

BIOLOGY 359 (CRN 20364)
FOOD, DISEASE AND PEOPLE
January 6 – April 4 2025
COURSE OUTLINE

PROFESSOR:

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Best way to contact me is after lectures in the lecture room.

Lectures: W

Time: 14:30-17:20

Room: CLE A127

Office Hours:

Tuesday: 10:00 -12:00 am

CUN 048

COURSE DESCRIPTION.

Microorganisms and their role in human societies today and in the past.

Microorganisms in fermentation of food (cheese, sourdough bread) and beverages (wine, beer) but also in foodborne and non-foodborne diseases (listeriosis, plague).

Aspects of growth, genetics, evolution and ecology of microorganisms as part of food and diseases with an emphasis on bacteria and their classification. Importance of microorganisms in trade and history.

LEARNING OUTCOMES

By the end of this course:

1. You will be able to explain the multiple interactions between microorganisms and humans as normal microflora, food preservatives, and food borne pathogens.
2. You will learn about bacteria and yeasts forming communities that have been domesticated in various food in the past and that are responsible for an important economic activity in BC, Canada and the world.
3. You will learn about the epidemiology of foodborne and waterborne diseases in BC, Canada, and the world and how institutions in BC, Canada and the world have established safety systems to prevent or to address such diseases outbreak.
4. You will develop an ability to critically read a range of scientific and humanistic literature on microbial food and disease to better understand the role of bacteria in human society.

5. You will be able to make yogurt and a sourdough bread using lactic acid bacteria

EVALUATION

REQUIRED

1. MID-TERM EXAM 1 (30%): January 29th 2:30 pm CLE A102 (30 pts)
2. MID-TERM EXAM 2 (35%): February 26th 2:30 pm CLE A102 (35 pts) March 5?
3. FINAL EXAM (15%): April 2 2:30-6:00 pm CLE A102 (15 pts)
4. MINI QUIZZ (20%): 4 mini quizz of 5 multiple choice questions to be answered on Brightspace.

All examinations will be done on-line on Brightspace but in a designated room at UVIC.

Students missing the midterms examinations for illness need to notify me by email prior to the examination. If possible, a remedial examination will be scheduled as soon as possible after the midterm.

Students missing miniquizzes will have to submit a 2 page critical review of the article on which the miniquiz is done.

FACULTATIVE

4. Assignments: Bonus for final marks

Assignments are facultative but intended to prepare for the midterm and final examinations. Examinations may even include some questions from the assignments. Students are therefore encouraged to do the assignments. Bonus points may also be given after the final examination for completion of the assignments.

Grading scheme: A⁺ (90%-100%), A (85-89.9%), A⁻ (80-84.9%), B⁺ (77-79.9%), B (73-76.9%), B⁻ (70-72.9%), C⁺ (65-69.9%), C (60-64.9%), D (50-59.9%), F (<50%)

“N” grade is used if the REQUIRED part of the evaluation is not complete.

TEXTBOOKS

Hutkins, R.W. 2006. Microbiology and Technology of Fermented Food. IFT Press. Blackwell, Ames, Iowa, USA.

- Madigan, M.T., J.M. Martinko, D.A. Stahl, D.P. Clark. 2018. Brock Biology of Microorganisms. 15th Ed. Pearson/Benjamin Cummings, San Francisco, CA, USA.
- Braudel, F. 1979. The Structure of Everyday Life. Harper and Row. Relevant chapters on food and diseases. Chap. 1, 2 , and 3. (HN13 B74 1981)

Additional References

Microbiology

- Garrity, G. et al. 2001-2013. Bergey's Manual of Systematic Bacteriology. Springer. Relevant chapters on *Lactobacillus*, *Streptococcus*, *Leuconostoc*.
- Moon, G., M. Gould, et al. 2000. Epidemiology: An Introduction. Open University Press, Buckingham, U.K.

History

- Jacob, F. 1974. The Logic of Living Systems. A History of heredity. Allen Lane, UK. Betty Spillman for French translation (*La Logique du vivant; une histoire de l'hérédité*. Gallimard. 1970)
- McGovern, P. 2009. Uncorking the Past. The quest for wine, beer, and other alcoholic beverage. University of California Press, Berkeley, CA, USA.
- McNeil, W.H. 1998. Plagues and Peoples. Anchor Books (Random House): New York, NY. 365 p.
- Tannahill, R. 1988. Food in History. Crown Publishers, New York, NY, USA.

