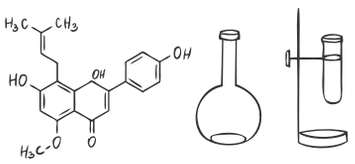
Degree and Career

Chemistry



Students will study all aspects of chemistry and related disciplines; general areas covered include analytical chemistry, inorganic chemistry, organic chemistry, and physical chemistry. Specialized areas include environmental chemistry, medicinal chemistry, biological chemistry, polymer chemistry, and materials chemistry including nanostructures, advanced instrumentation, advanced computational and theoretical chemistry.

Career Prospects:

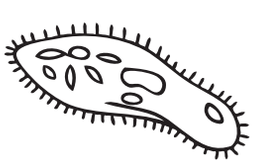
Chemistry graduates will have opportunities of working in the area of chemical science, education and technology, chemistry related business, commodity markets, or further study in graduate research. Since studying in chemistry would train up student's analytical thinking and some generic skills, the variety of job opportunities are flexible.

Highlight:

In order to declare an option in chemistry, student needs to take three chemistry elective courses and two laboratory courses that are related to the specific option.

Life Science

Biochemistry & Cell Biology



Students will study how biomolecules work together in both simple experimental systems (Biochemistry) and also within cells (Cell Biology), the fundamental building blocks of all living organisms. The early curriculum is broad-based and provides students with a strong foundation in fundamental concepts and principles of Biochemistry and Cell Biology. This will enable students to explore and develop their own interests in various aspects of molecular life science, via taking more advanced and specialized electives as they progress through the major. BCB students will also have the option of significant practical training and research opportunities in the latter part of their studies.

Career Prospects:

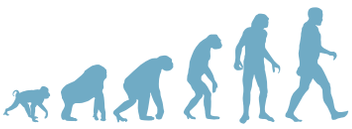
BCB graduates will have a broad range of career options, being well prepared for graduate research training and future employment opportunities in academic, medical or biotechnology related research. However, BCB graduates will also be well placed to pursue more vocational scientific careers in research or in private/government sectors requiring a life science background, including healthcare, biotechnology and education. Life science is in truly exciting times, with recent advances in technology and societal expectations driving an expansion in training and employment opportunities. BCB graduates will be very well placed to benefit.

Highlight:

The objective of the BCB major is for graduates to have a sound factual, conceptual and practical competence in molecular life science and to be prepared, should they so wish, for research training. However Molecular Life Science can also readily be studied at multiple levels and thus can accommodate a wide range of student aptitude and motivation. By taking the required year one classes, it should be relatively easy for students without high school biology background to enter and prosper in the BCB major.

Degree and Career Con't

Life Science
Biological Science



This flexible major aims to provide students, regardless of previous background, with a general coverage and a basic understanding of major principles, concepts and technologies of modern biology; including animal, plant, evolutionary and environmental biology. The major offers minimal training in basic laboratory techniques but practical laboratory experience is available on the basis of elective courses. The flexibility of this major enables students to undertake an additional major or a major with minor(s) via elective courses offered by other academic departments such as Social Sciences, Humanities and Business Studies.

Career Prospects:

The emphasis of this major is the broadness study of general biological knowledge and background, which providing students with comprehensive training in transferable skills and opportunities in independent learning required for all varieties of potential career. More than 50% of our Biological Science graduates, who armed with strong skills in acquisition of scientific enquiry and critical thinking, are engaging in jobs of interdisciplinary in nature. Moreover, students will have better problem solving skills and analytical skills throughout science training. Therefore, they will have a broad range of career options.

Life Science
Biotechnology



This major focused on basic and advanced biotechnological elements that lead to production, modification and adaptation of life. It provides students with theoretical and practical knowledge of the latest biotechnological developments. The curriculum components require basic understanding of concepts across various biological spectra including cell biology, molecular biology, microbiology and genetics. Step-by-step procedures in construction of recombinant DNA will be exploited practically with potential applications in mind. It is more focus on the applied aspects of life science.

Career Prospects:

The major equips students with wide biotechnological background to meet the foreseeable demand in the markets of pharmaceutical, agricultural and business. The underlying objective of the major is to cater for the growing demand of biotechnologists in the fields of education, herbal medicine, agriculture, and health industry. Career opportunities are amply available in both the government as well as private sectors.

Highlight:

The objective of studying life science subjects is to train student's abstract thinking, in which any outcome is always based on evidence to proof their functions and reactions in life. The requirement of mathematics is relatively low when comparing with other science majors. The mentality is different because students would use certain formula to solve a problem in mathematics but in life science, student would need to use laboratory experiment to proof the outcome instead. Therefore, student who is taking life science major will need to take some certain courses of chemistry but only the basic course of mathematics is required.

