

Module code

SPB-3403

Type of module

Undergraduate: Biological Sciences – Elective

Developmental Biology



Modular credits

4

Total student
engagement

56 hours

Prerequisite

SPB-1201 Diversity of Life OR SPB-1202 Organisms and Environment OR SPB-1203 Skills in Biological Sciences

Anti-requisite

None

Aims

To provide students with an understanding of how organisms develop into fully functional complex entities from simple structures.

Module learning outcomes (MLO)

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

MLO 1

Analyse the basic principles involved with the development of multicellular organisms.

MLO 2

Analyse the complexity of developmental processes and mechanisms which give rise to the development of a functional individual (organogenesis).

MLO 3

Analyse the major morphological processes such as fertilisation, cleavage, gastrulation, and organ formation in a developing organism.

MLO 4

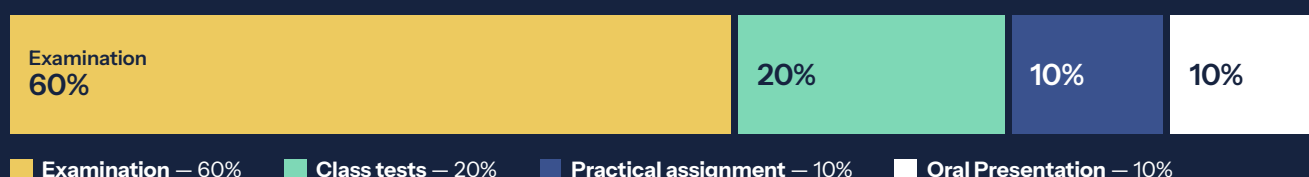
Interpret the integrative role of developmental biology in the functional biological systems and in the context of disease and congenital disorders.

Module contents

Experimental embryology	Life cycles and evolution of developmental patterns	Genes and development, and differential gene expression
Cell-cell communication in development	Fertilisation and sex determination	Early development of selected invertebrates and vertebrates
Patterning the vertebrate body plan – axes and germ layers	Development of the nervous system	Neural crest cells and axonal specificity
Somite formation and its derivatives	Endoderm	Development of the tetrapod limb
Metamorphosis, regeneration and ageing		

Assessment

60% **40%**
Examination Coursework



Formative assessment

Weekly discussion and feedback

Summative assessment

COMPONENT	WEIGHTING
Examination	60%
Coursework	40%
Individual	30%
Class tests	20%
Practical assignment	10%
Group	10%
Oral Presentation	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, 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

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