



UNSW Course Outline

ANAT2341 Embryology - 2024

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General Course Information

Course Code : ANAT2341

Year : 2024

Term : Term 3

Teaching Period : T3

Is a multi-term course? : No

Faculty : Faculty of Medicine and Health

Academic Unit : School of Biomedical Sciences

Delivery Mode : In Person

Delivery Format : Standard

Delivery Location : Kensington

Campus : Sydney

Study Level : Undergraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

The lecture content of this course will provide students with a robust understanding of the development of the major organs and organ systems of the human body. Students will also acquire a basic understanding of how major birth abnormalities arise.

In the practical classes, students will actively apply the lecture content by completion of online

modules, through modelling of embryonic development using playdough, by digital embryo dissections using online resources, by working with animal models of development in laboratory classes, and in a journal club. Furthermore, students will be exposed to cutting-edge developmental and stem cell biology research presented by experts in the field.

How the course relates to the Medical Sciences Program:

The Embryology course is appropriate for a Medical Sciences pathway that includes anatomy, cell biology, histology, and pathology courses, and it prepares for an Honours project in a developmental biology, stem cell or cancer research lab.

Applications of the Course in Future Careers:

The Embryology course prepares graduates for a wide range of careers. Graduates can apply their knowledge of anatomy and developmental biology directly, such as by choosing a career in the biomedical sphere. Some of these include biomedical research scientist, science educator, policy advisor, IVF scientist and forensic scientist. Alternatively, graduates can use the general skills and knowledge acquired to pursue careers in other areas.

Course Aims

The aim of this course is to provide students with a comprehensive understanding of human development and organogenesis. Students can integrate the knowledge of developmental biology attained in this course with other subdisciplines of anatomy (macroscopic or gross anatomy, and microscopic anatomy or histology) and the related biomedical science disciplines such as pathology and physiology. The main aims of the course are to:

- Understand the embryonic origins and the tissue lineages of most adult human organ systems to understand human anatomy better.
- Correlate basic molecular mechanisms with the control of the development of embryonic structures
- Identify the anatomical features of (sectioned) embryos of various stages and species.
- Deduce the developmental basis of major human birth defects.
- Evaluate the importance of current developmental biology research for human health and disease.

Relationship to Other Courses

Assistance with progression checking:

The Prerequisite of the ANAT2341 is ANAT2241 or BABS2202.

If you are unsure how this course fits within your program, you can seek guidance on optimising your program structure, from staff at the [Nucleus Student Hub](#).

- Progression plans for UNSW Medicine and Health programs can be found on the [UNSW Medicine & Health website](#).
- Progression plans for UNSW Science programs can be found on the [UNSW Science website](#).

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe human development and organogenesis, stem cell biology and regeneration, and how major congenital birth abnormalities arise.
CLO2 : Apply basic practical laboratory skills and work with embryo and regeneration models, annotate embryonic structures, and define developmental and regenerative stages.
CLO3 : Communicate the contents of primary research articles in the field of stem cell research effectively and appropriately to an audience.
CLO4 : Demonstrate critical thinking and problem-solving skills in diverse contexts.

Course Learning Outcomes	Assessment Item
CLO1 : Describe human development and organogenesis, stem cell biology and regeneration, and how major congenital birth abnormalities arise.	<ul style="list-style-type: none">• Continuous Assessment• Group Project Assessment• Final Exam• Midterm Assessment
CLO2 : Apply basic practical laboratory skills and work with embryo and regeneration models, annotate embryonic structures, and define developmental and regenerative stages.	<ul style="list-style-type: none">• Continuous Assessment• Final Exam• Midterm Assessment
CLO3 : Communicate the contents of primary research articles in the field of stem cell research effectively and appropriately to an audience.	<ul style="list-style-type: none">• Group Project Assessment
CLO4 : Demonstrate critical thinking and problem-solving skills in diverse contexts.	<ul style="list-style-type: none">• Continuous Assessment• Group Project Assessment• Final Exam• Midterm Assessment

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

All course materials and course announcements are provided on the course learning management system, Moodle (or Open Access).

