



School of Biological Sciences

Dr. Clive Lo
Associate Professor



About us

School of Biological Sciences:

- ~40 Academic staff from > a dozen of nations (*Scientists in a global village*)
- ~12-15 Post-doctoral fellows
- ~200 Postgraduate research students (PhD and MPhil)
- ~50 Technical and administrative staff
- ~400 Undergraduate students



Biological Sciences Major

- Designed for students seeking a **broad-based training in the concepts and methodologies of Biological Sciences**
- Inquiry-driven learning environment to understand and appreciate life processes at different levels of biological organization.
- Emphasizes on both core concepts and applications.
- Experiential learning activities (Capstone experience).
- Emphasizes on problem-based learning, scientific analysis, organization and communication.
- Suitable for students entering the **teaching profession** or pursuing **careers that require comprehensive knowledge in biological sciences.**

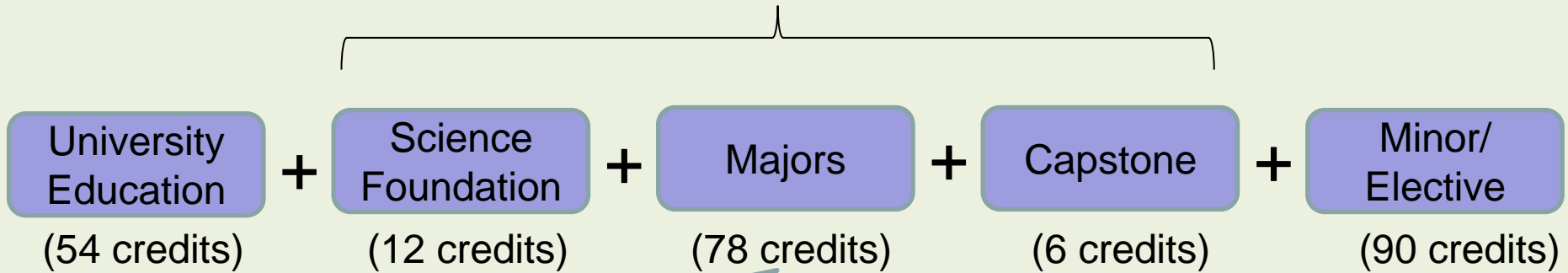
Criteria for major in Biological Sciences

Components	Courses	No. of credits	%	
Compulsory	Common core	36	22.5	(~ 9 courses)
	English	12		
	Chinese	6		
Specialization	Biological Sciences	96	40	(~ 16 courses)
Electives	Free choices or courses leading to a 2 nd major or minor (s)	90	37.5	(~ 15 courses)
Total		240	100	

- A student usually takes 10 courses (6 credits/course) each year

Biological Sciences Major curriculum

Biological Science Major requirement (96 credits)



- Introductory level courses (36 Credits)
- Advanced level courses
 - Genetics, Molecular & Cell Biology (12 Credits)
 - Ecology, Systematics, and Evolution (12 Credits)
 - Physiology and Organismic Biology I (6 Credits)
 - Physiology and Organismic Biology II (6 Credits)
 - Physiology and Organismic Biology III (6 Credits)

Biological Sciences Major Curriculum

1. Introductory Courses (48 credits)

Science Foundation Courses (12 credits)

- SCNC1111 Scientific method and reasoning
- SCNC1112 Fundamentals of modern science

Disciplinary Courses (36 credits)

- BIOL1110 From molecules to cells
- BIOL1309 Evolutionary diversity
- BIOL2306 Ecology and evolution
- BIOL2102 Biostatistics
- BIOL2103 Biological sciences laboratory course
- BIOL2220 Principles of Biochemistry (or BIOC2600)

Biological Sciences Major Curriculum

2. Advanced level courses (42 credits)

**Students will gain exposure and training in
three disciplinary areas:**

A. Genetics, Molecular & Cell Biology,

B. Ecology, Systematics, and Evolution

C. Physiology and Organismic Biology

A. Genetics, Molecular & Cell biology (at least 2 courses)

- BIOL3401 Molecular biology (6)**
- BIOL3404 Protein structure and function (6)**
- BIOL3402 Cell biology and cell technology (6)**
- BIOL3408 Genetics (6)**

