TENTATIVE COURSE OUTLINE
BIOLOGY 3250: Comparative Animal Physiology I.
2025 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 #01. 10% Final Mark. 15 Sep 2025;

(2) Term Test #02. 40% Final Mark. 23 Oct 2025; in lab period.; and

(3) Term Test #03. 30% Final Mark. 25 Nov 2025; 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.

NOTES:

a. Narrative. Single-sided paper, one-inch margins all around, Times New Roman Font at 12 point font, true double-spaced.
b. All figures and tables are to be rendered in hand; absolutely no electronic means are authorized in the preparation of figures and tables. **The format of tables and figures will be consistent with the requirements defined by The Canadian Journal of Zoology (CJZ). Assignments inconsistent with CJZ format will be rejected; resubmissions are not authorized.**
c. Figures are to be presented on graph paper with linear axes and using 10 mm/cm gradations. Straight lines are to be rendered using a straight-edge, curved lines to be drawn with a flexible curve, and data symbols are to be presented using a symbol template. Only pencil inscription is authorized.
d. Tables may be presented on lined paper.

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 to practice data handling and presentation and to practice the synthesis and presentation of a professional quality lab report in the form of a manuscript submitted for publication to The Canadian Journal of Zoology.
Assignment arising will constitute hand rendered tables and figures, as well as the required narrative associated with a manuscript submitted for publication in The Canadian Journal of Zoology.
(10 final marks).

Lab Reports.

(1) Due as indicated in laboratory schedule;
(2) Late reports will not be accepted without medical or compassionate explanations.
(3) Reports will be marked and returned as soon as possible.
(4) Format. Neatly written, typed, or word-processed **according to the manuscript requirements for Canadian Journal of Zoology**.
(5) Illegible reports will not be accepted; plagiarism, to any extent, will not be accepted.
(6) The textbook is the primary reference for lab reports. Websites are not authorized as references although peer-reviewed journals accessible on the internet are authorized and are to be appropriately cited in accordance with CJZ instructions.
(7) Report Marks.
    (a) Introduction: Provides the scientific basis for the work performed: Pass/Fail. Failure results in Report returned, not marked, for a score of 0.0 Final Marks.
    (b) Results: Drafted figures, tables and a textual summary of experimental findings: 3.0 Final Marks.

(c) Discussion:

The crux of this Discussion is the enumeration and description of the various transmembranal transport mechanisms for water and the solutes considered in this experiment.

As well, consideration must be given to whether the data gathered are, or are not, consistent with expected results found in the literature.

7 Final Marks.

PAGE LIMIT OF 6 PAGES; OVERLENGTH DISCUSSIONS WILL BE REJECTED *in toto*. This page limit is quite tight; you will have to produce a very condensed Discussion section.

ADVICE. Formal reports require significant effort for data presentation, reading and interpreting reference material, and incorporating relevant reference material into meaningful discussions.

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.