

ENV H 451/541
Environmental & Occupational Health Microbiology I:
Ecology of Environmentally Transmitted Microbial Hazards

Autumn Quarter 2021

Monday, Wednesday, and Friday, 12:30-1:20 pm

HSB-T733

INSTRUCTOR: John Scott Meschke
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TA : Ivy Terry (ivy2@uw.edu)

OFFICE HOURS: By appointment

COURSE WEBSITE: <https://canvas.uw.edu/courses/1478666>

COURSE DESCRIPTION:

This course will review environmentally transmitted pathogens with respect to their sources and occurrence, mobility, and fate in the environment. This course will be of use for public health and health care professionals, microbiologists, civil and environmental engineers, environmental scientists and bio-defense specialists.

COURSE OBJECTIVES:

On completion of this course, students should be able to:

1. Recognize and describe the major classes of environmentally transmitted pathogens and other microbiological hazards;
2. Distinguish infectious disease epidemiology from other types of epidemiology;
3. Recognize and assess exposure pathways and routes of transmission;
4. Outline and distinguish the factors affecting the persistence, fate and mobility of microbial hazards in environmental media; and
5. Summarize and discuss relevant research articles on environmental transmission of microbiological hazards.

In addition, graduate students should be able to:

1. Identify and define factors in an exposure scenario that may affect risk from microbiological hazards.
2. Critically review and interpret the scientific and gray literature on microbiological hazards,
3. Effectively communicate (in oral and written manner) their knowledge of environmental transmission of microbiological hazards, and

TEXTS AND REFERENCES:

There is no required text for this class. Readings and course materials will be available

through Canvas. The following texts are recommended references for more in-depth detail on course topics:

Books-

Manual of Environmental Microbiology 4th edition (ed. Yates et al., ASM Press)
Disinfection, Sterilization and Preservation, 5th edition, LWW
Metcalf and Eddy's Wastewater Engineering: Treatment and Reuse, McGraw-Hill
Water Quality and Treatment, 5th edition, AWWA
Bioaerosols Handbook, Lewis
Food Microbiology, Doyle
Any Basic Microbiology Text (e.g. Madigan, Martinko and Parker; Prescott, Harley and Klein; etc.)

Journals-

Journal of Applied Microbiology
Letters in Applied Microbiology
Applied and Environmental Microbiology
Journal of American Water Works Association
Journal of Food Protection
International Journal of Food Microbiology
Water Science and Technology
Water Research
Emerging Infectious Disease

COURSE FORMAT: The course will be organized in 5 modules. Most of the material will be available asynchronously. However, course will meet synchronously on Zoom Monday's and Wednesday's for group discussions, or Q&A with the instructor. The instructor and/or TA will also be available Fridays for drop-in office hours on Zoom.

GRADING OPPORTUNITIES:

For the sake of this class, letter and numerical grades will typically be distributed according to the university grading scale between the following standards:

A(4.0)= Excellent and exceptional work (typically >95% of available points)

D (1.0) = Deficient work (typically <66% of available points)

It is expected that most students will perform at a level of ~3.5.

Undergraduate Student

Points will be available according to the following percentage breakdown:

Introduction Video (5%): Each student is required to submit a 1-2 minute long introduction video. The video should indicate the students name, what they like to be called, what degree program they are in, any experience they have that is relevant to the class, and what they hope to get out of the class. Students that do not have the capacity to record a video (though most should on their phones) may submit a 1-2 page long statement describing the same information. Videos/Statements will be due by the beginning of the third class period.

Quizzes (20%): Students will have the opportunity to complete 7 quizzes. Quizzes will be due at 5 pm on the day indicated in the course outline. Late quizzes may be penalized 10% of point value for each class period that they are late.

Midterm Exam (25%): Midterm exam will consist primarily of short answer questions, but may include multiple choice and fill-in the blank questions as well. Exams will be conducted online. Exam will be open book and open note. Early or make-up exams will only be offered in case of emergencies or prior arrangement with instructor. Formats for early and make-up exams are left to the discretion of instructor.

Group Discussions (5%): Students may earn points by participating in group discussions.

In the News (5%): Student may earn points by providing 5 “In the News” articles.

Pathogen Profile (10%): Students will have the opportunity to complete a pathogen profile for their “pet bug”. These will be a powerpoint poster following a provided rubric describing the transmission of their chosen organism by environmental routes.

Questions for Graduate Panel (5%): Undergraduate students will have the opportunity to earn 5% of their grade by formulating questions for graduate student panels based on the graduate students’ pathogen profile videos.

Final Exam (25%): Final Exam will be offered on **ONLINE during finals week**. Final exam will be comprehensive and will consist of short answer multiple choice, true/false-explain, and problem solving questions. Exam will be open book and open note.

