Zool 242
Animal Physiology II: Intercellular Communication

Course Outline, Winter 2013

Course Description (from the Calendar)
Animal Physiology II: Intercellular Communication*3 (fi 6)
(second term,3-1s-0)
Endocrinology, immunology and neural, sensory, motor, and reproductive physiology. Examples from invertebrates and vertebrates. Students with credit in PHYSL 210 or 212 or 214 may not obtain credit in ZOOL 242. Prerequisite: BIOL 107 or SCI 100.

Course website:
http://www.biology.ualberta.ca/courses/zool242/

Course topics

Cells communicate with each other using a variety of means ranging from interaction of cell surface molecules, direct electrical coupling through gap junctions, local activation with transmitter release and release of substances into the blood stream. How these different types of communication are manifested between cells is the focus of this course. These mechanisms of communication will be integrated into larger whole animal physiology related to nervous systems and behavior, endocrinology, and immunology.

Venue: MWF 0900-0950 CCIS L1-160

Professors
Dr. Matt Larouche (Neurobiology; January to Mid-February)
Room Z-609 Biol Sci
Email: matthewr@ualberta.ca

Dr. John Chang (Endocrinology; Mid-February to the end of March)
Room Z-506 Biol Sci; Phone: 780 492-1278
Email: john.chang@ualberta.ca

Dr. James Stafford (Immunology; end of March to end of class in April)
Room CW-319 Biol Sci; Phone: 780 492-9258
Email: stafford@ualberta.ca

TAs for Tutorials/Seminars (best to e-mail for appointments)

Daryn Watson	Email: daryn@ualberta.ca	Biol Sci G316
Dustin Lillico	Email: dlillico@ualberta.ca	Biol Sci CW318 780-492-9258

Please consult Bear Tracks for location and time of your registered seminar.

Recommended textbooks:
Moyes and Schulte (2nd Edition) - Principles of Animal Physiology (green book).

NOTE: Moyes and Schulte comes bundled with an immunology supplement (free of charge) which will be used in the last few weeks of the course (Dr. Stafford's section). Materials on Dr. Chang's section will be supplemented from various different sources and any general endocrinology text or reference will be useful as supplements (one common endocrinology text is Endocrinology, 6th ed., by Mac E. Hadley and Jon E Levine, Pearson/Prentice Hall).

Determination of Course Marks:
Quizes/Assignments/Participation (20%): Given by TAs during weekly tutorial session throughout the term (see more below)

Midterm Exam (30%)
Scheduled February 13th, 2015. Held in class.

Final Exam (50%)
Confirm final exam schedule and location released toward the end of term.
Length of exam - 3 hours
The final exam will be comprehensive for all material in lecture with some emphasis being placed on material that had not been covered in the midterms. However all material presented throughout the term is fair game.
TENTATIVE FINAL Exam is on Monday 20th APRIL 2015 at 9 AM. Please check Bear Tracks to confirm date and time closer to the exam date.

FINAL GRADE ASSIGNMENT WILL NOT BE CURVED. Instead, we look for natural breaks in the mark distribution in grade assignments (usually, the break between an A- and a B+ will be around the 78-80% mark).

Contacting you:
Frequently throughout the term, we will send notices to your U of A email address so please check your email regularly. We will use your email account exclusively for matters relevant to the course (important reminders, clarifications of class materials, etc.) and we will use BCC to ensure privacy of your addresses.

Absence from examinations:

A student who has missed the mid-term examination because of illness or domestic affliction or who is obliged to be absent from the mid-term examination for some other compelling reason (including religious convictions) is normally expected to complete a make-up examination rather than to defer the weight to the final. As part of the documentation in arranging for the deferred mid-term, please complete the attached declaration form at the end of this syllabus. The make-up mid-term exam is normally held within a week of the original scheduled date.

A student who has missed the final examination because of illness or domestic affliction or who is obliged to be absent from a final examination for some other compelling reason (including religious convictions) may apply for a deferred final examination. Such an application must be made to the student's Faculty office within 48 hours of the missed examination and must be supported by a Statutory Declaration (*in lieu* of a medical statement form) or other appropriate documentation (Calendar section 23.5.6). Deferred examinations are a privilege and not a right; there is no guarantee that a deferred examination will be granted. Misrepresentation of Facts to gain a deferred examination is a serious breach of the *Code of Student Behavior*.

The student should contact the instructor 48 hours prior to the deferred exam to confirm date, time and location in case there are any last minute changes. Anyone with a valid excuse for missing the scheduled deferral date should contact the instructor and will have to re-apply for the deferred examination.

