Class Schedule

(check Canvas for revisions during the term)

Jan 7	Th	Course overview
8	F	DNA as Genetic Material
11	M	DNA Structure
13	W	DNA Replication
14	Th	Bacterial Transcription I
15	F	Eukaryotic Transcription I
18	M	No class - MLK holiday
20	W	**Exam #1 in class**
21	Th	Genetic code
22	F	Translation
22	M	Translation II
27	W	Mutation, Effects of Mutation
28	Th	Genes and Gene Products
29	F	PAH
Feb 1	M	Meiosis
3	W	Patterns of Inheritance I
4	Th	Patterns of Inheritance II
5	F	Patterns of Inheritance III
8	M	In class review
9	Tu	**Exam #2 – 3 hours. Completed exam must be uploaded by 1/9 at 11PM Eastern.**
10	W	Gene Editing I
11	Th	Gene Editing II
12	F	Linkage and Mapping I
15	M	Linkage and Mapping II
17	W	Transgenes
18	Th	Mapping with Molecular Markers I
19	F	Mapping with Molecular Markers II
22	M	Bacterial Gene Regulation I
24	W	Bacterial Gene Regulation II
25	Th	Eukaryotic Gene Regulation I
26	F	Eukaryotic Gene Regulation II
March 1	M	In class review
2	Tu	**Exam #3 – 3 hours. Completed exam must be uploaded by 1/9 at 11PM Eastern.**
3	W	Imprinting
4	Th	Sex determination
5	F	Developmental Genetics
8	M	Gene drives I
10	W	Gene drives II
		Final Exam – 3 hours

Faculty and Staff

Prof. Erik Griffin

Office: 348 LSC
Telephone: 6-8269
erik.griffin@dartmouth.edu
Office Hours: Monday 2:30 - 3:30pm. Additional office hours TBD.

Zoom link for Erik Griffin's Office hours:
https://dartmouth.zoom.us/j/619563476?pwd=Uk5mMkFDaGU1ZnNTWG1kQXl1QnpjQT09
Meeting ID: 619 563 476
Passcode: 503327

Prof. Amanda Amodeo

Office: 223 LSC
Telephone: 6-9926
amanda.amodeo@dartmouth.edu
Office Hours: Saturday 10:00-11:00 AM. Additional office hours TBD.
Zoom link for Amanda Amodeo's Office Hours:
https://dartmouth.zoom.us/j/98040136001?pwd=aElMQ0tlclpsdlowYUVjTGtPbngrQT09
Meeting ID: 980 4013 6001
Passcode: Bio13 or 848670

Teaching Science Fellow

Miranda Greig '19
Miranda.Marie.Greig@dartmouth.edu
Office: 123 LSC

Learning Fellows

Learning Fellows (LFs) are undergraduate students who will work alongside Prof. Griffin to help you learn. LFs facilitate group activities and discussions during class, while bringing their own experiences and understandings to the learning environment. They are peers who can listen to your questions, help you think creatively, and guide you towards answers during class. Your learning fellows will be:

Julia Hoffman '22
Judy Li '21
Anamika Shah '21
Megan Zhou '21

Laboratory Instructors

Amanda Socha (Lab Director)

Graduate Teaching Assistants
Paul Hernandez
Amelia Kim

Somer Matar
Arianna Reuven
Paige Salerno
Amanda Ya

Course Goals – Bio 13

At the end of the course, students will:

1) understand the "central dogma" of molecular biology, i.e. the key gene products and molecular mechanisms responsible for the transfer of genetic information from DNA to RNA to protein and ultimately to the expression of a phenotype

2) understand how genetic information is recombined and transmitted from one generation to the next

3) Analyze different types of data (from genetic crosses or genomic analysis) to determine genetic linkage and to create a genetic map.

4) understand the fundamental concepts that underly the regulation of the expression of genetic information

5) be familiar with specific foundational experiments and well-studied examples in molecular genetics

6) be able to think critically and solve problems in genetics

Prerequisites

There are no enforced prerequisites for Biology 13. However, Biology 11 or a strong prior preparation in biology is recommended. The details of Biology Department's recommendations for entry into Biology 13, for those that have not taken Biology 11, can be found at https://canvas.dartmouth.edu/courses/5105/pages/how-to-interpret-the-score-on-the-placement-slash-advisory-test.

