BIO13: GENE EXPRESSION AND INHERITANCE

Lecture #/Date	Topic	Readings	Laboratory
[1] Jan 6 Mon	Course overview DNA as Genetic Material	pp9-14	
[2] Jan 8 Wed	DNA Structure	pp15-31	
[3] Jan 10 Fri	DNA Replication	Chapter 3; pp221-223	
[4] Jan 13 Mon	Transcription I	Chapter 5	
[5] Jan 15 Wed	Transcription II		**Lab #1: Genomic DNA prep/PCR**
[6] Jan 16 Thu	Transcription III		
Jan 17 Fri	Exam 1		
Jan 20 Mon	No class - MLK day		
[7] Jan 22 Wed	The Genetic Code	pp102-110	**Lab #2: DNA cleanup** **Gel electrophoresis/DNA sequencing**
[8] Jan 23 Thu	Translation	pp110-123	
[9] Jan 24 Fri	Mutations	pp130-144	
[10] Jan 27 Mon	Genes and Gene Products	Chapter 4	
[11] Jan 29 Wed	Phenylketonuria Project		
[12] Jan 30 Thu	Meiosis and Mitosis Patterns of Inheritance I	pp326-339 Chapter 11	**Lab #3: Analyze sequence data**
[13] Jan 31 Fri	Patterns of Inheritance II	Chapter 13	
Feb 3 Mon	Patterns of Inheritance III		
[14] Feb 5 Wed	Patterns of Inheritance IV	pp339-353	**Lab #4: Fly Crosses**
[15] Feb 6 Thu	Transgenics		
[16] Feb 7 Fri	CRISPR Project	pp225-227	
[17] Feb 10 Mon	Exam 2		
[18] Feb 12 Wed	CRISPR Project		**Lab #5: yeast matings**
[19] Feb 13 Thur	Linkage and Mapping	Chapter 14	
[20] Feb 14 Fri	Inheritance of Molecular Markers	pp170-199	**Lab Summary I due in class**
[21] Feb 17 Mon	Inheritance of Molecular Markers		
[22] Feb 19 Wed	SNP Chip Project		**Lab #6: Score fly crosses**
[23] Feb 20 Thu	Bacterial Gene Regulation I	Chapter 17	
[24] Feb 21 Fri	Bacterial Gene Regulation II		
Feb 24 Mon	Exam 3		
[25] Feb 26 Wed	Eukaryotic Gene Regulation I	Chapter 18	**Lab #7: Transcriptional assays in fly larvae**
[26] Feb 27 Thu	Eukaryotic Gene Regulation II	pp199-206, pp230-240	
[27] Feb 28 Fri	Sex Determination	pp557-564	
[28] Mar 2 Mon	Developmental Genetics	pp564-571	
[29] Mar 4 Wed	Imprinting	pp531-534	
[30] Mar 5 Thu	Gene Drives		
[31] Mar 6 Fri	Gene Drives		**Lab Summary II due in class.**
March 9 8:00AM	FINAL EXAM Location: TBA		

Faculty:

Professor Patrick Dolph
Room 351 LSC
Telephone: 6-1092
Office Hours: Mon 11:30-1:30, Wed. 3:00-5:00

Teaching Science Fellow

Miranda Greig '19

Learning Fellows

John Rossi
Nandita Kasireddy
Sydney Johnson
Xiao Li

Graduate Teaching Assistants:

Leena Abdullah
Nikhil Khatwani
Haleema Sadia Malik
Daniel Murante
Alia A. Sajani
Sweta Shrestha

TAs are best contacted via Email

Laboratory Instructors:

Nicholas Sylvain
Jessica Warren

Meeting times:

MWF 10:10 AM-11:15 AM, plus Thurs X-hour from 9:00 AM - 9:50 AM

Textbook:

iGenetics: A Molecular Approach by Peter Russell, 3rd edition
ISBN 0-321-56976-8

Assessment:

First Exam	15%.	
Second Exam	20%	
Third Exam	20%	
Final Exam	20%.	
Participation	5%	
Laboratory	20%	Two lab summary assignments, and weekly pre-lab exercises
	100%	

Most of the exams in this course are layered exams, meaning that they have more than one component. These components include:
-Group exams (Each group submits a single exam paper)
-Individual exams (Each individual submits a single exam paper)
-The option to redo exam questions that you got stuck on.

