Biology 4202L - Biotechnology Laboratory
Course Syllabus - Fall 2013

Individuals with disabilities who need to request accommodations should contact the Disability Services Coordinator, Student Center 255, 678-466-5445, disabilityservices@mail.clayton.edu.

COURSE NUMBER AND TITLE: BIOL 4202L, Biotechnology Laboratory (CRN 87102)

CREDIT HOURS: 3.0 semester credit hours

CATALOG DESCRIPTION: An experiment-based course in which students use DNA technology to explore topics such as DNA fingerprinting, gene cloning, DNA amplification, genetically modified foods and organisms, gene therapies, inheritance and paternity, and human genetic diseases.

COURSE REQUIREMENTS: Pre-requisite: BIOL3250, BIOL3250L and BIOL3201

COMPUTER REQUIREMENT: Each CSU student is required to have ready access throughout the semester to a notebook computer that meets faculty-approved hardware and software requirements for the student's academic program. Students will sign a statement attesting to such access. For further information on CSU's Official Notebook Computer Policy, please go to http://www.clayton.edu/hub/itpchoice/notebookcomputerpolicy.

COMPUTER SKILL PREQUISITES:

- Able to use the Windows™ operating system.
- Able to use a the Microsoft Word™ word processing program.
- Able to send and receive e-mail using the Outlook™ or Outlook Express™ program.
- Able to use a Web browser (preferably Microsoft Explorer™).
- Able to print documents either on your home computer's printer or Smart Print (networked printers on campus).

IN-CLASS STUDENT USE OF COMPUTERS: Student notebook computers will be required periodically in this class. Students will also use the computers to access
supplemental lectures, laboratory assignments, protocols, review sheets, internet information, and to communicate with the instructor.

COURSE OBJECTIVES:

• To understand the fundamentals of molecular biotechnology
• To understand the processes involved in DNA replication, RNA synthesis, and protein translation
• To describe the basic application of recombinant DNA technology
• To understand commercial application of DNA technology and use in medicine and research
• To learn to use basic biological laboratory equipment
• To understand and use laboratory math and chemistry
• To learn to perform basic molecular biology techniques
• To learn to prepare laboratory notebooks and write laboratory reports based on experimental data, results and conclusions
• To apply critical thinking and problem-solving skills to laboratory situations
• To learn how to prepare research proposals
• To understand the regulation and patenting of biotechnology inventions

BIOLOGY OUTCOMES: BIOL 4202L supports the following outcomes:

• Outcome 1: Knowledge of the basic principles of major fields of biology.
• Outcome 2: Mastery of a broad range of basic lab skills applicable to biology
• Outcome 3: Knowledge of physical science, mathematics, and statistics required to support an understanding of biology.
• Outcome 4: Ability to communicate orally and in writing in a clear, concise manner.
• Outcome 5: Ability to collect, evaluate and interpret scientific data, and employ critical thinking to solve problems in biological science and supporting fields
• Outcome 6: Ability to function effectively on team-oriented projects.
• Outcome 7: Appreciation for the impact of biological science on the environment and society
INSTRUCTOR INFORMATION:

Dr. Paul Guy Melvin
Office: NBS 150
Phone: (678) 466-4789
e-mail: PaulMelvin@clayton.edu
Internet address: faculty.clayton.edu/pmelvin
Office Hours: My current schedule can be found here.

CLASS MEETINGS:

LABS – Laboratory Annex Building, Room 210, Tuesday/Thursday 9:45 am - 12:35 pm
LECTURES – TBA

REQUIRED MATERIALS

Textbook:

Thieman and Palladino. Introduction to Biotechnology, Second Edition*

Other required materials:

Cotton, long-sleeved laboratory coat
Safety glasses
2 laboratory notebooks
Calculator
Pencils
Colored pencils
Blue/black pens
*Additional reading and laboratory materials may be posted online which you will be required to download and print out.

**EVALUATION:**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture/Laboratory Exams (4 x 100 points each)</td>
<td>400 points</td>
</tr>
<tr>
<td>Pre-Lab Quizzes</td>
<td>100 points</td>
</tr>
<tr>
<td>Laboratory Notebook Maintenance, calculations, other assignments</td>
<td>100 points</td>
</tr>
<tr>
<td>Classroom Participation, Group Cleanliness and Attendance</td>
<td>100 points</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>700 points</strong></td>
</tr>
</tbody>
</table>

In the event that the total number of possible points in each of the above categories is more or less than what is listed under “points”, the points will be scaled to match what is listed for each category.

**GRADING:**

Your final grade will be determined as follows:

<table>
<thead>
<tr>
<th>GRADE</th>
<th>PERCENTAGE POINTS</th>
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<tbody>
<tr>
<td>A</td>
<td>90 - 100%</td>
</tr>
<tr>
<td>B</td>
<td>80 - 89%</td>
</tr>
<tr>
<td>C</td>
<td>70 - 79%</td>
</tr>
<tr>
<td>D</td>
<td>60 - 69%</td>
</tr>
<tr>
<td>F</td>
<td>below 60%</td>
</tr>
</tbody>
</table>

Mid-Term Progress Report
The mid-term grade in this course, which will be issued prior to the midterm, reflects your average based on work completed to the mid-term point. Based on this grade, students may choose to officially withdraw from the course by Friday, October 4, 2013 and receive a grade of "W".