Degree and Career Con't

PHYSICS



Everything from the tiniest elementary particle to the ultimate fate of the universe, and provides the foundation for all of modern science and engineering. As a physics student, they will have the opportunity to learn about exciting topics ranging from quantum computing and nanotechnology to quarks, black holes and superconductivity.

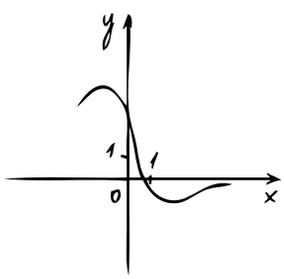
Career Prospects:

Student could pursue further study or work in the fields of teaching, research, technical sales, forensic science, medical industry (Physicist) commerce, banking… etc. Since students are trained with good analytical skills and problem solving skills, the variety of job opportunities are quite flexible. Career opportunities are amply available in both the government as well as private sectors.

Highlight:

Students might interest in this major if they are eager to find out the underlying physical law that governs how things behave or they always have question like why things happen.

MATH



There are six tracks under Mathematics major:

- Applied Mathematics Tracks
- Computer Science Track
- Mathematics and Physics Tracks
- Pure Mathematics Tracks
- Pure Mathematics (Advance) Tracks
- Statistics and Financial Mathematics Tracks

Career Prospects:

Pursue further study, teaching or being an analyst in the field of Consultancy Company, Government and non-government organization, financial company… etc..

Degree and Career Con't

MATH
Mathematics and Economics

This major is jointly offered by Department of Mathematics and Department of Economics of HKUST. Roughly half of the required courses in this curriculum are mathematics courses, and the other half are economics courses.



Career Prospects:

Career prospects are similar to those MATH graduates, in which they can pursue further study, teaching or being an analyst in the field of Consultancy Company, government and non-government organization, financial company… etc.

Environmental Science



Environmental science is related to everyone's daily life because the environment is an integrated system that encompasses the physical component (air, land, and water), biological component (living organisms and their interactions), human populations, as well as the inter-relationships among these components. The major intends to provide students with a solid training in relevant areas with a special focus in eco-systems.

Career Prospects:

Throughout the ENVS major, students would be better equipped for working in government agencies (Agriculture, Fisheries and Conservation Department, Environmental Protection Department), environmental consultancies (environmental impact assessments, natural resource management), environmental related NGOs, public education (teachers, conservation groups, ecotourism), and research.

Hightlight:

Do you know how environmental science could be related to the economy?

The tradeoff for economic growth is always causing environmental disturbance. In order to minimize the disturbance and loss, environmental impact assessment is taken place to regulate the balance. Carbon trading is one of the commodities trading that allow individuals, companies or nations to participate in trading carbon emission. Therefore, there is wide variety of jobs available in the sector.

Degree and Career Con't

IPO
Environmental Management and Techology

Student will learn the knowledge and the skills to engage environmental problems in business, government or non-governmental settings. The practical component gets student working on real world problems with our corporate partners, staying abreast of current issues and practicing students' skills with real problems. In addition to global issues, the major also addresses environmental problems relevant to Asia, Mainland China and Hong Kong.



Career Prospects:

Career prospects are similar to those MATH graduates, in which they can pursue further study, teaching or being an analyst in the field of Consultancy Company, government and non-government organization, financial company… etc.

IPO
Risk Management and Business Intelligence



The major focuses on how risk management and business intelligence forms a vital part of a company's strategic planning and decision making. In order to assess and minimize risk effectively, students will also learn how to analyze and manage the ever-growing volume of business data. In order to make use of business intelligence as part of the company strategies, students will learn how to analyze and predict the business trends and opportunities from the data and learn the BI technologies for information collection and business performance monitoring.

Career Prospects:

Students could end up working in regional and global banks, insurance companies and asset management firms to large industrial corporations and multinationals, securities regulators and universities, among others. Graduates are well prepared for positions such as risk analyst, quantitative analyst, credit analyst, business-planning analyst, actuarial and insurance consultant, and data-mining consultant… etc.

FAQs

Questions on Major

1. What is the difference among three majors in Life Science?
- Biochemistry and Cell Biology (BCB)
- Biological Science (BISC)
- Biotechnology (BIOT)

In general, BISC covers the basic knowledge and background of life science which provides broader view that student can choose to have more electives to study in their interested areas. BCB is a research oriented major that focuses and specializes on research training. Students will be advised to take BCB if they want to pursue further study in life science. BIOT is a small major that focuses on the applied aspects of life science. The general background is similar to the foundation of BCB but focuses more on the application side in agriculture, herbal medicine, biomedicine, and health industry.

2. Is Biomolecular Chemistry Option under the department of chemistry related to Biochemistry and Cell Biology under the division of life science? What is the difference between them?

