

# Lakehead

UNIVERSITY

## DEPARTMENT OF BIOLOGY

### BIOL 2230: Cell Biology

Winter 2017

#### CONTACT INFORMATION

Instructor:	Melissa Bassoriello
Email:	mbassori@lakeheadu.ca
Office Hours:	By email/appointment
Phone Number:	705-955-9667
Supplementary	
Course Website:	Available on Desire2Learn

#### DELIVERY MODE/LOCATION

Course Location:	TBA
Campus:	Orillia, University Avenue Campus
Lecture:	<b>Wednesdays 2:30-4:00 pm, Fridays 8:30-10 am</b>
Tutorial:	<b>Fridays 10:30-11:30 am</b>
Teaching Assistant	TBA

#### COURSE DESCRIPTION

Methodology used in studying cell structure and composition will be outlined and the following metabolic processes will be discussed in relation to their subcellular localization: energy conversion, DNA replication and gene expression, membrane function, polysaccharide synthesis, hydrolytic reactions. A general introduction to the subcellular organelles and their organization, function and regulation at the molecular level will be covered. Tutorials deal with literature searching and basic writing skills. As well, some advanced problems in cell biology are introduced.

#### COURSE OBJECTIVES

- Recognize, name, draw, and describe important structures of animal and plant cells.
- Describe, explain, discuss, and compare important functions and processes of animal and plant cells.
- Describe and explain experimental approaches used to discover and explore the structures and functions of cells.
- Demonstrate an understanding of the principles of scientific inquiry.
- Demonstrate the ability to think critically and employ critical thinking skills.

- Read and interpret graphs and data.
- Demonstrate the quantitative skills needed to succeed in Biology.
- Demonstrate the ability to make connections between concepts across Biology.
- Demonstrate the ability to find peer reviewed publications, understand their structure and extract information needed to expand knowledge on a specific topic in cell biology.
- Communicate effectively in writing.

**Please refer to Desire2Learn (D2L) for additional information.**

## **REQUIRED MATERIALS**

The course webpage will be available through Desire2Learn.

**Textbook(s):** *Becker's World of the Cell* with Mastering Biology, 9e, by J. Hardin and G. Bertoni (Hardcopy or eBook, will be available in bookstore). There will be required reading from the book. *Mastering Biology* may be required.

*Reading Primary Literature*, 1st edition, by C. Gillen (will be available in bookstore)

## **TENTATIVE EVALUATION SCHEME:**

<u>Test/Assignment</u>	<u>Weight</u>
Test 1	15%
Test 2	15%
Test 3 ( <b>Final Exam</b> )	20%
Quizzes	20%
Assignments	15%
Literature/Journal Review	15%
<b>Total</b>	<b>100%</b>

\*Dates and evaluations are subject to change at the discretion of the professor\*

### **Evaluation for credit will be separated into three main categories:**

1. Literature/Journal Review: demonstrates your ability to conduct a literature search, research, organize material and present results effectively.
2. Assignments: demonstrates ability to work in individually or in a pair, apply lessons from lecture and participate in a scientific inquiry.
3. Tests & Quizzes: demonstrate comprehension and knowledge of course material.

**Students are advised to refer to the University Calendar to ensure that they have adequate grades and/or average to proceed in their program.**