Textbook:

- iGenetics: A Molecular Approach by Peter Russell, 3rd Edition (ISBN 0-321-56976-8)
- (Optional) iGenetics: Study Guide and Solutions Manual. 3rd Edition.

Grading

First Exam: 12.5%
Second Exam: 20%

Group assignment	2.5%
Third Exam:	20%
Final Exam:	20%
Participation:	5%
Laboratory:	20%
Total	100%

Exams

All exams in the course, including the final, will be open note. Students are encouraged to bring a single sheet of 8.5x11 inch paper, front and back, to the exam. This sheet should be handwritten. However, the exams will focus on the broad concepts and the application of learned material rather than the details. The first exam will be during the class period. The 2nd and 3rd exams will be available for roughly 24 hours and must be completed within a 3 hour time period and uploaded to GradeScope by the indicated due date and time. Students are not allowed to solicit, give, or receive help from anyone other than Profs. Griffin and Amodeo during the exam.

There will be a group assignment completed by each group. Each group will hand in a single answer and all group members will receive the same grade. All group members are expected to meet and work together on the group assignment-- if your name is on the answer, you are indicating that you participated in answering the questions. It will be a considered a violation of the Honor Principle if you put your name on a group exam without having participated in answering the question. Students are not allowed to consult with students outside of their group or with the Teaching Science Fellow, the Learning Fellows or the Graduate TAs.

Participation Grade

Your participation grade will be worth 5% of your final grade. There are two components to class participation. First, you need to answer the pre-class questions associated with the pre-class lectures. The key here is effort; you will not be graded on the accuracy of your answers. In order to receive full credit for pre-class participation, you will need to complete a minimum of 90% of the pre-class questions. Second, in order to receive full credit for in-class participation, you need to attend 90% of the class periods and actively participate in the in-class exercises (in other words, you will not be penalized unless you miss > 3 classes). Below the 90% threshold for missed assignments/absences, the penalty will increase with additional missed assignments/absences.

Grade Distribution

The median grade in the course will be a “B”. If you receive a final score of 90% or above you will automatically receive some form of an “A” grade, and a score between 80% and 90% will guarantee some form of a B grade. Traditionally the median score in the course is below an 80% and the final grades are curved to account for this. You must master 50% of the material in the course in order to pass.

Exam Grading

Graded exams will be returned to the students approximately one week after they are taken. Exams are graded very carefully not only for content but also for clarity and conciseness. The exam key will be posted on Canvas. There are instances in which graders make errors in assessing exams. If you feel there was an error in the scoring of your exam, carefully read the key posted on Canvas. If you still feel there is an error, you may submit a regrade request. Include a typewritten explanation stapled to your exam detailing the mistake made in the grading. Do not write or alter the exam prior to handing it in for regrading as this is considered a violation of the Honor Principle. The regrade request can be handed in before or after lecture. All requests must be submitted within one week of distribution of the graded exam.

Academic Honor Principle in Bio13

Academic honesty is essential. The following is quoted directly from the Dartmouth College Student Handbook: "Students who submit work that is not their own or who commit other acts of academic dishonesty forfeit the opportunity to continue at Dartmouth." The complete text of the Academic Honor Principle is available at http://www.dartmouth.edu/~uja/honor/Links to an external site.. Please read it carefully; *you* are responsible for it. The application of the Honor Principle is to the exams in Bio 13 is quite simple; all your exam work must be 100% your own, and you may not use any unauthorized resources or give, solicit or receive help from anyone other than the professors during the exams. Any violations of the Honor Principle within the context of Biology 13 will be referred to the Undergraduate Judicial Affairs Office and can result in a hearing before the Committee on Standards and can result in your suspension for multiple terms or, in the most extreme cases, separation from the College.