B. Ecology, Systematics and Evolution (at least 2 courses)

- BIOL3301 Marine biology (6)**
- BIOL3419 Insect ecology (6)**
- BIOL3302 Systematics and phylogenetics (6)**
- BIOL3303 Conservation ecology(6)**
- BIOL3501 Evolution (6)**

C. Physiology and Organismic Biology

(at least one course from each list)

List I

- BIOL3105 Animal physiology (6)**
- BIOL3205 Human physiology (6)**
- BIOL3403 Immunology (6)**
- BIOL3503 Endocrinology (6)**
- BIOL3406 Reproduction and reproductive biotechnology (6)**

List II

- BIOL3107 Plant physiology (6)**
- BIOL3314 Plant structure and evolution (6)**
- BIOL4411 Plant and food biotechnology (6)**

List III

- BIOL3108 Microbial physiology (6)**
- BIOL3109 Environmental microbiology (6)**
- BIOL3405 Molecular microbiology (6)**
- BIOL3203 Food microbiology (6)**

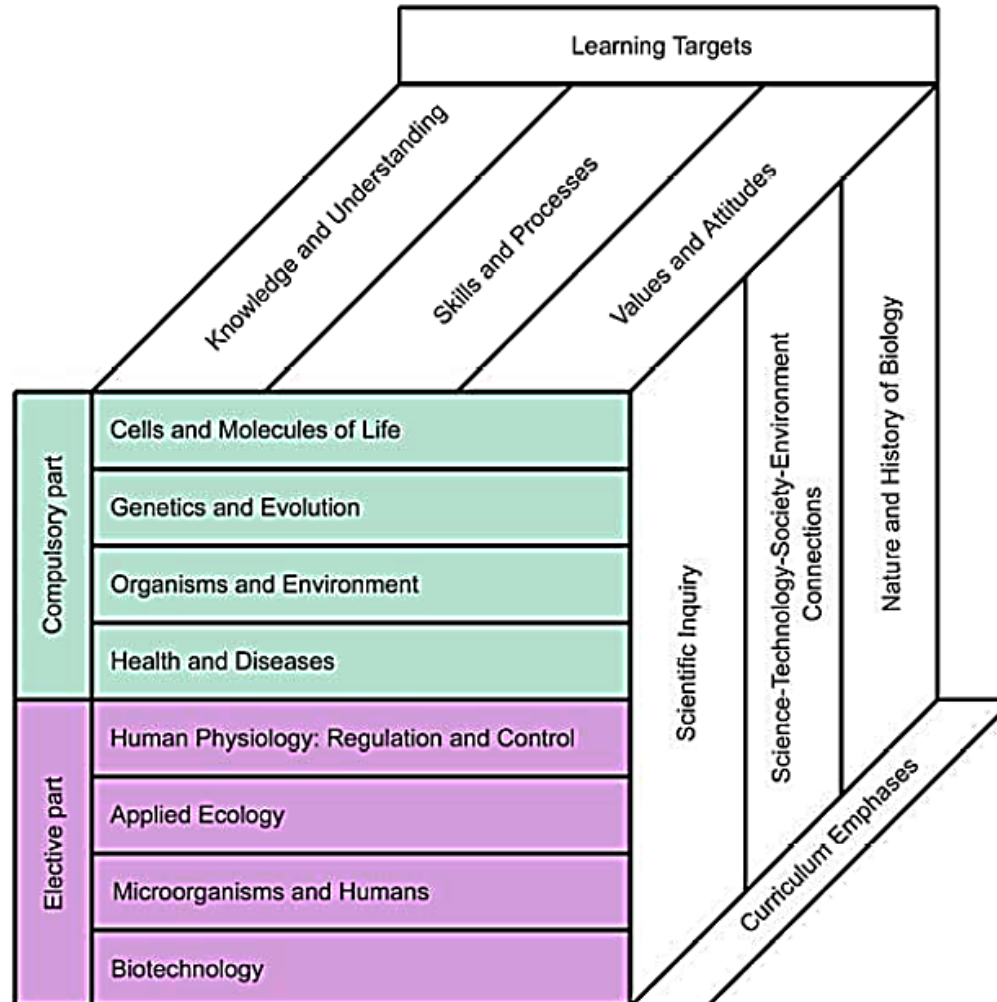
You are **strongly encouraged** to take a **second SBS Major** or a **SBS minor**:

