


Department of Anatomy & Cell Biology
Human Embryology

Course Syllabus for Winter 2025

	<p>Western University is committed to a thriving campus; therefore, your health and wellness matter to us! The following link provides information about the resources available on and off campus to support students: https://www.uwo.ca/health/ Your course coordinator can also guide you to resources and/or services should you need them.</p>
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1. Technical Requirements:



Stable internet connection



Laptop or computer

2. Important Dates:



Classes Begin	Reading Week	Classes End	Study days	Exam Period
January 6	February 17–21	April 4	April 5-6	April 7–30

*March 7, 2025: Last day to withdraw from second-term half course without academic penalty

3. Contact Information



Course Coordinator	Contact Information
Instructor(s) and Teaching Assistant(s)	Contact Information

4. Course Description and Design

Delivery Mode: This course uses in-person lectures and tutorials.

Students will explore a systems-based approach to human development from fertilization to newborn stages focusing on morphological changes. Causes and functional implications of developmental anomalies that can occur during this process will be discussed. Students will also explore societal ethical dilemmas surrounding topics that have an embryological connection.

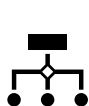
Antirequisite(s): [Health Sciences 4320A/B](#).

Prerequisite(s): [Anatomy and Cell Biology 2200A/B](#) with a minimum mark of 70%.

Extra Information: 2 lecture hours, 2 tutorial hours.

Senate regulations regarding the student's responsibility regarding requisites: Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Timetabled Sessions



Component		
Lecture – in person		
Tutorial		

- Asynchronous online quizzes must be completed prior to the start of that week's tutorial
- Attendance at lectures and tutorials is required

All course material will be posted to OWL: <https://westernu.brightspace.com/d2l/login>. Any changes will be indicated on the OWL site and discussed with the class.

If students need assistance, they can seek support on the [OWL Brightspace Help](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

Current versions of all popular browsers (e.g., Safari, Chrome, Edge, Firefox) are supported with OWL Brightspace; It is important to update your browser frequently to ensure it is current. All JavaScript and cookies should be enabled.

5. Learning Outcomes

Upon successful completion of this course, students will be able to:



- Describe the key processes and mechanisms underlying embryonic and fetal development
- Describe basic molecular and cellular mechanisms of embryonic development that underlie body patterning and determination of human anatomy
- Evaluate the impact of genetic and environmental factors on embryonic and fetal development
- Analyze experimental approaches and techniques used in embryology research
- Analyze current advancements and controversies involving embryological development and society

6. Course Content and Schedule

Lectures:

Course content (e.g. slides) will be provided online but lectures will not be recorded (except under extenuating circumstances as indicated by the course instructor).



Tutorials:

They will include a Q&A period so that students have an opportunity to clarify material on that week's topic. The tutorials will also have 2-3 student presentations focused on clinically-relevant material related to that week's topic. There will be no student presentations scheduled during week 1, week 6 (midterm), and week 13 (debate).

Week	Dates	Topic	Instructor
1	Jan 6–12	Intro; Gametogenesis & Preimplantation	
2	Jan 13–19	Implantation and Weeks 2-3	
3	Jan 20–26	Weeks 3-8; Placenta & Membranes	
4	Jan 27–Feb 2	Cardiovascular System	
5	Feb 3–9	Nervous System I	
6	Feb 10–16	Nervous System II	
6	Feb 14	Midterm	
7	Feb 17–23	Reading Week	
8	Feb 24–Mar 2	Head & Neck	
9	Mar 3–9	Urogenital	
10	Mar 10–16	Skin, Musculoskeletal, Limbs	
11	Mar 17–23	Digestive	
12	Mar 24–30	Respiratory; Special Senses	
13	Mar 31–Apr 4	Parturition, teratogenesis & DOHaD	

7. Participation and Engagement



- ✓ Students are expected to participate and engage with content as much as possible
- ✓ During the tutorials, there are ample opportunities for questions and discussion, especially for student presentations and the debate at end of term. It is expected that students will be engaged and active contributors to these exercises

8. Assessment and Evaluation



Below is the evaluation breakdown for the course. Any deviations will be communicated.

Assessment	Format	Weight	Due Date	Flexibility
Online quizzes	Multiple choice	10%		Drop lowest 2
Midterm	Mixed format	25%		Not applicable
Presentation	Oral	12.5%		Not applicable
Written report	Written	12.5%		72-hour no late penalty
Debate	Oral	10%		Not applicable
Final Exam	Mixed format	30%		Not applicable

Designated Assessment: Instructors are permitted to designate one assessment per course per term (in addition to the final exam) as requiring supporting documentation to receive academic consideration. See below for information on academic consideration policy and missed course work. For this course, the midterm has been designated as requiring supporting documentation.