For complete information on examinations please consult Section 23.5 of the U of A calendar.

The date for the deferred final examination in Zool 242 is Monday, April 27, 2015 at 9:00 AM, room B409C, Biological Sciences Building.

Student Responsibilities:
ACADEMIC INTEGRITY: 'The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the *Code of Student Behaviour* (online at www.ualberta.ca/secretariat/appeals.htm) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.'

All forms of dishonesty are unacceptable at the University. Any offense will be reported to the Senior Associate Dean of Science who will determine the disciplinary action to be taken. Cheating, plagiarism and misrepresentation of facts are serious offenses. Anyone who engages in these practices will receive at minimum a grade of zero for the exam or paper in question and no opportunity will be given to replace the grade or redistribute the weights. As well, in the Faculty of Science the sanction for **cheating** on any examination will include **a disciplinary failing grade** (no exceptions) and senior students should expect a period of suspension or expulsion from the University of Alberta.

EXAMS: Your student photo I.D. is required at exams to verify your identity. Students will not be allowed to begin an examination after it has been in progress for 30 minutes. Students must remain in the exam room until at least 30 minutes has elapsed. Electronic equipment cannot be brought into examination rooms and hats should not be worn.

CELL PHONES: Cell phones are to be turned off during lectures and seminars. Cell phones are not to be brought to exams.

STUDENTS WITH DISABILITIES: Students who require accommodation in this course due to a disability are advised to discuss their needs with Specialized Support & Disability Services (ssdsrec@uss.ualberta.ca).

Student Success Centre: Students who require additional help in developing strategies for better time management, study skills or examination skills should contact the Student Success Centre (success@ualberta.ca).

Peer Support Centre: Other student support services are also available in **2-707 SUB (780-492-HELP).**

Disclaimer: Any typographical errors in this Course Outline are subject to change and will be announced in class. The date of the final examination is set by the Registrar and takes precedence over the final examination date reported in this syllabus.

DECLARATION
in the matter of absence from Biological Sciences Department Midterm Examinations

I, _____ Student ID#_____
(Print name in full)

of_____ in the province of Alberta
(Address)

do solemnly declare that I missed the Midterm Examination

in _____ on_____
(Course name, number, section) (Month, Day, Year)

_____
(Instructor Name)

for the following reason(s):

_____ this_____day of_____, _____
(Declarant's Signature) (Year)

1. **Completion of this form does not imply approval for an excused absence.**
2. **Making a false statement on this form will constitute grounds for a charge to be laid against you under the Code of Student behaviour, section 30.3.6(4) Misrepresentation of Facts: "No student shall misrepresent pertinent facts to any member of the University community for the purpose of obtaining academic or other advantage."**

Zoology 242: Intercellular Communication (Tentative Lecture Schedule & Coverage, Winter 2015)

Lecture	Date	Topic	Lecturer
1	Jan 5	Introduction	Larouche
2-16	Jan 7-Feb 9	Neurobiology: Topics covered: membrane potentials; action potentials; second messenger systems; neurotransmitters and receptors; sensory systems; muscle; learning and memory; and more	
17	Feb 11	Neurobiology Wrap-up	
18	**Feb 13**	**Midterm Exam**	
	Feb 16-20	**Term Break**	
about 13 lectures	Feb 23 to approximately March 23	Topics covered: 1) Introduction and Basic Principles in Neuroendocrinology 2) Hypothalamus – pituitary – target axis; major divisions and formation of the pituitary; brief overview of major pituitary hormones and their functions 3) MSH and colour change; example of a peptide hormone; integration of neural, endocrine and neuroendocrine control at multiple levels; membrane receptor signalling and G-protein cycle; short- and long-term effects 3) Thyroid system and metamorphosis; interactions of multiple hormones in the control of a physiological function; example of nuclear receptor signalling; peripheral control of hormonal functions and activities; hormonal and non-hormonal control of thyroid activity 4) Control of digestion of carbohydrates, proteins and fat; enzymes involved; pre- and pro-biotics; control of exocrine activity; integration of multiple feed-forward and feed-back loops; examples of interactions between neural, neuroendocrine, endocrine and cytocrine regulation of functions 5) Control of reproduction using an invertebrate model; further examples of interactions of multiple neuroendocrine factors in the control of a single physiological function	Chang
about 6 lectures	Approximately March 25 to April 10	Introduction to the immune system	Stafford
	April 20	**FINAL EXAM**	