TENTATIVE COURSE SCHEDULE			
Week	1 <sup>st</sup> class period of the week	2 <sup>nd</sup> class period of the week	Suggested reading/notices
1  Week of January 9	<u>Teacher and Syllabus introduction:</u> <i>Review of syllabus &amp; policies</i>  <u>Introduction to Cell Biology:</u> <i>Overview of Cell Biology, Chemistry &amp; Macromolecules</i>		Print and bring the Syllabus to class. Check D2L for possible notes.  Read Ch. 1 - 3
2  Week of January 16	<u>Cell Biochemistry:</u> <i>Cells and Organelles, Bioenergetics, Enzymes</i>		Read Ch. 4 - 6
3  Week of January 23	<u>Cell Physiology:</u> <i>Membranes and Transport across Membranes</i>  <b>ASSIGNMENT 1</b>		Read Ch. 7 & 8  <b>QUIZ #1:</b> Overview of Cell Biology, Chemistry & Macromolecules
4  Week of January 30	<u>Cellular Respiration/Metabolism:</u> <i>Glycolysis, Fermentation, Respiration</i>  <b>TEST #1</b>		Read Ch. 9 & 10  <b>TEST 1:</b> Covers material from lectures 1 – 4 (Ch. 1 – 6)
5  Week of February 6	<u>Photosynthesis</u>		Read Ch. 11  <b>ASSIGNMENT 1 DUE</b>
6  Week of February 13	<u>Cell Membrane Structure:</u> <i>Endomembranes</i>  <b>QUIZ #2</b>		Read Ch. 12  <b>QUIZ #2:</b> Cellular Respiration
~~~~~ STUDY WEEK ~~~~~			
7  Week of February 27	<u>Cell Structure:</u> <i>Cytoskeletal Systems</i>  <b>TEST #2</b>		Read Ch. 13  <b>TEST 2:</b> Covers material from lectures 5 – 10 (Ch. 7 – 11)
8  Week of March 6	<u>Cell Movement:</u> <i>Motility &amp; Adhesions, Junctions, Extracellular Structures</i>  <b>QUIZ #3</b>		Read Ch. 14 & 15  <b>QUIZ #3:</b> Endomembranes  <b>Last day to drop classes</b>

9 Week of March 13	DNA/Nucleic Acids: <i>DNA Replication, Genetic Code, Transcription</i>  <b>QUIZ #4</b>	Read Ch. 16 - 18  <b>QUIZ #4:</b> Cell Movement
10 Week of March 20	Protein Synthesis: <i>Translation, Protein Synthesis &amp; Sorting</i>  <b>ASSIGNMENT 2</b>	Read Ch. 19 & 20  <b>ASSIGNMENT 2 DUE</b>
11 Week of March 27	Signal Transduction: <i>Messengers &amp; Receptors</i>  <b>QUIZ #5</b>	Read Ch. 23  <b>QUIZ #5:</b> Protein Synthesis
12 Week of April 3	Cellular Reproduction: <i>Sexual Reproduction, Meiosis, &amp; Genetic Recombination</i>  <b>REVIEW</b>	Read Ch. 24 & 25  Class periods that may be used for missed classes due to snow, etc. and/or Review for Final Exam (Test 3). Comprehensive Exam (untested material will be weighted more heavily).

**NOTE:** Please be advised that unforeseen circumstances may require a change to this schedule.  
Syllabus is subject to change at the discretion of the instructor.

**IMPORTANT DATES:**

Last day to Drop without academic penalty:

February 3, 2017

Exams begin:

April 10<sup>th</sup>

Contingency Date:

April 24<sup>th</sup>

**NOTE:** Any important announcements, including changes in due dates will be announced in-class and posted on Desire2Learn.

## **COURSE POLICIES**

**Attendance, missed quizzes:** Lecture attendance is not mandatory, but it is highly recommended. Missed exams, assignments and quizzes without justification will be assigned a mark of zero.

**Late submission of assignments:** Assignments are to be submitted to me in class, under the door of the instructor's office or electronically through the Desire2Learn website for this course. Assignments are due by midnight on the due date described above. Late assignments will be deducted 20% for each day they are late.

**Behaviour, non-academic misconduct:** Lakehead University's policy regarding disruptive behaviour is outlined in the course calendar. Briefly, interference, obstruction or disruption of teaching, disruptive behaviour including refusal to cooperate with any University staff member performing his or her duties constitutes non-academic misconduct, violates University standards and is subject to disciplinary procedures.

**Handheld devices, food:** Handheld devices such as cell phones, MP3 players, etc. may not be used during a quiz or an exam. Disruptive use of such devices during lecture and labs constitutes non-academic misconduct and will be treated as such. Food is not permitted during lectures.

**NOTE:** Due to unforeseen circumstances, it may be necessary to change the time for a scheduled quiz, lab/tutorial or lecture. If this is necessary, at least one week notice will be given to the class.

Students are encouraged to ask questions during a lecture. Should an individual require additional information or extra help, please speak with the instructor at the end of the lecture. If a student has another class immediately after this one, speak with the instructor to arrange an agreeable time to meet.

## **GENERAL REGULATIONS**

Student Accessibility Services (SAS) (Thunder Bay) and Student Affairs (Orillia) coordinate services and facilitates reasonable academic accommodations for students with disabilities. Academic accommodations are provided on the basis of documentation of a disability. Additional information is available at the following campus websites:

Thunder Bay:  
Orillia:

<http://learningassistance.lakeheadu.ca/>.  
<http://orillia.lakeheadu.ca/about-us--orillia-student-affairs/>

## **ACADEMIC DISHONESTY:**

The University takes a most serious view of offences against academic honesty such as plagiarism, cheating and impersonation. Penalties for dealing with such offences will be strictly enforced.

A copy of the "Code of Student Behaviour and Disciplinary Procedures" including sections on plagiarism and other forms of misconduct may be obtained from the Office of the Registrar.

The following rules shall govern the treatment of candidates who have been found guilty of attempting to obtain academic credit dishonestly.

(a) The minimum penalty for a candidate found guilty of plagiarism, or of cheating on any part of a course will be a zero for the work concerned.

(b) A candidate found guilty of cheating on a formal examination or a test, or of serious or repeated plagiarism, or of unofficially obtaining a copy of an examination paper before the examination is scheduled to be written, will receive zero for the course and may be expelled from the University.

Students disciplined under the Code of Student Behaviour and Disciplinary Procedures may appeal their case through the Judicial Panel.

Note: "Plagiarism" shall be deemed to include:

1. Plagiarism of ideas as where an idea of an author or speaker is incorporated into the body of an assignment as though it were the writer's idea, i.e. no credit is given the person through referencing or footnoting or endnoting.

2. Plagiarism of words occurs when phrases, sentences, tables or illustrations of an author or speaker are incorporated into the body of a writer's own, i.e. no quotations or indentations (depending on the format followed) are present but referencing or footnoting or endnoting is given.

3. Plagiarism of ideas and words as where words and an idea(s) of an author or speaker are incorporated into the body of a written assignment as though they were the writer's own words and ideas, i.e. no quotations or indentations (depending on format followed) are present and no referencing or footnoting or endnoting is given.

A listing of University Regulations can be found at:

<http://calendar.lakeheadu.ca/current/contents/regulations/univregsintro.html>

The code of student behaviour and disciplinary procedures can be found at:

<http://policies.lakeheadu.ca/policy.php?pid=60>

## **MISSED EXAMS**

Make-up examinations will only be given with written documentation from a healthcare practitioner using the official Student Health Certificate, available at <http://registrar.lakeheadu.ca/uploads/docs/F.HealthCertificate.pdf>.