

# BIOL 50.02: ECOLOGY OF INFECTIOUS DISEASE (EID) – SPRING 2024

## COURSE OBJECTIVES & LEARNING GOALS

The primary goal of this course is to use tools, concepts, and approaches of ecological science to develop a collaborative research proposal that addresses some aspect of infectious disease. To prepare for the proposal development process, we will begin with careful reading of the literature, including published case studies, to develop both content mastery and strategies for identifying important areas for further work. We will also meet with a campus librarian and read materials about leading productive discussions, making scientific presentations, writing effective research proposals, and providing constructive peer reviews. You will then iteratively develop your collaborative research proposal in presentation format before turning to the written narrative. As we go through this process, we will practice the art of constructive peer review of both presentations and proposals and work to build communication skills and key academic virtues.

By the end of the term, you will better understand the proposal writing process; have cultivated your persistence, teamwork, self-confidence, and time management skills; and be more proficient in:

1. Finding, reading, interpreting, and synthesizing the relevant peer-reviewed literature in general, and studies of the ecology of infectious disease in particular
2. Leading discussions of the primary literature
3. Identifying research gaps, asking interesting and answerable research questions, developing testable hypotheses, and crafting effective strategies to address those research questions/test those hypotheses
4. Delivering clear and compelling scientific presentations
5. Writing effective research proposals
6. Providing constructive peer reviews of colleagues' presentations and proposals

**Preparation:** A solid background in ecology is expected, including BIOL 16 plus at least one intermediate level course from among the following: BIOL 21- BIOL 31, BIOL 46, or BIOL 48. The BIOL 16 prerequisite can be waived in some circumstances, especially for seniors who have significant depth in a complementary field that can broaden proposals' scope.

You should also have some experience reading and interpreting the primary literature in ecology or another field related to this course.

## INSTRUCTOR & CONTACT INFO

Kathryn L. Cottingham, Ph.D.

Student hours: 12:35-1:05 pm on most Mondays, Wednesdays and Fridays (immediately after class) and by appointment

Slack: @KathyCottingham

Our class Slack channel (linked out from Canvas) will be the primary mechanism for both near-real-time communication and asking open questions of the teaching staff and one another. I try to keep an eye on Slack between meetings from ~10 am through ~6 pm each weekday, and at least once per day on the weekends. If you've never used Slack, [this Knowledge Base article](#) is a good place to get started. Be sure to join ALL course channels!

Email: [Kathryn.L.Cottingham@dartmouth.edu](mailto:Kathryn.L.Cottingham@dartmouth.edu)

I receive dozens of email messages daily, so if you have a time-sensitive inquiry, a private Slack DM will typically reach me well before an email, plus Slack provides a built-in reminder feature that email does not. I will respond to all Bio 50.02-related Slack messages and emails received by 6 pm before I sign off for the evening.

## COURSE MEETINGS & ATTENDANCE POLICY

We will meet during both our regularly scheduled MWF course time (11:30-12:35 pm, LSC 205) and during a few of the x-hours (Tuesdays 12:15-1:05 pm).

**Please do not make other commitments during the x-hours – we need to have that time available each week so that you have built-in group time reserved every week. I'll also be able to have Student Hours in some but not all weeks.**

This is a small class that moves quickly with strong interdependencies among students. If you need to miss class entirely, you will miss material and -- importantly -- we will miss you and your contributions. As such, your prompt attendance (in person or remote) is expected at course meetings unless you have made alternative arrangements due to illness, other medical reasons, or other time conflicts.

That said, I do ask, for the health and safety of our class community, that you please do not attend class when you are sick with any potentially contagious respiratory illness or when you have been instructed by Student Health Services to stay home.

We have multiple mechanisms in place to make sure you don't miss anything important!

If you are feeling well enough, all class meetings can be turned into a hybrid class meeting (in class + on zoom) with a little bit of notice. Just send a private Slack message before ~11 am and I'll make it so.

If you are not feeling well or unavailable during our course meeting time, all class meetings will be recorded automatically to Panopto and linked from Canvas when needed.

All of my iPad notes will be posted to Canvas by the end of that day.

If you need to miss class without prior warning, please reach out as soon as you can to check in and make sure that we can keep you up-to-date.

*Other things to keep in mind:*

Whether you are physically present at class or participating remotely, please try to give class your full attention. We realize that having computers/tablets/phones open during class can present numerous distractions and opportunities to multi-task. Multi-tasking that keeps you from participating fully in whole-class and small-group activities is strongly discouraged. Please set your devices to Do Not Disturb mode at the start of class and refrain from messaging non-class members during the class periods.

