BIOL1050: INTRODUCTORY CELL AND MOLECULAR BIOLOGY
COURSE SYLLABUS: FALL 2026

INSTRUCTOR: Nathan Basiliko
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EMAIL: nbasilik@lakeheadu.ca
OFFICE HOURS: Tuesdays 10:00-11:30
OFFICE: Centennial Building, Room CB4024

LECTURES: Monday and Wednesday 1:00-2:30PM
ATAC1003

LAB COORDINATOR: Dr. Susanne Walford, Technologist
OFFICE: Department of Biology, Room CB3014A
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LABORATORY: You must enroll in one of the BIOL1050 Laboratory sessions.

TEACHING ASSISTANT: Raina Burke, MSc-Biology Student (contact Raina with *Dynamic Study Module* questions)
EMAIL: rburke2@lakeheadu.ca

COURSE DESCRIPTION: This course introduces the chemical, molecular, and cellular processes that enable organisms to be alive. It addresses the definition of life, the chemistry of life, the structure and functions of prokaryotic and eukaryotic cells, photosynthesis and cellular respiration, cell division and sexual reproduction, and the functions of nucleic acids and proteins including fundamentals principles and processes of genetics. The course concludes with case examples of biotechnology in environmental and biomedical contexts that integrate and highlight cell and molecular biology fundamentals covered throughout the course. Lecture concepts, including how to apply the scientific method, are reinforced through hands-on exercises in laboratory sessions.

EXPECTED STUDENT COMMITMENT: In order to succeed in this course, it is anticipated that beyond attending lectures and laboratory sessions you should spend approximately 3 to 5 hours per week on average to complete readings, complete online study modules, prepare for laboratory sessions, complete lab assignments, etc., and review materials as you study for the term test and final exam.

COURSE OBJECTIVES: After successfully completing this course, you will:

1) Be able to identify and explain key properties and principles of the chemistry of life;
2) Understand and be able to explain core concepts of cell biology as they apply to both prokaryotes and eukaryotes, including basic physiology and cell structures, how cells/organisms harness energy from the environment, and on cell cycles;
3) Be able to explain fundamentals of genetics and gene expression/regulation;
4) Participated and engaged in hands-on laboratory sessions to help meet objectives 1 through 3 and other lab-focussed objectives, including through the preparation of reports and other exercises.

USE OF MY COURSE LINK/D2L: Course information and announcements, lecture slides (pdf versions), lecture audio files, laboratory information and exercises, and marks will be posted on the D2L system. Please routinely check both the lecture and lab pages on D2L.

TEXTBOOK AND OTHER RESOURCES: The textbook for this course is *Campbell Biology- 4th Canadian Edition* (published by Pearson). There is a bundle that contains the textbook and the *Mastering* online resources (required to

complete the required Dynamic Study Modules) and the *Live Response* in class polling system. Please visit the Lakehead Bookstore to purchase the e-text bundle (2y of access for $119.99cad) that includes *Mastering* and *Live Response* classroom polling systems.

CLASSROOM POLLING: Classroom polling will occur at each class meeting using the *Live Response* app (part of the online *Mastering* system by Pearson publishing)**.** More instructions and information will follow in class and on D2L, and participation points will not be tabulated until the 2nd week (beginning Monday Sept 14).

EVALUATION: Laboratory work (40%); term tests (10%, 15%); final exam (25%); study modules on *Mastering* (10%)*;* lecture participation/classroom polling via the *Live Response* app (up to 5%, and term-test or final exam will be down-weighted proportionally).

LECTURES: *Material presented is the primary information* on which the term test and final exam will be based. If you respond to 80% of the in-lecture polling questions through the term, you will receive 5% of the course mark at full credit, and either your term test or your final exam will be down-weighted by 5%. If you respond to less than 80% of the questions, a smaller proportion of your mark will be replaced (e.g. if you responded to 40% of questions, 2.5% of your mark would be replaced with full credit). No exceptions are made (i.e., no make-ups are available) for missed lectures for the polling bonus marks, and instead the 80% threshold allows for some unavoidable absences due to illness, etc.

***MASTERING* STUDY MODULES:** Four sets of study questions (I.e., Dynamic Study Modules) must be completed online on the *Mastering* resources by the dates indicated below. Up until each due date, you can redo the questions until you have all answers correct. After each due date you can still complete the study modules (i.e., to prepare for the term test and final exam), however no mark credit will be given (with no exceptions). Some of the test and exam questions will also be drawn from these study questions.

