

BIOLOGY 46 – MICROBIOLOGY – Spring 2023

MAR 25 M	Introduction to the Microbial World	CN	
MAR 27 W	Bacterial Structure & Function I	GO'T	2.1-2.8
March 29 F	Bacterial Structure & Function II	GO'T	2.9-2.11
APR 1 M	Bacterial Metabolism I	GO'T	3.1-3.2, 3.4-3.11
APR 3 W	Bacterial Metabolism II	GO'T	6.5, 22.4-22.5
APR 5 F	No Class		
APR 8 M	Growth I	CN	4.1, 4.11-4.16, 17.12-17.13
APR 10 W	Growth II	CN	4.2-4.8, 8.1, 8.3
APR 12 F	Antibiotics	CN	28.5-28.7, 8.11
APR 15 M	Gram-Positive Bacteria I	GO'T	13.11-13.12 (13.1-13.10 optional)
APR 16 Tues	Midterm 7 PM		Note Evening Exam
APR 17 W	Phylogeny and Genomics	CN	16.6-8, 24.10, 25.2, 25.6-7, 28.2, 30.9, 31.1-3, 31.9, 32.8-9, 33.8-9, 33.13
APR 19 F	Gram-Positive Bacteria II	GO'T	13.11-13.12 (13.1-13.10 optional)
APR 22 M	Fungi	RC	18.9-18.14
APR 24 W	Fungi	RC	23.16, 23.5, 34.1-34.2
APR 26 F	Fungi	RC	
APR 29 M	Food and Industrial Micro I	CN	22.6-9
MAY 1 W	Food & Industrial Micro II	CN	33.6 MICRO LUNCH
MAY 3 F	Introduction to Virology	DL	5:148-163
MAY 6 M	Microbiome	CN	10.5, 24.1-24.12
MAY 7 Tues	Midterm 7 PM		Note Evening Exam
MAY 8 W	Multicellular Microbes	GO'T	4.9, 8.10, 15.16, 20.4
MAY 10 F	Viruses with RNA genomes	DL	11:325-330; 11:341-346
MAY 13 M	Viruses with DNA genomes	DL	11:330-339
MAY 14 Tues	Emerging infectious diseases	ET	
MAY 15 W	Finishing up virology section	DL	30: 929-949
MAY 17 F	Shifts, drifts, and other viral tricks	DL	11: 343-353
MAY 20 M	Symbioses	CN	12.7, 23.1-23.6
MAY 22 W	Bacterial cooperation and antagonism	CN	20; 23.11
MAY 24 F	Biofilm Ecology	CN	
MAY 27 M	Memorial Day – No Class		
June 4-7	FINAL EXAM		

MWF lecture meets in the 12 schedule position, from 12:50-1:55pm. The X-hour for this course is Tuesday 1:20-2:10 PM. X-hours will not usually be used with the exception of virology lectures toward the end of term, but please keep this schedule position open in case shifts are needed on occasion. We will be meeting for lectures in Rm. 201 in the 1978 Life Sciences Center. The lab is in Rm. 206, whose door is a few paces to the right of the large microscopy display case in the upper atrium level.

CN Carey Nadell, Associate Professor of Biological Sciences
LSC 326; 646-1525
<http://www.nadell-lab.org>

GO'T George O'Toole, Professor of Microbiology and Immunology
Remsen 202; 650-1248
<http://www.dartmouth.edu/~gotoole/>

RC Robb Cramer, Professor of Microbiology and Immunology
Remsen 213; 650-1040
<https://geiselmed.dartmouth.edu/cramer/>

DL David Leib, Professor of Microbiology and Immunology
Borwell 630E; 650-8616
<http://dms.dartmouth.edu/leib/>

We have a special guest lecturer as well, Professor Elizabeth Talbot, who will be speaking to the class May 14th about emerging infectious diseases, including the emergence of SARS-CoV-2 and the NH rapid response, for which Prof. Talbot is the lead state epidemiologist.

Lab Instructors: Dr. Amanda Socha, Dr. Nicholas Sylvain

Graduate Teaching Assistant:

The required text for the course is "Brock: Biology of Microorganisms", 16th Edition, by Madigan, Bender, Buckley, Sattley, and Stahl. There is one copy on reserve at Dana Library. Earlier editions are okay to use, but note that the chapter assignments may not always align with those noted on the previous page, so you will have to double-check their correspondence.

