School of Biological Sciences

Clive Lo
Biological Sciences Major Coordinator
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

<table>
<thead>
<tr>
<th>Components</th>
<th>Courses</th>
<th>No. of credits</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory</td>
<td>Common core English Chinese</td>
<td>36</td>
<td>22.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Specialization</td>
<td>Biological Sciences</td>
<td>96</td>
<td>40</td>
</tr>
<tr>
<td>Electives</td>
<td>Free choices or courses</td>
<td>90</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>leading to a 2nd major or</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>minor (s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>240</td>
<td>100</td>
</tr>
</tbody>
</table>

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

(~ 9 courses)

(~ 16 courses)

(~ 15 courses)
Biological Sciences Major curriculum

University Education (54 credits) + Science Foundation (12 credits) + Majors (78 credits) + Capstone (6 credits) + Minor/Elective (90 credits)

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)
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)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL3401</td>
<td>Molecular biology</td>
<td>6</td>
</tr>
<tr>
<td>BIOL3404</td>
<td>Protein structure and function</td>
<td>6</td>
</tr>
<tr>
<td>BIOL3402</td>
<td>Cell biology and cell technology</td>
<td>6</td>
</tr>
<tr>
<td>BIOL3408</td>
<td>Genetics</td>
<td>6</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL3301</td>
<td>Marine biology</td>
<td>6</td>
</tr>
<tr>
<td>BIOL3419</td>
<td>Insect ecology</td>
<td>6</td>
</tr>
<tr>
<td>BIOL3302</td>
<td>Systematics and phylogenetics</td>
<td>6</td>
</tr>
<tr>
<td>BIOL3303</td>
<td>Conservation ecology</td>
<td>6</td>
</tr>
<tr>
<td>BIOL3501</td>
<td>Evolution</td>
<td>6</td>
</tr>
</tbody>
</table>
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) (not offered in 2019-2020)
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

![Diagram showing learning targets and course content]

- **Learning Targets**
  - Knowledge and Understanding
  - Skills and Processes
  - Values and Attitudes

- **Curriculum Emphases**
  - Scientific Inquiry
  - Science Technology-Society-Environment Connections
  - Nature and History of Biology

- **Compulsory part**
  - Cells and Molecules of Life
  - Genetics and Evolution
  - Organisms and Environment
  - Health and Diseases

- **Elective part**
  - Human Physiology: Regulation and Control
  - Applied Ecology
  - Microorganisms and Humans
  - Biotechnology
Capstone experience

Biological Science Major requirement (96 credits)

- University Education (54 credits)
- Science Foundation (12 credits)
- Majors (78 credits)
- Capstone (6 credits)
- Minor/Elective (90 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
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
Facilities

Equipment
Biological Sciences
Major Coordinators:

Dr. Stefano Cannicci
cannicci@hku.hk

Dr. Clive Lo
clivelo@hku.hk

Dr. Karen Yuen
kwyyuen@hku.hk

General Enquiry: 2299 0800
Email: biosch@hku.hk
Website: http://www.biosch.hku.hk
Student Peer Advisers in 2019-20

• General roles
  – to offer advice in relation to academic studies to freshmen; and
  – to facilitate freshmen’s smooth transition from secondary to university education

• Matching between Student Peer Advisers (SPAs) and freshmen starting from 2019-20

• You are highly encouraged to contact the following SPAs if you have any questions about your study (their contacts can be found at the Faculty’s website)
  – Miss CHAN Ching Si (Jess) (BSc Year 2)
  – Miss CHAN Ying Wai (Candy) (BSc Year 2)
  – Miss CHU Hau Lam (Stephanie) (BSc Year 3)
  – Mr CHU Lok Hang (Vincent) (BSc Year 5)
  – Miss FOK Ching (Joice) (BSc Year 3)