



ORIGINAL COURSE IMPLEMENTATION DATE:

January 1996

REVISED COURSE IMPLEMENTATION DATE:

September 2022

COURSE TO BE REVIEWED (six years after UEC approval):

January 2028

Course outline form version: 05/18/2018

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: BIO 312		Number of Credits: 3 <u>Course credit policy (105)</u>															
Course Full Title: Developmental Biology Course Short Title: <i>(Transcripts only display 30 characters. Departments may recommend a short title if one is needed. If left blank, one will be assigned.)</i>																	
Faculty: Faculty of Science		Department (or program if no department): Biology															
Calendar Description: Embryonic development is studied at various levels: organismal, cellular, molecular, and genetic. Both classical and modern experimental approaches using several model species will be described.																	
Prerequisites (or NONE):		(BIO 202 or BIO 220) and two other 200-level Biology courses.															
Corequisites (if applicable, or NONE):																	
Pre/corequisites (if applicable, or NONE):																	
Antirequisite Courses <i>(Cannot be taken for additional credit.)</i> Former course code/number: Cross-listed with: Dual-listed with: Equivalent course(s): <i>(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)</i>		Special Topics <i>(Double-click on boxes to select.)</i> This course is offered with different topics: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <i>(If yes, topic will be recorded when offered.)</i>															
		Independent Study If offered as an Independent Study course, this course may be repeated for further credit: <i>(If yes, topic will be recorded.)</i> <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, repeat(s) <input type="checkbox"/> Yes, no limit															
Typical Structure of Instructional Hours <table border="1"> <tr> <td>Lecture/seminar hours</td> <td>33</td> </tr> <tr> <td>Tutorials/workshops</td> <td></td> </tr> <tr> <td>Supervised laboratory hours</td> <td></td> </tr> <tr> <td>Experiential (field experience, practicum, internship, etc.)</td> <td></td> </tr> <tr> <td>Supervised online activities</td> <td>12</td> </tr> <tr> <td>Other contact hours:</td> <td></td> </tr> <tr> <td>Total hours</td> <td>45</td> </tr> </table>		Lecture/seminar hours	33	Tutorials/workshops		Supervised laboratory hours		Experiential (field experience, practicum, internship, etc.)		Supervised online activities	12	Other contact hours:		Total hours	45	Transfer Credit Transfer credit already exists: <i>(See bctransferguide.ca.)</i> <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes Submit outline for (re)articulation: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <i>(If yes, fill in transfer credit form.)</i>	
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		Grading System <input checked="" type="checkbox"/> Letter Grades <input type="checkbox"/> Credit/No Credit															
		Maximum enrolment (for information only): 24 Expected Frequency of Course Offerings: Annually <i>(Every semester, Fall only, annually, etc.)</i>															
Department / Program Head or Director: Gregory Schmaltz		Date of meeting: October 1, 2021															
Faculty Council approval		Date of meeting: November 5, 2021															
Undergraduate Education Committee (UEC) approval		Date of meeting: January 28, 2022															

Learning Outcomes:

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

1. Compare and contrast how gametes are produced.
2. Evaluate the mechanisms of fertilization at the cellular and molecular level.
3. Examine the physical changes seen during the development of embryos.
4. Relate the process of differentiation to differential gene expression.
5. Differentiate the roles of cytoplasmic determinants, gradients, and cell-cell interactions on cell specification and pattern formation.
6. Debate the roles of new reproductive technologies, such as IVF, embryonic stem cells, cloning, and e-implantation genetics on human society.
7. Analyze a recent research paper.

Prior Learning Assessment and Recognition (PLAR)

☒ Yes ☐ No, PLAR cannot be awarded for this course because

Typical Instructional Methods (*Guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion.*)

Lectures

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials (*If more space is required, download Supplemental Texts and Resource Materials form.*)

Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	Free on-line text (ie. Developmental Biology, 6 th edition Scott F. Gilbert https://www.ncbi.nlm.nih.gov/books/NBK9983/)	<input type="checkbox"/>		
2.		<input type="checkbox"/>		
3.		<input type="checkbox"/>		
4.		<input type="checkbox"/>		
5.		<input type="checkbox"/>		

Required Additional Supplies and Materials (*Software, hardware, tools, specialized clothing, etc.*)**Typical Evaluation Methods and Weighting**

Final exam:	40%	Assignments:	%	Field experience:	%	Portfolio:	%
Midterm exam:	25%	Project:	%	Practicum:	%	Research paper presentation:	20%
Quizzes/tests:	15%	Lab work:	%	Shop work:	%	Total:	100%

Details (if necessary):**Typical Course Content and Topics**

- Model organism used to study developmental biology
- Gametogenesis and fertilization
- Cleavage and gastrulation
- Neurulation and organ formation
- Vertebrate limb development
- Apoptosis and development
- Metamorphosis
- Hox genes and animal development