

## Recombinant Gene Technology

450 and 450G, 3 hrs, Spring 2008, T, R 2:00-4:55 3109 CEBS

Instructor: Dr. Claire A. Rinehart Office 121 TCNW, Lab 3112 CEBS, Phone 745-5997(o),  
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Prerequisites: Introduction to Molecular Biology (Biol. 220) and Introduction to Recombinant Genetics (Biol. 350 for undergrads) or permission of instructor.

[Go To RGT Index](http://bioweb.wku.edu/courses/biol450/index.html) (<http://bioweb.wku.edu/courses/biol450/index.html>)

The purpose of this course is to introduce students, both conceptually and through laboratory experiences, to the methodology used in molecular biology. Attendance is required.

Each Tuesday an assignment will be given that will be due the following Tuesday. Each assignment is worth 20 points. Assignments will require students to outline a practical approach to solving a designated problem (15 points). The remaining 5 points will be given for submission of a brief 1 paragraph abstract on a technique or paper in biotechnology, read during the week from one of the trade journals (Biotechniques, Science, Nature, Genetic Engineering News, American Biotechnology Laboratory, Bio/Technology, Promega Notes, USB Comments, BRL Focus, or online techniques center...). **These journals are not to be taken from CEBS for any reason.** Abstracts should contain the title of the article, the names of the authors, the full reference and an abstract **written in your own words.**

During the semester you will be required to submit proposals for each experiment. Proposals should contain: **names of group members, date, group number, title, question to be answered or statement of purpose, experimental design (hypothesis) with a list of variables and their ranges (if applicable), detailed methods with reference(s), and a list of materials needed for the experiment.** Materials will not be provided for an experiment until a proposal has been submitted and approved by the instructor.

Each student must submit reports and a poster from their experimental data. The report will be in standard journal style with a **title, abstract, introduction, materials and methods, results, discussion and references.** Each report will be worth 100 points and should be ~5 pages in length. The poster will be presented during the final exam. Each student will be required to peer-review papers from another group. The quality of the review will be graded and will be worth 30 points. Each student is required to keep an organized notebook so that each lab group will have duplicates of all the data and procedures recorded throughout the semester. The laboratory notebook will be worth 70 points and each experiment should have a title, written purpose, date, page numbers, methods, reference(s) for methods, data and the date each data was recorded. All figures, photos and graphs should be properly labeled with a title, date, experiment name/date and the lanes or lines labeled or properly referenced in the data section of the notebook. Notebooks will be graded in class on May 1<sup>st</sup>.

There will be 50 points assigned by the instructor for each student's care of equipment and the cleanliness of their work area.

A comprehensive final exam worth 100 points will be given as scheduled on Friday, May 9, from 10:30 AM to 12:30. Attendance is required!!

Graduate students will also be required to write an **original** short research proposal addressing a biological problem that could be solved using recombinant gene technology (no more than 8 pages). **The question must be approved by the instructor prior to starting on this project and should not be your thesis question.** The proposal must include: **An introduction with a statement of the problem and the relative background (i.e., related literature), a description of the approach to be taken with an OUTLINE of the techniques needed, a statement of the significance of the work, and a reference section.** Final drafts of these proposals will be due in the instructor's mail box in the main office on April 18 at 8:00 AM.

**Point Summary:**

Assignments (10 @ 15 points each)	150
Abstracts (10 @ 5 points each)	50
Peer reviews (1 @30 points each)	30
Reports (1 @ 100 points each)	100
Poster (1 @ 100 points each)	100
Notebook 70	70
Final Exam 100	100
Laboratory Cleanliness	50
Undergraduate Student Total	650
<u>Graduate student Research Proposal</u>	<u>100</u>
Graduate Student Total	750

Grades: A = 90-100%, B = 80-89.99%, C = 70-79.99%, D = 60-69.99%, F = 0 - 59.99%.

**Academic Integrity:** it is expected that each student will do his/her own work at all times and contribute equitably in all group projects.

**Academic Misconduct** - Dishonesty, in any form (cheating on quizzes or exams, plagiarism, copying another's assignment answers, etc.) will result in a **failing grade**.

"Students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Office for Student Disability Services, Room 445, Potter Hall. The OFSDS telephone number is (270) 745-5004 V/TDD. Please **DO NOT** request accommodations directly from the professor or instructor without a letter of accommodation from the Office for Student Disability Services."

## Schedule

<b>Date</b>	<b>Lecture Topic</b>	<b>Assignment</b>	<b>Experiment</b>	<b>Material Due</b>
<b>Jan. 22</b>	Introduction, notebooks, experimental design, proposals, Course Info, Safety Introduction and Description of experiment 1.	Assignment 1- Experimental Design	Discovery Experiment	Questions and Hypothesis for Discovery Experiment
<b>24</b>	none		Work on proposal for experiment	
<b>29</b>	Lecture topic as needed.	Assignment 2-	Work on proposal for experiment 1 and meet with instructor for proposal approval. Prepare materials.	Assign. 1
<b>31</b>	"		Exp. 1.	
<b>Feb. 5</b>	"	Assignment 3-	Exp. 1	Assign. 2 and Abstract
<b>7</b>	"		Exp. 1	
<b>12</b>	"	Assignment 4-	Exp. 1	Assign. 3 and Abstract
<b>14</b>	"		Exp. 1	
<b>19</b>	"	Assignment 5-	Exp. 1	Assign. 4 and Abstract
<b>21</b>	"		Exp. 1	
<b>26</b>	"		Exp. 1	Assign. 5 and Abstract
<b>28</b>	Lecture on Paper Preparation	Prepare Paper	Exp. 1	
<b>Mar. 4</b>			Exp. 1 Finished	
<b>6</b>	Introduction to Experiment 2	Peer Review of Paper 1	Exp. 2 Work on proposals & meet with instructor	2 copies of paper for peer review
<b>10-14</b>	Spring Break			
<b>18</b>	Lecture topic as needed.	Assignment 6-	Work on exp. 2	
<b>20</b>	"		Work on exp. 2	
<b>25</b>	"	Assignment 7-	Work on exp. 2	Assign. 6 and Abstract
<b>27</b>	"		Work on exp. 2	

<b>Apr. 1</b>	Lecture topic as needed.	Assignment 8-	Work on exp. 2	Assign. 7 and Abstract
<b>3</b>	“		Work on exp. 2	
<b>8</b>	“	Assignment 9-	Work on exp. 2	Assign. 8 and Abstract
<b>10</b>	”		Work on exp. 2	
<b>15</b>	”	Assignment 10-	Work on exp. 2	Assign. 9 and Abstract
<b>17</b>	”		Work on exp. 2	
<b>22</b>	”		Work on exp. 2	Assign. 10 and Abstract
<b>24</b>	”		Work on exp. 2	
<b>20</b>	Instruction on Poster format		Work on exp. 2	
<b>May 1</b>	Final exam handed out and explained.		Work on exp. 2 Notebook graded by instructor	Notebook due
<b>May 8</b>	<b>Final Exam 1:00 – 3:00</b>			