COURSE OUTLINE

BIM301 Development and Neurobiology

School: School of Health - Biomedicine

2028 | Trimester 2

UniSC Sunshine Coast
UniSC Moreton Bay

BLENDED LEARNING

Most of your course is on campus but you may be able to do some components of this course online.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

This course will deepen your understanding of how organisms develop and how the nervous system forms and functions. You'll explore the fascinating processes behind embryonic patterning, organ formation, neuronal differentiation, and what happens when development goes wrong. By linking molecular and cellular mechanisms to real-world biomedical contexts, you'll learn how to analyse research, design experiments, and interpret complex biological systems.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Online asynchronous recorded eModules, delivered weekly.	2hrs	Week 1	12 times
Tutorial/Workshop 1 – Online synchronous interactive workshop (lectorial), delivered weekly	1hr	Week 1	12 times
Tutorial/Workshop 2 – In person interactive and collaborative workshops, delivered weekly.	3hrs	Week 1	12 times

1.3. Course Topics

- Topic 1. Foundations of developmental biology
- Topic 2. Axis formation and body patterning
- Topic 3. Organogenesis
- Topic 4. Stem cells
- Topic 5. Developmental disorders (non-neural) and regenerative medicine and therapies
- Topic 6. Introduction to neurodevelopment
- Topic 7. Neuronal differentiation and patterning
- Topic 8. Plasticity in neural development
- Topic 9. Neurodevelopmental disorders I: Genetic
- Topic 10. Neurodevelopmental disorders II: Non-genetic

2. What level is this course?

300 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...		GRADUATE QUALITIES Completing these tasks successfully will contribute to you becoming...
1	Explain key concepts in developmental biology and neurobiology.	Knowledgeable
2	Integrate molecular, genetic and cellular mechanisms in explaining development and neurobiology.	Knowledgeable Problem solving
3	Critically evaluate research literature and draw on mechanistic pathway knowledge to reflect on the design and interpretation of experiments in development and neurobiology.	Creative and critical thinker Information literacy
4	Work collaboratively to design hypothetical experiments using appropriate models.	Creative and critical thinker Applying technologies
5	Communicate complex scientific ideas clearly and effectively.	Engaged Communication

5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

BIM204 and BIM205 and enrolled in program SC355

5.2. Co-requisites

BIM205 and enrolled in program SC357 or SC385

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Early feedback provided in Weeks 2 and 4 through formative quizzes (Canvas) and on student reflections (Task 1A, Weeks 1 and 3).

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1a	Portfolio	Individual	10%	Between 100-300 words per entry	Throughout teaching period (refer to Format)	Online Assignment Submission with plagiarism check
All	1b	Quiz/zes	Individual	30%	20 minutes per quiz	Throughout teaching period (refer to Format)	In Class
All	2	Oral and Written Piece	Individual	25%	5 minute recorded oral presentation	Week 7	Online Assignment Submission with plagiarism check
All	3	Written Piece	Group	35%	3000 words	Refer to Format	Online Assignment Submission with plagiarism check

All - Assessment Task 1a: Reflective portfolio

GOAL:	Weekly online reflective journal
PRODUCT:	Portfolio
AUTHORSHIP STATEMENT:	
FORMAT:	Short journal reflections will be submitted via Canvas weekly
CRITERIA:	**No.** — **Learning Outcome assessed** 1 Portfolio demonstrates effective engagement with learning materials. — 1 2
GENERIC SKILLS:	Communication, Organisation

All - Assessment Task 1b: Quizzes

GOAL:	In class quizzes
PRODUCT:	Quiz/zes
AUTHORSHIP STATEMENT:	
FORMAT:	Quizzes will be delivered in class during workshops 6 and 12
CRITERIA:	**No.** — **Learning Outcome assessed** 1 Demonstrates understanding of developmental and neurobiology concepts, and the ability to explain key molecular, genetic and cellular mechanisms relevant to these topics. — 1 2
GENERIC SKILLS:	Organisation

All - Assessment Task 2: Development in the news

GOAL:	You will critically review a recent news article related to a developmental biology topic covered in Topics 1 to 5, presenting your findings in a 'fact check' style oral presentation.
PRODUCT:	Oral and Written Piece
AUTHORSHIP STATEMENT:	
FORMAT:	Presentations will be submitted via Canvas. Students will participate in peer review of other students presentations, worth 5% of marks.

CRITERIA:

No.		Learning Outcome assessed
1	Quality and depth of critical evaluation of a topic relevant to developmental biology.	3
2	Presentation shows understanding of genetic, molecular and/or cellular mechanisms relevant to developmental biology.	1 2
3	Clear, effective and engaging oral presentation skills	5
4	Development of critical analysis skills through participation in peer review.	3 4 5

GENERIC SKILLS:	Communication, Information literacy

All - Assessment Task 3: Experiment proposal

GOAL:	Students will work in groups to develop a hypothetical experiment in response to a research grant call for proposals. Your experiment may address a knowledge gap, aetiology, or potential therapy relevant to developmental biology or neurobiology or associated disease.
PRODUCT:	Written Piece
AUTHORSHIP STATEMENT:	
FORMAT:	You will work in groups to develop your experimental plan, including use of model organisms and/or experimental systems, formulation of hypotheses, and impact of the experiment. Proposals will be submitted via Canvas in Week 12. Following submission, students will participate in peer review of other student proposals, worth 5% of mark.

CRITERIA:

No.		Learning Outcome assessed
1	Topic addresses a relevant area of developmental biology or neurobiology	1 2
2	Proposal includes key required elements including gaps in knowledge, research questions, hypotheses, aims and rationale.	3 4
3	Proposal demonstrates a clear understanding of experimental models relevant to developmental biology or neurobiology.	1 2 3 4
4	Quality, accuracy and clarity of scientific communication, including adherence to proposal formatting requirements.	5
5	Participation in peer review, demonstrating skills in critical evaluation and reflection.	3 4 5

GENERIC SKILLS:	Communication, Collaboration, Problem solving, Applying technologies

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

> There are no required/recommended resources for this course.

8.2. Specific requirements

Not applicable

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:
(a) The final mark is in the percentage range 47% to 49.4%; and
(b) The course is graded using the Standard Grading scale

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:
(a) One day: deduct 5%;
(b) Two days: deduct 10%;
(c) Three days: deduct 20%;
(d) Four days: deduct 40%;
(e) Five days: deduct 60%;
(f) Six days: deduct 80%;
(g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:
Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- UniSC Student Central
- UniSC Adelaide Student Central