Ecology & Biodiversity
Dr. Benoit Guénard, School of Biological Sciences
**Capstone learning**

Require students to integrate knowledge and skills to accomplish some complex tasks in their areas of disciplinary study.
Bachelor of Science

Ecology & Biodiversity (Intensive, Major & Minor)

4-year curriculum

- Diversity of species
- Interactions between species & their environment
- Regional & global threats on biodiversity
Why choosing this major?

Interest in Science
Curious about biology, nature & conservation
Enthusiast about exploring the natural world
Love fieldwork and/or laboratory work
Concerned about global environmental issues and protection of nature
What will you learn?

Broad knowledge in ecology, evolution and conservation

Skills to work independently & in team

Develop analytical and critical skills

Communication skills

Understanding of local & global environmental issues
Ecology & Biodiversity

Objectives:

1. Research
   • Explore the biodiversity of living organisms (microorganisms, plants and animals) and their ecology, with particular reference to Hong Kong and Southeast Asia

2. Teaching
   • Help students to understand:
     ➢ biological diversity, the relationships between organisms and their environments
     ➢ how humans interact with other organisms and the environment
     ➢ the importance and need for biodiversity conservation
Major in Ecology & Biodiversity

1. Introductory level 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
- BIOL2102  Biostatistics
- BIOL2306  Ecology and evolution
- BIOL1309  Evolutionary diversity
- ENVS2001  Environmental field & lab course
- ENVS2016  Environmental data analysis
Major in Ecology & Biodiversity

2. Advanced level courses (42 credits)

BIOL3302 Systematics and phylogenetics
BIOL3301 Marine biology
BIOL3319 Tropical terrestrial ecology

Plus at least 18 credits (3 courses) selected from the following:

BIOL3101 Animal behaviour
BIOL3303 Conservation ecology
BIOL3305 Tropical & temperate marine ecology
BIOL3314 Plant structure and evolution
BIOL3419 Insect ecology
BIOL3501 Evolutionary biology
BIOL4505 Oyster aquaculture

BIOL3322 Marine invertebrate zoology
BIOL3318 Experimental intertidal ecology
BIOL4302 Environmental impact assessment
BIOL4304 Ecosystem functioning & services
ENVS3019 Urban ecology
ENVS3020 Global change ecology
BIOL3328 Nearshore marine & estuarine ecol.
Major in Ecology & Biodiversity

3. Capstone requirement (6 credits)

At least 6 credits selected from the following:

BIOL3991  Directed studies in ecology & biodiversity
BIOL4991  Ecology & biodiversity project

Total Major: 96 credits
### Summer Courses

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<tr>
<th>Year</th>
<th>Core Courses</th>
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<tr>
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<tr>
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20 core and elective courses

Small classes (12-25 students)

65% of courses with field components

- BIOL3306 Systematics & phylogenetics
- BIOL3303 Conservation ecology
- BIOL3101 Animal behaviour
- BIOL3301 Marine biology
- BIOL4991 Ecology & biodiversity project (12 credits)
- BIOL3328 Nearshore marine & estuarine ecology
- BIOL3318 Exper. intertidal ecology (20)
- BIOL3319 Terrestrial ecology
- BIOL3322 Marine invert. zoology (19)
- BIOL3419 Insect ecology (20)
- BIOL4505 Oyster aquaculture & restoration (20)
- BIOL4302 Environmental impact assessment
- BIOL4861 Ecology & biodiversity internship
- BIOL3506 Evolutionary biology
- BIOL4991 Directed studies in ecology & biodiversity
- BIOL4891 Ecology & biodiversity internship
- BIOL4304 Ecosystem functioning & services (19)

Capstone

- Disciplinary Core
- Disciplinary Elective
- Field course included

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Field course included
Intensive Major in Ecology & Biodiversity

Accredited degree by the Royal Society of Biology
Intensive Major in Ecology & Biodiversity

• Diploma with increased international visibility & recognition

• Membership
  • Access to an international network of professionals
  • Discount on selected life science titles and professional development courses