- Major/minor in Ecology and Biodiversity
- Major/minor in Food and Nutritional Science
- Major/minor in Molecular Biology and Biotechnology
- Minor in Marine Biology
- Minor in Plant Science

Overlapping courses

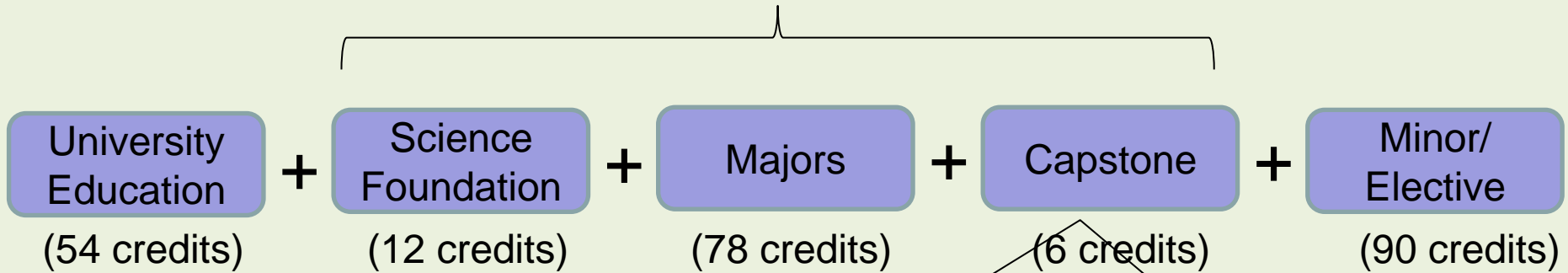
- no double counting
- replacement courses are needed
- Capstone requirement may be exempted

Biological Sciences Major & HKDSE Biology curriculum



Capstone experience

Biological Science Major requirement (96 credits)



At least ONE from below:

- **BIOL3113 Directed studies in biological sciences**
- **BIOL4113 Biological sciences project (12 credits)**
- **BIOL4114 Biological sciences internship**

Internship

- Students have a chance to experience work in commercial and government settings
- Where they gain at least 160 hours valuable workplace training

Jobs offered in previous years

- Faculty of Science and Faculty of Medicine, HKU
- Kunming Institute of Zoology, Chinese Academy of Sciences
- Environmental Protection Dept., HKSAR Government
- HK Adventist Hospital
- Kwong Wah Hospital
- Asia Ecological Consultants Ltd.
- HK Science & Technology Parks Corporation
- Castco Testing Centre Ltd.
- Cathay Pacific Catering Services (HK) Ltd.
- Gate Gourmet Hong Kong
- LSG Lufthansa Service HK Ltd.
- St James' Settlement
- Intertek Testing Services HK Ltd.

Undergraduate Life at SBS



BSc in Biological Sciences graduates

Our graduates took up careers as

- civil servants;*
- secondary school teachers,*
- scientific officers,*
- lab technicians, or in pharmaceutical industry, healthcare industry*
- environmental consultancy, etc.*

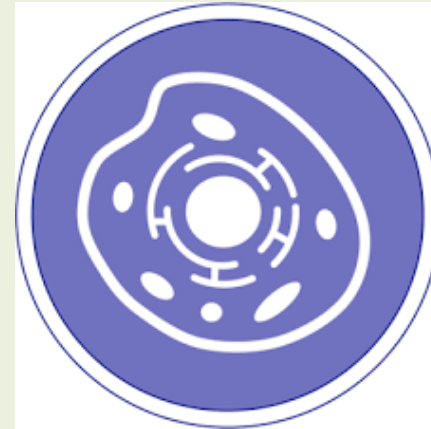
(Hong Kong, Mainland and overseas)



