bioproducts vendors
- Biotech services providers
- Medical device manufacturers
- Consulting firms focusing on the biotech/pharma industries

BIBU students may also choose to pursue postgraduate studies specializing in the fields of biotechnology or business and management after graduation.



A BIBU student went on an exchange at University of Notre Dame in Indiana



BIBU students interned at the Hong Kong Productivity Council





## Words from BIBU Graduate

With professional education in both business and science, I have been offered a wide range of opportunities to develop my potential, explore career interests and build up relationships. The scientific thinking, business mind and interdisciplinary knowledge and skills that I have acquired are transferrable across job functions and industries.

### Heidy CHEUNG

BSc in Biotechnology and Business, Class of 2022

## Admissions Requirements

Prospective students may apply for the BIBU program through direct choice in the JUPAS/Non-JUPAS admissions scheme, or transfer from the regular Science / Business School programs after their first year of study. Admissions is based on academic results and interview performance.

### JUPAS

Program-based Entry (JS5811)  
**HKDSE** applicants with either:  
**Biology or Chemistry**

### Non-JUPAS

Applicants with Int'l Qualifications  
(**IBDP, GCEAL, SAT**, etc.)  
and at least one senior level  
subject from:  
**Biology / Chemistry /  
Mathematics**

### Transfer from Science or Business School Programs

SSCI / SBM - an option for  
students **without** HKDSE  
Biology and Chemistry

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### School of Science – Undergraduate Admissions

Tel : (852) 2358 5065  
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Instagram : [@hkust.ug.science](https://www.instagram.com/hkust.ug.science)

### BIBU Program Office

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BIBU website




SSCI Linktree





# BSc in Data Science and Technology (DSCT)



The Data Science and Technology (DSCT) program is jointly offered by the School of Science and the School of Engineering. Various business and industry sectors have a huge demand for data specialists / scientists to conduct an in-depth analysis of the valuable datasets collected during the business process. The program will equip students with various mathematical tools, data analytical skills and IT technologies to make sense of data obtained from various sources.

DSCT students use a wide spectrum of mathematical and IT tools to develop basic knowledge of data analysis and programming skills that will allow them to understand and analyze actual phenomena of massive data obtained from rich information sources. Additionally, students will receive hands-on experience and expert guidance to acquire practical skills in data analysis that will provide them with an excellent step in their future. Areas of expertise in this program include machine learning, classification, clustering, data mining, database management, cloud computing, data visualization, etc.



## Program Curriculum

The DSCT program combines basic knowledge of data analytics, programming skills, mathematical and computational background, which provides students an excellent foundation a solid foundation for their future career.

The DSCT program is a tech-based program. We provide students with a solid foundation in the fundamental and in-depth knowledge in special areas.

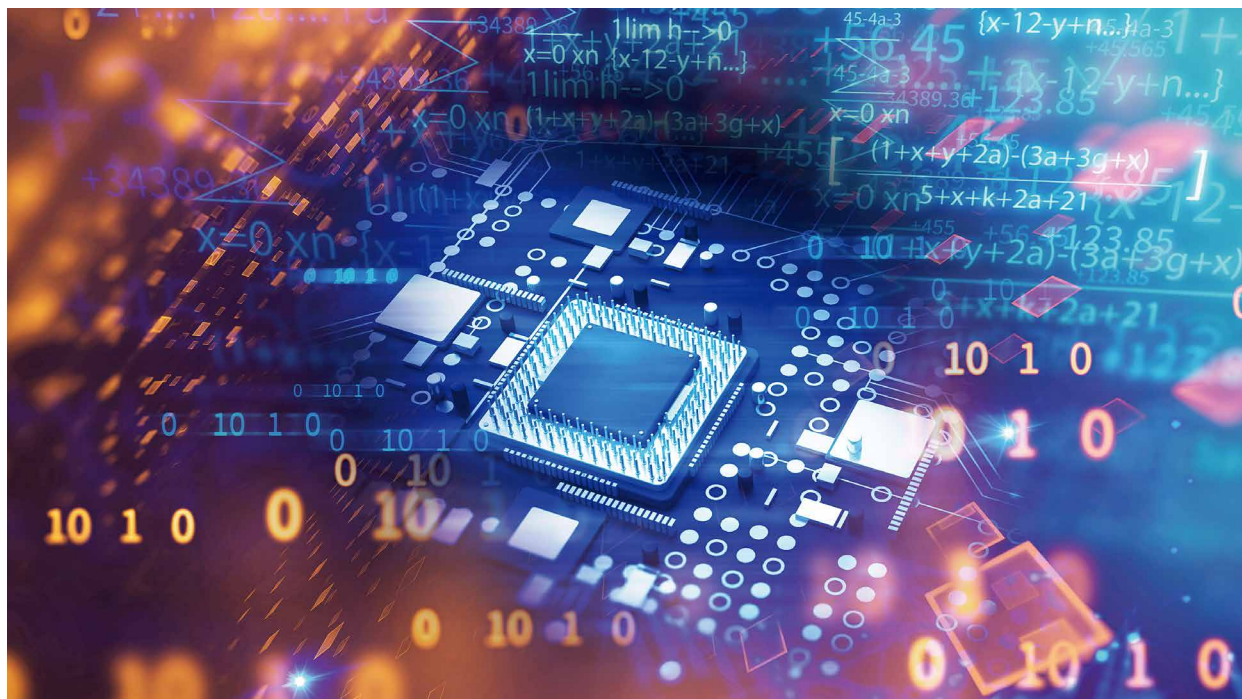
- It emphasizes on students' mathematical and computational disciplines.
- Students will receive hands-on experience and expert guidance to acquire practical skills of data analysis that will provide them a good step to their future.

