

TRAILBLAZER ADVENTURER
INNOVATOR DEFENDER CHALLENGER
ADVENTURER TRAILBLAZER DEFENDER VISIONARY
VISIONARY ADVENTURER TRAILBLAZER CHALLENGER DEFENDER VISIONARY

Syllabus

**Course Name Course Number: FOOD7240 Biofilm and
Food safety
(Fall 2022)**



Faculty of Agricultural and Food Sciences

UNIVERSITY
OF MANITOBA

Course Schedule

Date	Topics/Assessments
Sep 8	Introduction
Sep 15	Lecture 1: Biofilm Basics
Sep 22	Lecture 2: Biofilm Basics
Sep 29	Lecture 3: Quorum sensing /genomics
Oct 6	Lecture 4: Biofilm research: genomics- students' presentation
Oct 13	Lecture 4: Biofilm research: genomics - students presentation- continues
Oct 20	Lecture 5: Biofilm Research imaging biofilms – students' presentations
Oct 27	Lecture 5: Biofilm Research imaging biofilms – students' presentations- continues
Nov 3	Midterm 1
Nov 7-10	Fall term break
Nov 17	Biofilms and foodborne pathogens Paper presentations
Nov 24	Short Presentations
Dec 7	Short Presentations

NOTE: The lecture schedule is subject to change, students will be notified in advance. For the lab activity, all students are required to wear a lab coat or smock and closed-toed shoes at all time when in the lab.

COURSE DETAILS

Course Title & Number:	FOOD7240 Biofilm and Food safety
Number of Credit Hours:	3
Class Times & Days of Week:	Thursdays 1-2:30 pm.
Location for classes/labs/tutorials:	TBD
Pre-Requisites:	Food Microbiology FOOD4150 or other equivalent microbiology course

Instructor Contact Information

Instructor(s) Name & Preferred Form of Address:	Claudia Narvaez-Bravo
Office Location:	238 Ellis building
Office Hours or Availability:	By appointment . To make an appointment please use UML email system
Office Phone No.	204-4746658
Email:	Claudia.narvaezbravo@ad.umanitoba.ca
Contact:	By email

Course Description

General Course Description

Bacteria can exhibit two types of life forms during growth, planktonic (floating, mobile cells) or sessile (fixed, attached). Sessile cells are involved in biofilms developing as a result of extracellular polymer production by bacteria colonizing surfaces. Biofilms are highly complex and consist of many symbiotic microorganisms, some of which are human pathogens. Biofilms have important implications for bacterial contamination and persistence in food processing environments. This course focuses on the significance of biofilms and their importance in the safety of food. Contents include biofilms basics, role of biofilms on spoilage and food safety, biofilm research, and biofilm mitigation strategies in the food processing environment.

Course Goals

This course will facilitate the development of critical thinking, analysis, communication and scholarly writing skills

General Course Learning Objectives

1. To define microbial biofilm
2. To explain the steps for biofilm formation
3. To discuss biofilms as a mechanism for bacterial resistance
4. To explain the different techniques used for biofilm research
5. To evaluate the conditions under which relevant foodborne pathogens can form biofilms
6. To explain the importance of biofilms in food safety
7. To effectively communicate scientific information
8. To evaluate the different techniques used for biofilm detection and eradication

Textbook, Readings, and Course Materials

Recommended or required materials (e.g. lab equipment, art supplies, computers, etc.)

Biofilms in the Food Environment. Hans P. Blaschek, Hua H. Wang, Meredith E. Agle, Hua H. Wang, and Meredith E. Agle

Using Copyrighted Material

We will use copyrighted content in this course. I have ensured that the content I use is appropriately acknowledged and is copied in accordance with copyright laws and university guidelines. Copyrighted works, including those created by me, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the *Copyright Act* applies or written permission has been confirmed. For more information, see the University's Copyright Office website at <http://umanitoba.ca/copyright/> or contact um_copyright@umanitoba.ca.

Course Technology

We will be using UML. The use of technology (i.e., tablets, cellphones, laptops, etc.) will be allowed in the classroom, only if it is to be used in a responsible, efficient, ethical and legal manner.

Expectations: I Expect You To

PowerPoint presentations summarize only a portion of the knowledge content that needs to be covered in class. For the rest of the contents, you are expected to read the recommended material.