**Missing class:** To repeat, please stay home if you are sick or may be contagious! This is, after all, a course on infectious disease and I do not wish for the class to become a case study. :-)

**Camera policy:** Should we need to go fully virtual, having cameras on helps to develop class camaraderie, have more substantive discussions, and provide some non-verbal feedback to speakers. Thus, we ask that you have your camera on when you can during any synchronous sessions, especially when you're working in small groups. However, we also recognize that having cameras on all the time can be exhausting and sometime impractical (e.g., if you are in a less-than-ideal location, have low bandwidth, or need to stretch), and so it is also ok to turn the camera off when needed.

## COURSE MATERIALS

To prepare for the proposal writing process, we will read chapters from the Dartmouth-developed book [Writing Successful Science Proposals](#), 3<sup>rd</sup> edition, by Andy Friedland, Carol Folt, and Jen Mercer (referred to as FFM in the course calendar). The book is available online through the library, but if you prefer tangible books or anticipate going on to graduate school, you may want to purchase it so you have your own copy (~\$23 at Amazon).

This course will lean heavily on Canvas and Slack to communicate material to students, including the [course calendar](#) (bookmark this one in your browser!). There are also links to the [Slack site](#), [Zoom meetings](#), "[textbook](#)", and readings from the peer-reviewed literature; instructions on assignments and places to upload each; templates for taking notes during class and while reading papers, and much more.

Please note that:

- There is a lot to wade through on Canvas; ask for help if needed!
- We'll do a lot of in-the-moment communicating on Slack; please either turn on notifications during your work hours or check manually several times per day.
- Most of the readings require connection to a campus network; use the [VPN](#) when off campus
- The Zoom links are configured so that you must sign in through your Dartmouth-provided Zoom account before connecting to class or Student Hours

## **RESPONSIBILITIES & EXPECTATIONS**

### **I expect that students in this course (“you”) will**

1. Come to each course meeting ready to engage with that day’s material and having done the requested preparatory work by the stated time
2. Actively participate at course meetings by taking notes, contributing to group deliberations and analyses and asking/answering questions (both at class and asynchronously), leading lively discussions, etc.
3. Demonstrate understanding of course material in the written and oral assignments
4. Attend all course meetings promptly (when healthy) and give them full attention whether present in person or on Zoom
5. Communicate with the professor in advance or as soon as possible thereafter regarding attendance, timely completion of assignments, technical glitches, and access issues
6. Keep track of course activities and announcements via our Canvas site and Slack workspace; ask when there are questions; and draw the teaching staff’s attention to problems if/when you run into them
7. Contribute to a positive learning environment for everyone in the class – be respectful in whole-class and small-group settings, be constructive in making suggestions and providing written peer reviews; answer others’ questions on Slack, Canvas, and in Google documents; and follow the health guidance in points (8) and (9) below
8. Stay home when you feel ill and instead participate through Zoom when well enough or asynchronously if not
9. Follow all current campus guidelines regarding SARS-CoV-2, including traditional isolation/quarantining procedures after testing positive or being a close contact with someone who has tested positive
10. Seek help from the professor and peers through questions at class, via Slack and/or email, in Student Hours, and at individual or group appointments

### **You can expect Prof. Cottingham to**

1. Be organized and well-prepared throughout the course
2. Be knowledgeable about the course material
3. Stay home when sick and deliver the course material through alternative mechanisms
4. Follow all campus guidelines regarding SARS-CoV-2
5. Be flexible given the pandemic (and life!)
6. Be flexible given that this is a relatively new course and there will be surprises!
7. Stimulate interest in the course material
8. Explain course material clearly and efficiently
9. Answer your questions thoroughly
10. Be available for consultations regarding course material, assignments, and other student concerns
11. Use methods of evaluation that provide a representative test of your knowledge and understanding of the course material
12. Grade your work fairly and return it promptly
13. Be receptive to your requests for accommodations and suggestions for improvement

## COURSE ACTIVITIES AND POINT VALUES

This course asks you to demonstrate your ability to learn about, and then apply, the concepts, principles, and approaches of ecology through the development of a collaborative research proposal about some aspect of infectious disease. You will demonstrate your learning via the different types of individual and group activities listed in the table below.

Each type of assignment will be explained in more detail in Canvas and will “go live” as we get to it to avoid overwhelming you at all once. Please ask if you need more info - mock-ups of most assignments are available, just not shared yet!

You will be asked to submit most assignments in electronic format. For these electronic submissions to be counted as submitted on time, they must be completed by the time period indicated in the Canvas assignment upload. Electronic submissions that arrive after the stated time will still be accepted, but may lose points, especially the assignment types marked as “on time, late, missing” in the table. If you realize you’re likely to have trouble making a deadline, please reach out to me in advance and we can discuss what adjustments can be made.

