

BIOLOGY OF FOOD SAFETY

Biology 3770 WDE / WDF

COURSE SYLLABUS WINTER 2021

Instructor

Dr. Heidi Schraft
Biology, CB4015
Phone: 343-8351
Email: Please use the email within D2L

Office hours

Thursday 13:00 – 14:30, recorded lecture, live drop-in Zoom office hours
To book an appointment at another time, please [click here](#).

Teaching Assistant

Courtney Ferris
Email: cferris1@lakeheadu.ca

Lectures

Lectures:

Tuesday 13:00 – 14:30, Live Zoom

Thursday 13:00 – 14:30, recorded lecture, live drop-in Zoom office hours

Course Description and Learning Objectives

Selected topics in food safety, such as foodborne diseases and their prevention, genetically modified foods, and antibiotic/pesticide use in food production will be covered. The biological foundations and scientific literature of these food safety issues will be examined and the role of government regulations and consumer attitudes discussed.

Learning Objectives

Microbial Food Safety

- Explain how nutritional factors and the environment can impact microbial growth and discuss implications regarding, detection, risk and prevention of foodborne diseases.
- Explain the basic concepts of infection and infectious disease and discuss how these are applied in diagnosis, risk assessment and prevention of foodborne diseases.
- Describe the use of genomic technologies for investigating the epidemiology of foodborne disease.

Antimicrobial Resistance

- Describe the mechanism of action of antibiotics and the development of antimicrobial resistance.

Food Allergies

- Summarize the events involved in the adaptive immune response, from the maturation of lymphocytes to the development of their effector functions
- Describe the pathogenesis, diagnosis, and treatment of food allergies and celiac disease.

Novel Foods

- Outline the process of gene cloning, discuss concerns related to genetically modified foods and how genetically modified foods are regulated in North America and Europe.
- Explain the terms “Products of Biotechnology in Agriculture” and “novel food”. Discuss how the Canadian Government approves these products.

Diet and Disease

- Describe and discuss examples of age-related neurological, metabolic and cardiovascular diseases.
- Discuss dietary and lifestyle factors that have been reported to lower the risk of age-related diseases

Performance Evaluation

Activity	Weight
Weekly Assignments / Quizzes	10%
ePortfolio	25%
Mid-term tests (2 x 15%)	30%
Final exam	35%

Textbook, Required Materials and Resources

Required Textbook: Microbiology – The Human Experience. By Foster et al. Published by Norton. First edition. **Available at the bookstore.**

The preliminary edition is also acceptable.

There will be required reading from the book and I strongly recommend that you have a book available to you throughout the semester.

In addition, relevant journal articles and books will be placed on reserve in the library and/or posted on the Desire2Learn Course site (see below).

Desire2Learn (D2L)

You will have access to the course homepage through Desire2Learn where you'll find course updates, all lecture slides, assignments, additional readings, and links to selected websites.

To log into your course website:

1. Go to <http://mycourselink.lakeheadu.ca>
2. Enter your Login/ID (your Lakehead University e-mail username) and your Password/PIN number.
3. Click on the course title to enter the course.

If you encounter any difficulties logging into the course site, please contact the Office of Continuing Education and Distributed Learning at 346-7730 or email cedl@lakeheadu.ca

Missed Exams, Late Assignments and Extensions

- There will be no extensions on weekly Assignments / Quizzes.
- I will also not give extensions for the ePortfolio. I will accept late assignments, but for each day after the due date, 5% will be deducted from the assignment grade.
- If you **miss a mid-term test**, you may only write a make-up test if you **inform me before the test** and **provide acceptable supporting documentation within 48h of the missed test**. If required, there will be one date for a make-up test and no make-up test can be written after the test results have been returned to the class. This also applies to students registered with SAS.
- If you miss the final exam, you need to follow the protocol required by Enrolment Services. You can find it in the Calendar: [University Regulations](#) (scroll to Section IV Examinations)

However, if you do run into **time constraints or other difficulties during the term**, I encourage you to contact me (please use the D2L email for this), and I will work with you to find a solution.