There are a number of situations in which a student in Biology 13 might be 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 materials that are not allowed by the professors prior to the exam (such materials will be explicitly stated). The exam 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). The answers that you provide must be entirely your own work.

b) Our policy permits the re-submission of exams for potential re-grading by the professors. 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 routinely retain copies of exams after grading them.

c) Some laboratory exercises are performed in small groups, and we encourage collaborative analysis of the data. However, any work submitted for grading must represent the **original** words of the student submitting that report. Do not share computer files of work (including text, graphs, tables, etc.) to be submitted for grading! The student misrepresenting the work of another as their own is in violation of the Academic Honor Principle and it is quite possible that the Committee on Standards might find the student providing the original file also to be in violation.

d) There is a group assignment in this course. Students are expected to participate in answering the group component of the exam questions, and indicate their participation by placing their names on the answer. If a student puts their name on group work that they did not contribute to, the student is considered to have misrepresented the work of another as their own and is in violation of the Academic Honor Principle.

Honesty is the foundation of the academic pursuit of knowledge. In recognition of this, the faculty of Biology 13 will not overlook any violations of the Academic Honor Principle. Indeed, the Faculty Handbook of Dartmouth College states explicitly that College Faculty members are obligated to report potential violations of the Academic Honor Principle to the Dartmouth College Committee on Standards. Should the Committee on Standards find the student to be in violation of the Academic Honor Principle, punishments usually involve suspension for multiple terms or separation of the student from the College.

Wellness Support for Dartmouth Students

I recognize that the academic environment at Dartmouth is challenging, that our terms are intensive, and that 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: your undergraduate dean (http://www.dartmouth.edu/~upperde/Links to an external site.), Counseling and Human Development (http://www.dartmouth.edu/~chd/Links to an external site.), and the Student Wellness Center

(http://www.dartmouth.edu/~healthed/Links to an external site.). I encourage you to use these resources and come speak with me to take care of yourself throughout the term.

Other Matters

Note to Students with Physical or Learning Disabilities

Students with disabilities who may need disability-related academic adjustments and services for this course are encouraged to see me privately as early in the term as possible. Students requiring disability-related academic adjustments and services must consult the Student Accessibility Services office (Carson Hall, Suite 125, 646-9900). Once SAS has authorized services, students must show the originally signed SAS Services and Consent Form and/or a letter on SAS letterhead to me. As a first step, if students have questions about whether they qualify to receive academic adjustments and services, they should contact the SAS office. All inquiries and discussions will remain confidential.

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) provides a wealth of information on your rights and obligations with regard to sexual respect and resources that are available to all in our community. As a faculty member, I am obligated to share disclosures regarding conduct under Title IX with Dartmouth's Title IX Coordinator.

Should you have any questions, please feel free to contact Dartmouth's Title IX Coordinator Kristi.Clemens@Dartmouth.edu and deputies if appropriate.

Religious Holidays

Some students may wish to take part in religious observances that occur during the academic term. If you have a religious observance that conflicts with your participation in the course, please speak with Prof. Griffin as soon as possible to discuss appropriate accommodations.

Special appointments

If you have particular concerns, difficulties or interests that you would like to discuss individually, email Prof. Griffin or Prof. Amodeo to set up an appointment.

NOTIFICATION TO STUDENTS

(1) Consent to recording of course and group office hours

a) I affirm my understanding that this course and any associated **group** meetings involving students and the instructor, including but not limited to scheduled and ad hoc office hours and other consultations, may be recorded within any digital platform used to offer remote instruction for this course;

b) I further affirm that the instructor owns the copyright to their instructional materials, of which these recordings constitute a part, and distribution of any of these recordings in whole or in part without prior written consent of the instructor may be subject to discipline by Dartmouth up to and including expulsion;

b) I authorize Dartmouth and anyone acting on behalf of Dartmouth to record my participation and appearance in any medium, and to use my name, likeness, and voice in connection with such recording; and

c) I authorize Dartmouth and anyone acting on behalf of Dartmouth to use, reproduce, or distribute such recording without restrictions or limitation for any educational purpose deemed appropriate by Dartmouth and anyone acting on behalf of Dartmouth.

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

By enrolling in this course, I hereby affirm that I will not under any circumstance make a recording in any medium of any one-on-one meeting with the instructor 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 expulsion, as well as any other civil or criminal penalties under applicable law.