



AVS 590-0980: Research skills combining microbes and social equity

Instructor

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Time and mode of instruction

July 18 - 29, 2022, 12:00 – 16:00 EST.

- On July 18 -22, most of class time will involve attending the [Microbes and Social Equity virtual symposium](#) (12:30 – 16:00 EST). Details below, *links to each symposium session* will be provided.
- On July 25 – 29, we will meet just as a class for as much of the time as we need to refine our ideas and assignments. Details below, *a new link* will be provided.

Location

Virtually over Zoom, links to follow.

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Credit hours: 1

Prerequisites: Graduate student standing.

Description of course and prerequisites

This graduate course is designed to teach ideation and communication skills on creating context-aware experimental designs, interdisciplinary writing, building community engagement in research, writing for scientific-based policy, and pedagogical design for situating scientific education in social equity contexts. This course is built around the Microbes and Social Equity working group's 2022 summer symposium "Developing transformative research skills." Students will attend the talks, participate in meeting working groups, and discuss research with plenary speakers, all while drafting your research designs or writing outputs. Students will receive feedback on their ideas from the instructor, as well as from symposium speakers and attendees.

Symposium description: To understand a microbiome, you must learn about the bustling community of microorganisms and the complex ecosystems they live in, because one cannot exist without the other. So, too, does microbiome research rely on understanding the lives and ecology of humans, because there is no aspect of human life which does not involve microbes in some way. To become better microbiome researchers, we must understand social and environmental contexts which affect humans and, in many cases, prevent them from making choices which result in beneficial microbial exposures. This symposium will focus on developing research skills to create transformative research, including context-aware experimental designs, engaging community stakeholders as research partners, writing transdisciplinary papers, translating research into policy, and creating curriculum which melds microbes and social equity.

A detailed program for the symposium can be found: <https://sueishaqlab.org/microbes-and-social-equity-working-group/mse-virtual-symposium-july-2022/>

Course materials and digital services used

- Textbook: There is no required textbook for this class.
- Lectures: All seminars/lectures are presented live and recorded, and video files added to Kaltura after.
- Readings: Reading material will be provided as electronic journal articles or readings.
- Assignments: All assignments can be submitted through Brightspace, and each assignment portal has more detailed instructions, and the proposal assignment has an optional document template.
- Brightspace Online Learning Software
 - [Log into Brightspace](#). Read the [tutorial](#). Download the [Pulse app](#).
 - Brightspace is the online learning management system used at the University of Maine. In our course Brightspace site, you will be able to access course materials, assignment descriptions, this syllabus, and the course schedule. You will submit your work through Brightspace and will be able to access your grades and feedback as well. You can download a "Brightspace Pulse" app for most mobile devices from your regular app store. Be aware: Some functions in Brightspace work better when accessed through a laptop/desktop than through a mobile device. Support for the website and mobile apps includes video tours, IT Help Desk, and other resources. If you continue to have problems with Brightspace, please let me know as soon as possible.
 - If you wish to retain a personal copy of course materials, please do so before the end of the semester. **You will not have access to a course's Brightspace site after you complete the course.** You can store copies of material you wish to retain on Google Drive, your hard drive, or other media of your choosing.
- Zoom Online Conferencing Software
 - Read the [UMaine tutorial](#). Zoom is an online conference software that students can use to attend class remotely as needed. Students may invite friends and family to watch their presentation using Zoom.

I am happy to provide accommodations to the way course materials are formatted or provided to make them easier to access and understand. Please let me know if you have suggestions to improve the course materials.

Course goals

The goal of this course is to teach ideation and communication skills on creating context-aware experimental designs, interdisciplinary writing, building community engagement in research, writing for scientific-based policy, and pedagogical design for situating scientific education in social equity contexts.

Student learning outcomes and objectives to meet them:

1. Recognize the connections that microbiomes have to social equity. This will be demonstrated with research/examples/case studies presented by speakers.
2. Discuss relevant issues in microbiomes and their connection to social equity and identify issues which could be explored further. This will be met with group discussion between students, speakers, and researchers attending the symposium.
3. Appraise your own work for these connections between microbiomes and social equity, to designate places for professional growth and applying equitable design. This will be met using instructor feedback on written assignments.

Expectations of students and university policies

Attendance and Participation

Students are expected to attend lectures in order to engage with guest speakers and collaboratively write assignments. Students are expected to participate in discussions. I strive to create inclusive discussions, but if students still find it challenging to participate, please notify me and I will alter the discussion format as needed. Supporting inclusion and community is an active process that involves both invitation, and support to ensure that the learning community is and remains an equitable and inclusive place. Students are expected to conduct themselves in a professional, courteous manner and abide by university policies.

