

## 2025W Biol 4650 Course Outline (2025-01-02)

**Course Title:** Biol 4650 Issues in Biotechnology

Instructor:	Dr. Wensheng Qin Email: <a href="mailto:biot.teaching@gmail.com">biot.teaching@gmail.com</a> (The emails sent to <a href="mailto:biot.teaching@gmail.com">biot.teaching@gmail.com</a> will be automatically forwarded to <a href="mailto:wqin@lakeheadu.ca">wqin@lakeheadu.ca</a> and kept a copy in <a href="mailto:biot.teaching@gmail.com">biot.teaching@gmail.com</a> ) Office: CB 4016 Tel: 807-343 8010 ext. 8467 Fax: 807-343 8023  Office Hours: Tuesdays 10-11 am or by appointment
Meeting Time:	10:00-11:30 AM
Meeting Days:	Tuesdays & Thursdays
Meeting Place:	BB1054
Instructional Type:	Lecture
Course ID:	155944
Teaching Assistant (TA)	Rishnika Boteju (Rish for short) (Biotechnology PhD Student) Email: <a href="mailto:rboteju1@lakeheadu.ca">rboteju1@lakeheadu.ca</a> Office: CB 3037 Tel: 807-343 8010 ext. 7141 Fax: 807-343 8023

**Textbook:** Introduction to Biotechnology 4th Edition Textbook by W. J. Thieman & M. A. Palladino (Pearson). It is not required to buy the textbook, but you are highly encouraged to purchase a copy of the book. There are no restrictions for students to use a different edition of the textbook or other learning material. The cost of the textbook and learning materials is \$ 189.00.

Introduction to Biotechnology brings the latest information to students who need to understand the science and business of biotechnology. The popular text emphasizes the future of biotechnology and the biotechnology student's role in that future with balanced coverage in basic cell and molecular biology, fundamental techniques, historical accounts, new advances, and hands-on applications. The 4th Edition features content updates in every chapter that reflect the most relevant, up-to-date changes in technology, applications, ethical issues, and regulations.

Additionally, every chapter now includes an analytic Case Study that highlights current research and asks students to use what they've learned about the key chapter concepts to answer questions. New Career Profiles, written by biotech professionals and available on the Companion Website along with additional career resources, highlight potential jobs in the biotech industry.

Chapter 1 The Biotechnology Century and Its Workforce

Chapter 2 An Introduction to Genes and Genomes

Chapter 3 Recombinant DNA Technology and Genomics

Chapter 4 Proteins as Products

Chapter 5 Microbial Biotechnology

Chapter 6 Plant Biotechnology

Chapter 7 Animal Biotechnology

Chapter 8 DNA Fingerprinting and Forensic Analysis

Chapter 9 Bioremediation

Chapter 10 Aquatic Biotechnology

Chapter 11 Medical Biotechnology

Chapter 12 Biotechnology Regulations

Chapter 13 Ethics and Biotechnology

The textbook has 13 chapters: 8 chapters (3-9 & 12) will be lectured in class.

### Lecturing schedule:

Date	Contents
Week 1	Chapter 3 Recombinant DNA Technology and Genomics
	Chapter 3 Recombinant DNA Technology and Genomics
Week 2	Chapter 4 Proteins as Products
	Chapter 4 Proteins as Products
Week 3	Chapter 5 Microbial Biotechnology
	Chapter 5 Microbial Biotechnology
Week 4	Chapter 6 Plant Biotechnology
	Chapter 6 Plant Biotechnology
Week 5	Chapter 7 Animal Biotechnology
	Chapter 7 Animal Biotechnology
Week 6	Chapter 8 DNA Fingerprinting and Forensic Analysis
	Midterm exam (30%) (February 13, 2025, Thursday), cover chapters 3-7
<b>Week 7</b>	<b>Feb. 17-23, 2025, Winter Reading Week</b>
Week 8	Chapter 8 DNA Fingerprinting and Forensic Analysis
	Chapter 9 Bioremediation
Week 9	Chapter 9 Bioremediation
	Chapter 11 Medical Biotechnology
Week 10	Chapter 11 Medical Biotechnology
	Chapter 11 Medical Biotechnology
Week 11	Student presentations (2 students)
	Student presentations (2 students)

