

Module code

SPB-3302

Type of module

Undergraduate: Biological Sciences – Major Option

Climate Change Biology



Modular credits

4

Total student
engagement

56 hours

Prerequisite

**SPB-2206 Animal
Physiology**

Anti-requisite

None

Aims

To provide students with a basic understanding of the theory around how living organisms, species and communities are expected to respond to climate-change driven anthropogenic elevation of atmospheric carbon dioxide.

Module learning outcomes (MLO)

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

MLO 1

Analyse historical climates and the mechanisms for global climatic variation, global patterns of species distribution, and climate change.

MLO 2

Analyse the factors causing thermal variation within an organism's habitat and the body of ectothermic animals.

MLO 3

Evaluate the significance of thermal limits, thermal tolerance and the thermal energetics of ectotherms under warming scenarios.

MLO 4

Analyse the foundations for climate vulnerability in terms of exposure, sensitivity and adaptation.

MLO 5

Analyse the principles of ocean acidification (OA) and the consequences of this to marine life.

Module contents

Paleoclimate (historical climatic) and the causes of climatic variation of the Earth	Global climatic variation and seasonality	Body temperature and operative temperature
Thermoregulation in ectothermic animals: morphological, behavioural and physiological	Optimal thermal performance curves	Thermal resistance and thermal capacity
Climatic vulnerability in terms of conceptual models for exposure, sensitivity and adaptation	Species and community responses to climate warming	Changing CO2 levels, earth systems and society
Impacts of and responses to climate warming	Ocean acidification	

Assessment

60% **40%**

Examination

Coursework



■ Examination — 60% ■ Written practical reports — 15% ■ Class tests — 15% ■ Written assignment — 10%

Formative assessment

Weekly discussion and feedback

Summative assessment

COMPONENT	WEIGHTING
Examination	60%
Coursework	40%
Individual	40%
Written practical reports	15%
Class tests	15%
Written assignment	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

13	SDG 13 Climate Action
14	SDG 14 Life below Water
15	SDG 15 Life on Land

Digital skills/software used (not limited to)

- Microsoft Office software (e.g. Word, Excel, PowerPoint)
- Application software (e.g. Web browsers, statistical programs, cloud-based storage, file sharing platform)
- eLearning platforms (e.g. CANVAS, MS Teams, Zoom)

Micro-credentialling option

No

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

No

Document details

Office ODVCE Document date 29 June 2026 Status New