Late Assignments

I will accept assignments for a certain period of time after the due date, however, the assignments in this class build on one another and their due dates are specifically set to help you achieve the end goals of this class. You will not receive a grade reduction for late assignments, but you waive the right to receive feedback which might impact the quality of successive drafts and your next grade.

Campus Policies

"The University of Maine is an EEO/AA employer, and does not discriminate on the grounds of race, color, religion, sex, sexual orientation, transgender status, gender expression, national origin, citizenship status, age, disability, genetic information or veteran's status in employment, education, and all other programs and activities." Follow the links for more information.

[Academic Honesty Statement*](#)

[Students Accessibility Services Statement*](#)

[Course Schedule Disclaimer*](#)

[Observance of Religious Holidays/Events*](#)

[Sexual Discrimination Reporting \(Long\)*](#)

[Sexual Discrimination Reporting \(Short\)*](#)

[UMaine Land Acknowledgement](#)

Students Accessibility Services (SAS) Statement

If you are requesting an accommodation to the course or assignments, please [contact SAS](#), 121 East Annex, (207) 581-2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should contact me as soon as possible.

Schedule of content and Assignments:

Detailed instructions (written and audio), rubrics, and submission portals on Brightspace.

<p>July 18, session 1</p>	<p>Content Session 1: “Context-aware experimental designs”</p> <ul style="list-style-type: none"> • Scope: Microbiome research often uses broad categorical factors as proxy factors for complex social or environmental contexts, but these can ignore or obscure underlying trends. This session will unpack proxy terms like race, Western diet, dysbiosis, rural/urban, and more, to differentiate what variables we actually want to measure and how to accomplish this in data collection and analysis. This session will also discuss how to communicate microbiome results in relation to broader contexts of lived experiences, rather than attributing results to broad proxy categories. • Learning Objectives of Session: Attendees will learn 1) the process of identifying more precise and appropriate measurement variables when engaging in human-adjacent microbiome research, instead of using proxy factors, 2) how to include more resolution to factorial data during collection, and 3) examples of how to process complex social data during microbiome data analysis. • Format of talks: Three 30-min lecture-style talks will disambiguate proxy categorizations into more precise variables that consider social contexts, approach to course, lessons learned/challenges. • Format of breakout rooms: Each room creates a concept map which disambiguates a proxy category into specific variables, and discusses how to frame survey questions or leverage existing data to obtain this information. Each room has a designated topic area (e.g. environmental restoration) to help audience members group by discipline or type of information they are looking for. <p>Assignment <i>Experimental design (15 points)</i>– Create a 1-page description of an experimental design which disambiguates a proxy category into specific measurable variables. Define those variables and what aspect they are informing you on. Page length does not include title, authors, or other header info, and is based on single-spaced 12pt Times New Roman. You may work in groups of 1 – 3 people. Due by midnight after this symposium session.</p>
<p>July 19, session 2</p>	<p>Content Session 2: “Blending biological, social, and humanities writing”</p> <ul style="list-style-type: none"> • Scope: Interdisciplinary experimental designs have been called for in research, but finding a publication venue can be tricky when manuscripts or presentations are deemed not discipline-specific, or are labeled opinion instead of research. This session will explore common gatekeeping problems of interdisciplinary research, cross-disciplinary writing categorization discussions (i.e. theoretical framing, etc.), and writing strategies and publication venues to make the most of your work. • Learning Objectives of Session: Attendees will become familiar with different expectations within research design/publishing across fields, and learn about tangible suggestions from research publishers. Audience members should walk away with more confidence in interdisciplinary publishing.

