

Biology 1050 FA – Introduction to Cell and Molecular Biology

Fall 2025 – Lakehead University – Thunder Bay Campus

Instructor

Dr. Nicholas Bel

Email: nbel@lakeheadu.ca

Office Hours: By appointment – Email for scheduling

Course Schedule

Lectures: Mondays & Wednesdays, 1:00–2:30 PM

Location: ATAC 1003

Labs: Begin the week of **September 8** – **Dr. Susanne Walford** is the Lab Technician for our course. (Details for the lab and schedule available on MyCourselink under “Biology 1050L”)

Course Description

BIOL 1050 FA - Introduction to Cell and Molecular Biology provides a foundational understanding of the molecular building blocks of life and how they come together to create and sustain living organisms. In this course, students will explore the chemical principles of biology, the structure and function of cells, and the molecular mechanisms behind energy production, gene expression, and cellular reproduction.

Through lectures and hands-on laboratory sessions, students will examine key topics such as biomolecules, membranes, cellular respiration, photosynthesis, DNA replication, protein synthesis, and modern biotechnology applications in medicine and agriculture. Emphasis will be placed on developing scientific reasoning, critical thinking, and core laboratory skills.

This course is intended for students in life sciences, environmental sciences, and health-related programs, and serves as a gateway to more advanced studies in biology in future years.

Course Materials

Recommended Textbook: Biology: How Life Works, 4th ed., by Morris et al. (Macmillan Learning, 2023) – \$178.45 @ LU Bookstore

Lab Manual: Lab Manual for BIOL-1050 - Introduction to Cell and Molecular Biology STUDENT VERSION 2025 By Dr. S.E. Walford

Course Evaluation Breakdown

| Component | Weight | Due Dates / Notes |
|------------------------------|-------------|---|
| Assignments (4 total) | 8% | Sept. 21, Oct. 5, Nov. 9, Nov. 23 |
| Midterm Exam 1 | 14% | Wed, Sept. 24 (in class) |
| Midterm Exam 2 | 14% | Wed, Oct. 29 (in class) |
| Final Exam | 24% | TBA by Registrar (during Dec exam period) |
| Lecture Component | 60% | |
| Laboratory Component | 40% | Weekly labs (See lab manual & MyCourseLink) |
| Total | 100% | |

Assignment Dates – Short Quizzes on MyCourseLink (5 Questions)

| Assignment (2% Each) | Status | Date and Time |
|----------------------|--------|--|
| Assignment #1 | Opens | Sept 17 th 2025 @ 2:30PM |
| | Closes | Sept 21st 2025 @ 11:59PM |
| Assignment #2 | Opens | Oct 1 st 2025 @ 2:30PM |
| | Closes | Oct 5th 2025 @ 11:59PM |
| Assignment #3 | Opens | Nov 5 th 2025 @ 2:30PM |
| | Closes | Nov 9th 2025 @ 11:59PM |
| Assignment #4 | Opens | Nov 19 th 2025 @ 2:30PM |
| | Closes | Nov 23rd 2025 @ 11:59PM |

Weekly Lecture Schedule – NOTE: Changes may occur, but will be posted on MyCourseLink

| Week | Dates | Topics Covered |
|---------------------|-------------------|--|
| Week 1 | Sept 3 (Wed Only) | Course and Lab Introduction |
| Week 2 | Sept 8, 10 | Foundations of life and Molecules of Life |
| Week 3 | Sept 15, 17 | Cell Structure & Membranes |
| Week 4 | Sept 22, 24 | DNA, Gene Expression & Midterm 1 (Wed) |
| Week 5 | Sept 29, Oct 1 | Transcription, Translation, Protein Structure |
| Week 6 | Oct 6, 8 | Proteins and Intro to Metabolism |
| Reading Week | Oct 13-17 | Fall Reading Week (No Classes) |
| Week 7 | Oct 20, 22 | Cellular Respiration |
| Week 8 | Oct 27, 29 | Respiration wrap-up & Midterm 2 (Wed) |
| Week 9 | Nov 3, 5 | Photosynthesis: Light & Dark Reactions |
| Week 10 | Nov 10, 12 | DNA Replication |
| Week 11 | Nov 17, 19 | Genetic Mutation, Mitosis, Meiosis |
| Week 12 | Nov 24, 26 | Cell Division & Intro to Biotechnology and applications of Biotechnology |
| Week 13 | Dec 1 (Mon Only) | Course Review and Final Exam Preparation |

Important University Dates

| Date | Why Is It Important? |
|---------------|---|
| Sept 3 2025 | First day of BIOL-1050 Lectures |
| Sept 15 2025 | Final Date to Register for classes (Add date) |
| Nov 7 2025 | Final Date to Withdraw from classes (Drop Date) |
| Dec 2 2025 | Last day of BIOL-1050 Lectures |
| Dec 5-14 2025 | University Examination Period (Schedule will be out in October) |
| Dec 15 2025 | Examination contingency date (I.e. if an exam was cancelled due to weather) |

Missing Exams and Late Assignments

As this is a very large class, there is limited capacity to accommodate missed exams and assignment extensions.