LABORATORY ATTENDANCE, PARTICIPATION AND QUIZZES: Laboratory participation is mandatory. Information about the laboratory is on the BIOl1050laboratory D2L page, and there is a laboratory manual.

MIDTERM TEST: The closed-book, in-class midterm tests will be held during the October 5 and Nov 11 class meetings and will be drawn primarily from lectures and the Dynamic Study Module questions. *Material from the textbook that is not covered in class or related to the Dynamic Study Module questions will not be on the test*. For students with a legitimate documented absence due to a medical condition, other serious event, etc. who miss a term-test, the final exam will be re-weighted accordingly.

FINAL EXAM: The closed-book final exam will be held during the scheduled exam period (Dec 11-20). It will cover lecture material and study module questions from the entire term. *Material from the textbook that is not covered in class or related to the Dynamic Study Module questions will not be on the exam.*

COMMUNICATION AND EMAIL POLICY: You are encouraged to ask questions in class, laboratory sessions, and during office hours. If you have a course conflict with my scheduled office hours, please contact me to set up a time when we can meet. To avoid inadvertent loss through spam- filtering, all e-mails should be from a Lakehead account, include BIOL1050 in the subject heading, and your full name in the text. I will typically respond within 24hrs, and don't hesitate to send a follow-up email if I have not!

MISSED TERM WORK: There will be no re-writes for the term tests. Instead, if missed for university-accepted, verifiable reasons due to a medical condition or other serious event, the final exam will be re-weighted accordingly. Please see the BIOL1050L page or contact Dr. Susanne Walford for information about missed lab work.

ACADEMIC INTEGRITY/HONESTY OR ACADEMIC OFFENSES: It is your responsibility as a student at Lakehead University to familiarize yourself with, and adhere to the Code of Academic Integrity that addresses issues of academic dishonesty, among others, including surrounding the use of AI and related tools such as ChatGPT on the assignments: https://www.lakeheadu.ca/faculty-and-staff/departments/services/provost-vice-president-academic/academic-integrity-plans-policies

ACCESSIBILITY: Student Accessibility Services at Lakehead provides academic accommodations and services to students who have a physical, sensory, or learning disability, mental health condition, acquired brain injury, or chronic health condition, be it visible or hidden. For more information, please visit: https://www.lakeheadu.ca/students/student-life/student-services/accessibility

LECTURE SCHEDULE (SUBJECT TO CHANGE): Corresponding readings in parentheses are from Campbell Biology- 4th Canadian Edition ***Please consult the lab schedule on the D2L BIOL1050L (Laboratory page) for further information on the laboratory component of the course***

September 7: No class- Labour Day	
September 9: Course and Lab Introduction (and Welcome to Lakehead !)	
September 14: Themes of Biology I (Chapter 1)	
September 16: Themes of Biology II (Chapter 1)	
September 21: The Chemistry of Life (Chapter 2)	
September 23: Water and Life (Chapter 3)	
September 28: Carbon & the Molecular Diversity of Organic Matter (Chapter 4)	
September 30: No class- National Day of Truth and Reconciliation	*Study module set 1 due*
October 5: *Term test I in class*	
October 7: Introduction to Cell Biology (Chapter 6)	
October 12-15: Study week	
October 19: Membrane Structure and Function (Chapter 7)	
October 21: Metabolism I (Chapter 8)	
October 26: Metabolism II Fermentation and Respiration (Chapter 9)	
October 28: Metabolism III Photosynthesis (Chapter 10)	*Study module set 2 due*
November 2: The Cell Cycle I (Chapter 12)	
November 4: The Cell Cycle II (Chapter 12)	
November 9: Meiosis and Sexual Life Cycles (Chapter 13)	
November 11: Term Test II	
November 16: The Gene Idea (Chapter 14)	*Study module set 3 due*
November 18: Inheritance I (Chapters 15-16)	
November 23: Inheritance II (Chapters 15-16)	
November 25: Gene Expression (Chapters 17)	
November 30: Regulation of Gene Expression (Chapter 18)	
December 2: Biotechnology I (Chapter 20)	*Study module set 4 due*
December 7: (Labour Day makeup day) Biotech **II** (Chapter 20 and TBA)	
*December 8: (*National Day of Truth and Reconciliation *makeup day)* Biotech III	

*********Students are responsible for knowing the content of the syllabus*********