By accessing and using the ICT resources provided by UNSW, you are agreeing to abide by the ['Acceptable Use of UNSW ICT Resources'](#) policy particularly on respect for intellectual property and copyright, legal and ethical use of ICT resources and security and privacy.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Continuous Assessment Assessment Format: Individual	20%	Start Date: Not Applicable Due Date: Monday morning at 9 am; weeks 1-5 and 7-10
Group Project Assessment Assessment Format: Group	25%	Start Date: Not Applicable Due Date: Friday, 15 November 2024, midnight
Final Exam Assessment Format: Individual	35%	Start Date: Not Applicable Due Date: Official exam period
Midterm Assessment Assessment Format: Individual	20%	Start Date: Not Applicable Due Date: during prac session, week 5 Wednesday

Assessment Details

Continuous Assessment

Assessment Overview

Ongoing weekly online multiple-choice Moodle quiz, testing knowledge of previous week embryology theory and practical sessions. Questions link to theory content. Student feedback is via Moodle at the completion of each quiz.

Course Learning Outcomes

- CL01 : Describe human development and organogenesis, stem cell biology and regeneration, and how major congenital birth abnormalities arise.
- CL02 : Apply basic practical laboratory skills and work with embryo and regeneration models, annotate embryonic structures, and define developmental and regenerative stages.
- CL04 : Demonstrate critical thinking and problem-solving skills in diverse contexts.

Detailed Assessment Description

Detailed information about this assessment will be provided on the course Moodle page

Submission notes

Refer to Moodle for submission information.

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

Group Project Assessment

Assessment Overview

The group project assessment is by group work on a current primary research article in the stem cell research or regenerative medicine field at the end of the trimester. Students are provided direct feedback after the group work and marks and comments within Moodle grade book. This group project has the following parts:

1- Group Essay (15%)

2- Peer group essay review (4%)

3- Oral group presentation (3%)

4- Personal reflection (3%)

Course Learning Outcomes

- CL01 : Describe human development and organogenesis, stem cell biology and regeneration, and how major congenital birth abnormalities arise.
- CL03 : Communicate the contents of primary research articles in the field of stem cell research effectively and appropriately to an audience.
- CL04 : Demonstrate critical thinking and problem-solving skills in diverse contexts.

Detailed Assessment Description

Detailed information about this assessment will be provided on the course Moodle page

Submission notes

Refer to Moodle for submission information

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

Final Exam

Assessment Overview

A single written exam will be held during the formal examination period to assess student knowledge of course content with a focus on system development, and to assess problem-solving capacity. The written exam will consist of MCQ and short answer questions testing knowledge obtained from lectures, practical classes, and online modules.

Generalised feedback will be provided in the form of written feedback posted on Moodle.

Course Learning Outcomes

- CL01 : Describe human development and organogenesis, stem cell biology and regeneration, and how major congenital birth abnormalities arise.
- CL02 : Apply basic practical laboratory skills and work with embryo and regeneration models, annotate embryonic structures, and define developmental and regenerative stages.
- CL04 : Demonstrate critical thinking and problem-solving skills in diverse contexts.

Detailed Assessment Description

Detailed information about this assessment will be provided on the course Moodle page

Submission notes

Refer to Moodle for submission information.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

Midterm Assessment

Assessment Overview

A single written exam will be held during a mid-trimester practical class to assess student knowledge of course content covering early embryonic development and to assess problem-solving capacity. The written exam will consist of MCQ and short answer questions testing knowledge obtained from lectures, practical classes, and online modules.

Feedback is provided online at the completion of midterm exam. Additional feedback will be provided during the in-class Integration.

Course Learning Outcomes

- CL01 : Describe human development and organogenesis, stem cell biology and regeneration, and how major congenital birth abnormalities arise.
- CL02 : Apply basic practical laboratory skills and work with embryo and regeneration models, annotate embryonic structures, and define developmental and regenerative stages.
- CL04 : Demonstrate critical thinking and problem-solving skills in diverse contexts.

Detailed Assessment Description

Detailed information about this assessment will be provided on the course Moodle page

Submission notes

Refer to Moodle for submission information.

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

General Assessment Information

Detailed instructions regarding assessments for this course are provided on the course Moodle page (or Open Learning).