Both subjects are very broadly related in so far as they deal with the function and properties of biomolecules. However studies of biomolecules can occur at multiple levels, reflecting quite distinct disciplines and this applies here. For example, one of the chemistry electives such as Structural Elucidation of Organic compounds teaches students how to deduce the structure of compounds by using spectroscopy.
The Biomolecular Chemistry Option is more Chemistry oriented, whereas the BCB major emphasizes more on the Biological aspects. Accordingly students in the Biomolecular Chemistry Option will not need to take life science courses to graduate, whereas BCB students are required to take a significant number of courses in chemistry.

3. What is the difference between Mathematics (MATH) and Mathematics & Economics (MAEC)?

MATH concentrates mainly on mathematics and it has six different tracks to fit students' interests, whereas MAEC is jointly offered by Department of Mathematics and Department of Economics. This major includes both mathematics and economics; student will not be mainly focus on mathematics.

4. What are the business elements in MAEC? Do I need to have strong business background in order to take this major?

Students are not required to have economic or business background to take MAEC but this major requires students to take minimum 8 economic courses.

5. How difference is Pure Mathematics (Advanced) Track and Pure Mathematics Track? What kind of academic performance I need to obtain in order to take the advanced track?

The advance track requires four honor courses. It is designed for students who want to pursue further study after graduation. If students are interested in study in Advance Track, it is highly recommended to take Math1023 and Math1024 in their first year of study. There is no written academic performance requirement for the Advance Track but student needs to get approval from the program director in order to enroll in the Advance Track.

FAQs

6. What is option and track? What are the differences between them?

Options enable students to deepen their engagement with an area of the major discipline through completion of additional courses and other learning activities. Options in a major are optional. Students in the major can graduate without taking any option. Approved options are recorded on students' academic transcripts but not the graduation certificate.

Some majors, such as Mathematics, may include tracks to govern students' major requirements and choices of electives. Students in these majors MUST choose a track to focus on; such area of focus should also be recorded on students' transcripts but not the graduation certificate. (Please notice that we are still waiting CSU's approval to put track on transcript)

7. Can I change to other tracks or options if I find difficulties on the one I have chosen?

YES but students need to get approval from program directors or UG coordinators.

8. What are the differences between Environmental Science (ENVS) & Environmental Management and Technology (EVMT)?

ENVS focuses more on science and engineering. In order to know how the eco-system works and how it affects the ecology and the whole world, students are taught to have strong fundamental knowledge.

EVMT emphasizes more on the management and policy. Essential and fundamental knowledge on environmental science and technology will be covered in this major; students will be able to link up latest scientific and technological advances on environmental issues in relation to business operations and sustainability development, and apply environmental science on business management.

9. How to get into IPO? Is it hard to get in?

Student can apply IPO major and any major in School of Science at the same time. Faculties will not only consider student's CGA but also their presentation skill and their interest in the major. It depends on the overall academic performance of the student. There will be interview for shortlisted candidates.

10. Can I take double majors? How can I do that?

Yes, but you have to enroll in one major first. More information on declaring a second major will be provided later.

11. Can I do minor? What is the requirement?

Yes. Students should check the academic calendar for available minors and their requirements. Credits earned in fulfilling a minor requirements can be double-counted with other graduation requirements.

FAQs

12. Can I change major after I have submitted the major declaration form?

After submission of major declaration form, changes is still acceptable as long as it is BEFORE the application deadline. Otherwise, student has to wait until the result is out and if they really want to change the major afterward, they will have to accept the offer and apply major transfer after the second round of major declaration.

Questions on Career

1. What is the career path and job opportunity of taking science major?

Please see Chapter of Career and Degree.

2. What are the perspectives after graduating from environmental science?

Since people are getting more concerned about the importance of environmental protection, environmental science is playing a more important role in both the society and the economy because it has aroused the public awareness. There are always pros and cons for environmental disturbance and economic growth. We need to take the balance between economic growths and minimize the environmental disturbance and loss at the same time. Therefore, ENVT and ENVS will have certain demand in the near future.

3. Is my job opportunity the same if I take different options under Chemistry?

The flexibility is quite large because studying chemistry could train student's analytical mind and thinking; as well as their generic skill could be applied to many jobs and positions in many fields. Different options under Chemistry can facilitate students to find job related to their corresponding options.

4. Is my job opportunity the same if I take different tracks under Mathematics?

Applied Mathematics Tracks – Work in the field of consultancy company, environmental science, observatory department, or any field that require calculation
Computer Science Track – System analyst or programmer
Mathematics and Physics Track – Analyst related to the physics field
Pure Mathematics Track and (Advance) Track – Research
Statistics and Financial Mathematics Track – Data Analyst

5. Is my job opportunity the same if I take different options under Physics?

Applied Physics Option – Jobs related to engineering or industry
Physics and Mathematics Option – Jobs like analysts because student will have more training on calculation
Pure Physics Option – Designed for students who want to have further study