BIO4611G – The Physiology of Animal Migration
Winter 2017

Lecture: Tuesday 9:30-11:30, Thursday 9:30 – 10:30, HSB 240

Instructor: Dr. Keith A. Hobson, Professor, Biology, khobson6@uwo.ca
Office Hours: BGS-2070, Tuesday 1:30 – 2:30 pm or by appointment
TA Dean Evans, devans46@uwo.ca, Office Hours: TBA

Prerequisites: Either Biology 2601A/B or Physiology 3120, or the former Biology 2672A/B, or permission of the Department; and either completion of at least 1.5 Biology courses from the 3000-level or above, or registration in Year 4 of an Honors Specialization in Animal Behaviour.

Senate regulation on prerequisites: “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”.

Course Description
Migration is an amazing natural phenomenon and an important component of the life history of many species. The goal of this course is to examine the physiological basis of migratory movements in invertebrate and vertebrate animals. Topics covered include (1) the evolution of migratory life histories, (2) biological rhythms and hormonal control of migration, (3) the sensory basis of orientation and navigation, (4) biomechanics and energetics of movement, (5) metabolic fuel storage and utilization, (6) stable isotope, radar, radio-telemetry and other tracking methods, (7) physiological approaches to the study of migration ecology, (8) conservation of migratory species.

Course Structure and Materials
This course will use a combination of lectures and readings from the primary literature to develop a knowledge base on migration physiology. There is no text book that covers all of the material in the course, but inspiration is taken from Migration, The Biology of Life on the Move, First (1996) and Second (2014) editions by Hugh Dingle. Required readings from the primary literature will be posted on the course OWL website. Necessary lecture materials will also be posted on OWL. These are meant to aid in the understanding of the information presented in lecture, so attendance is mandatory.

Primary Literature Reading Assignments – Active Learning
Learning to read, understand and evaluate the scientific literature is a crucial skill for science students. You will be assigned 2 papers approximately each week (6 papers before the midterm, 10 papers between the midterm and final = 16 papers in 8 weeks). You will read the papers and be prepared to discuss and debate them in groups of four students during Tuesday lecture periods. By the following Thursday, one member of each group will hand in a written synopsis of one of the papers and the in-class discussion. Each student will thus write two synopses during the semester and receive marks based on their quality. In addition, an assortment of potential short essay questions examining your understanding of the readings will be posted on-line in advance of exams. A subset of these questions will appear on each exam.

Writing Assignments
A writing component is included to develop written communication skills. You will first write a one page letter of intent for a research proposal. You will receive written feedback on your letter of intent, and you will also discuss your idea in class on Tuesday March 8 with a small group of your peers. You will then write a full research proposal including a lay summary suitable for public release. These assignments are meant to teach you how to develop a novel idea into a scientific study and communicate the relevance of your research to the general public.
Methods of Evaluation
Grading will be on a traditional percentage scale. There will be one midterm exam and a final exam. Exam questions will be drawn from the lectures and assigned readings, and they may include multiple-choice, fill-ins, diagram drawings, short answers, and essays. No electronic devices will be needed or permitted during exams. Writing assignments should be handed in during the lecture period. Late assignments will be penalized 10% for each day after the due date including weekends. Assignments not turned in by the time others are returned will receive a grade of zero (0).

Writing Assignments: 45%
  Synopses (10%): Due on the Thursday or Tuesday following a discussion period.
  Letter of Intent (10%): Due Thursday Feb 23.
  Research Proposal (25%): Due Thursday Mar 23.

Midterm Exam (20%): Tuesday Feb 7 in class (covers lectures/readings Jan 5 – Feb 2).
Final Exam (35%): Time and Location TBA (cumulative).

Absences, Grade Changes
Late assignments and make-up exams without penalty will be considered only under substantiated circumstances of illness, injury, family emergency, mandatory public service or participation in a university sponsored activity. Students who do not have a valid medical or other excuse for missing in-class discussions will be penalized 10% of their synopsis mark for each missed discussion period. Please notify me of any planned absences at the beginning of the semester. **Alteration to the grade basis of the course will not be considered.** If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. Please see: [https://studentservices.uwo.ca/secure/index.cfm](https://studentservices.uwo.ca/secure/index.cfm)

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here: [http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf)

Support Services
Registrarial Services can be accessed here: [http://www.registrar.uwo.ca](http://www.registrar.uwo.ca). 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 contact the Student Development Centre ([http://www.sdc.uwo.ca/](http://www.sdc.uwo.ca/)) at 661-2111 x 83031 for any specific question regarding accommodation. Other services are available at Student Support Services [http://westernusc.ca/services/](http://westernusc.ca/services/).

Students who are in emotional/mental distress should refer to Mental Health@Western [http://www.uwo.ca/uwocom/mentalhealth/](http://www.uwo.ca/uwocom/mentalhealth/) for a complete list of options about how to obtain help.
Academic Offences
Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf. Work turned in for examinations must be yours alone. You may discuss your research proposal freely with your classmates. However, the assignments must be written by you alone, and you must properly cite all sources used in the preparation of the proposal. **Do not plagiarize. This includes identical or similar assignments written by you for another course. Your proposal must be turned in to turnitin.com for textual similarity checking using a link on the course website. Plagiarized assignments will receive a grade of zero and may result in more serious penalties.**

*Senate statement on plagiarism and plagiarism checking:* “Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).”

“All required papers may 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 The University of Western Ontario and Turnitin.com (http://www.turnitin.com ).”