

**TENTATIVE COURSE OUTLINE**  
**BIOLOGY 3250: Comparative Animal Physiology I.**  
**2026 Serial**  
**Instructor: Dr. Robert J. Omeljaniuk, CB-4013.**  
**Office Hours by Appointment.**

1. CALENDAR DESCRIPTION.

Comparative Animal Physiology I. 3-3; 0-0.

An introduction to organismal and cellular communication emphasizing endocrine, neural and intracellular signal transduction mechanisms. Laboratory exercises involve practical experience in the use of *in vivo* and *in vitro* techniques.

2. MARKING SCHEME.

a. 20% of the Final Mark is allocated to Laboratory Exercises as defined and evaluated by Mr. Michael Moore and his teaching staff. Details to be confirmed and promulgated by Mr. Moore.

b. Mid-Term Tests.

(1) Term Test #02. 40% Final Mark. 20 Oct 2026; in lab period.; and

(2) Term Test #03. 40% Final Mark. 01 Dec 2026; in lab period.

3. LABORATORIES.

20% of the Final Mark is allocated to Laboratory Exercises as defined and evaluated by Mr. Michael Moore and his teaching staff. Details to be confirmed and promulgated by Mr. Moore.

a. Protein Determination Lab.

This is an exercise to re-familiarize students with fundamental lab operations and to generate a data set which will be used to practice data handling and presentation.

Assignment arising will constitute hand rendered tables and figures **consistent with the requirements defined by The Canadian Journal of Zoology**. (5 final marks).

b. pH Lab.

This is an exercise to re-familiarize students with fundamental lab operations and to generate a data set which will be used to practice data handling and presentation.

Assignment arising will constitute hand rendered tables and figures **consistent with the requirements defined by The Canadian Journal of Zoology**.

(5 final marks).

c. Hemolysis lab.

This is an exercise designed to examine the pathways for movement of water and ions through a model cell's membrane and to practice data handling and presentation.

4. TENTATIVE LECTURE OUTLINE.

- a. Endocrinology. Lectures 1 to 18.
- b. Neurophysiology: Lectures 19 to 36.
- c. Intracellular signaling: dispersed throughout as appropriate.

5. TEXTBOOKS.

- a. Boron, W.F. and Boulpaep, E.L. 2015. Medical Physiology, 3rd ed. Revised. Saunders – Elsevier, Philadelphia PA. 1337 pp. (about \$188).
- b. Biology 3250/3251 Laboratory Manual. Available at the Lakehead University Alumni Bookstore.

6. ATTENDANCE TO LABORATORIES AND EXAMINATIONS.

Attendance to laboratories and examinations is mandatory. In the event of significant extenuating circumstances, including serious illness or bereavement of an immediate family member, students are to contact the instructor at their earliest convenience to explain their situation and request in writing for consideration. Likewise, students are strongly encouraged to consult their Instructor in advance whenever unusual circumstances are foreseeable.