

## Entry Requirements

Applicants shall have achieved either:

1. a Higher Diploma or an Associate Degree in a subject related to the biological sciences, for example
  - Analytical Science and Technology
  - Applied Biology/Biotechnology
  - Biomedical Science
  - Environmental Health
  - Environmental Technology
  - Food Science and Technology
  - Medical and Health Products Management
  - Nutrition
  - Pharmaceutical Technology

OR

2. a Higher Certificate or Higher Diploma in Medical Laboratory Science;

OR

3. other equivalent qualifications.



## English Language Requirements

Students are expected to have achieved either:

1. AS-Level (or equivalent) pass in the Use of English;

OR

2. a minimum of a PASS in all English language/communication subjects as part of the Higher Certificate/Higher Diploma/Associate Degree programmes, plus Level 2 in English Language in HKDSE Examination.

Students with a BSc (or equivalent) in a relevant discipline will be considered for advanced entry to the BSc (Hons) programme. Exemption credits will be awarded on the basis of prior gained credit and possession of the prerequisite knowledge required to succeed on the programme.

## Delivery Mode

This programme is delivered on a part-time basis. Normally classes will be held on weekday evenings and/or Saturdays.

## Medium of Instruction

English

## Assessment

Assessment of modules is normally based on a combination of coursework and examination. Coursework can include laboratory/project reports, tutorial exercises, laboratory performance, oral and poster presentation.

## Duration of Study and Award

Students can complete the programme in 2 years (6 trimesters), part-time mode (2 modules/ 40 credits per trimester). Students who have successfully completed the programme will be awarded Bachelor of Science (Honours) Biological Science degree by the Edinburgh Napier University. An exit award of BSc Biological Science ordinary degree is available for students who only study the first year of the programme (3 trimesters in 1 year).

## Further Studies

Graduates may also progress to programmes of study to masters and doctoral level. In addition to careers in the life sciences, students may use the wide range of employability skills they have developed to attain graduate level jobs in other sectors, e.g. administration, business and education. Graduates will also be considered for admission to the MSc Biomedical Science currently offered by Edinburgh Napier University in conjunction with HKU SPACE.

## Career Opportunities

The BSc (Hons) Biological Science programme aims to provide knowledge and experience leading to career opportunities in a wide variety of areas including biomedical, pharmaceutical, environmental monitoring, public health, agrochemical and food sectors. It may provide opportunities to work in industrial research and development, production, quality control and consultancy.

## Tuition Fee\*

HK\$88,000 (Year 1) and HK\$90,000 (Year 2) to HKU SPACE

\* This is the rate of tuition fee for Academic Year 2023/24. Fees are reviewed annually and are subject to change without prior notice.

## Application

Applicants should submit:

1. Duly completed HKU SPACE application form#
2. Copies of academic certificates;
3. A copy of HKID card or passport; and
4. An application fee of HK\$150 by crossed cheque (payable to "HKU SPACE")

All documents should be sent to Ms. Kiki Man, 13/F, Fortress Tower, 250 King's Road, North Point, HK. Please send a self-addressed envelope, specifying the name of this programme.

# Application forms can be obtained from any HKU SPACE Learning Centre or download from <http://hkuspace.hku.hk>.



## Enquiries

Tel: 2975 5683 (Ms. Kiki Man)

Email: [kwk.man@hkuspace.hku.hk](mailto:kwk.man@hkuspace.hku.hk)

Website: <https://hkuspace.hku.hk/prog/bsc-biological-science>

Note: The programme is an exempted course under the Non-Local Higher and Professional Education (Regulation) Ordinance. It is a matter of discretion for individual employers to recognize qualification to which this course may lead. Information in this leaflet is subject to change by HKU SPACE and Edinburgh Napier University without prior notice. Please refer to HKU SPACE website or contact Programme Staff for latest information.

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# Bachelor of Science (Honours) in Biological Science

## 生物科學(榮譽)理學士 HS026A



THE UNIVERSITY OF HONG KONG  
School of Professional and Continuing Education

in association with  
EDINBURGH NAPIER UNIVERSITY



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# Bachelor of Science (Honours) in Biological Science

## Edinburgh Napier University

Located in Scotland's cosmopolitan and beautiful capital city, Edinburgh Napier University is an ambitious and innovative university with strong links to industry. They work closely with industry contacts and partners to develop and deliver their courses, many of which are accredited or recognised by leading industry bodies. It's no surprise, then, that more than 95% of graduates are in work or further education within six months of graduating.