	<ul style="list-style-type: none"> • Format of talks: This will feature a 30-min plenary topic to introduce the concept that theory in psychology/philosophy is regarded as opinion in the natural sciences, followed by 1 hour of a panel of research journal editors to discuss flexible publication guidelines. • Format of breakout rooms: Each room creates a draft essay, and each room has a designated topic area (e.g. environmental restoration) to help audience members group by discipline <p>Assignment <i>Interdisciplinary writing (15 points)</i> – Create a 1-page essay using microbiome/natural sciences research on a topic of your choice. Page length does not include title, authors, or other header info, and is based on single-spaced 12pt Times New Roman. You may work in groups of 1 – 3 people. Due by midnight after this symposium session.</p>
July 20, session 3	<p>Content <i>Session 3: “Transforming your research for policy engagement”</i></p> <ul style="list-style-type: none"> • Scope: Microbiomes drive processes in all environments and are intimately intertwined with all aspects of our lives. Despite the central role of microbes in shaping systems, microbial researchers are often detached from shaping policies related to conservation, public health, land use, environmental justice, climate and other areas of intersection. Policy engagement is not typically included in the academic training of microbiome researchers, and there is a need for greater coordination between policy needs and microbial research. This session will explore integrated, collaborative approaches to research and policy making. • Learning Objectives of Session: Attendees will discuss 1) how to develop research in collaboration with policy needs, 2) policy levels and types (government, private), 3) how to identify stakeholders, and 4) how to communicate your research to policymakers. • Format of talks: Three 30-min lecture-style talks will describe interdisciplinary research outcomes which transcend typical academic endpoints and engage in shaping policy. • Format of breakout rooms: Each room will create a policy brief outline around a particular topic area (e.g. environmental restoration) to help audience members group by discipline. <p>Assignment <i>Policy brief (15 points)</i> – Create a 1-page policy brief using microbiome/natural sciences research on a topic of your choice. Page length does not include title, authors, or other header info, and is based on single-spaced 12pt Times New Roman. You may work in groups of 1 – 3 people. Due by midnight after this symposium session.</p>
July 21, session 4	<p>Content <i>Session 4: “Community engagement and collaboration”</i></p> <ul style="list-style-type: none"> • Scope: Due to the interconnectedness of microbial processes and social justice, many types of microbial research could benefit from closer collaborations with communities impacted directly by the public health, environmental and climate justice implications of microbiomes. Some styles of microbiome research would yield more positive outcomes if the collaboration was built around mutual long-term goals, instead of specific projects, and if it was initiated during project conceptualization instead of after the project has been designed. This session will explore different styles of interdisciplinary collaborations centered on community needs, such as community advisory boards, community partnerships, community-led research design, and how to implement this into microbiome research.

	<ul style="list-style-type: none"> • Learning Objective of Session: Attendees will learn 1) approaches to community-centered collaborations, 2) how to leverage community professionals (e.g. health workers) in a ‘train the trainer model’ , 3) how to start ethical conversations around environmental samples & broader experimental design, and 4) how to emphasize collaborations - including public health, government, policy makers, etc. as a collaborator and how to ask for their help/mindful collaborations. • Format of talks: Three 30-min lecture-style talks from researchers who have successfully built research collaborations with communities. • Format of breakout rooms: Each room creates a plan for engagement, and each room has a designated topic area (e.g. environmental restoration) to help audience members group by research discipline. <p>Assignment <i>Community engagement proposal (15 points)</i>– Create a 1-page proposal describing a project which requires community engagement, the community stakeholders, your plan to engage them as participants or work with them as co-Investigators, and the impacts to that community. Page length does not include title, authors, or other header info, and is based on single-spaced 12pt Times New Roman. You may work in groups of 1 – 3 people. Due by midnight after this symposium session.</p>
<p>July 22, session 5</p>	<p>Content <i>Session 5: “MSE Education Practices and Curriculum design”</i></p> <ul style="list-style-type: none"> • Scope: Curriculum which blends disciplines is highly engaging, and can be used to teach complex concepts, and can help students combine their existing cultural and social identities with their growing researcher identity. However, creating an interdisciplinary curriculum can be challenging. This session frames educational conversations in MSE, and gives perspectives on creating courses that blend microbiome and social sciences for different levels of education. • Learning Objectives of Session: Attendees will 1) identify successes and barriers to entry for MSE curriculum at different education levels (K-12, UG, grad, general public), 2) Share ways in which we incorporate MSE in our curricula (i.e. assignments, class period, multi-day module, full course, etc.); 3) develop ideas for further curriculum design for their own courses. • Format of talks: Three 30-min lecture-style talks from education practitioners who have successfully built courses around MSE topics, including an outline of learning goals, approach to course, lessons learned/challenges, and more. • Format of breakout rooms: Each room creates a lesson plan outline, and each room has a designated topic area (e.g. human microbiome equity) to help audience members group by teaching discipline. <p>Assignment <i>Lesson plan (15 points)</i> – Create a 1-page lesson plan on a topic which combines microbiome/natural sciences with social/environmental contexts. Your plan must include a 2-paragraph description of the scope and contents of the material, at least 1 suggest for reading assignments. You must also include a 1-paragraph description of an activity or assignment (you don’t need to generate the whole assignment just essentially what it would do), what you would want students to achieve or learn from it, and how you would assess that achievement or learning (quiz, graded essay, and what would be the measure of success). Page length does not include</p>