## Intended Learning Outcomes

- The ability to understand data problems arising in the areas of commerce and industry etc.
- The ability to model data problems using different mathematical tools.
- The ability to design and implement efficient algorithms to solve different mathematical models for data problems.
- The ability to interpret the results provided by different algorithms and apply them to the data problems to gain meaningful insights or offer predictions.

## Applications of Data Science and Technology

- Gaming
- Recommendation System
- Commercial Data Analytics
- Social Media Analytics
- Digital Marketing
- Self-Driving System
- Speech Recognition
- Smart Cities and Urban Analytics
- Fintech
- Personalized Medicine



## Enrichment Activities

Students in the DSCT program can enjoy all the student services and facilities provided by both Schools:

- Exchange programs offered by the School of Science and School of Engineering
- Internship opportunities referred by the Department of Mathematics and the Department of Computer Science and Engineering



A DSCT student enjoyed a hack day at Google during the exchange at the Technical University of Denmark.



A DSCT student interned at Hong Kong Applied Science and Technology Research Institute (ASTRI) as a software engineer.

## Career Prospects

A lot of data specialist/scientist positions are created every day in various business and industry sectors to make use of the massive datasets collected there. Graduates of data science and technology is of high demand in today's job market, and most of them will be employed in those sectors such as IT, engineering, and finance. There will be other career opportunities such as management and sales etc. Below are some examples:

- Data Scientists
- Data Engineers
- Data Analysts
- Deep Learning Research Scientist
- Data Management Specialist
- Strategic Cloud Engineer







## Words from DSCT Student

I got my first internship opportunity in the summer of my sophomore year and gained experiences on conducting several projects and research with the professors. Besides, I joined an exchange program held by the School of Science in my junior year, which broadened my horizons and utterly changed the way I viewed the world. For me, studying DSCT at HKUST is one of the best choices I've ever made!

### Daniel KAO

BSc in Data Science and Technology, with additional major in Computer Science, Class of 2023

## Admissions Requirements

Prospective students interested in the DSCT program should first enter the Science (Group A) program from the School of Science (JUPAS Code: 5102) or the Engineering program from the School of Engineering (JUPAS Code: 5200) through the JUPAS school-based admissions scheme. After admitted to HKUST, students can opt to declare Data Science and Technology as the major upon completion of the first year of study.