Written Exams: The written exams will be in the mixed format (multiple choice, short or long answer, and other formats). Please review the UWO policy on Scholastic Offences. If you are unable to write the scheduled exam, please see Section 14 the policy and procedures for “Absence from Course Commitments” and “Special Examinations”. There is only one make up exam offered unless you have an approved direct conflict with the date and time of the makeup. The midterm make-up exam is scheduled for TBD. If you have an approved absence for the midterm make up exam, the next opportunity to write a makeup exam (date TBD). Exams are not reweighted in this course.

Weekly Quizzes: Weekly quizzes will be completed online. Quizzes will cover the material presented that week in the lectures. You will receive access to quizzes on Brightspace and you will have one attempt and 30 minutes to complete each quiz. You cannot revisit any of the questions. The quizzes are released at 11:30am on Thursdays and must be completed by Friday at 9:30am. You are expected to complete these quizzes on an individual basis. There are no makeups for the quizzes. The lowest two quiz marks will be dropped for everyone in lieu of makeup quizzes.

Oral Presentation and Written Assignment: Each student will be assigned a clinically or pathologically-relevant scenario of embryological origin to be presented to the class. Each presentation should be 12-15 min, and will take place during the weekly tutorials. Each presentation should provide the relevant background, embryological significance, and the potential diagnosis and treatment options (if applicable). Additionally, the student will be expected to write a ~1 page summary (single spaced, 2 cm margins, 12-point font) on the embryology relevant to their case. An additional 1 page containing references and figures is

allowed. This written assignment is due the Monday (11:59pm) following their presentation, with a 72 h no late penalty.

Debate: During the last week of class, students will participate in debates focused on social aspects relevant to embryology. Students will be randomly assigned to groups beforehand to ensure there is sufficient time to perform research relevant for their topic. Each student will be required to provide fact-based compelling arguments in support or against specific arguments. Each student will be evaluated based on the content and participation through self-evaluation, peer evaluation, as well as the instructor and TA.

General information about assessments

- For online quizzes, the lowest two marks will be dropped for everyone in the course automatically.
- The written assignment is due at 11:59pm EST unless otherwise specified
- Students are responsible for ensuring that the correct file version is uploaded; incorrect submissions including corrupt files could be subject to late penalties (see below) or a 0
- Written assignments will be submitted to Turnitin (statement in policies below)
- Rubrics will be used to evaluate assessments and will be posted with the instructions
- In the debate, a student might not receive the same grade as their group members if it is determined that the distribution of work was not equal
- After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days
- Any grade appeals on assignments, quizzes, or midterms must be received within 3 weeks of the grade being posted.

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

Information about late or missed assessments:

- Late written evaluations without academic consideration will be subject to a late penalty 5% per day beginning 72 h after the Monday 11:59pm deadline.
- One make-up test for the midterm will be offered [date/time TBD]. Any student with a direct conflict will have consideration for an alternate time. Anyone who has an approved absence for the **make-up** assessment will be offered a makeup time in May 2025.
- If a student is unable to present during their assigned tutorial because of an approved reason, their presentation will be reassigned to another tutorial (as early as possible). The due date for the written assignment will be the Monday after their presentation.
- There is no reweighting for written exams or presentations. These components must be completed. An INC or SPC will appear on the transcript until these components have been completed.

- If a student is unable to participate in the debate because of an approved absence then their mark may be reweighted to the final exam, since it will not be possible to reschedule to another time (i.e. the final exam will be worth 40% rather than 30% of their final mark).

INC (Incomplete Standing): If a student has been approved by the Academic Advising Office (in consultation with the instructor/department) to complete term work at a later date, an INC will be assigned. Students with INC will have their course load in subsequent terms reduced to allow them to complete outstanding course work. Students may request permission from Academic Advising to carry a full course load for the term the incomplete course work is scheduled.

SPC (Special examination): If a student has been approved by the Academic Advising Office to write a Special Examination and the final exam is the only outstanding course component, an SPC will be assigned. If the class has a makeup exam, the student is expected to write the makeup exam. If the class doesn't have a makeup exam or the student misses the makeup exam for reasons approved by the Academic Advising Office, the student will write the exam the next time the course is offered. Outstanding SPCs will reduce the course load for the term the exam is deferred as outlined in [Types of Examinations](#) policy.