I expect students to arrive on time and to be prepared to learn. Please do not use your electronic devices during class unless you are using them to take lecture notes.

If you do arrive late, I expect you to take your seat quietly, do not disrupt the class and to join in as soon as you are able. I expect that you will appreciate the diversity of our campus and respect the rights of each member of the class.

Attendance and participation are essential elements of the student's success in this course. Attendance is not mandatory; however, you will not get credit for an in-class assignment if you are absent on the day it is given.

I will be in class for 10 minutes before the class if you need to ask a quick question or talk to me about any issue related to the class. I will treat you with respect and will appreciate the same courtesy in return. For more information regarding a respectful work and learning environment, please visit the following link: http://umanitoba.ca/admin/governance/governing_documents/community/230.html

Academic Integrity:

Plagiarism or any other form of cheating on examinations, term tests or academic work is subject to serious academic penalties. Cheating on examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room. Exam cheating can also include exam impersonation. A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

Students should acquaint themselves with the University's policy on plagiarism, cheating, exam impersonation, and duplicate submission (see Section 7, p. 29 in the University of Manitoba Undergraduate Calendar 09/10).

A copyright is a legal device that gives the creator of creative work the sole right to publish and sell that work. Copyright infringement involves any violation of the exclusive rights of the copyright owner. You must be aware that images, pictures and other artistic resources are included. That means you must check Copyright information before using somebody else's art in your assignments (i.e. PowerPoint presentations) [disciplinary action](#). Visit the [Academic Calendar](#), [Student Advocacy](#), and [Academic Integrity](#) web pages for more information and support.

No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission {Claudia Narvaez.} Course materials (both paper and digital) are for the participant's private study and research.

Student Accessibility Services:

The University of Manitoba is committed to providing an accessible academic community. [Students Accessibility Services \(SAS\)](#) offers academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

Student Accessibility Services

520 University Centre

Phone: (204) 474-7423

Email: Student_accessibility@umanitoba.ca

Expectations: You Can Expect Me To

You can expect me to be on time and prepared for class.

You can expect me to be available for consultation regularly.

Email is my preferred method of communication; you can expect to receive a response to any email within 24 hours on weekdays.

If you have a question that cannot wait, you may send an email. I will be happy to answer it, however, make sure you are asking a relevant question (i.e. you could not find the answer or get an understanding of the material after reviewing the class notes or textbook). I will be glad to offer brief advice about the class material or an assignment.

All assignments handed in on time will be graded and returned within two weeks of the due date; late assignments will be graded as my time permits.

You can expect me to treat all of your questions and comments with respect and to take your concerns seriously. If you are having a problem, don't hesitate to talk to me about it. Don't wait until the last moment to realize that you need some marks to pass the course! I won't be able to help you at this point.

CLASS SCHEDULE AND COURSE EVALUATION

The schedule should include dates and times of classes, including missed classes due to holidays or other commitments of the instructor. It also includes dates of assignments/quizzes/exams and alternate forms of assessments, date for voluntary withdrawal, and dates when students can expect to receive their assignment or test grades.

Evaluation		
Type of Assessment	Due Date	Value of Final Grade
Mid-Term	Nov 3	20%
Paper presentation	Dec 6, 13, 20 & 27	20%
Short presentations	Nov 24 & Dec 7	10%
Lab activities		
Final exam	TBD (open book)	50%
		100%

Grading

Indicate your grading scale. A sample is given below that you can adjust to your course expectations.

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	95-100	4.25-4.5	4.5
A	86-94	3.75-4.24	4.0
B+	80-85	3.25-3.74	3.5
B	72-79	2.75-3.24	3.0
C+	65-71	2.25-2.74	2.5
C	60-64	2.0-2.24	2.0
D	50-59	Less than 2.0	1.0
F	Less than 50		0

Voluntary Withdrawal

Last date to drop without penalty (100% refund): September 22, 2020

Last date to drop with no refund (no final grade): November 23, 2020

Please refer to the [Registrar's Office](#) web page and revised academic schedule for more information or changes on drop dates schedule.