Research Divisions



Ecology and Biodiversity



Molecular and Cell Biology



Postgraduates

- SBS have ~200 postgraduates from local and international cities



Large Scale Aquarium



Plant Growth Chamber



Facilities

Fresh Water Aquarium



Tissue Culture Room



Green House



Equipment

Analytical



ICP-OES, PE Optima 8300



Real-Time PCR

Facilities



Flow cytometer



Atomic Absorption Spectrometer



LC/MS/MS



GC/MS



HPLC



Microcalorimeter, GE Micro iTC 200



Confocal microscope



Genetic Analyzer



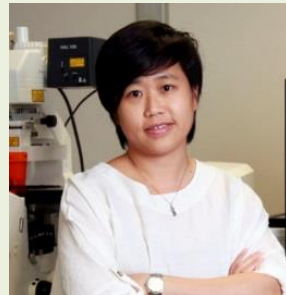
Biological Sciences Major Coordinators:



Dr. Stefano Cannicci
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Dr. Clive Lo
clivelo@hku.hk



Dr. Karen Yuen
kwyuen@hku.hk

General Enquiry: 2299 0800

Email: biosch@hku.hk

Website: <http://www.biosch.hku.hk>

Student Peer Advisers in 2018-19

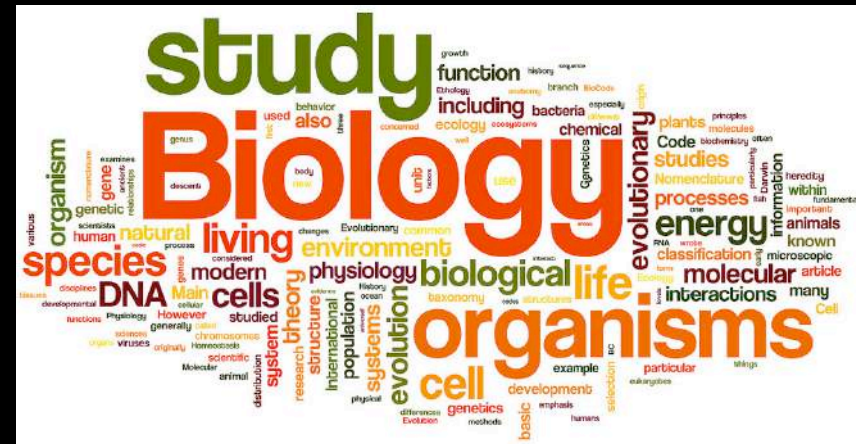
- General roles
 - to **offer advice** in relation to academic studies to freshmen; and
 - to **facilitate** freshmen's **smooth transition** from secondary to university education
- You are highly encouraged to contact the following **Student Peer Advisers (SPAs)** if you have any questions about your study (their contacts can be found at the Faculty's website)
 - Mr CHU Lok Hang Vincent (BSc Year 4)
 - Miss WAN Lok Yee (BSc Year 4)





Minor in Marine Biology

Dr Juan Diego Gaitán-Espitia
School of Biological Sciences





Undergraduate Programmes

“ Understanding life and living at the level of molecules, cells and whole systems,

Understanding life and living at the level of molecules, cells and whole systems, the biological and external factors that affect survival and death, the evolutionary process, and conserving life on Earth in the face of development, remains a challenge for scientists in the 21st century.

Scientific breakthroughs in the biological sciences in recent years have underpinned advances in animal and plant conservation, medicine, biotechnology, food production and food safety, as well as nutrition and health science.



