

Module code

SPB-2205

Type of module

Undergraduate: Biological Sciences – Major Core

Population Genetics, Systematics and Evolution



Modular credits 4	Total student engagement 56 hours	Prerequisite None	Anti-requisite None
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Aims

To provide students with the foundations of population genetics and its importance for ecological and evolutionary studies. To introduce the concept of species and the challenges associated with their intra- and inter-specific classification. To explore the history of life on Earth based on the latest geological, fossil and phylogenetic analyses.

Module learning outcomes (MLO)

On successful completion of this module, a student will be expected to be able to:

MLO 1

Analyse the major principles of population genetics.

MLO 2

Analyse and compare the major species concepts.

MLO 3

Analyse the major intra- and inter-specific evolutionary classification methods.

MLO 4

Analyse how natural selection works and how it contributes to diversity.

MLO 5

Evaluate the major episodes of life on Earth and the major events in Southeast Asian biogeography.

Module contents

Molecular techniques for studying genetic variation within and between species

The Hardy-Weinberg Law/Model, equilibrium and its assumptions

Species concepts, taxonomy, evolution and natural selection

The major models and methods behind intra- and inter-specific classifications

An overview of the history of life on Earth, and the biogeography of Southeast Asia

Assessment

60%

Examination

40%

Coursework

Examination
60%

Practical assignments
30%

10%

■ Examination — 60% ■ Practical assignments — 30% ■ Tests — 10%

Formative assessment

Weekly discussion
and feedback

Summative assessment

COMPONENT		WEIGHTING
Examination		60%
Coursework		40%
Individual		40%
Practical assignments		30%
Tests		10%

Graduate attributes and skills

Programme learning objectives (PLO) addressed

1	PLO 1 (Fundamental Theoretical Knowledge in Biology)	2	PLO 2 (Application of Scientific Methods and Data Analysis)
3	PLO 3 (Integrated Laboratory, Field and Technical Skills)	4	PLO 4 (Critical Thinking and Problem-Solving Skills)
5	PLO 5 (Sustainability and Responsible Practice)		

Sustainability concept addressed

15	SDG 15 Life on Land
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Digital skills/software used (not limited to)

- Microsoft Office software (e.g. Word)
- Photo editing software (e.g. Photoshop)
- Organisational tools (e.g. Outlook calendar)
- Statistical software (e.g. PAST, R, FASTA)
- Simulation software (e.g. EvoDots)
- Web-based tools (e.g. GENBANK, EvoDots)
- eLearning platforms (e.g. CANVAS)

Micro-credentialling option

No

Stackable towards GenBESTARI Undergraduate Degree Programme or other relevant Lifelong Learning Programmes

No

Document details

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