ASSIGNMENT DESCRIPTIONS

TITLE: Scientific paper presentation, short presentations/biofilm study techniques

GOAL: You will choose a research paper targeting biofilms related to foodborne pathogens or spoilage bacteria and you will prepare a presentation (30 min). The presentation must include: introduction, objectives, material and methods, results, discussion and conclusions.

SUBMISSION GUIDELINES: The powerpoint presentation, along with the paper of choice, must be uploaded to UM Learn.

Referencing Style

Example: Assignments should use the International Journal of Food Micro reference style as outlined in the text.

Assignment Extension and Late Submission Policy

Late Assignments:

Assignments (electronic papers) are considered late if they are not submitted by the day they are due. For each day, the assignment is late (excluding weekends) a 10% deduction to the grade will be applied.

Make up exams or absence:

Attendance is essential to student success in this course. Make-up assignments or absence on required days will be given only with the professor's permission.

Arrangements should be made with the professor for excused absences or in the case of missed important evaluations or activities.

Failure to meet deadlines will also be taken into account in final grading. At that time you will turn in (electronically or hard copy) a tentative title, a paragraph or two describing the topic, as well as several pertinent references (5-8 is sufficient).

UNIVERSITY SUPPORT OFFICES & POLICIES

Instructors shall provide to every student the information on university support offices and policies in [Schedule "A"](#) within the first week of classes, either through a paper copy and/or via the university's student information system (i.e., Aurora, UM Learn, or such other university information system as may be approved by the university from time to time).

Schedule "A"

Section (a) sample re: A list of academic supports available to Students, such as the Academic Learning Centre, Libraries, and other supports as may be appropriate:

Writing and Learning Support

The Academic Learning Centre (ALC) offers services that may be helpful to you throughout your academic program. Through the ALC, you can meet with a learning specialist to discuss concerns such as time management, learning strategies, and test-taking strategies. The ALC also offers peer supported study groups called Supplemental Instruction (SI) for certain courses that students have typically found difficult. In these study groups, students have opportunities to ask questions, compare notes, discuss content, solve practice problems, and develop new study strategies in a group-learning format.

You can also meet one-to-one with a writing tutor who can give you feedback at any stage of the writing process, whether you are just beginning to work on a written assignment or already have a draft. If you are interested in meeting with a writing tutor, reserve your appointment two to three days in advance of the time you would like to meet. Also, plan to meet with a writing tutor a few days before your paper is due so that you have time to work with the tutor's feedback.

These Academic Learning Centre services are free for U of M students. For more information, please visit the Academic Learning Centre website at: <http://umanitoba.ca/student/academiclearning/>

You can also contact the Academic Learning Centre by calling 204-480-1481 or by visiting 205 Tier Building.

University of Manitoba Libraries (UML)

As the primary contact for all research needs, your liaison librarian can play a vital role when completing academic papers and assignments. Liaisons can answer questions about managing citations, or locating appropriate resources, and will address any other concerns you may have, regarding the research process. Liaisons can be contacted by email or phone, and are also available to meet with you in-person. A complete list of liaison librarians can be found by subject: <http://bit.ly/WcEbA1> or name: <http://bit.ly/1tJ0bB4>. In addition, general library assistance is provided in person at 19 University Libraries, located on both the Fort Garry and Bannatyne campuses, as well as in many Winnipeg hospitals. For a listing of all libraries, please consult the following: <http://bit.ly/1sXe6RA>. When working remotely, students can also receive help online, via the Ask-a-Librarian chat found on the Libraries' homepage: www.umanitoba.ca/libraries.

Section (b) sample re: A statement regarding mental health that includes referral information:

For 24/7 mental health support, contact the Mobile Crisis Service at 204-940-1781.

Student Counselling Centre

Contact SCC if you are concerned about any aspect of your mental health, including anxiety, stress, or depression, or for help with relationships or other life concerns. SCC offers crisis services as well as individual, couple, and group counselling. *Student Counselling Centre:* <http://umanitoba.ca/student/counselling/index.html>

474 University Centre or S207 Medical Services
(204) 474-8592

Student Support Case Management

Contact the Student Support Case Management team if you are concerned about yourself or another student and don't know where to turn. SSCM helps connect students with on and off campus resources, provides safety planning, and offers other supports, including consultation, educational workshops, and referral to the STATIS threat assessment team.