For student information on results, grades, and guides to assessment see: <https://student.unsw.edu.au/assessment>

Grading Basis

Standard

Requirements to pass course

In order to pass this course students must:

- Achieve a composite grade of at least 50 out of 100
- Meet any additional requirements specified in the assessment details section and on Moodle.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 0 : 2 September - 8 September	Other	There is no lecture, practical and group activities in week 0.
Week 1 : 9 September - 15 September	Blended	Lecture 1: Introduction to the Course & introduction to human development Lecture 2: gametogenesis and cell division Practical: Student introductions Clarification of course learning activities and assessments Practical session learning activities
Week 2 : 16 September - 22 September	Blended	Lecture 3: Fertilization & preimplantation development Lecture 4: Implantation and gastrulation Practical: Select laboratory for group essay and consult with Dr Reza Shirazi and Dr Mohammadiroushandeh by email for approval by 26 September
Week 3 : 23 September - 29 September	Blended	lecture 5: Ectoderm and neural crest development and mesoderm lecture 6: Endoderm and body cavities Practical: Practical session learning activities
Week 4 : 30 September - 6 October	Blended	lecture 7: Placental, Birth defects and prenatal diagnosis lecture 8: Musculoskeletal system Practical: Practical session learning activities Send questionnaire per email to Dr Reza Shirazi by email for approval by 6 October
Week 5 : 7 October - 13 October	Blended	Lecture 9: Cardiovascular 1 lecture 10: Cardiovascular 2 Practical: Practical session learning activities Midterm exam: assesses lecture content of course weeks 1-4
Week 6 : 14 October - 20 October	Other	Flexible week
Week 7 : 21 October - 27 October	Blended	Lecture 13: Respiratory and integumentary system Lecture 14: Digestive system Practical: Practical session learning activities Submission of group essay draft for peer review by 27 October
Week 8 : 28 October - 3 November	Blended	Lecture 15: Urinary system Lecture 16: Reproductive system Practical: Practical session learning activities Submission of peer reviews to groups and Dr Reza Shirazi by 3 November
Week 9 : 4 November - 10 November	Blended	lecture 17: Cranial development Lecture 18: Nervous system development Practical: Practical session learning activities Final submission of group essay to Dr Reza Shirazi by 10 November
Week 10 : 11 November - 17 November	Blended	Lecture 19: Development of Ear and eye Lecture 20: Fetal development and revision Practical: Practical session learning activities Group essay presentations

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

The times and locations of classes can be found on [myUNSW](#) under Class Timetable.

The expected engagement for all UNSW 6UOC courses is 150 hours per term. This includes lectures, tutorials, readings, and completion of assessments and exam preparation (if relevant).

Course Resources

Recommended Resources

Recommended resources for this course are provided on the course Moodle page.

Additional Costs

There are no additional costs associated with this course.

Course Evaluation and Development

Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

We use student feedback from myExperience surveys to develop and make improvements to the course each year. We do this by identifying areas of the course that require development from both the rating responses and written comments. Please spare a few minutes to complete the myExperience surveys for this course posted at the top of the Moodle page at the end of term.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Reza Shirazi					Yes	Yes
	Amaneh Mohamm adiroushandeh					No	No

Other Useful Information

Academic Information

As a student of UNSW Medicine & Health you are expected to familiarise yourself with the contents of this course outline and the UNSW Student Code and policies and procedures related to your studies.

Student Code of Conduct

Throughout your time studying at UNSW Medicine & Health, you share a responsibility with us for maintaining a safe, harmonious and tolerant University environment. This includes within the courses you undertake during your degree and your interactions with the UNSW community, both on campus and online.

The [UNSW Student Code of Conduct](#) website provides a framework for the standard of conduct expected of UNSW students with respect to both academic integrity and your responsibility as a UNSW citizen.

Where the University believes a student may have breached the code, the University may take disciplinary action in accordance with the [Student Misconduct Procedure](#).

The [Student Conduct and Integrity Office](#) provides further resources to assist you to understand your conduct obligations as a student at UNSW.