• Insurance of excellency in teaching and learning
1. Introductory level courses (60 credits)

**Science Foundation Courses** (12 credits)

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

**Disciplinary Courses** (48 credits)

- BIOL1110 From molecules to cells
- BIOL2102 Biostatistics
- BIOL2306 Ecology and evolution
- BIOL1309 Evolutionary diversity
- BIOL2103 Biological sciences laboratory course
- ENVS2002 Environmental data analysis
- EASC1401 Blue Planet
- One chemistry course: CHEM1041 or 1042
2. Advanced level courses (72 credits)

BIOL3302  Systematics and phylogenetics
BIOL3301  Marine biology
BIOL3319  Tropical terrestrial ecology
BIOL3101  Animal behaviour
BIOL3303  Conservation ecology

Plus at least 42 credits (7 courses) selected from the following:

BIOL3305  Tropical & temperate marine ecology
BIOL3314  Plant structure and evolution
BIOL3318  Experimental intertidal ecology
BIOL3419  Insect ecology
BIOL3506  Evolutionary biology
BIOL4505  Oyster aquaculture
BIOL3322  Marine invertebrate zoology
BIOL4302  Environmental impact assessment
BIOL4304  Ecosystem functioning & services
ENVS3019  Urban ecology
ENVS3020  Global change ecology
BIOL3328  Nearshore marine & estuarine ecol.
3. Capstone requirement (12 credits)

**Core capstone course**
BIOL4991   Ecology & biodiversity project

**Elective capstone course (optional)**
BIOL3991   Directed studies in ecology & biodiversity

**Total Intensive Major: 144 credits**
A diverse and international team

Prof. David Dudgeon
Freshwater Ecology

Prof. Kenneth Leung
Aquatic toxicology & ecophysiology

Prof. Richard Saunders
Plant ecology & evolution

Prof. Gray Williams
Intertidal Ecology

Dr. Stefano Cannicci
Mangrove ecology

Dr. Rajan Vengatesen
Ocean acidification

Dr. Bayden Russell
Marine ecology

Dr. Moriaki Yasuhara
Deep sea ecology
A diverse and international team

17 World-class researchers

> 1300 publications in ecology & conservation

Dr. Benoit Guénard
Insect ecology

Dr. Billy Hau
Ecological restoration

Dr. Celia Schunter
Population genetics

Dr. Simon Sin
Animal Behaviour

Dr. Jin Wu
Plant remote sensing
Major in Ecology & Biodiversity

Introductory Level Courses

• *Evolutionary Diversity*
• *Ecology and Evolution*

Fundamental knowledge in Ecology & Biodiversity
Evolutionary Diversity

- Introduction to the diversity of plant and animal life & their evolutionary history and relationships
Ecology & Evolution

• Introduction to the interaction between organisms and their environment and the central role of evolution

• Understand and explain the significance of nature using scientific methods
Ecology & Evolution

• 5 days field course!
• Study both marine and terrestrial ecosystems & organisms of Hong Kong
• Familiarize with scientific methods to study organisms and their environments
Hands on learning

16 courses with field courses offered

Marine ecology  Terrestrial ecology
Coastal ecology  Freshwater ecology
Overseas field courses

- Australia
- British Colombia (Canada)
- Hainan (China)
- Malaysia
- Philippines
- Sri Lanka
- South Africa
Make an impact!

Many opportunities to engage into research as an undergraduate among one of 17 laboratories!

Swire Institute of Marine Science
Further studies:
MPhil, PhD, MSc, MLA…etc.

NGOs, Govt., private sector

Education

Jobs not related to research or conservation

100% employment after 6 months

E&B students

Graduates

19% 27% 19% 21%*

Building your future career

Education

100% employment after 6 months

E&B students

Graduates

Further studies: MPhil, PhD, MSc, MLA…etc.

NGOs, Govt., private sector

Education

Jobs not related to research or conservation

19% 27% 19% 21%*
Thank you!
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

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

• 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)
  • Miss LEE Ling Kak (Ruth) (BSc Year 4)
  • Mr TIN Kwan Yau (BSc Year 4)