BIOL3991 Directed Studies in Ecology & Biodiversity
Titles offered in 2024-25

Dr L Ashton
Research areas:
Insect ecology, plant-insect interactions, climate change.

Dr D M Baker
Research areas: marine conservation, restoration ecology, biodiversity and ecosystem functioning
Topic:

- Coral reef conservation in China: status and threats
- Blue Carbon and the Blue Economy
- costs and benefits of marine restoration

Prof T C Bonebrake
Research areas:
Tropical climate change impacts, tropical biodiversity and global change, endangered species conservation, and urban ecology..
Butterflies have served as our focal study taxa, but interests extend across a variety of species and systems.

Dr J D Gaitan-Espitia
Research areas:
Evolutionary ecology (phenotypic plasticity, local adaptation, eco-evo dynamics)
Stress Ecology

Topic:

- Mechanisms of thermal acclimation, adaptation and evolution in ectotherms
- Blue carbon and seagrass ecology

Dr B Guenard
Topics:

- Evaluating the conservation value of insects: the case of ants
- The importance of ants in decomposition processes
- The ecological significance of social insects in vertebrate diet
- Cooler equal larger, does Bergmann's rule suit social insects? A test for individual and colony size
- Biological invasions of insect groups
- Global or regional patterns of biodiversity
- Ecological impacts of invasive ants on arthropods and wildlife
- Diversity of ants in urban environments, is it just low and exotic?
- Ant-plant interactions, which benefits for the plants?
- Foraging Ecology of ants

- Importance of social insects in the diet of vertebrates

Dr B C H Hau

Research areas:

Urban biodiversity studies

Dr A. C. Hughes

Research areas: Spatial ecology, Global change ecology, Biodiversity policy and governance, Biogeography, OneHealth, Predictive ecology, Conservation science and practice, Bat ecology, Bioacoustics, Bat biodiversity and systematics

Topics:

- Dimensions of wildlife trade
- Developing conservation targets
- Translating environmental policy to practice (i.e. ecological redlining)
- Mapping impacts of climate change
- Bat biodiversity/biogeography/systematics/OneHealth
- Southeast Asian biogeographic analyses and threat assessments (various)
- Subterranean biodiversity analysis and development of assessment tools
- Migratory species targets and models in context of infrastructural change

Wide range of topics available under each of these, happy to discuss ideas

Prof J Merilä and Dr K Reid

Research areas:

Evolutionary biology, ecological and evolutionary genetics, biodiversity at genetic level, evolutionary ecology

Topics:

- Evolution in response to climate change – recent evidence
- Genomic features facilitating adaptation to high-altitude of freshwater associated species
- How common is extra-pair paternity in birds, exception or the rule?
- Turnover of Y-chromosomes, features of systems showing this phenomenon
- I have a broad range of interests, and I would be happy to discuss and entertain projects based on students' own ideas

Dr Paolo Momigliano

Research areas:

Population genetics, ecological genetics, conservation genetics, biogeography, focusing on marine organisms (fish, sharks, corals, marine mammals)

Topics:

- Genetic diversity and divergence between closely related species (*Acropora* spp.)
- Conservation genetics of coral reef associated sharks
- Reconstructing demographic history from genetic data

- Determinants of genetic diversity in complex habitats and their importance in conservation planning
- Evolutionary and conservation genomics of marine mammals
- Happy to discuss further topics in the the are of population and conservation genetics

Dr H Mumby

Topics:

- Effects of urbanisation on social behaviour and social structure in large mammals.
- Use of behaviour change interventions in conservation.
- Feeding behaviour of mammals in urban spaces: opportunities to mitigate human-wildlife “conflict”.
- Review of the role of sensory information in strategies for human-elephant coexistence.

Dr Bayden Russell

1. Are tropical species more susceptible to climate change?
2. Are marine heatwaves more important than average warming?
3. How does physiology relate to biogeography in marine organisms?

Dr C Schunter (not available for 2024-2025)

Topics:

- Long non-coding RNAs and phenotypic plasticity
  The involvement of histone modifications in behavioural phenotypes
  Parental Effects
- Transgenerational effects
- Neurological effects of climate change in wild organisms

Dr Mat Seymour

Research areas:

Environmental DNA
Molecular Ecology
Biodiversity dynamics

Topics:

- Assessing biodiversity gaps
- Spatio-temporal behavior of eDNA
- What is the effectiveness of using eDNA for biodiversity conservation and environmental assessment?

Dr Simon Y W Sin

Research areas:

Animal behaviour
Animal disease
Behavioural ecology
Gene family evolution
Genotype-phenotype association
Host-pathogen co-evolution
Mate choice

Dr ThiyagaRAJAN Vengatesen

Topics:

- Seafood safety and climate change
- Climate change impacts on oyster meat quality, taste and odor
- Big data and machine learning for oyster aquaculture

Professor G A Williams

Topics:

- Overall themes: Intertidal ecology; life in extreme environments; ecophysiology and animal behaviour. Students are welcome to propose and discuss their own ideas. Note DS will be co-supervised with Dr TY Hui.
- Tides around the world – how different are they?
- Are there really critical tidal levels on seashores?
- Life in extremes, the ecophysiology of snails in the family Littorinidae around the world OR
- Why do littorinid snails dominate the high intertidal area of rocky shores throughout the world.
- Summer mortality on rocky shores in Hong Kong: a review
- Plasticity in physiological vs behavioural performance metrics in intertidal species

Dr Jin Wu

Research area:

Phenology; Global Carbon Cycles; Tropical Ecology; Restoration and Conservation; Nature-based Climate Mitigation; Ecosystem Health and Climate Extremes

Topics:

- Phenology diversity: characterization methods, large-scale patterns, and underlying drivers
- The effectiveness of global protected areas
- Plant thermal acclimation strategy and threshold responses
- Carbon and biodiversity monitoring from the air

Dr M Yaushara

Research area:

Marine ostracod paleobiology

Topics:

- Ostracode paleoecology.
- Marine biodiversity research using modern and fossil ostracods
- Paleoenvironmental and paleoclimatological studies
- Other paleobiological and environmental science topics