

BIOL 309 – Developmental Biology

Lectures: Mondays and Thursdays from 1:00-2:20, ELL 062

Labs: Tues, Wed, Thurs 2:30-5:30

All wet labs: CUN 240; Dry labs: ECS 124 (T), CLE C316 (W), CLE D126 (Th)

Course coordinator: Bob Chow (250-472-5658), bobchow@uvic.ca

Office hours: Cunningham 259c, Thurs 3-4

Lab instructor: Marcos Lagunas, marcos@uvic.ca

Course description

This course examines animal development and will focus on discoveries that provide insight into the cellular and molecular mechanisms that underlie developmental processes. A solid understanding of basic principles in molecular and cellular biology is required. Effort will be made to highlight relevance of developmental biology to our understanding of disease and lectures will incorporate recent discoveries from the primary literature. A major goal of this course is to help develop skills to: (i) evaluate the primary scientific literature, (ii) develop hypotheses based on pre-existing knowledge and (iii) design experiments to test hypotheses.

Reading material

(i) Gilbert Developmental Biology, 10th edition

(ii) reading material will also be drawn from the primary literature, review articles and other sources, which will be posted on Course Spaces.

Evaluation

(1) Lab	40%
(2) Midterm exam	30%
(3) Final exam	30%

Lab

The lab component is broken down into 2 sections: (i) a practical lab and (ii) a journal article review/"dry" lab (each worth 17% of final grade). There will be 5 practical labs and 4 journal article review/dry labs. Detailed information (including lab schedule) is posted in the **BIOL 309a Lab Manual** which can be purchased from the UVic Bookstore and is available as a pdf file on Course Spaces.

Breakdown of the lab grade:

<u>Wet lab</u>	<u>17%</u>	<u>Dry lab (journal article review)</u>	<u>18%</u>
In class assignments	5%	Pre-lab quizzes	4%
Lab report	12%	Oral presentation	5%
		Paper/mini-proposal	9%

Wet and dry lab participation grade (5 %) - this grade will cover participation in dry lab (brainstorming questions, involvement in class discussion) and wet labs (i.e. complete all procedure steps, make an effort to visualize the specimens provided during the lab period and contribute to laboratory discussions).

Midterm and final exam

The midterm will be held on Monday Feb 22 and is compulsory. It will cover material up to Feb 18 (i.e. including Vertebrate early development). The final exam will be similar in format and length to the midterm exam, and will be held during the exam period. It will cover material starting from “Fly development” through to the end of the course.

Exams will test understanding of fundamentals, concepts and mechanisms underlying developmental systems as well as ability to develop hypotheses and to design experiments to test them. Format for both exams: mostly short answer. Exams will cover assigned readings for lectures and anything covered in lecture.

Tentative lecture schedule:

Date	Topics	8th Edition	9th Edition	10th Edition
Jan 4-11	Fertilization/early cleavage	175-209	121-156	117-151
Jan 14-25	Invertebrate early development	211-229,237-241,243-246	31-45,69-96,159-178,187-190,193-196	31-45, 69-96, 153-161, 170-173,217-239
Jan 28 - Feb 18	Vertebrate early development	291-325-329,336-342,347-358-360, 364-366	241-272,287-321,323-332	241-270, 286-318, 319-331
Feb 8, 11	Reading break			
Mon Feb 22	Midterm exam			
Feb 25- Mar 3	Fly axis specification and patterning	253-287	203-239	179-213
Mar 7-14	Eye development	139-143, 407-409, 397-400	79-82,359-365	79-81, 359-367
Mar 17, 21	Neural crest and neuronal development	426-440	373-409	375-414
Mar 24, 31	Vertebrate limb development	505-519	485-510	489-517
Apr 4	Germ cell determination	593-601, 604 (starting at “Mammals” section)-605	583-597	591605