Academics excel in their fields. Their research improves lives in Scotland and across the globe. They teach and inspire you, as well as connect you to industry and help you build international networks you will value for the rest of your life.

Edinburgh Napier University is committed to providing the best possible teaching for its students. The University was shortlisted for University of the Year 2022 (Times Higher Education Awards). The National Student Survey ranked Edinburgh Napier University the top university in Edinburgh for student satisfaction (2020, 2021, & 2022). What's more, Edinburgh Napier University is the number one university in the United Kingdom for Biomedical Sciences (1st of 75) and for Biosciences (1st of 34) (NSS 2022).

One of Scotland's largest universities, Edinburgh Napier University has more than 20,000 students from over 150 countries studying in Edinburgh, online and at partners across the globe. Edinburgh Napier University is also proud to be the largest UK provider of Higher Education in Hong Kong, with over 3,000 students a year studying a range of courses. In 2019 the University celebrated 25 years of education provision in Hong Kong, in collaboration with HKU SPACE.



- Top modern university in Scotland (THE World University Rankings, 2023)
- No. 1 in UK for Biomedical Science & Biosciences (National Student Survey, 2022)
- Top 10 UK modern University for Biological Sciences (Complete University Guide, 2022)
- Top university in Edinburgh for student satisfaction (National Student Survey, 2020, 2021, & 2022)
- Top 10 modern university in the Times/Sunday Times Good University Guide 2023.
- We are in the top 500 institutions worldwide (THE World University Rankings 2023)
- 95% of Edinburgh Napier's UK undergraduates are in work or further study six months after graduating.

## Bachelor of Science (Honours) in Biological Science 生物科學(榮譽)理學士

This BSc (Hons) in Biological Science programme is a two-year part-time evening programme jointly offered by the Edinburgh Napier University and HKU SPACE and structured for those with a background education in the biological science or medical laboratory science disciplines wishing to progress to degree or honours degree level. This programme places an emphasis on practical skills, with laboratory classes included in several of the modules, and a research or work-related project. In addition to those general scientific skills, this programme is designed to develop for students a wide range of employability and transferable skills. It will equip students for graduate level scientific jobs, and provide them with the specialist skills to go into a wide range of biological careers and contribute to their successful integration in employment in the biological science/life science sector.

### Programme Highlights

- Face-to-face teaching
- Co-teaching by visiting lecturers from Edinburgh Napier University and local lecturers of related disciplines
- Use of a wide range of teaching and assessment methods to develop relevant skills and confidence in students
- Wide range of biology disciplines relevant to biomedical, diagnostics, food and environmental sectors.

## Programme Structure

The programme will be delivered in 3 trimesters, with 15 weeks (including examinations) in each. The award of BSc (Hons) can be achieved in 2 years (24 months) part-time study.

Module Title	Credits
<b>Year 1</b>	
Genes and Inheritance	20
Immunology	20
Infection and Immunity	20
Food Microbiology and Biotechnology	20
Clinical Biochemistry	20
Research Methods	20
<b>Bachelor of Science in Biological Science</b>	<b>120</b>
<b>Year 2</b>	
Pharmacology and Pathobiology	20
Molecular Medicine	20
Microbial Biotechnology	20
Applied Toxicology	20
Research Project	40
<b>Bachelor of Science (Honours) in Biological Science</b>	<b>240</b>

## Course Content

### Genes and Inheritance (20 credits)

In this module you will learn about the key concepts of molecular genetics and gain experience of appropriate laboratory techniques on molecular genetics. Starting with a revision of DNA/RNA structure and function, you will study prokaryotic and eukaryotic mechanisms and processes such as DNA replication, gene expression, transcription, translation, mutations and repair. We will look at the regulation of these processes and investigate what happens when they fail. You will also study genome evolution, including horizontal gene transfer. You will also learn how to present, analyze and interpret data, and write a lab book according to GLP standards.

