

BIOLOGY 324 METHODS IN MOLECULAR BIOLOGY**Winter 2002**

Instructor: Craig Moyer
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Office Hours: Moyer: **W, F** 1-3pm; and by appt., BI 409
Graduate TA: Jeff Engebretson

Class Meetings: Lecture: TR, 9:00am-10:00am, BI 454
Laboratory: T, 1:00-5:00, BI 461
R, 1:00-5:00, BI 461

Mandatory Texts & Information:

At the Bench: Laboratory Navigator, Kathy Baker, 1998.

ISBN: 0879695234, Cold Spring Harbor Press.

Note: Updated information & reading assignments to be posted on the class web site:
<http://fire.biol.wvu.edu/cmoyer/cmoyer.courses.html>

Tentative Class Schedule: Revised 01/10/02

Week 1	Jan 08T	Overview and Organizational
	10R	Safety and Lab Notebooks
	Lab	Calibrate Pipetmen & Practice Gel Electrophoresis
Week 2	15T	
	17R	
	Lab	Restriction Digestion of λ DNA
Week 3	22T	
	24R	
	Lab	Transformation and Screening of Clones
Week 4	29T	Quiz #1
	31R	
	Lab	Alkaline Lysis Plasmid Miniprep
Week 5	Feb 05T	
	07R	
	Lab	Standard PCR Amplification & Theory

Week 6	Feb 12T 14R	Quiz #2
	Lab	Genomic DNA Isolation and PCR of Specific Gene Fragments
Week 7	19T 21R	
	Lab	Clone Gene Fragment via Ligation, Transformation
Week 8	26T 28R	
	Lab	Clone Screening and Preparation for Sequencing Reactions
Week 9	Mar 05T 07R	Quiz #3
	Lab	PCR Primer Design Workshop
Week 10	12T 14R	
	Lab	DNA Sequence Analysis with GenBank and RDP Databases Exercises in Searching with BLAST, etc.

Course Evaluation and Grading:

Laboratory Notebook	100 points (Examined periodically throughout the quarter)
Brownie Points (Good Lab Citizenship)	25 points
3 Quizzes @ 25 points each	75 points
<u>Take Home Final</u>	<u>100 points</u> (Handed out March 14 th , Due back in by March 18 th)
Total points possible:	300 points

Course Expectations:

You will be expected to keep a well organized and clearly written laboratory notebook. This primary concept you should concern yourself with is that with your notebook you or another equally competent scientist could come back and replicate your experiment at a later date. This will be especially important when (not if, but when) your experiment does not work out right as trouble-shooting is made much easier. See class introduction and handouts for further details regarding notebook and grading.

Course Objectives:

The primary goal of this course is the exposure to modern molecular biological techniques as tools for inquiry-based experimentation in a working laboratory setting. You will have to think-on-your-feet as well as effectively prepare ahead of time to undertake several different experiments. The outcome will be to provide you with the tools necessary to perform your own independent research projects using molecular biological methods in any laboratory setting and to have gained the confidence and experience to succeed.