With a strongly research-led focus, the School contributes to a broad portfolio of programmes in the biological sciences and

MAJORS

- Biological Sciences
- Ecology and Biodiversity
- Food and Nutritional Science
- Molecular Biology and Biotechnology

MINORS

- Ecology & Biodiversity
- Food & Nutritional Science
- Marine Biology
- Molecular Biology & Biotechnology

QUICK LINKS

[Undergraduate Programmes](#)

[Research Postgraduate](#)



Minor in Marine Biology




Dr Juan Diego Gaitán-Espitia

THE CONVERSATION
Academic rigour, journalistic flair

Search analysis, research, academics...

Arts + Culture Business + Economy Cities Education Environment + Energy FactCheck Health + Medicine Politics + Society **Science + Technology**




Marine science: challenges for a growing 'blue economy'

May 20, 2014 2:24pm AEST

We need to play our cards right if Australia's marine environments are to keep us afloat. [Sasipolatu/Pixio](#), CC BY-NC-SA

AUSTRALIA 2026: How will science address the challenges of the future? In collaboration with Australia's chief scientist [Ian Chubb](#), we're asking how each science discipline will contribute to Australia now and in the future. Written by luminaries and accompanied by two expert commentaries to ensure a broader perspective, these articles run fortnightly and focus on each of the major scientific areas. In this instalment we dive into marine science.

Author



John Gunn
Chief Executive Officer, Australian Institute of Marine Science

Contributors

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LinkedIn
Print

1. **sovereignty, security, natural hazards:** needs improved operational oceanographic forecasting and increased effort on fine-scale hydrographic data and charts
2. **energy security:** needs support for developing energy resources, particularly liquid natural gas and renewable energy and research to support carbon sequestration
3. **food security:** needs research to support a booming aquaculture industry, as well as data and tools to improve management of wild-catch fisheries
4. **biodiversity conservation and ecosystem health:** needs environmental baselines, effective indicators of ecosystem health to guides national marine environmental monitoring, and tools to predict impacts of development on marine biodiversity
5. **dealing with changing climate:** needs enhanced understanding and skill in prediction of the impacts of sea level rise, increasing sea temperature and ocean acidification and the role of the ocean as a carbon sink
6. **optimal resource allocation:** needs integrated social, economic and environmental information and tools to assist transparent, robust and accountable decision-making.



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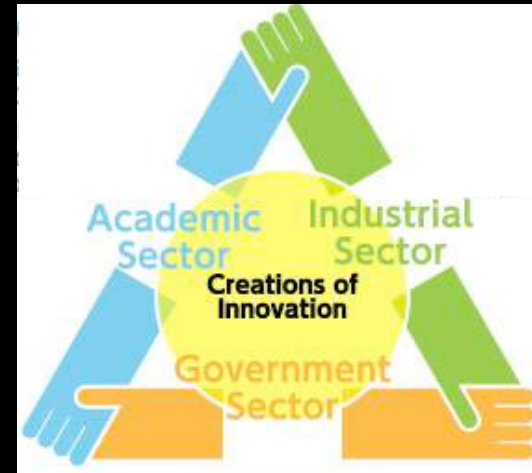




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Professionals with skills and knowledge



Ocean & Coastal Management 113 (2015) 25–35

Contents lists available at ScienceDirect

Ocean & Coastal Management

journal homepage: www.elsevier.com/locate/ocecoaman

Review

Improving knowledge exchange among scientists and decision-makers to facilitate the adaptive governance of marine resources: A review of knowledge and research needs

C. Cvitanovic^{a,b,c,*}, A.J. Hobday^{b,c}, L. van Kerkhoff^a, S.K. Wilson^{d,e}, K. Dobbs^f, N.A. Marshall^g



Minor in Marine Biology



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This minor will provide students from diverse backgrounds (e.g. business, engineering and social science) an excellent opportunity to enter into a career or research in marine environment-related fields such as:

- Coastal ecosystem management & Marine environmental protection
- Fisheries and marine resource management
- Climate change adaptation & mitigation
- Biodiversity assessments and projections
- Among others



Minor in Marine Biology



Dr Juan Diego Gaitán-Espitia

Required courses (36 credits)

1. Introductory level courses (12 credits)

Disciplinary Electives (12 credits)

At least 12 credits selected from the following courses:

