

**BIOLOGY 3253:**  
**Animal Physiology: Intracellular Communication and Coordination.**  
**2021 Serial**  
**Instructor: Dr. Robert J. Omeljaniuk, CB-4013.**

**NOTE: As a consequence of altered operations at Lakehead University this course, and others, may be conducted differently from their historical patterns during the course of the term. Thank you for your consideration and patience with these temporary changes.**

**This proposed course outline is subject to change in response to changing conditions and to developments in lecture delivery methods, and in response to novel developments in the evaluation of student progress such as testing paradigms.**

**Thank you again for your thoughtful understanding.**

1. CALENDAR DESCRIPTION.

Biology 3253. Animal Physiology: Intracellular Communication and Coordination.  
3-0; 0-0.

Description: An examination of integrated intracellular communication mechanisms which enable extracellular messengers, including hormones, neurotransmitters and drugs, to exert their effects. Areas to be discussed include primary messenger receptors, intracellular signaling mechanism, and cellular adaptation to messenger stimuli.

2. MARKING SCHEME.

- a. Term Test. 40 % of final mark 06 October 2021.
- b. Term Test. 60 % of final mark 24 November 2021.

3. TENTATIVE LECTURE OUTLINE.

- a. Introduction;
- b. Cell membrane;
- c. Cytoskeleton;
- d. Nucleus;
- e. Endoplasmic Reticulum:Golgi complex;
- f. Exocytosis: structures and molecular processing;

- g. Primary Messenger Receptors;
- h. Specific Signaling Mechanisms; and
- i. Cellular adaptation to messenger stimuli.

5. TEXTBOOKS.

- a. Boron, W.F. and Boulpaep, E.L. 2016. Medical Physiology, 3rd ed. Saunders – Elsevier, Philadelphia PA. 1337 pp.
- b. Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., and Walter, P. 2015. Molecular Biology of the Cell, 6th ed. Garland Science, New York NY. 1242 pp.
- b. Krauss, G. 2008. Biochemistry of Signal Transduction and Regulation, 4th ed. Wiley-VCH, Weinheim. 626 pp. Only a recommendation!