9. Communication



- Students should check the OWL Brightspace site every 24–48 hours
- Students should email their instructor(s) and teaching assistant(s) using email
- Emails will be monitored daily; students can expect a response in 24–48 hours
- Course admin or grading questions should be directed to the Course Coordinator only
- This course will use the Brightspace forum for questions/discussions
- Students should post all course-related queries on the discussion forum so that everyone can access the questions and responses

10. Office Hours



- Students are encouraged to ask questions and raise discussion points during the weekly tutorial sessions
- Students who wish to have an individual meeting with an instructor are asked to arrange them with the instructor as needed

11. Resources



- All resources (e.g. lecture slides) will be posted in OWL Brightspace
- Recommended textbooks:
 - Langman's Medical Embryology, 15 ed. T.W. Sadler. Lippincott Williams & Wilkins 2023. ISBN-10: 197517996X; ISBN-13: 978-1975179960. Other editions also acceptable.

Any other textbook covering embryology is also acceptable. Some suggestions include:

- Inderbir Singh's Human Embryology, 11 ed. V Subhadra Devi. JP Medical Publishers; (2023). ISBN-10: 9789352701155 ISBN-13: 978-9352701155.
- The Developing Human: Clinically Oriented Embryology. 11 ed. Keith L Moore. Elsevier Canada; (2019). ISBN-10: 0323611540 ISBN-13: 978-0323611541

- ☑ There are many resources available online, including TeachMeAnatomy (free; but with an option to subscribe for premium content), Youtube, and a variety of online modules from different institutions.

12. Professionalism & Privacy



Western students are expected to follow the [Student Code of Conduct](#). Additionally, the following expectations and professional conduct apply to this course:

- ☑ All course materials created by the instructor(s) are copyrighted and cannot be sold/shared (e.g., Must Knows Facebook group, Course Hero, Chegg, etc.)
- ☑ Recordings are not permitted (audio or video) without explicit permission
- ☑ Permitted recordings are not to be distributed
- ☑ Generative AI and other software is allowed for the written report or to gather information. However, the student should acknowledge that generative AI was used as a footnote and be aware that AI can sometimes provide inaccurate or misleading statements.
- ☑ The course may involve viewing some cadaveric material or sensitive images for student learning. For cadaveric material, these specimens have been donated by individuals through Western's Body Bequeathal Program and hence, we expect that they receive the utmost respect. Sharing or downloading this material for use outside of this course is strictly prohibited.
- ☑ This course may cover topics that are considered controversial or sensitive in society, particularly during the tutorial sessions or end of year debate topics. Open dialogue and respect for students' and instructors' statements and opinions are expected. Those that do not adhere to this code of conduct may be excused from class.

Western is committed to providing a learning and working environment that is free of harassment and discrimination. All **students**, staff, and faculty have a role in this commitment and have a responsibility to ensure and promote a safe and respectful learning and working environment. Relevant policies include Western's [Non-Discrimination/Harassment Policy](#) (M.A.P.P. 1.35) and [Non-Discrimination/Harassment Policy – Administrative Procedures](#) (M.A.P.P. 1.35). Any **student**, staff, or faculty member who experiences or witnesses' behaviour that may be harassment or discrimination **must report the behaviour** to the Western's [Human Rights Office](#). Harassment and discrimination can be human rights-based, which is also known as EDI-based, (sexism, racism, transphobia, homophobia, islamophobia, xenophobia, antisemitism, and ableism) or non-human rights-based (personal harassment or workplace harassment).

13. How to Be Successful in this Class



Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.

1. Attend and participate in the lectures and tutorials. Embryology is complex, and it

- is not possible to review all lectures for the first time the week before exams and expect success. Give yourself lots of time to learn the material.
2. Consider using additional resources to reinforce key concepts and material. Learning things in different ways or with different media can help to reinforce key concepts.
 3. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule your time throughout the course.
 4. Make it a daily habit to log onto OWL Brightspace to ensure you have seen everything posted to help you succeed in this class.
 5. Follow checklists created on OWL Brightspace or create your own to help you stay on track.
 6. Take notes as you go through the lesson material. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively than just reading.
 7. Connect with others. Try forming an online study group and try meeting on a weekly basis for study and peer support.
 8. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
 9. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.

14. Western Academic Policies and Statements

A. Absence from Course Commitments

Students must familiarize themselves with the Policy on [Academic Consideration – Undergraduate Students in First Entry Programs](#)

Students missing course work for medical, compassionate, or extenuating circumstances can request academic consideration by completing a request at the [central academic consideration portal](#). Students are permitted one academic consideration request per course per term **without** supporting documentation. Note that supporting documentation is **always** required for academic consideration requests for examinations scheduled by the office of the registrar (e.g., December and April exams) and for practical laboratory and performance tests (typically scheduled during the last week of the term).