Accommodation for Disabilities

Lakehead University is committed to achieving full accessibility for persons with disabilities. Disabilities include physical disability, learning disability, mental disorder etc.

Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you 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 visit: <http://studentaccessibility.lakeheadu.ca>

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 should view the Student Code of Conduct – Academic Integrity – for a full description of academic offences, procedures when Academic Integrity breaches are suspected and sanctions for breaches of Academic Integrity.

This course will have a zero-tolerance for academic dishonesty and plagiarism. For further information, please refer to the [Student Code of Conduct Policies](#) and the Lakehead University [Calendar](#) (Section IX).

To help all students in the class understand application of Academic Integrity to course work, everyone will be required to complete the [Academic Integrity Matters \(AIM\) course](#) and submit the Certificate of Completion.

I will not grade any of your work unless you have completed the AIM course.

Notice regarding Copyright

All students accessing materials of BIOL-2230 WA must agree to the following 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

(1) I may access and download the course materials only for my own personal and non-commercial use for this course; and

(2) "I am not permitted to download, copy, or store (in any medium) any text, image, or sound component of the course materials for any other purpose whatsoever, or to 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, 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.

Notice for Recording Lectures and Class Activities

In BIOL-2230-WA instruction in the classroom will be recorded for confidential access by students registered in the course but who are unable to attend class due to the pandemic or other necessity. To the greatest extent possible only the image and voice of the instructor will be recorded for this purpose but, due to class interaction, the images and voices of students present in the classroom may be incidentally recorded and, thus, be available for access by course students in remote locations. These recordings, however, are strictly confidential and may be used only by the instructor and students registered in the course and only for purposes related to the course. They may otherwise not be used or disclosed. Students in the classroom who are concerned about being recorded in this fashion may request the instructor to exclude them from the recording to the greatest degree possible on the understanding that total exclusion cannot be guaranteed. The recordings are made under the authority of sections 3 and 14 of The Lakehead University Act, 1965. Questions about the collection of the images and sounds in the recordings may be directed to the Chair of Biology (Dr. A. Mallik, email amallik@lakeheadu.ca), telephone 807-343-8927).

Schedule for Lectures

Week	Delivery	Date	Topic of Lecture	Tests and Materials due
1	Tue - Zoom	Jan. 12	Introduction / What is Food Safety?	
	Thu - Video	Jan. 14	Literature Work	
2	Tue - Zoom	Jan. 19	Microbial Food Safety	
	Thu - Video	Jan. 21	Microbial Food Safety	Jan. 22: Last day to add classes
3	Tue - Zoom	Jan. 26	Microbial Food Safety	ePortfolio kick-off
	Thu - Video	Jan. 28	Microbial Food Safety	
4	Tue - Zoom	Feb. 2	Antimicrobial Resistance	ePortfolio review with partner
	Thu - Video	Feb. 4	Antimicrobial Resistance	
5	Tue - Zoom	Feb. 9		Test #1
	Thu - Video	Feb. 11	Antimicrobial Resistance	Sat Feb. 13: ePortfolio draft for Peer Review
	Feb. 15 - 19	Study Break		
6	Tue - Zoom	Feb. 23	Antimicrobial Resistance	
	Thu - Video	Feb. 25	Antimicrobial Resistance	
7	Tue - Zoom	Mar. 2	Food Allergies	
	Thu - Video	Mar. 4	Food Allergies	March 5: Final date for course withdrawal without academic penalty
8	Tue - Zoom	Mar. 9	Food Allergies	ePortfolio review with partner
	Thu - Video	Mar. 11	Food Allergies	
9	Tue - Zoom	Mar. 16		Test #2
	Thu - Video	Mar. 18	Novel Foods	
10	Tue - Zoom	Mar. 23	Novel Foods	
	Thu - Video	Mar. 25	Novel Foods	
11	Tue - Zoom	Mar. 30	Novel Foods	ePortfolio review with partner
	Thu - Video	Apr. 1	Novel Foods	
12	Tue - Zoom	Apr. 6	Diet and Chronic Disease	
	Thu - Video	Apr. 8	Diet and Chronic Disease	Sat Apr. 10: ePortfolio due