Student Support Intake Assistant <http://umanitoba.ca/student/case-manager/index.html>

520 University Centre
(204) 474-7423

University Health Service

Contact UHS for any medical concerns, including mental health problems. UHS offers a full range of medical services to students, including psychiatric consultation.

University Health Service <http://umanitoba.ca/student/health/>

104 University Centre, Fort Garry Campus
(204) 474-8411 (Business hours or after hours/urgent calls)

Health and Wellness

Contact our Health and Wellness Educator if you are interested in information on a broad range of health topics, including physical and mental health concerns, alcohol and substance use harms, and sexual assault.

Health and Wellness Educator <http://umanitoba.ca/student/health-wellness/welcome.html>

Katie.Kutryk@umanitoba.ca

469 University Centre
(204) 295-9032

Live Well @ UofM

For comprehensive information about the full range of health and wellness resources available on campus, visit the Live Well @ UofM site:

<http://umanitoba.ca/student/livewell/index.html>

Section (c) sample: re: A notice with respect to copyright:

All students are required to respect copyright as per Canada's *Copyright Act*. Staff and students play a key role in the University's copyright compliance as we balance user rights for educational purposes with the rights of content creators from around the world. The Copyright Office provides copyright resources and support for all members of the University of Manitoba community. Visit <http://umanitoba.ca/copyright> for more information.

Section (d) sample: re: A statement directing the student to University and Unit policies, procedures, and supplemental information available on-line:

Your rights and responsibilities

As a student of the University of Manitoba you have rights and responsibilities. It is important for you to know what you can expect from the University as a student and to understand what the University expects from you. Become familiar with the policies and procedures of the University and the regulations that are specific to your faculty, college or school.

The [Academic Calendar](http://umanitoba.ca/student/records/academiccalendar.html) <http://umanitoba.ca/student/records/academiccalendar.html> is one important source of information. View the sections *University Policies and Procedures* and *General Academic Regulations*.

While all of the information contained in these two sections is important, the following information is highlighted.

- If you have questions about your grades, talk to your instructor. There is a process for term work and final **grade appeals**. Note that you have the right to access your final examination scripts. See the Registrar's Office website for more information including appeal deadline dates and the appeal form <http://umanitoba.ca/registrar/>
- You are expected to view the General Academic Regulation section within the Academic Calendar and specifically read the **Academic Integrity** regulation. Consult the course syllabus or ask your instructor for additional information about demonstrating academic integrity in your academic work. Visit the Academic Integrity Site for tools and support <http://umanitoba.ca/academicintegrity/> View the **Student Academic Misconduct** procedure for more information.
- The University is committed to a respectful work and learning environment. You have the right to be treated with respect and you are expected conduct yourself in an appropriate respectful manner. Policies governing behavior include the:

Respectful Work and Learning Environment

http://umanitoba.ca/admin/governance/governing_documents/community/230.html

Student Discipline

http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html and,

Violent or Threatening Behaviour

http://umanitoba.ca/admin/governance/governing_documents/community/669.html

- If you experience **Sexual Assault** or know a member of the University community who has, it is important to know there is a policy that provides information about the supports available to those who disclose and outlines a process for reporting. The **Sexual Assault** policy may be found at:
http://umanitoba.ca/admin/governance/governing_documents/community/230.html

More information and resources can be found by reviewing the Sexual Assault site <http://umanitoba.ca/student/sexual-assault/>

- For information about rights and responsibilities regarding **Intellectual Property** view the policy [http://umanitoba.ca/admin/governance/media/Intellectual_Property_Policy - 2013 10 01.pdf](http://umanitoba.ca/admin/governance/media/Intellectual_Property_Policy_-_2013_10_01.pdf)

For information on regulations that are specific to your academic program, read the section in the Academic Calendar and on the respective faculty/college/school web site <http://umanitoba.ca/faculties/>

Contact an **Academic Advisor** within our faculty/college or school for questions about your academic program and regulations <http://umanitoba.ca/academic-advisors/>

Student Advocacy

Contact Student Advocacy if you want to know more about your rights and responsibilities as a student, have questions about policies and procedures, and/or want support in dealing with academic or discipline concerns.

<http://umanitoba.ca/student/advocacy/>

520 University Centre

204 474 7423

student_advocacy@umanitoba.ca