Exam 1: An individual in-class exam. Students can retake questions they identified as having trouble on.
Exam 2: A take home group exam worth 15% of the exam 2 total. The remaining 85% is an evening individual exam with a take-home retake option.
Exam 3: An evening individual exam with a take-home retake option.
Final exam: An individual exam.

All individual exams in the course will be open note. Students are allowed notes on a single sheet of 8.5x11 inch paper, front and back, in the exam room. However, the exams will focus on the broad concepts and the application of learned material rather than the details. The first exam will be in-class. The 2nd and 3rd exams will be in the evening to allow time for work on more complex genetic problems.

For the retake option, you get 25% of the newly awarded points. For example, if your initial score on a question was 6 points and your retake score was 10 points, then you will get 1 additional point (25% of the 4 additional points). You cannot get more than 5% of the exam total on a retake. For take-home retakes, you can consult with other students, but not with Teaching Assistants, Learning Fellows, or the Teaching Science Fellow.

Your participation grade will be based on your response to pre-class questions and class attendance. In order to receive full credit for pre-class participation, you will need to complete a minimum of 90% of the pre-class questions. Students are expected to attend all classes. However, we realize that certain circumstances may result in missing a class period. Therefore, a student will still receive full credit for attendance if they misses 5 or fewer class periods.

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.

The lecture schedule shows the time for all exams. Barring illness, failure to take the exam at the scheduled time will result in a grade of zero. Exams are open book and open note. However, accessing the internet is not allowed during exams. 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 blackboard. There are instances in which graders make errors in assessing exams. If your feel there was an error in the scoring of your exam, carefully read the key posted on blackboard. 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. The regrade request can be handed in before or after lecture. All requests must be submitted within one week of exam distribution.

Laboratory
The laboratory will focus on the molecular and genetic dissection of a Developmental pathway in *Drosophila melanogaster*. The material covered in lab will closely follow the lecture portion of the course. In order to pass Bio13, you must attend all 7 laboratory sessions and submit both laboratory summary assignments.

Study Groups
The Academic Skills Center is arranging Study Groups for Biology 13. The following information (provided by the Academic Skills Center) describes Study Groups and their purpose. **Information about when and how to sign up will be distributed in class or by email, and posted on the course Blackboard site.**

A study group is a small group of students who meet together regularly once a week with the aid of a trained tutor to discuss concepts, points of confusion and insights into course material. There can be a stigma that study groups are only for students having trouble in the course. This is not the case -- these groups are not remedial. Students of all abilities can benefit from them. Each group is unique, contains students with different backgrounds and abilities, and determines its own pace and the material that will be covered. This allows each group to address the needs of the individuals in the group.

ACADEMIC HONOR PRINCIPLE:
The Dartmouth College Student Handbook (page iii) 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." The complete text of the Dartmouth Academic Honor Principle is given in the Dartmouth College Student Handbook.

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) In Class 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) Group examinations are done out of class. Students are to work in their assigned groups and not join other groups. If a student decides not to work with their assigned group, they are to work on the take home exam on their own. The final paper will have a list of students in the group that worked on the questions. **If a student in the group was not involved in working on the exam questions, their name should not appear**.

c) 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 photocopy exams after grading them.

d) 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 his or her 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.

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.

Note to Students with Physical or Learning Disabilities:
Any student with a documented disability, including "invisible" disabilities such as chronic diseases and learning disabilities, needing academic adjustments or accommodations is requested to speak with Prof. Dolph by the end of the second week of the term. At the meeting, the student should be prepared to present a copy of the accommodations form. All discussions will remain confidential, although the Director of Student Disabilities may be consulted if questions arise.

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. Dolph or Prof. Griffin as soon as possible to discuss appropriate accommodations.

Student Wellness Support
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/), Counseling and Human Development (http://www.dartmouth.edu/~chd/), and the Student Wellness Center (http://www.dartmouth.edu/~healthed/). I encourage you to use these resources and come speak with me to take care of yourself throughout the term.