Graduate Student

Points will be available according to the following percentage breakdown:

Introduction Video (5%): Each student is required to submit a 1-2 minute long introduction video. The video should indicate the students name, what they like to be called, what degree program they are in, any experience they have that is relevant to the class, and what they hope to get out of the class. Students that do not have the capacity to record a video (though most should on their phones) may submit a 1-2 page long statement describing the same information. Videos/Statements will be due by the beginning of the third class period.

Quizzes (20%): Students will have the opportunity to complete 7 quizzes. Quizzes will be due at 5 pm on the day indicated in the course outline. Late quizzes may be penalized 10% of point value for each class period that they are late.

Midterm Exam (25%): Midterm exam will consist primarily of short answer questions, but may include multiple choice and fill-in the blank questions as well. Exams will be conducted online. Exam will be open book and open note. Early or make-up exams will only be offered in case of emergencies or prior arrangement with instructor. Formats for early and make-up exams are left to the discretion of instructor.

Group Discussions (5%): Students may earn points by participating in group discussions.

Pathogen Profile (20%): Students have the opportunity to complete a pathogen profile for their “pet bug” and report it to the class. These will be a 10 video presentation addressing points in the pathogen profile rubric, and participation in a graduate student panel to answer questions posed by undergraduates.

Final Exam (25%): Final Exam will be offered **ONLINE during finals week**. Final exam will be comprehensive and will consist of short answer and problem solving questions. Exam will be open book and open note.

COVID-Related Expectations

Per UW policy, this class will be conducted in person. Therefore, unless you meet the criteria for an accommodation from Disability Resources for Students (DRS) or a special arrangement approved by the SPH Office of the Dean that allows you to take the course remotely [[see student communications here \(Links to an external site.\)](#)] you should only register for this class if you can attend in-person.

- Please contact UW Disability Resources for Students (DRS) directly if you feel you may be eligible for an accommodation based on your status as an immunocompromised individual or based on other diagnosed physical or mental health conditions that might prevent you from being able to take classes in-person.
- If you are a student enrolled in a program in SPH, and you are either living with an individual who is immunocompromised, OR you are unable to obtain a visa to travel to the US, you may be eligible for a “special arrangement” that will allow you to take this course remotely. Requests for special arrangements to take the class remotely should have been submitted to and approved by the Students and Academic Services team in the Office of the Dean before the beginning of the quarter. If you have questions about this type of arrangement, please reach out to Student and Academic Services by email at sphas@uw.edu.

All UW students are expected to complete their [vaccine attestation \(Links to an external site.\)](#) before arriving on campus and to follow the campus-wide face-covering policy at all times. You are expected to follow state, local, and UW COVID-19 policies and recommendations. If you feel ill or exhibit possible COVID symptoms, you should not come to class. If you need to temporarily quarantine or isolate per CDC guidance and/or [campus policy \(Links to an external site.\)](#), you are responsible for notifying your instructors as soon as possible by email. **If you receive a positive COVID-19 test result, you must report to campus Environmental Health & Safety (EH&S) by emailing covidehc@uw.edu or calling 206-626-3344.**

No food or drinks are allowed in the classroom.

Please check your email daily BEFORE coming to class. If we need to conduct class remotely because the instructor or a guest speaker is complying with UW policies and unable to attend in person, we will send all registered students an email with a Zoom link for remote instruction. Thank you for your patience and support as we all transition together back to in-person learning!

Access & Accommodations

Your experience in this class is important to me. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you have already established accommodations with Disability Resources for Students (DRS), please activate your accommodations via myDRS so we can discuss how they will be implemented in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), contact DRS directly to set up an Access Plan. DRS facilitates the interactive process that establishes reasonable accommodations. Contact DRS at disability.uw.edu.

Religious Accommodations

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW’s policy, including more information about how to request an accommodation, is available at [Religious Accommodations Policy \(Links to an external site.\)](https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/) (<https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/> (Links to an external site.)). Accommodations must be requested within the first two weeks of this course using the [Religious](#)

[Accommodations Request \(Links to an external site.\)](#) form (<https://registrar.washington.edu/students/religious-accommodations-request/> ([Links to an external site.](#))).

Academic Integrity

Students at the University of Washington (UW) are expected to maintain the highest standards of academic conduct, professional honesty, and personal integrity.

The UW School of Public Health (SPH) is committed to upholding standards of academic integrity consistent with the academic and professional communities of which it is a part. Plagiarism, cheating, and other misconduct are serious violations of [the University of Washington Student Conduct Code \(Links to an external site.\)](#) (WAC 478-120). We expect you to know and follow the university's policies on cheating and plagiarism, and [the SPH Academic Integrity Policy \(Links to an external site.\)](#). Any suspected cases of academic misconduct will be handled according to University of Washington regulations. For more information, see the University of Washington Community Standards and Student Conduct website.