Week 12	Student presentations (2 students)
	Student presentations (2 students)
Week 13	Student presentations (2 students)
	Flexible arrangement (Guest speaker presentation/student presentations)
Final Exam	30%

**Student PowerPoint presentation (20%):** Each student selects one topic of interest in the field of biotechnology. For individual student presentation, you should prepare for ~30 slides and present for ~30 minutes in the public, followed by 10-15 minutes for answering questions from your peer students, instructor, and the audience. Your presentations will be evaluated by your fellow students as well. Please use the form below for your evaluation. You must email the filled-in form to BOTH the TA [rboteju1@lakeheadu.ca](mailto:rboteju1@lakeheadu.ca) and instructor [biot.teaching@gmail.com](mailto:biot.teaching@gmail.com) before April 6, 2025. The presenter students must send their PPT files to [biot.teaching@gmail.com](mailto:biot.teaching@gmail.com), [rboteju1@lakeheadu.ca](mailto:rboteju1@lakeheadu.ca), and **the whole class** by replying to all at least 48 hours before your presentations. The quality of the PPT file counts for 5% out of the 20% of the presentation.

<b>Combined Form</b>	
Evaluator (Do not include for yourself)	Final grade (out of 20%) The highest marks and lowest marks will not be counted in.
	You must email this filled in combined form and evaluation form of each presentation to both <a href="mailto:biot.teaching@gmail.com">biot.teaching@gmail.com</a> and <a href="mailto:rboteju1@lakeheadu.ca">rboteju1@lakeheadu.ca</a> before the midnight of April 6, 2025 in one email.  Your evaluation to all the peer students will take 5% out of 100% of your marks.  Any point you do not follow, you will lose 1%. Try to keep the average presentation marks of all the presenters except yourself no higher than 80%.
Student name	
Student name	
Student name	
Student name	
Student name	
Student name	
Student name	
○ ○ ○ ○ ○ ○	

Your average marks for all your peer students excluding yourself	
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### **Presentation Evaluation by Peer Students:**

In every presentation, the non-speaker students must evaluate each speaker student by giving marks in the topic selection and presentation together.

Presentation Evaluation Forms (you submit the forms by one email or by submitting printed copies one time to the TA at the end of the semester).

<b>Presentation Evaluation Form</b>			
Presenter's name:		Marks	Evaluation marks & comments
Evaluator name:			
1	Delivered the materials in a clear and structured manner	Up to 2%	
2	Was knowledgeable about the topic and any related issues	Up to 2%	
3	Maintained my interest during the entire presentation	Up to 2%	
4	Answered questions effectively	Up to 2%	
5	Was enthusiastic about the topic	Up to 2%	
6	Was well organized and prepared	Up to 2%	
The presentation			
7	Was concise and informative	Up to 2%	
8	Contained practical examples and useful techniques or knowledge that applied to current work	Up to 2%	
9	Had effective visual aids	Up to 2%	
10	Provided a great deal of novel information	Up to 2%	
Total		Up to 20%	

**Grades:** Total 100% (Midterm exam 30%, Final exam 30%, Student Presentation 20%, Guest presentation summaries and/or quizzes 10%, Class attendance 5%, Your evaluation to the peer students 5%).

### **Notes:**

- [1] The class attendance (5%).
- [2] The midterm exam (30%) consists of multiple choices and short or long answer questions from the Chapters 3-7 and **the lectured information**.
- [3] The final exam (30%) consists of multiple choices and short or long answer questions from the Chapters 8, 9 and 11 and **the lectured information**.
- [4] The quizzes are 10% from the guest presentations from other institutions and/or from assigned reading materials when necessary.
- [5] Student PPT presentation 20%.
- [6] Your evaluation of the peer students is 5%.
- [7] Some bonus points may be awarded to the students, when necessary, for example, if the class average marks are too low. Each bonus point can be valued more or less than 1%.

### Winter 2025 Term Courses

First Day of Classes	January 6, 2025
Final Day of Classes	April 4, 2025
Final Date to Register (Add)	January 17, 2025
Final Date to Withdraw (Drop)	March 7, 2025
Examination Period	April 7, 2025 - April 17, 2025 (11 Days)
Exam Contingency Date	April 19, 2025
Marks Due	April 25, 2025