- I will not be able to give extensions for the **assignments**; assignments will be open for **four (4) days**, and you can complete them whenever works best for you.
- If you miss a **mid-term exam**, you may only write a make-up test if you inform me before the exam and provide acceptable supporting documentation within **48 hours** of the missed exam. If required, there will be one date for a make-up exam.
- If you miss the **final exam**, you need to follow the protocol required by Enrolment Services. You can find it in the University Calendar: University Regulations (scroll to the "Examinations Section").

Please don't hesitate to contact me (in person before or after class or by email) if you have any questions.

Health and Mental Health

If you or anyone you know experiences academic stress, difficult life events or feelings of anxiety or depression, Student Health and Wellness is here to help. Their services are free for Lakehead Students, and appointments are available. You can learn more about confidential mental health services available on and off campus at <https://www.lakeheadu.ca/students/wellness-recreation/student-health-and-wellness>.

Lakehead's Accommodation Statement

Lakehead University is committed to achieving full accessibility for persons with disabilities/medical conditions. Part of this commitment includes arranging academic accommodations for students with disabilities/medical conditions to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability/medical condition and think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please email sas@lakeheadu.ca or visit <https://www.lakeheadu.ca/faculty-and-staff/departments/services/sas>

Land Acknowledgement

Lakehead University respectfully acknowledges its campuses are located on the traditional lands of Indigenous peoples.

Lakehead Thunder Bay is located on the traditional lands of the Fort William First Nation, Signatory to the Robinson Superior Treaty of 1850. Lakehead Orillia is located on the traditional territory of the Anishinaabeg. The Anishinaabeg include the Ojibwe, Odawa, and Potawatomi nations, collectively known as the Three Fires Confederacy.

Lakehead University acknowledges the history that many nations hold in the areas around our campuses, and is committed to a relationship with First Nations, Métis, and Inuit peoples based on the principles of mutual trust, respect, reciprocity, and collaboration in the spirit of reconciliation.

Academic Integrity

A breach of Academic Integrity is a serious offence. The principle of Academic Integrity, particularly of doing one's own work, documenting properly (including use of quotation marks, appropriate paraphrasing and referencing/citation), collaborating appropriately, and avoiding misrepresentation, is a core principle in university study. Students are strongly advised to familiarize themselves with the Student Code of Conduct - Academic Integrity ("[The Code](#)") - and, in particular, sections 26 and 83 through 85. Non-compliance with the Code will NOT be tolerated in this course and the Code will be adhered to in terms of disciplinary action. The Code provides a full description of academic offences, procedures when Academic Integrity breaches are suspected and sanctions for breaches of Academic Integrity.

Copyright Compliance

I understand and agree that all instructional, reference, and administrative materials to which I am given access in this course (the "course materials"), whether they consist of text, still or kinetic images, or sound, whether they are in digital or hard copy formats, and in whatever media they are offered, are protected in their entirety by copyright, and that to comply with this copyright and the law.

- (a) I may access and download the course materials only for my own personal and non-commercial use for this course; and
- (b) I am not permitted to download, copy, store (in any medium), forward or share, transmit, broadcast, show, post or play in public, adapt, or change in any way any text, image, or sound component of the course materials for any other purpose whatsoever except as expressly authorized, and only to the extent authorized, in writing, by the course instructor.

I further understand and agree that, if I infringe the copyright of the course materials in any way, I may be prosecuted under the Lakehead University Student Code of Conduct – Academic Integrity, which requires students to act ethically and with integrity in academic matters and to demonstrate behaviours that support the University's academic values.

Exam/Assignment Integrity

I understand and agree that:

- (a) Unless otherwise allowed by the course instructor, I must complete the assignments in this course without the assistance of anyone else.
- (b) Unless otherwise allowed by the course instructor, I must not access any sources or materials (in print, online, or in any other way) to complete any course exam.
- I further understand and agree that, if I violate either of these two rules, or if I provide any false or misleading information about my completion of course assignments or exams, I may be prosecuted under the Lakehead University Student Code of Conduct
- Academic Integrity, which requires students to act ethically and with integrity in academic matters and to demonstrate behaviours that support the University's academic values.