



UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF BIOLOGICAL SCIENCES
COURSE OUTLINE

1. **Course: CMMB 505 – ADVANCED DEVELOPMENTAL BIOLOGY**

Seminar Section: L01 TR 11:00-12:15 SA 243 WINTER 2015

Instructor: **Dr. J. COBB** **BI 286D** **220-3554** **jacobb@ucalgary.ca**
 Dr. B. BOBICK **BI 322** **220-5948** **bbobick@ucalgary.ca**

Course website or Desire 2 Learn (D2L) course name: <https://d2l.ucalgary.ca>
Biological Sciences Department BI 186; (403) 220-3140; biosci@ucalgary.ca

2. **PREREQUISITE(S):** CMMB 403
 See section 3.5.C in the Faculty of Science section of the online Calendar
 (<http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html>)

3. **Grading:** The University policy on grading and related matters is described sections [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

2 paper reviews (take home, 14 day time allowance)	25 + 25% =	50%
Class participation		20%
Class presentation		10%
Take home exam (12 day time allowance)		20%

(There will not be a final examination scheduled by the Registrar.)

“Each piece of work (paper reviews, exams) submitted by the student will be assigned a percentage score. The student’s average percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.”

4. **Missed Components of Term Work:** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in [Section 3.6](#). It is the student's responsibility to familiarize himself/herself with these regulations. See also [Section E.6](#) of the University Calendar
5. **Scheduled out-of-class activities:** N/A
6. **Course Materials:** All reading material will be posted on D2L or links will be provided to access the material. This course has not textbook.
7. **Examination Policy:** All exams and assignments are prepared outside of class. These must be performed independently by each student—no group work. The only exception is the student presentation, which is a group effort. Students should also read the Calendar, Section G, on Examinations.
8. **Writing across the curriculum statement:** e.g. “In this course, the quality of the student’s writing in laboratory reports will be a factor in the evaluation of those reports.” See also [Section E.2](#) of the University Calendar.
9. **Human studies statement:** indicating whether students in the course may be expected to participate as subjects or researchers. See also [Section E.5](#) of the University Calendar.

STUDIES IN THE BIOLOGICAL SCIENCES INVOLVE THE USE OF LIVING AND DEAD ORGANISMS. Students are expected to be familiar with <http://www.ucalgary.ca/pubs/calendar/current/sc-5-1.html> of the on-line calendar.

See also <http://www.ucalgary.ca/pubs/calendar/current/e-5.html>.

10. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- (a) **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K. Student Misconduct](#) to inform yourself of definitions, processes and penalties.
- (b) **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- (c) **Academic Accommodation Policy:** Students with documentable disabilities are referred to the following links: Students with Disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html#B.1> and Student Accessibility Services: <http://www.ucalgary.ca/access/>.
- (d) **Safewalk:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- (e) **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPPA). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information see also <http://www.ucalgary.ca/secretariat/privacy>.
- (f) **Student Union Information:** VP Academic Phone: 220-3911 Email: suvpaca@ucalgary.ca.
SU Faculty Rep. Phone: 220-3913 Email: sciencerep@su.ucalgary.ca; [Student Ombudsman](#)
- (g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.
- (h) **U.S.R.I.:** At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference - please participate in USRI Surveys.

Department Approval _____ ORIGINAL SIGNED _____ Date _____

Department Approval for
NO Final Exam: _____ ORIGINAL SIGNED _____ Date: _____
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UNIVERSITY OF CALGARY
DEPARTMENT OF BIOLOGICAL SCIENCES
CMMB 505 - ADVANCED DEVELOPMENTAL BIOLOGY

Winter 2015

Prerequisites: CMMB 403

Course Coordinator **Dr. John Cobb**

Lecturers: **Dr. John Cobb, Dr. Brent Bobick**

Seminar: T & R 11:00 - 12:15 SA 243

Course Text: There is no course text book. All material will be from the scientific literature. PDFs of the assigned paper will be distributed via the D2L website for each class, or a link to the pdf will be provided. Scott Gilbert's "Developmental Biology" 10th Ed. is highly recommended as a reference.