Grading in the course will be based on:

2 Midterms	40% (each worth 20%)
Final	25%
Lab	35%

We have a Canvas site that will contain lecture outlines and/or lecture notes, any PowerPoint presentations, announcements and other useful items. You can also find the zoom recordings for each lecture.

Bio 46 Laboratory Schedule

Laboratory Exercise

Week 1

Light Microscopy/Microbiological Techniques:
The Gram Stain, Wet Mounts & Streaking a Plate

Week 2

Begin Unknown Identification

Week 3

Unknown Identification continued;
Discuss source for environmental unknown

Week 4

Unknown Identification continued/ Begin Environmental Isolates

Week 5

Unknown Identification continued/ Environmental Isolates continued;

Week 6

API20E strips; Unknown continued/ Environmental Isolates continued
Plaque assay

Week 7

PCR; Antibiotic sensitivity tests; Unknown Identification continued/
Environmental Isolates continued; Oral Reports

Week 8

16S rRNA sequence analysis; Coliform Counts; Oral Reports

Lab reports due XXXXX by 5 PM

Academic Honor Principle

The Dartmouth College Student Handbook states “Fundamental to the principle of independent learning are the requirements of honesty and integrity in the performance of academic assignments, both in the classroom and outside. Dartmouth operates on the principle of academic honor, without proctoring of examinations. Students who submit work which is not their own or who commit other acts of academic dishonesty forfeit the opportunity to continue at Dartmouth.” There are a number of situations in which a student in Biology 46 might find him- or herself tempted to violate the Academic Honor Principle. These situations include (but are not limited to) the following:

- a) Examinations must be completed without reference to written materials other than those provided with the exam paper and must be completed without communication with anyone else (the only permissible exception is that students may request clarification of any exam question from the course faculty and staff who are present expressly for that purpose). The answers that you provide must be entirely your own work.
- b) Under certain circumstances, we may allow exams to be re-graded by the instructors. Any alteration of the answers between the time when the graded papers were returned to the student and the time when the paper was submitted for re-grading constitutes a breach of the Academic Honor Principle. To deter this practice, we photocopy exam pages.
- c) Laboratory experiments are performed alone. The student misrepresenting the work of another as his or her own is in violation of the Academic Honor Principle.

Honesty is the foundation of the academic pursuit of knowledge. In recognition of this, the faculty and staff of Biology 46 will not overlook any violations of the Academic Honor Principle. Indeed, the Faculty Handbook of Dartmouth College states explicitly that College Faculty is obligated to report potential violations of the Academic Honor Principle to the Dartmouth College Committee on Standards.

NOTE:

Students with disabilities who are taking this course and may need disability-related classroom accommodations are encouraged to make an appointment to see Professor Nadell as soon as possible.

We also encourage you to stop by the Academic Skills Center in Collis Center to register for support services.

We realize that some students may wish to take part in religious observances that fall during this academic term. Should you have a religious observance that conflicts with your participation in the course, please come speak with Professor Nadell before the end of the second week of the term to discuss appropriate accommodations.

Sexual Misconduct and 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 have equal access to the educational and employment opportunities Dartmouth offers. We strive to promote an environment of sexual respect, safety, and well-being. In its policies and standards, Dartmouth demonstrates unequivocally that sexual assault, gender-based harassment, domestic violence, dating violence, and stalking are not tolerated in our community.

The Sexual Respect Website (sexual-respect.dartmouth.edu) at Dartmouth provides a wealth of information on your rights with regard to sexual respect and resources that are available to all in our community.

Please note that faculty members are obligated to share disclosures regarding conduct under Title IX with Dartmouth's Title IX Coordinator. Confidential resources are also available, and include licensed medical or counseling professionals (e.g., a licensed psychologist), staff members of organizations recognized as rape crisis centers under state law (such as WISE), and ordained clergy (see <https://sexual-respect.dartmouth.edu/reporting-support/all-resources/confidential-resources>).

Should you have any questions, please feel free to contact Dartmouth's Title IX Coordinator (Kristi.Clemens@Dartmouth.edu) or Title IX Office (TitleIX@Dartmouth.edu).