

2021F Biol 4650 Course Outline

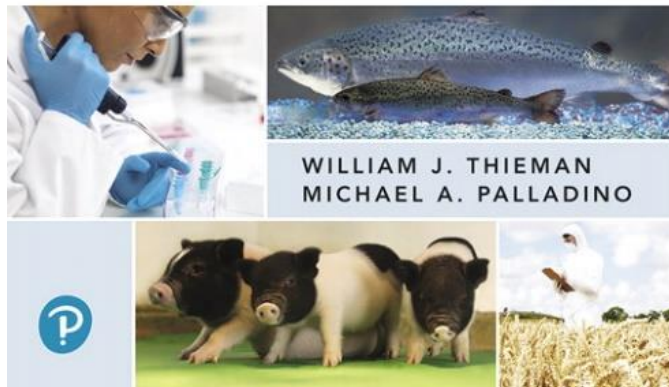
Course Title: Issues in Biotechnology

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|-------------------------|---|
| Instructor: | Wensheng Qin (wqin@lakeheadu.ca) Office: CB 4016, Tel: 807-343 8467 |
| Meeting Time: | 2: 30 PM-4: 00 PM |
| Meeting Days: | Tuesdays & Thursdays |
| Meeting Place: | Zoom |
| Instructional Type: | Lecture |
| Course ID: | 131143 |
| Teaching Assistant (TA) | Sarita Shrestha sshrest4@lakeheadu.ca Office: CB 3037, Tel: 807-766 7141 |

Textbook: Introduction to Biotechnology 4th Edition Textbook by W. J. Thieman & M. A. Palladino (Pearson). This textbook is not required but highly encouraged for each student to have a copy.



Introduction to **Biotechnology**



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, 7 chapters (3-7, 9, 11) will be lectured and discussed in class. We also have a lot of study outside this textbook, including critique writing, student presentation, and guest lectures by the invited professors from other Canadian universities. I try to provide more learning opportunities for our students and learn some knowledge in our real-world scenario.

Lecturing schedule:

| | |
|-------------------------------|---|
| First Day of Classes | Tuesday, September 7, 2021 |
| Final Day of Classes | Monday, December 6, 2021 |
| Final Date to Register (Add) | Monday, September 20, 2021 |
| Final Date to Withdraw (Drop) | Friday, November 5, 2021 |
| Examination Period | Thursday, December 9, 2021 to Sunday, December 19, 2021 (11 Days) |
| Exam Contingency Date | Monday, December 20, 2021 |
| Marks Due | Thursday, December 23, 2021 |

| 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 5 Microbial Biotechnology |
| | Chapter 6 Plant Biotechnology |
| Week | Reading Week |
| | Reading Week |
| Week 5 | Chapter 6 Plant Biotechnology |
| | Chapter 7 Animal Biotechnology |
| Week 6 | Chapter 7 Animal Biotechnology |
| | Chapter 7 Animal Biotechnology |
| Week 7 | Chapter 9 Bioremediation |
| | Midterm exam (25%) (October 21, 2021, Thursday), covers chapters 3-6 |
| Week 8 | Chapter 9 Bioremediation |
| | Chapter 9 Bioremediation |
| Week 9 | Guest lecture on Nov 2, 2021 by Prof. Peng from University of Toronto, Canada |
| | Chapter 11 Medical Biotechnology |
| Week 10 | Chapter 11 Medical Biotechnology |
| | Chapter 11 Medical Biotechnology |
| Week 11 | Guest lecture on Nov 16, 2021 by Prof. Hu from University of Calgary, Canada |
| | Chapter 11 Medical Biotechnology |
| Week 12 | Student selected topics PPT presentations and discussions |
| | Student selected topics PPT presentations and discussions |
| Week 13 | Student selected topics PPT presentations and discussions |
| | Student selected topics PPT presentations and discussions |

Grading: Total 100% (Midterm exam 25%, Final exam 25%, PPT presentation 20%, Critiques writing for the two assigned journal papers 16% with 8% each, Two quizzes from two guest presentations 8% with 4% each, Class attendance 6%).

Notes:

[1] The midterm exam (25%) consists of multiple choices and short or long answer questions from the Chapters 3-6.

[2] The final exam (25%) consists of multiple choices and short or long answer questions from the Chapters 7, 9, 11.

[3] The class attendance (6%).

[4] Selected topics PPT presentation (20%): Each student selects one topic of your own choice or assigned by the instructor in the current biotechnology field and makes high-quality PPT slides for your presentation. Each student presents for 10 minutes including questions and answering. The slides must be emailed to both the TA blebeverybodyuse@gmail.com and the instructor biot.teaching@gmail.com forty-eight (48) hours before your presentation, with email subject: Your complete name (First and Last Name) followed by your "Topic Title".

Your presentation will be evaluated by all of your classmates plus the teaching assistant (TA) and instructor. We use the all the evaluations from the peer students, TA, and instructor. The presentation will be in alphabetical order by the students' last names. The evaluation criteria for presentation is attached below for your reference. The presentation order will be sent to you before the presentations.

[5] Critique writing for the two assigned journal papers (8% each). The Basic Guidelines for Your Critique Writing of the Two Assigned Papers are posted in the D2L website. The two papers are posted in the D2L website as well. The deadline for emailing your critiques to both the TA blebeverybodyuse@gmail.com and the instructor biot.teaching@gmail.com is November 30, 2021. Any assignment marks will be deducted 20% per day after the deadline.

[6] Two quizzes (4% each) from the 2 guest presentations by professors from University of Toronto and University of Calgary, Canada.

Presentation Evaluation Form

Evaluator's Name _____ Student Number _____

Participants-Your opinion matters to us. Using the survey instrument below, please evaluate each question. There is space below for additional comments. If you run out of space, please feel free to write on the back of this form. Thanks for attending the class.

| The presenter | | Marks | Your evaluation & comments |
|------------------|--|-----------|----------------------------|
| 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% | |

Submission of your evaluation marks (At the end of the class, you must submit the following form for all your peer students before December 8, 2021, I will send you an updated form and information).

| Student Name | Your evaluation marks | Your notes or comments if you have any |
|--------------|-----------------------|--|
| Student Name | | |
| Student Name | | |
| Student Name | | |