A second text for cell biology/signal transduction is Alberts et al. Molecular biology of the cell (MBoC)

<http://www.ncbi.nlm.nih.gov/80/books/>

The Use of World Wide Web Material in Term Papers, Lab Reports and Assignments

As with other more traditional sources of material, information obtained from the Web must be fully and accurately cited. As with all other sources, students must take full responsibility for the quality, accuracy and verifiability of material that they cite. Because Web sites may be transient, the following must be done if Web sites are cited:

A full Website address must be provided, and the date on which it was accessed.

A print-out of the home page of the Web site and the page on which the particular information begins must be included as appendix material for the term paper or assignment.

Academic dishonesty: No form of academic misconduct (cheating, plagiarism, or any other form) will be tolerated. All cases will be dealt with rigorously and may lead to disciplinary probation or suspension or expulsion. The Faculty of Science has a zero tolerance policy regarding dishonesty. For further information see the appropriate sections of the University calendar.

Grading will be based as follows

2 paper reviews (take home, 14 day time allowance)	25 + 25%
Class participation (not including presentation)	20%
Class presentation	10%
Take home exam (12 day time allowance)	20%

Participation in this course requires acceptance of this grading structure.

Grade Scale

Standard University of Calgary grades will be used, with A+, A, A- etc. subdivisions. For most assignments in this course letter grades are assigned without a numerical equivalent, but when appropriate the following scale will be used to convert a numerical scale to a letter grade.

Grade cutoff (lowest mark to earn the grade at right)	Letter grade
93	A+
83	A
80	A-
77	B+
73	B
70	B-
67	C+
63	C
60	C-
57	D+
50	D

When calculating an overall average for the course, conversion of Letter grades to Numerical grades will use the following scale:

Letter grade assigned	Will be calculated as
A+	95
A	88
A-	81.5
B+	78.5
B	75
B-	71.5
C+	68.5
C	65
C-	61.5
D+	58.5
D	53.5

Class Participation

Students are expected to perform all required readings prior to attending each class. Students are expected to participate in discussions, and if called upon, to be able to answer questions on either assigned readings or lecture content. As noted above 20% of the grade is based on class participation. Students that only attend but do not actively participate will therefore score very poorly (i.e. 0%) in this component.

2015 Course Schedule and Topics

Schedule	Lecturer	Preliminary Title
Jan 13	John Cobb	Orientation, observing embryos with worksheet
Jan 15	John Cobb	Lecture and discussion on techniques and historical background
Jan 20	John Cobb	Historical background 1-Discovery of the homeobox
Jan 22	John Cobb	Historical background 2-Discovery of <i>Hox</i> gene colinearity
Jan 27	Brent Bobick	Mesenchymal stem cells
Jan 29	Brent Bobick	Multipotent progenitor cells
Feb 3	Brent Bobick	Induced pluripotency 1
Feb 5	Brent Bobick	Induced pluripotency 2
Feb 10	John Cobb	Discovery of <i>Dmrt1</i>
Feb 12	John Cobb	Mouse techniques—CRISPR mice and other new techniques
		(First paper assigned-Cobb)
Feb 17		READING WEEK NO CLASS
Feb 19		READING WEEK NO CLASS
Feb 24	John Cobb	Sex maintenance: DMRT1 and female reprogramming
Feb 26	John Cobb	Discovery of the Sonic hedgehog limb enhancer
Mar 3	John Cobb	Human specific enhancers
Mar 5	Brent Bobick	Fish eye development 1
		(First paper due)
Mar 10	Brent Bobick	Fish eye development 2
Mar 12	Brent Bobick	Chick skeletogenesis
Mar 17	Brent Bobick	Bird beak formation and patterning 1
		(2nd paper assigned - Bobick)
Mar 19	Brent Bobick	Bird beak formation and patterning 2
Mar 24	Student talks	7 groups of 3 or 4 students, 1 group per class
Mar 26	Student talks	“
Mar 31	Student talks	“ (2nd paper due)
Apr 2	Student talks	.
Apr 7	Student talks.	“
Apr 9	Student talks	“
Apr 14	Student talks	Take home final given out
Apr 28		Take home final due