### Immunology (20 credits)

In this module you will explore the molecular and cellular network underlying the functions of the human immune system and the role of the immune system in disease. You will study the applied aspects of immune-technology including blood typing, transplantation, monoclonal antibodies and vaccines, illustrating the value of immunology in diagnosis and therapeutics. This module also includes laboratory classes.

### Infection and Immunity (20 credits)

In this module you will investigate the mechanisms by which medically-important microorganisms interact with the immune system to cause infection in humans. As well as considering immune evasion and diagnostic methods, new and current strategies to prevent and treat infection will also be examined, in the context of antimicrobial resistance. You will also develop important transferable skills in critical and analytical thinking as well as laboratory techniques in medical microbiology.

### Food Microbiology and Biotechnology (20 credits)

In this module you will learn about aspects of microbiology of relevance to the food industry, including three key areas of food spoilage, food production using fermentation and strategies to limit the risk of food-borne disease. These three topics will be underpinned by a unit on experimental methods used for microbiological analysis of food. The module includes laboratory classes.



### Clinical Biochemistry (20 credits)

In this module you will be given an introduction to the application of biochemistry in a clinical setting and how this knowledge can be used to diagnose disease and explain the action of administered drug molecules. You will get an insight into the workings of a modern hospital clinical biochemistry laboratory, routine tests and their biochemical basis, the interpretation of test results and relevance of test results in a clinical biochemical setting. This module also includes laboratory classes.

### Research Methods (20 credits)

This module is designed to engage you with a variety of methods used in modern research, to critically evaluate published information and allow you to understand different methods for solving a scientific problem. You will learn about experimental design and use of a range of statistical tests to analyze and interpret data. You will develop your ability to critically evaluate and summarize scientific information. You will be introduced to research ethics and also how research information is reported for example to regulatory bodies and stakeholders using a variety of examples.



### Pharmacology and Pathobiology (20 credits)

This module will develop an understanding of disease mechanisms and how they may be treated. The module includes an introduction to the general principles of pharmacology, and will focus on how therapeutic drugs are administered, absorbed, distributed, metabolised and excreted by the body. Targets for therapeutic drugs will be examined, including receptor theory and dose response relationships, and the importance of drug specificity. You will also study the pathobiology of specific diseases, developing a detailed knowledge of the principal causes of those diseases, and how they may be treated. This module also includes laboratory classes.

### Molecular Medicine (20 credits)

In this module, you will learn the advanced principles of genomics, transcriptomics and proteomics in the context of furthering our understanding of the molecular mechanisms underpinning the diagnosis and treatment of disease. You will explore the concepts of pharmacogenomics and predictive medicine. You will also be introduced to in silico analysis and manipulation of RNA, DNA and protein sequence information (bioinformatics) and tutored in the use of online databases and tools for identification and comparison of DNA and protein sequences.

### Microbial Biotechnology (20 credits)

Biotechnology is relevant in many aspects of our lives, playing a key role in developing products and technologies to combat disease, reducing our environmental footprint, helping to feed the global population and making industrial processes safer, cleaner and more efficient. You will learn about the development, design and operation of such microbial biotechnologies. We will also examine the ways in which the productivity, efficiency and yield of bioprocesses are optimized. The various stages in the development of microbially-mediated biotechnologies, from bioprospecting for useful microorganisms, to the research and development phase and industrial-scale application, will be explored.



### Applied Toxicology (20 credits)

The module will provide you with an introduction to the science of toxicology in humans. This includes the basic principles of toxicokinetics (absorption, distribution, metabolism and excretion), and the factors affecting each, such as exposure route, age, diet, and genetic polymorphisms in drug metabolizing enzymes. You will examine the cellular and molecular mechanisms of xenobiotic toxicity, together with toxicity testing in the pharmaceutical industry, and the use of biomarkers for studying the exposure, response and susceptibility of populations to named toxicants.

### Research Project (40 credits)

In this module you will conduct an independent research and/or work-related project, developing skills in project planning and time management, critical analysis and interpretation of data, and the ability to communicate the results of a study. The module content is driven by the needs and requirements of the individual projects, and thus is highly diverse and individualized. The core content includes the design of scientific investigations/work-related project, time management and project planning, data collection and analysis, use of appropriate information technology and statistical analysis to guide interpretation of data, and report presentation and development.