Students will be required to take the following courses prior to enrollment into the major program:

- Calculus IA / Calculus IB / Honors Calculus I, and
- Calculus II / Honors Calculus II / Accelerated Calculus, and
- Introduction to Computer Science / Introduction to Computing with Java

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### School of Science – Undergraduate Admissions

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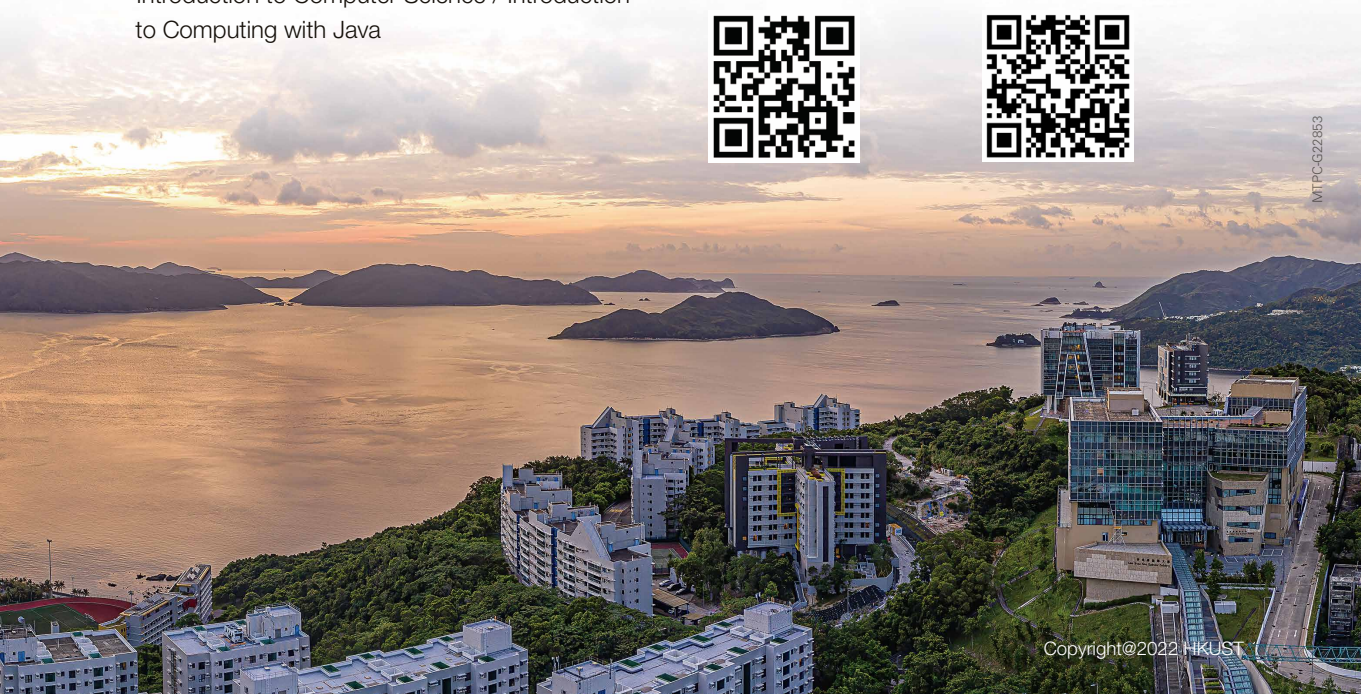
### DSCT Program Office

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DSCT website



SSCI Linktree



# BSc in Mathematics and Economics (MAEC)

This is an interdisciplinary program jointly offered by the HKUST's School of Science (SSCI) and the School of Business and Management (SBM). As the complexity and technical aspects of contemporary economic problems exhibit strong synergy between mathematics and economics, this joint-school program aims to provide students with solid training in the fundamental theories of both disciplines. The MAEC program is suited to students who are keen on acquiring a strong quantitative background in economics to work in the business and financial sectors, or who intend to pursue further study in applied mathematics, economics, or business-related areas such as finance and management science.





