Class Schedule

(check Canvas for revisions during the term)

Jan 4	W	Course overview; DNA as Genetic Material
5	Th	DNA Structure
6	F	DNA Replication
9	M	Bacterial Transcription I
11	W	Eukaryotic Transcription I
12	Th	Genetic code
13	F	In class review
16	M	No class - MLK holiday
18	W	**Exam #1 in class**
19	Th	Translation
20	F	Translation II
23	M	Mutation, Effects of Mutation
25	W	Genes and Gene Products
26	Th	PAH
27	F	Meiosis, Patterns of Inheritance I
30	M	Patterns of Inheritance II
Feb 1	W	Patterns of Inheritance III
2	Th	Patterns of Inheritance IV
3	F	Transgenes
6	M	In class review; **Exam #2. 6-9PM (3 hours)**
8	W	Gene Editing I
9	Th	Gene Editing II
10	F	Linkage and Mapping I
13	M	Linkage and Mapping II
15	W	Mapping with Molecular Markers I
16	Th	Mapping with Molecular Markers II
17	F	Bacterial Gene Regulation I
20	M	Bacterial Gene Regulation II
22	W	Eukaryotic Gene Regulation I
23	Th	Eukaryotic Gene Regulation II
24	F	Sex determination
27	M	In class review; **Exam #3. 6-9PM (3 hours)**
March 1	W	Imprinting
2	Th	Developmental Genetics
3	F	Gene drives I
6	M	Gene drives II
March 10	F	**Final Exam – 11:30AM – 2:30PM (3 hours)**

Faculty and Staff

Prof. Erik Griffin
Office: 348 LSC
Telephone: 6-8269
erik.e.griffin@dartmouth.edu

Office Hours: Office hours TBD.

Teaching Science Fellow

Teaching Science Fellows (TSFs) are recent Dartmouth graduates (and often former LFs) who work with multiple courses and sections. They help facilitate group work in class and will be available for meetings outside class time.
Tanner Riley '22
Tanner.G.Riley@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:

Anna Byrd '23
Annaliese Ouyang '23
Peter Estill ‘23

Laboratory Instructors

The Lab Director is in charge of overseeing the laboratory component for both sections of Bio 13.
Amanda Socha (Lab Director)

Graduate Teaching Assistants

Teaching Assistants (TAs) are current Dartmouth PhD students. TAs lead the lab sessions and often are available for office hours to discuss questions related to the lab component of the course. The TAs for this quarter are:

Anusha Bhatt
Melissa Carmichael
Beatriz Mercado
Kathleen Paul
Carolyn Winston
Huijuan Yang

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:	15%
Second Exam:	20%
Third Exam	20%
Final Exam:	20%
Group Project:	5%
Participation:	5%
Laboratory:	15%
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, 3rd and final exams will last 3 hours. Students are not allowed to solicit, give, or receive help from anyone other than Prof. Griffin during the exam.

Retake option: When students hand in their exam, they will have the option to retake up to 2 questions. The retake exam is due two days after the initial exam at the beginning of class (for example, on the Wednesday after a Monday exam). Both the original and the revised answer will be graded. In most cases, the revised answer will get a higher score than the original answer, but in rare cases the revised answer may receive fewer points. Your score will be adjusted up/down by 25% of the points gained/lost, with a maximum of an additional 5% of the exam grade. For example, if you get a 6 points on a question on the first exam, and 10 points on the retake exam, you will have 1 additional point added to your exam grade. For the retake exam, you may consult with other students and the course material, but not with the Teaching Science Fellow, the Learning Fellows or the Graduate TAs. There is no retake option for the group project of Exam 2 or for the final exam.

There will be a group project 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 project-- 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 posted key. 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: "Any student who submits work which is not his or her own, or commits other acts of academic dishonesty, violates the purposes of the College and is subject to disciplinary action, up to and including suspension or separation." 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

Student Accessibility Services

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; 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.

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

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.

Special appointments

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