Students should also note that the instructor may **designate** one assessment per course per term that requires supporting documentation. This designated assessment is described elsewhere in this document. Academic consideration requests may be denied when flexibility in assessment has already been included. Examples of flexibility in assessment include when there are assessments not required for calculation of the final grade (e.g. 8 out of 10 quizzes) or there is flexibility in the submission timeframe (e.g. 72 hour no late penalty period).

Please note that any academic considerations granted in this course will be determined by the instructor of this course, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course syllabus. Supporting documentation for academic considerations for absences due to illness should use the [Student Medical Certificate](#) or, where that is not possible, equivalent documentation by a health care practitioner.

Accommodation for Religious Holidays

Students should review the policy for [Accommodation for Religious Holidays](#). Where a student will be unable to write examinations and term tests due to a conflicting religious holiday, they should inform their instructors as soon as possible but not later than two weeks prior to writing the examination/term test. In the case of conflict with a midterm test, students should inform their instructor as soon as possible but not later than one week prior to the midterm.

Special Examinations

A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents. To provide an opportunity for students to recover from the circumstances resulting in a Special Examination, the University has implemented Special Examinations dates. These dates as well as other important information about examinations and academic standing can be found [here](#).

B. Academic Offenses

Scholastic offences are taken seriously, and students are directed [here](#) to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

C. Accessibility Statement

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Accessible Education (AE) at 661-2111 x 82147 for any specific question regarding an accommodation or review [The policy on Accommodation for Students with Disabilities](#)

D. Correspondence Statement

The centrally administered **e-mail account** provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).

E. Discovery Credit Statement

Students are permitted to designate up to 1.0 Discovery Credit course (or equivalent) for pass/fail grading that can be counted toward the overall course credits required for their degree program. The details of this policy and the deadlines can be found [here](#).

F. Turnitin and other similarity review software

All assignments will be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University and [Turnitin.com](https://www.turnitin.com).

15. BMSUE Academic Policies and Statements

Cell Phone and Electronic Device Policy (for in-person tests and exams)

The Schulich School of Medicine & Dentistry is committed to ensuring that testing and evaluation are undertaken fairly across all our departments and programs. For all tests and exams, it is the policy of the School that any electronic devices, e.g., cell phones, tablets, cameras, smart glasses, smart watch or iPod are strictly prohibited. These devices **MUST** be left either at home or with the student's bag/jacket at the front of the room and **MUST NOT** be at the test/exam desk or in the individual's pocket. Any student found with one of these prohibited devices will receive a grade of zero on the test or exam. Non-programmable calculators are only allowed when indicated by the instructor. The program is not responsible for stolen/lost or broken devices.

Copyright and Audio/Video Recording Statement

Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws. You must always ask permission to record another individual and you should never share or distribute recordings.

Rounding of Marks Statement

Across the Basic Medical Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. **Final grades** on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.45 becomes 74, and 74.50 becomes 75. Marks **WILL NOT** be bumped to the next grade or GPA, e.g., a 79 will **NOT** be bumped up to an 80, an 84 **WILL NOT** be bumped up to an 85, etc. The mark attained is the mark you achieved, and the mark assigned; requests for mark "bumping" will be denied.

Statement on the use of Generative Artificial Intelligence (AI) Platforms

Students are welcome to use generative AI platforms to enhance readability of their written assignment, which should be the only situation where an AI platform may be beneficial in this course. If an AI service was used, students **must** acknowledge that AI software was used to partially complete their report, either on the title page or as a footnote. There is no penalty for using AI; in fact, it is highly encouraged that students utilize this resource but recognize its limitations. Please note that AI is not always accurate and often presents misleading information, so it is the student's responsibility to fact-check their report prior to submitting.

16. Support Services

- Students who are in emotional/mental distress should refer to Mental Health @Western Health <https://www.uwo.ca/health/> for a complete list of options about how to obtain help.
- To connect with a case manager or set up an appointment, please contact support@uwo.ca.
- Other important links:
 - [Academic Advising \(Science and Basic Medical Sciences\)](#)
 - [Appeal Procedures](#)
 - [Registrarial Services](#)
 - [Student Development Services](#)
 - [Student Health Services](#)

Statement on Gender-Based and Sexual Violence

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at:

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.