Your final grade will be based on the total number of points earned relative to other students in the class. Grade distributions will be comparable to other advanced-level biology courses.

General category & specific requirements	Possible Pts <sup>1</sup>
<p><b>Building background knowledge in weeks 1-4 (individual grades)</b></p> <ul style="list-style-type: none"> <li>● Evidence of thorough preparation as assessed from the reading templates for background readings (scored as ✓+, ✓, ✓-; drop lowest 2 scores; 8 pts each)</li> <li>● Engagement with discussions within the Canvas or Google platforms (✓+, ✓, ✓-; 4 pts each)</li> </ul>	~120
<p><b>Group work to develop proposal in weeks 4-8 (group grades)</b></p> <ul style="list-style-type: none"> <li>● Zotero database created and shared (on-time, late, missing) (5 pts)</li> <li>● Annotated bibliography started and shared (on-time, late, missing) (5 pts)</li> <li>● Draft for initial presentation (on-time, late, missing; 5 pts)</li> <li>● Initial presentation in week 5 (✓+, ✓, ✓-; 20 pts)</li> <li>● Draft updated presentation (on-time, late, missing; 5 pts)</li> <li>● Updated presentation in week 7 (numeric score; 35 pts)</li> <li>● First-cut outline for proposal (on-time, late, missing; 10 pts)</li> <li>● First draft proposal (✓+, ✓, ✓-; 40 pts)</li> <li>● Written response to reviewers (✓+, ✓, ✓-; 15 pts)</li> </ul>	140

<sup>1</sup> Actual point totals will depend on the number of groups that eventually form; assuming 4 for now

<b>General category &amp; specific requirements</b>	<b>Possible Pts<sup>1</sup></b>
<b>Providing feedback to others in weeks 5, 7, 8, 9 (individual grades)</b> <ul style="list-style-type: none"> <li>• At-class review of the initial presentations (✓+, ✓, ✓-; 5 pts each)</li> <li>• At-class review of the updated presentations (✓+, ✓, ✓-; 10 pts each)</li> <li>• Practice reviews of older proposals (✓+, ✓, ✓-; 10 pts each)</li> <li>• Written review of first-draft proposals (✓+, ✓, ✓-; 15 pts each)</li> </ul>	~105
<b>Final research proposal &amp; supporting material (group grades)</b> <ul style="list-style-type: none"> <li>• Final proposal (numeric grade, out of 100)</li> <li>• Annotated bibliography (✓+, ✓, ✓-; 20 pts)</li> <li>• Zotero database (✓+, ✓, ✓-; 15 pts)</li> </ul>	135
<b>Synthesis &amp; Reflection Exercise due at the last class period</b> (individual grades; ✓+, ✓, ✓-)	15
<b>Contribution to a positive course environment</b> (individual grades, numeric)	60
<b>Total Possible Score (estimated)</b>	~575

### **Contributions to a Positive Course Environment**

We all need to work together to make this class a positive place for learning. Everyone should behave professionally, treat others with courtesy and respect, and refrain from using profanity or socially offensive language. As the term gets going, we can discuss class norms for how to behave in the classroom, use the Slack channels and contribute to shared Google documents; if needed, we can revisit those norms during the term. Also, should there be members of the class who are at high risk for complications from SARS-CoV-2 or other respiratory illnesses, we may strongly recommend that everyone wear a well-fitting respirator during indoor class meetings. Detailed instructions on self-evaluation and peer-evaluation for this component will be provided near the middle of the term, and evaluations will be submitted via a confidential Google form.

### **Ungrading**

There will also be an opportunity at the end of the quarter to give yourself a letter grade, if you would like. See the Canvas assignment for details.

## STUDENT NEEDS

### **Student Accessibility and Accommodations**

#### Campus Boilerplate Text -

Students requesting disability-related accommodations and services for this course are required to register with Student Accessibility Services (SAS; [Apply for Services webpage](#); [student.accessibility.services@dartmouth.edu](mailto:student.accessibility.services@dartmouth.edu); 1-603-646-9900) and to request that an accommodation email be sent to me in advance of the need for an accommodation. Then, students should schedule a follow-up meeting with me to determine relevant details such as what role SAS or its [Testing Center](#) may play in accommodation implementation. This process works best for everyone when completed as early in the quarter as possible. If students have questions about whether they are eligible for accommodations or have concerns about the implementation of their accommodations, they should contact the SAS office. All inquiries and discussions will remain confidential.

#### Addendum -

I am happy to adjust this course to meet your needs. Please send me a private Slack message to schedule a meeting as early in the term as possible so that we can work together to identify what changes might be needed within the context of the current course structure and supports.

### **Religious Observances**

Dartmouth has a deep commitment to support students' religious observances and diverse faith practices. Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me as soon as possible—before the end of the second week of the term at the latest—to discuss appropriate course adjustments.