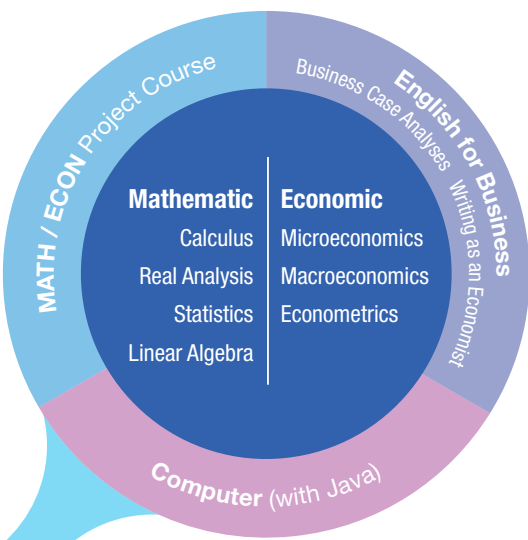
## Program Overview

- Unique undergraduate program in Hong Kong that combines modern economic theory with advanced mathematical skills, providing students an excellent foundation for a successful career in the business, finance, or public sectors.
- Broad-based education that stresses lifelong learning abilities; the balanced curriculum instills in students quantitative reasoning skills, conceptual understanding, and the ability to effectively communicate in mathematics and in the language of economics and social sciences.

## Program Structure

The 4-year MAEC program combines modern economic theory with advanced mathematical skills. The curriculum provides students with solid training in the fundamental theories of both mathematics and economics. Students will be equipped with quantitative reasoning skills, conceptual understanding, and the ability to communicate in mathematics effectively and the language of economics and social sciences. Below are the key components of the curriculum:

Subject Area	No. of Courses
Mathematics (Core)	7-8
Mathematics (Depth Electives)	2
Economic (Core)	7-8
Economic (Depth Electives)	2
Science Foundation	2
Accounting / Finance	2
Language for Business	1
Computing	1
University Common Core	10



## Intended Learning Outcomes

- Critically evaluate practical economic models and exercise sound economic judgment in applying mathematical and economic principles to achieve justifiable solutions and making effective decisions supported by analytical and quantitative techniques.
- Communicate quantitative and economic concepts and methods effectively to a range of audiences, both in oral and written forms.
- Be effective users of information technology and use statistical and econometrics software to deal with databases in conducting empirical analysis in business applications.
- Understand the professional and ethical responsibility and have informed ethical thinking based on rigorous quantitative and economic analysis.

## Enrichment Activities

Every year, the School of Science and the School of Business and Management run a broad spectrum of enrichment activities such as international exchange, career training and internship program, and social service projects. The goal is to help our students develop a global perspective as well as sharpen their interpersonal skills.

Students enrolled under the joint-school MAEC program are eligible to:

- sign up for professional seminars and co-curricular programs organized by both Schools;
- join either School's international exchange program; and
- access the job banks and career services provided by both Schools.

A MAEC student joined the WISE Singapore Study Tour, organized by the HKUST's Women In Science and Engineering (WISE) club.



A MAEC student participated in an activity of Alpha Kappa Psi, one of the oldest and largest business fraternity.

## Career Prospects

Career opportunities in the actuarial, banking and finance industry in Hong Kong are promising for those capable of applying mathematical tools to understand the financial markets and make economic forecasts. Graduates with an interdisciplinary degree are increasingly valued and needed in the job market, and tend to have more diverse career options than those majoring in Mathematics or Economics alone. A number of MAEC alumni have joined top-ranked financial institutions and multinational firms. Our MAEC graduates are equipped with sufficient background for entry into advanced/professional degree programs in economics, financial mathematics, statistics, and other business-related fields. Recent graduates have been admitted to PhD / Master's programs at leading universities worldwide.







## Words from MAEC Student

It is an incredible experience to study Mathematics and Economics at a world-class university. As a student of the joint-school program, I can really feel the support from both the School of Science and the Business School that provide me with ample resources for personal and career development. Studying at HKUST with friendly and reputable professors, staff, and students really makes me feel like I am in the best place to spend my university life.

### Gerald GUNAWAN

BSc in Mathematics and Economics, Class of 2023

## Admissions Requirements

Prospective students may apply for the MAEC program through direct choice in the JUPAS / Non-JUPAS admissions scheme, or transfer from the regular Science / Business School programs after their first year of study. Admissions is based on academic results and interview performance.

### JUPAS

Program-based  
Entry (JS5813)

**HKDSE** applicants with one of:  
M1 / M2/ Biology / Chemistry /  
Physics / Combined Science /  
Economics

### Non-JUPAS

Applicants with international  
qualifications (**IBDP, GCEAL,**  
**SAT,** etc.) with one senior level  
subject from:

**Mathematics / Biology /  
Chemistry / Physics**

### School-based Admissions

via SSCI or SBM

Students admitted into  
SSCI / SBM can declare  
MAEC after completing  
the first year of study.

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