- | | |
|-----------------|---------------------------------------|
| <i>BIOL1309</i> | <i>Evolutionary diversity (6)</i> |
| <i>ENVS1301</i> | <i>Environmental life science (6)</i> |
| <i>BIOL2306</i> | <i>Ecology and evolution (6)</i> |



Minor in Marine Biology



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Required courses (36 credits)

2. Advanced level courses (24 credits)

Disciplinary Core Courses (12 credits)

BIOL3301 Marine biology (6)

ENVS3313 Environmental oceanography (6)



Minor in Marine Biology



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Required courses (36 credits)

2. Advanced level courses (24 credits)

Disciplinary Electives (12 credits)

At least 12 credits selected from the following courses:

- BIOL3303 Conservation biology (6)*
- BIOL3305 Tropical and temperate marine ecology field course (6)*
- BIOL3318 Experimental intertidal ecology (6)*
- BIOL3320 The biology of marine mammals (6)*
- BIOL3322 Marine invertebrate zoology (6)*
- BIOL3328 Nearshore marine and estuarine ecology (6)*
- BIOL4301 Fish and fisheries (6)*

Hands on learning

16 courses with field courses offered



Overseas field courses

- Australia
- British Columbia (Canada)
- Hainan (China)
- India
- Philippines
- Sri Lanka
- South Africa





The Swire Institute of Marine Science



The University of Hong Kong





SWIMS focus

to investigate the responses of marine ecosystems to multiple stressors, and therefore solutions to safeguard the integrity and biological functioning of coastal seas into the future.

