

Bio 135 UG – Genetics Lab
Mills College, Fall 2014
Th/F 2:30-5:30pm, NSB 188

Instructor: Robin Ball, rball@mills.edu

Office hours: Wednesday 2:30-3:30, NSB 127
Thursday 1:30-2:30, NSB 188 (lab)

Course Description:

In genetics lecture you will be learning about the different technologies available to researchers to study genetics and molecular biology. In the lab you will get a chance to try some of these techniques yourself as you do experiments involving molecular cloning. These skills are applicable to many different fields of research, so even if you plan on studying ecology, you may have to run a DNA gel or do a PCR at some point. In fact, in the last lab, we will help Dr. Swope and Dr. Smith with their research projects. In addition to the lab exercises, you will read two journal articles in depth, which will help improve your ability to understand scientific literature.

Lab manual:

All of the lab instructions will be posted on Blackboard at least a week before the lab, so you will have plenty of time to print and read them before coming to class.

Grading:

Prelabs	43 points
Reports	65 points
Homework	12 points
Article 1	25 points
Article 2	25 points
Conduct	10 points
Total	180 points

Points from lab will be added to your grade for the lecture portion of the class.

Assignments :

Prelabs: Prelab assignments will be posted on Blackboard the week before they are due. Most prelabs require you to read the lab instructions and think through the procedures. Prelabs are usually due Mondays 3pm in the drop box in the Bio hallway. You will lose 0.5 points for each day a prelab is late.

Lab reports: Some of the labs have a lab report due after the lab is completed. Instructions for lab reports will be posted on Blackboard. Lab reports are due in your lab section. You will lose 1 point for each day a report is late.

For all the written assignments in this class, we expect you to do your own work. Work should be typed when possible. We are looking for concise and logical answers. Take

the extra time to create neat and well-thought out answers. Scientific writing is a skill that is worth learning, so please put effort into learning and practicing it in genetics lab.

Article 1: The first article you will be reading is a recent genetics article, which includes a published “Primer” that gives a lot of the scientific background necessary to understand the research. You will read this article and primer in parts, and answer questions with a group of other students. We will discuss the paper in two parts, making a point of dissecting all the figures piece by piece. This may be the first time you read a paper so thoroughly, so it may be difficult, but by the end you will all be experts.

Article 2: The second article you will read will be one that you choose. We will go over how to find appropriate scientific articles. You will pick one figure to explain thoroughly, as we did for Article 1, and you will present the findings from this paper to the rest of the class during the last week of class. This is a great chance to practice making a scientific presentation.

Conduct: 10 points are set aside for professional conduct in lab. This includes adhering to the safety rules, being prepared for lab, working well with your lab partner and concentrating on your work during lab. Attendance also goes into these points. I will notice if you are absent or consistently tardy. This isn't fair to your lab partner. Do not make your partner do all the work!

Missed labs

If you have to miss a lab due to illness or some other legitimate excuse, please let the instructor know as soon as possible. There usually will not be a way to make up the lab, but if it only happens once, then you can still complete the work using the data from your lab partner.

Academic integrity

Plagiarism is a serious breach of academic trust. For purposes of the Mills College Honor Code, plagiarism is defined as intentionally or knowingly using someone else's ideas, words, and/or thoughts without properly crediting the source. All work for which a source is not cited is presumed to be that of the writer. Plagiarized work will be given a lowered grade at the instructor's discretion. This includes prelabs and lab reports.

Accommodations:

If you anticipate issues related to the format or requirements of the course, please discuss them with me. If you determine that formal, disability-related accommodations are necessary, it is important that you register with the Office of Services for Students with Disabilities so that accommodations can be arranged for this course and future courses here at Mills. Please do this well before you need the accommodation, so I have time to arrange alternatives.

Services for Students with Disabilities

Cowell Building, Room 111

Phone: 510-430-2130, Email: ssdhelp@mills.edu

http://www.mills.edu/student_services/disability_services/index.php

Biology 135L – Genetics: Schedule of Lab Exercises, Fall 2014

Lab	Dates	Lab	Prelab (pts)	Reports (pts)	Homework (pts)	Articles (pts)
1	28/29 Aug	Practice techniques and dilutions				
2.1	4/5 Sep	DNA Cloning I: Restriction Digests Start restriction digest homework	Prelab 2.1 (5) (due Tues)		Dilution problems (5)	
2.2	11/12 Sep	DNA Cloning II: Digest Evaluation	Prelab 2.2 (5)			
2.3	18/19 Sep	DNA Cloning III: Ligation Article 1a: Concepts discussion	Prelab 2.3 (6)		Restriction digest (7)	Article 1a write up (5) 1a Discussion (5)
2.4	25/26 Sep	DNA Cloning IV: Transformation	Prelab 2.4 (5)	Lab 2.2 (10)		
2.5	2/3 Oct	DNA Cloning V: Plasmid Mini-prep and Restriction Digest	Prelab 2.5 (5)			Article 1b write up (10)
2.6	9/10 Oct	DNA Cloning VI: Plasmid Evaluation Article 1b: Results discussion		Lab 2.4 (15)		Article 2 selection (3) 1b Discussion
3.1	16/17 Oct	PCR I: NCBI Investigations (computer lab)	Prelab 3.1 (4)	Lab 2.6 (15)		
3.2	23/24 Oct	PCR II: Amplification	Prelab 3.2 (8)	Lab 3.1 (10)		
3.3	30/31 Oct	PCR III: Evaluation				Article 2 Figure (5)
4.1	6/7 Nov	Research project I (for Dr. Swope or Dr. Smith)	Prelab 4.1 (5)	Lab 3.3 (5)		
4.2	13/14 Nov	Research project II				
4.3	20/21 Nov	Research project III				
	27/28 Nov	<i>No Class - Thanksgiving</i>				
	4/5 Dec	Article II Presentations		Lab 4 (10)		Presentations (17)