	title, authors, or other header info, and is based on single-spaced 12pt Times New Roman. You may work in groups of 1 – 3 people. Due by Monday after this symposium session.
July 22 - 29	Meet as a class on Zoom to discuss, refine, and work on assignments (~2 hours per day).
July 29	Assignment <i>Final draft of your choice (25 points)</i> – Turn in a 2+ page final draft of any of the previous assignments of your choice. You must have improved upon the initial draft, added more references/content/context/self reflection/detail or anything else to develop the writing and concepts. Page length does not include title, authors, or other header info, and is based on single-spaced 12pt Times New Roman. You may work in groups of 1 – 3 people. Due by 1 week after the symposium.

Grading (out of 100 points): A = 93–100; A– = 90–92; B+ = 87–89; B = 83–86; B– = 80–82; C+ = 77–79; C = 73–76; C– = 70–72; D+ = 67–69; D = 63–66; D– = 60–62; F = 0–59.

UMaine resources related to research, statistics, writing, and careers:

- Fogler Library
 - OneSearch, <https://library.umaine.edu/>; find scientific literature
 - Research Data Management: <https://libguides.library.umaine.edu/datamanagement>
 - Creating a research poster: <https://libguides.library.umaine.edu/confposters>
 - Creating a research presentation: <https://libguides.library.umaine.edu/confposters/presentations>
 - Presentation Practice Room, <https://library.umaine.edu/use/presentation-practice-room/>
- Statistics Consultation, <https://umaine.edu/tasc/stats/> (may have a cost associated with this service, talk to your research mentor before setting up a consultation)
- Writing Center, <https://umaine.edu/wcenter/>; tutoring, editing, skills development

There is always someone on campus to help you

My door is always open and I am always willing to help students, however, as a university employee I am also required to keep the community safe by disclosing information on crimes. This means I am a “mandatory reporter”. If you disclose something to me, including in assignments, I am obligated to provide this information to the campus Title IX office. The Title IX Office will contact you discretely, and offer you support services, guidance, and help you choose if you want to take action.

For confidential resources on campus:

- Counseling Center: (207) 581-1392
- Cutler Health Center: (207) 581-4000.
- Rape Response Services: 1-800- 871-7741
- Partners for Peace: 1-800-863-9909.

For support services on campus which may have to report the incident to others who can help:

- (emergency and non emergency) [Title IX Student Services](#), (207) 581-1406,
- (emergency and non emergency) University of Maine Police: (207) 581-4040 or 911.
- (non emergency) Office of Community Standards: (207) 581-1409.

Free food and clothing

- [Black Bear Exchange's Food Pantry](#), Orono campus
- Old Town Crossroads Ministry

University Rainbow Resource Center

[The Rainbow Resource Center](#) located in Memorial Union, Room 224, empowers and increases the visibility of Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) people by promoting equality and inclusiveness. We strive to maintain an open, safe, and supportive environment for students, staff, faculty and alumni and provide educational opportunities, information, and advocacy services.

Pregnancy, lactation, and parenting

I am happy to make accommodations for students based on pregnancy, lactation, and parental needs, as well as work with the Office of Equal Opportunities (E.O.). The state of Maine and UMaine policies allows students to breastfeed in any space, including in class. If a lactation space is required, please contact E.O. for arrangements. The [Pregnant on Campus Initiative](#) provides pregnancy and parenting resources in Orono.

University Veterans Education and Transition Services (VETS)

[University of Maine's VETS Center](#) serves student veterans as they apply to, attend and advance beyond UMaine. The Veterans Center connects student veterans with the resources they need to successfully transition from combat to classroom to career. This includes help navigating the admissions process, applying for financial aid and U.S. Department of Veterans Affairs education benefits, academic assistance and preparing to re-enter the workforce. The VETS Center is located in Room 143 of the Memorial Union.

University Counseling Services

If you are experiencing a mental health emergency: Dial 911. You can also call campus Police Services at (207) 581-4040. For urgent help, please check this page for your options: <https://umaine.edu/counseling/need-urgent-help/>.

Over the course of our time at the University, we may face a variety of concerns – depressed mood, anxiety, stress, family concerns, body image, substance use, sexuality and many others – that may interfere with their ability to focus on their studies. [Counseling Services](#) provides mental health and social support for all currently enrolled students. Staff follow strict legal and ethical guidelines concerning the confidentiality of counseling. Counseling services is located in Cutler Health Center, Room 125 and can be reached by phone at (207) 581-1392.

Acknowledgement

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