Recipes

- Amrein-Boyes, D. 2009. 200 Easy Homemade Cheese Recipes. Robert Rose, Toronto, Ontario.
- Hynes, G. 2011. Island Wineries of British Columbia. Touch Wood Editions, Victoria, BC.
- Reinhart, P. 2001. The Bread Baker's Apprentice. Mastering the Art of Extraordinary Bread. Ten Speed Press, Berkeley, CA, USA.

Lectures schedule (tentative)

Date	Lect.	Topic
Jan. 8	W 1	1.Course outline, evaluations, overview 2. Human digestion 3. Microbiome and bacteria <i>Assignment 1 (Human microbiome) due JAN 14</i>
Jan. 15	W 2	Quiz 1 (5%). 4. How do we study bacteria in food? 5. Nutrition, health, and diet 6. People and food in pre-history <i>Assignment 2 (CRISPR in <i>S. thermophilus</i>) due JAN 28</i>
Jan. 22	W 3	7. Cultured dairy (eg. Yogurt)
Jan. 29	W 4	Quizz 2 (5%). 8. Cheese
Feb. 5	W 5	9. Bread <i>Assignment 3 (Evolution of lactose operon in <i>Lactobacillus</i>) due FEB 25</i>
Feb. 12	W 6	MIDTERM EXAM 1 (30%) CLE A102 (work on assignment 3)
Feb. 19	W 7	READING Break (NO CLASS)
Feb. 26	W 8	Quizz 3 (5%). 10. Wine <i>Assignment 4 (Early wine production in France) due MAR 25</i>
Mar. 5	W 9	11. Beer
Mar. 12	W 10	MIDTERM EXAM 2 (35%) CLE A102 (work on assignment 4)
Mar. 19	W 11	12. Food borne diseases
Mar. 26	W 12	Quizz 4 (5%). 13. Fermented food in history
Apr. 2	W 13	FINAL EXAM CLE A102 (15%) CLE A102

THE DEPARTMENT OF BIOLOGY DOES NOT OFFER SUPPLEMENTAL FINAL EXAMS.
UVic is committed to promoting, providing and protecting a supportive and safe learning and working environment for all its members.

Territorial Acknowledgement

We acknowledge and respect the lək'wəṇən peoples on whose traditional territory the university stands and the Songhees, Esquimalt and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.

Attendance and absences

Attendance is important. Students who can not attend due to illness are asked to notify their instructors immediately. If illness, accident, or family affliction causes a student to miss the final exam or to fail to complete any assignment by the end of the term students are required to submit a request for academic concession.

- Policies regarding undergraduate student academic concessions and deferrals are also detailed on the [Undergraduate Records](#) Students must submit a [Request for Academic Concession](#).

Academic Integrity

Students are required to abide by all academic regulations set as set out in the University calendar, including standards of academic integrity. Violations of academic integrity (e.g. cheating and plagiarism) are considered serious and may result in significant penalties.

Copyright

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Online conduct

The University of Victoria is committed to promoting critical academic discourse while providing a respectful and supportive learning environment. All members of the university community have the right to this experience and the responsibility to help create such an environment. The University will not tolerate racism, sexualized violence, or any form of discrimination, bullying or harassment. Please be advised that, by logging into UVic's learning systems or interacting with online resources, and course-related communication platforms, you are engaging in a university activity. All interactions within this environment are subject to the university expectations and policies. Any concerns about student conduct may be reviewed and responded to in accordance with the appropriate university policy. To report concerns about online student conduct: onlineconduct@uvic.ca

Mental Health

A note to remind you to take care of yourself. Diminished mental health can interfere with optimal academic performance. Do your best to engage in self-care and maintain a healthy lifestyle this semester. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone. The source of symptoms might be related to your course work; if so, please speak with me. However, problems with other parts of your life can also contribute to decreased academic performance. [The UVic Student Wellness Centre](#) provides cost-free and confidential mental health services to help you manage personal challenges that impact your emotional or academic well-being.

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