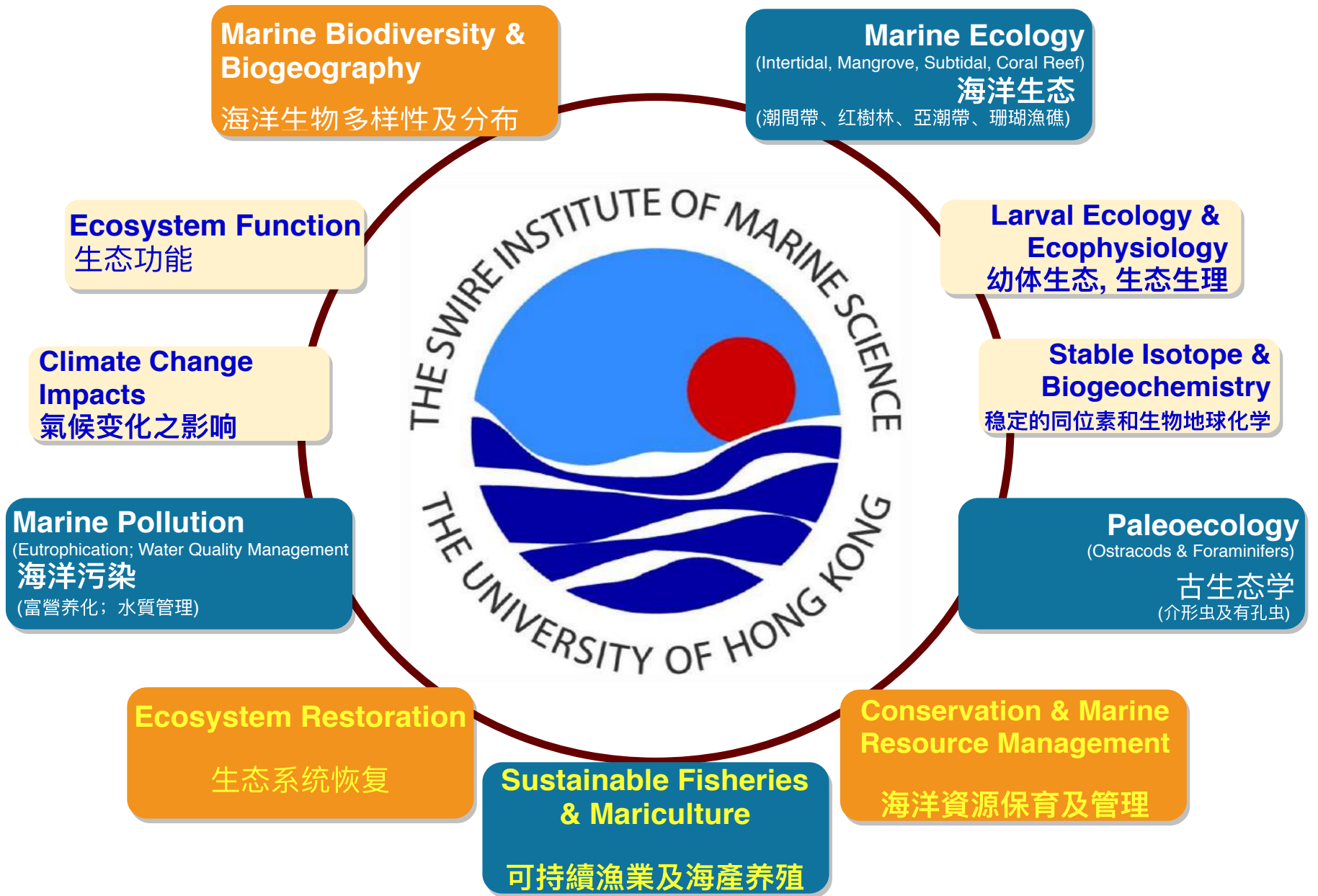




- Research facility of the Faculty of Science
- Postgraduate Students and overseas researchers
- Supports > 50 people



Current Research Areas



SWIMS staff

Resident Scientists

- Gray A Williams
- ThiyagaRAJAN Vengatesen
- Bayden Russell
- Stefano Cannicci
- David Baker
- Christelle Not
- Benoit Thibodeau
- Juan D. Gaitan-Espitia



SWIMS staff

Non- Resident Scientists

- Yvonne Sadovy
- Kenny MY Leung
- Moriaki Yasuhara



Student Peer Advisers in 2018-19

- General roles
 - to **offer advice** in relation to academic studies to freshmen; and
 - to **facilitate** freshmen's **smooth transition** from secondary to university education
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THANK YOU!

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Minor in Plant Science

**School of Biological Sciences
The University of Hong Kong**



Minor in Plant Science



Do you appreciate the beauty and diversity of plants?

What are the evolutionary relationships in plants?

Why are plants important to our lives?

How is growth and development regulated in plants?

How could genes be modified in plants?

Teachers in Plant Science



Professor ML Chye
(Plant Biotechnology)



Professor Richard Saunders
(Plant Systematics)



Dr Wing Kin Yip
(Plant Physiology)



Dr Wallace Lim
(Plant Bioenergy)



Dr Mingfu Wang
(Plant Natural Products)



Dr Clive Lo
(Plant Biochemistry)

Plant Science Minor Curriculum

Required courses (36 credits)

1. Introductory level course (12 credits)

At least 12 credits from the following courses:

BIOL1110	From molecules to cells (6)
BIOL1309	Evolutionary diversity (6)
BIOL2103	Biological science laboratory course (6)
BIOL2220	Principles of Biochemistry

2. Advanced level courses (24 credits)

At least 24 credits selected from the following courses

BIOL3107	Plant Physiology (6)
BIOL3210	Grain production and utilization (6)
BIOL3314	Plant structure and evolution (6)
BIOL3408	Genetics (6)
BIOL4209	Functional foods (6)
BIOL4411	Plant and food biotechnology (6)

Learning Outcomes

- 1. Appreciation of plants as an important part in our life, culture, and environment.**
- 2. Understanding of fundamental concepts in different disciplines of plant science – evolution, anatomy, biochemistry, physiology, and biotechnology**
- 3. Acquisition of academic and practical skills for careers in government agencies (e.g. Agriculture, Fisheries and Conservation Department; Tree Management Office), private agencies (seed trade, horticulture, landscaping, organic farming, etc.), postgraduate research in different areas of plant science**

Plant Science Minor Course Selection Advisors



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