Academic Honesty and Plagiarism

Academic integrity

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to the principle of academic integrity, and ethical scholarship of learning is fundamental to your success at UNSW Medicine & Health.

Plagiarism, contract cheating, and inappropriate use of generative AI undermine academic integrity and are not tolerated at UNSW. For more information see the [Academic Integrity and Plagiarism toolkit](#).

In addition to the information you are required to review in your [ELISE training](#), UNSW Medicine &

Health strongly recommends that you complete the [Working with Academic Integrity](#) module before submitting your first assessment task.

Referencing

Referencing is a way of acknowledging the sources of information that you use to research your assignments. Preferred referencing styles vary among UNSW Medicine & Health disciplines, so check your course Learning Management System (e.g. Moodle or Open Learning) page for information on preferred referencing styles.

For further information on referencing support and styles, see the Current Student [Referencing page](#).

Academic misconduct and plagiarism

At UNSW, academic misconduct is managed in accordance with the [Student Misconduct Procedure](#). Allegations of plagiarism are generally handled according to the [UNSW Plagiarism Management Procedure](#). Plagiarism is defined in the [UNSW Plagiarism Policy](#) and is not tolerated at UNSW.

Use of Generative AI and other tools in your assessment

UNSW has provided guiding statements for the [use of Generative AI in assessments](#). This will differ, depending on the individual assessment task, your course requirements, and the course stage within your program.

Your course convenor will outline if and how you can use Generative AI in each of your assessment tasks. Inappropriate use of generative AI is considered academic misconduct.

Options for the use of generative AI include: (1) no assistance (for invigilated assessments); (2) simple editing assistance; (3) drafting assistance; and (4) full assistance with attribution; and (5) Generative AI software-based assessments. See your individual assessment descriptions for the level of permitted use of generative AI for each task and see your course Moodle (or Open Learning) page for the full instructions on permitted use of generative AI in your assessment tasks for this course.

Instructions may include a requirement to submit the original generative AI responses, or drafts of your original work, or provide on request.

Submission of Assessment Tasks

Short extensions and special consideration

Short extension

UNSW has a short extension procedure for submission of assessment tasks. Not all tasks are eligible, and eligible tasks have a predetermined extension length. UNSW Medicine and Health have set School-level extension lengths for eligible assessment tasks. See your course assessment descriptions for more information.

Students must check the availability of a short extension in the individual assessment task information for their courses.

Short extensions do not require supporting documentation. They must be submitted through [Special Consideration](#) before the assessment task deadline. No late applications will be accepted.

Late penalties apply to submission of assessment tasks without approved extension.

Special consideration

In cases where illness, misadventure or other circumstances beyond your control will prevent you from submitting your assessment by the due date and you require an extension, you need to formally apply for [Special Consideration](#) through myUNSW.

UNSW has a **Fit to Sit/Submit rule**, which means that by sitting or submitting an assessment on the scheduled assessment date, you are declaring that you are fit to do so and cannot later apply for Special Consideration. Examinations include centrally timetabled examinations and scheduled, timed examinations and tests managed by your School.

Important information relating to Short Extension and Special Consideration is available [here](#), including eligibility for Special Consideration, circumstances where students with Equitable Learning Plans can apply for Short Extensions and Special Consideration, and the appeals process.

Examinations

Information about the conduct of examinations in your course is provided on your course Moodle

page.

Timed online assessment tasks

If you experience a technical or connection problem during a timed online assessment, such as a timed quiz, you can apply for Special Consideration. To be eligible to apply you need to contact the Course Convenor and advise them of the issue immediately. You will need to submit an application for Special Consideration immediately, and upload screenshots, error messages or other evidence of the technical issue as supporting documentation. Additional information can be found on: <https://student.unsw.edu.au/special-consideration>

Other assessment tasks

Late submission of assessment tasks

UNSW has standard late submission penalties as outlined in the [UNSW Assessment Implementation Procedure](#), with no permitted variation. All late assignments (unless extension or exemption previously agreed) will be penalised by 5% of the maximum mark per calendar day (including Saturday, Sunday and public holidays).

Late submissions penalties are capped at five calendar days (120 hours). This means that a student is not permitted to submit an assessment more than 5 calendar days (120 hours) after the due date for that assessment (unless extension or exemption previously agreed).