### **Mental Health & Wellness**

#### Campus Boilerplate Text -

The academic environment at Dartmouth is challenging, our terms are intensive, and classes are not the only demanding part of your life. There are a number of resources available to you on campus to support your wellness, including: the [Counseling Center](#) which allows you to book triage appointments online, the [Student Wellness Center](#) which offers wellness check-ins, and your [undergraduate dean](#). The student-led [Dartmouth Student Mental Health Union](#) and their peer support program may be helpful if you would like to speak to a trained fellow student support listener. If you need immediate assistance, please contact the counselor on-call at (603) 646-9442 at any time. Please make me aware of anything that will hinder your success in this course.

#### Addendum -

I encourage you to use these resources to take care of yourself throughout the term, and to speak to me if you experience any difficulties. Adjustments to the schedule are possible!]

## **Title IX**

At Dartmouth, we value integrity, responsibility, and respect for the rights and interests of others, all central to our Principles of Community. We are dedicated to establishing and maintaining a safe and inclusive campus where all community members have equal access to Dartmouth's educational and employment opportunities. We strive to promote an environment of sexual respect, safety, and well-being. Through the Sexual and Gender-Based Misconduct Policy (SMP), Dartmouth demonstrates that sex and gender-based discrimination, sex and gender-based harassment, sexual assault, dating violence, domestic violence, stalking, etc., are not tolerated in our community.

For more information regarding Title IX and to access helpful resources, visit Title IX's website ([sexual-respect.dartmouth.edu](http://sexual-respect.dartmouth.edu)). As a faculty member, I am required to share disclosures of sexual or gender-based misconduct with the Title IX office.

If you have any questions or want to explore support and assistance, please contact the Title IX office at 603-646-0922 or [TitleIX@dartmouth.edu](mailto:TitleIX@dartmouth.edu). Speaking to Title IX does not automatically initiate a college resolution. Instead, much of their work is around providing supportive measures to ensure you can continue to engage in Dartmouth's programs and activities.

## **Textbook Costs, Printing, and Financial Difficulty**

If you encounter financial challenges related to this class, please let me know. We have some resources to help.

## **Consent to Record**

I am including this information because we plan to record all class meetings through automated Classroom Capture. If you have any questions, particularly about the instructor's copyright of materials or the prohibition of recording one-on-one meetings, please let me know!

(1) Consent to recording of course meetings and office hours that are open to multiple students.

By enrolling in this course,

1. I affirm my understanding that the instructor may record meetings of this course and any associated meetings open to multiple students and the instructor, including but not limited to scheduled and ad hoc office hours and other consultations, within any digital platform, including those used to offer remote instruction for this course.
2. I further affirm that the instructor owns the copyright to their instructional materials, of which these recordings constitute a part, and my distribution of any of these recordings in whole or in part to any person or entity other than other members of the class without prior written consent of the instructor may be subject to discipline by Dartmouth up to and including separation from Dartmouth.

(2) Requirement of consent to one-on-one recordings

By enrolling in this course, I hereby affirm that I will not make a recording in any medium of any one-on-one meeting with the instructor or another member of the class or group of members of the class without obtaining the prior written consent of all those participating, and I understand that if I violate this prohibition, I will be subject to discipline by Dartmouth up to and

including separation from Dartmouth, as well as any other civil or criminal penalties under applicable law. I understand that an exception to this consent applies to accommodations approved by SAS for a student's disability, and that one or more students in a class may record class lectures, discussions, lab sessions, and review sessions and take pictures of essential information, and/or be provided class notes for personal study use only.

If you have questions, please contact the Office of the Dean of the Faculty of Arts and Sciences.

## HONOR PRINCIPLE

Honesty is the foundation of the academic pursuit of knowledge. In recognition of this, the faculty will not overlook any violations of the [Academic Honor Principle](#). Indeed, the Faculty Handbook of Dartmouth College states explicitly that I am obligated to report potential violations of the Academic Honor Principle to the Dartmouth College Committee on Standards.

The Dartmouth Honor Principle applies to all work you submit for a grade in this course.

**Assignments designated as "individual" should be done alone: the work you submit for grading must be entirely your own, as informed by the materials available to all students. It is not appropriate to use any type of generative artificial intelligence (Gen AI) for these assignments.**

**Assignments designated as "group" should be prepared and submitted by groups of BIOL 50.02 students working together. This work should represent the work of that team, as guided by the teaching staff and informed by whole-class discussions. Again, it is not appropriate to use any type of Gen AI for these assignments.**

All sources for your presentations and proposal, including images, must be attributed following formats that will be provided to you; [this resource](#) may also be helpful.

Please ask me if you have any questions!