Failure to complete an assessment task

You are expected to complete all assessment tasks for your courses. In some courses, there will be a minimum pass mark required on a specific assessment task (a “hurdle task”) due to the need to assure clinical competency.

Where a hurdle task is applicable, additional information is provided in the assessment information on your course Moodle page.

Feedback on assessments

Feedback on your performance in assessment tasks will be provided to you in a timely manner. For assessment tasks completed within the teaching period of a course, other than a final assessment, feedback will be provided within 10 working days of submission, under normal circumstances.

Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based, weekly quizzes) will be provided prior to the midpoint of the course.

Any variation from the above information that is specific to an assessment task will be clearly indicated in the course and assessment information provided to you on your course Moodle (or Open Learning) page.

Faculty-specific Information

Additional support for students

The university offers a wide range of support services that are available for students. Here are some links for you to explore.

- The Current Students Gateway: <https://student.unsw.edu.au>
- Academic Skills and Support: <https://student.unsw.edu.au/academic-skills>
- Student support: <https://www.student.unsw.edu.au/support>
- Student Wellbeing, Health and Safety: <https://student.unsw.edu.au/wellbeing>

Mind Smart Guides are a series of mental health self-help resources designed to give you the psychological flexibility, resilience and self-management skills you need to thrive at university and at work.

- Mind Smart Guides: <https://student.unsw.edu.au/mindsmart>
- Equitable Learning Services: <https://student.unsw.edu.au/els>
- Guide to studying online: <https://www.student.unsw.edu.au/online-study>

Most courses in UNSW Medicine & Health use Moodle as your Learning Management System. Guidance for using UNSW Moodle can be found on the Current Student page. Difficulties with Moodle should be logged with the IT Service Centre.

- Moodle Support: <https://student.unsw.edu.au/moodle-support>

The IT Service Desk is your central point of contact for assistance and support with remote and on-campus study.

- UNSW IT Service Centre: <https://www.myit.unsw.edu.au/services/students>

Course evaluation and development

At UNSW Medicine & Health, students take an active role in designing their courses and their overall student experience. We regularly seek feedback from students, and continuous improvements are made based on your input. Towards the end of the term, you will be asked to participate in the [myExperience survey](#), which serves as a source of evaluative feedback from students. Your input to this quality enhancement process is valuable in helping us meet your learning needs and deliver an effective and enriching learning experience. Student responses are carefully considered, and the action taken to enhance educational quality is documented in the myFeedback Matters section of your Moodle (or Open Learning) course page.

School-specific Information

Laboratory or practical class safety.

For courses where there is a laboratory or practical-based component, students are required to wear the specified personal protective equipment (e.g., laboratory coat, covered shoes, safety glasses) indicated in the associated student risk assessments. The student risk assessments will be provided on the course Moodle page and must be read and acknowledged prior to the class.

Master of Science in Health Data Science courses

Courses in the Master of Science in Health Data Science are hosted through [Open Learning](#). Additional resources are available on the [Health Data Science Student Hub](#).

School Contact Information

School guidelines on contacting staff:

Course questions

All questions related to course content should be posted on Moodle (or Open Learning) or as

directed by your Course Convenor.

In cases where email communication with course convenors is necessary, we kindly request the following:

- Use your official email address for any correspondence with teaching staff.
- We expect a high standard of communication. All communication should avoid using short-hand or texting language.
- Include your full name, student ID, and your course code and name in all communication.

Our course convenors are expected to respond to emails during standard working hours of Monday to Friday, 9am-5pm.

Administrative questions

If you have an administrative question about your program of study at the School please submit your enquiry online at [UNSW Ask Us](#).

Complaints and appeals

Student complaints and appeals: <https://student.unsw.edu.au/complaints>

If you have any grievances about your studies, we invite you to address these initially to the Course Convenor. If the response does not meet your expectations, you may then contact:

School Grievance Officer, Prof Nick Di Girolamo (n.digirolamo@unsw.edu.au)

Master of Science in Health Data Science programs: School Grievance Officer, Dr Sanja Lujic (s.lujic@unsw.edu.au)