COURSE SCHEDULE:

The schedule of laboratory exercises is provided at faculty.clayton.edu/pmelvin

COURSE POLICIES:

**Laboratory Safety:** All students must pass a safety quiz before working in the biotechnology laboratory. Students must follow safety rules and guidelines at all times. Students are encouraged to report any violations of the safety rules to the instructor immediately. **Failure to follow specified safety rules will result in dismissal from the laboratory and receive a grade of zero for that lab.**

**Laboratory Attendance:** Attendance will be taken at the beginning of each lab period and will count as part of your course grade. For every lab section you attend, you will earn 2 points. Students who enter the lab after roll has been called will not earn attendance points for that day. If you are absent from a lab, you are still responsible for the missed material for exams, quizzes, notebook, lab report, etc. You cannot get any points for any work pertaining to the lab that was missed (quizzes, assignments, etc). Students who do not attend regularly generally do not do well in the course.

University Attendance Policy: Students are expected to attend and participate in every class meeting. Instructors establish specific policies relating to absences in their courses and communicate these policies to the students through the course syllabi. Individual instructors, based upon the nature of the course, determine what effect excused and unexcused absences have in determining grades and upon students’ ability to remain enrolled in their courses. The university reserves the right to determine that excessive absences, whether justified or not, are sufficient cause for institutional withdrawals or failing grades.
**Excused Absences:** The only absences that are excusable are for illness (requiring a doctor’s note), accident (requiring note from the police), and legal reasons (requiring a note from the judge), and work obligations outside of the ordinary (requiring a note from your boss). The following are examples of absences that are NOT excusable: travel (including leaving for break early or coming back late) or any type of appointment (doctor, dental, eye, etc. You know when your class meets, don't make an appointment during that time).

If you are excused, you are still responsible for the material and assignments pertaining to the missed lab. If you miss a quiz, the next quiz will be doubled. If you miss an exam, the final exam will be doubled to make-up the difference.

**A STUDENT THAT MISSES MORE THAN THREE SCHEDULED (EXCUSED OR UNEXCUSED) LABORATORIES WILL BE SUBJECT TO WITHDRAWAL FROM THE COURSE BY THE INSTRUCTOR’S REQUEST.**

**Laboratory Reports and Assignments:** Students must follow the guidelines for preparing laboratory reports, papers, research summaries and assignments. All assignments must be typed unless the instructor directs otherwise. You must include your first and last name on the top of each page of the report or assignment. All reports/assignments are due at the beginning of class and must be neat and stapled. Late assignments (10 minutes after the beginning of class) can be turned in within 24 hours for half credit.

**Laboratory notebook:** Each student must maintain a laboratory notebook. Students must follow guidelines for maintaining laboratory notebooks at all times. The instructor will check laboratory notebooks periodically.

**Group Work and Final Project Preparation:** Students will work in groups of 2-3 to complete laboratory experiments. Students are encouraged to work in groups to discuss laboratory experiments but all written work must be unique and prepared independently by each student. Any exceptions (such as group projects, etc) will be announced in class.

**Other classroom regulations and policies:**

Students must abide by policies in the Clayton State University Student Handbook, and the Basic Undergraduate Student Responsibilities.

1. **No cellular telephones, pagers, instant messaging devices, etc.**
2. **No talking while the instructor or another student is talking.** Students repeatedly violating this policy will be asked to leave the classroom for being disruptive.

3. **Computers are for note-taking, research, or other class related activities only.** Students using them for surfing the internet, checking email, playing games, etc will be asked to turn them off. On subsequent offenses, the student may be asked to leave the classroom for being disruptive.

4. **Visitors are not permitted without the instructor’s permission.** Children are not allowed in the classroom at anytime.

5. **Quizzes will be given at the beginning of class.** Students who are late must remain outside of the classroom until the quiz is finished and will receive a grade of zero. There are no make-up quizzes. A quiz may be based on your attendance on a particular day. Quizzes, including attendance quizzes, may be unannounced.

6. **Exams start at the beginning of class.** The instructor may permit a student to begin late if the excuse is reasonable. Students who are more than 10 minutes late will not be allowed to begin the exam. There are no make-up exams.

7. **No form of academic dishonesty will be tolerated in this course.** Any type of activity that is considered dishonest by reasonable standards may constitute academic misconduct. The most common forms of academic misconduct are cheating and plagiarism. All instances of academic dishonesty will result in a grade of zero for the work involved. All instances of academic dishonesty will be reported to the Office of Student Life/Judicial Affairs. Judicial procedures are described beginning on page 14 of the Student Handbook (Procedures for Adjudicating Alleged Academic Conduct Infractions).

8. **No form of disruptive behavior will be tolerated in this class.** Behavior which disrupts the teaching–learning process during class activities will not be tolerated. While a variety of behaviors can be disruptive in a classroom setting, more serious examples include belligerent, abusive, profane, and/or threatening behavior. A student who fails to respond to reasonable faculty direction regarding classroom behavior and/or behavior while participating in classroom activities may be dismissed from class. A student who is dismissed is entitled to due process and will be afforded such rights as soon as possible following dismissal. If found in violation, a student may be administratively withdrawn and may receive a grade of WF.

A more detailed description of examples of disruptive behavior and appeal procedures is provided at:
Common examples of disruptive behavior include, but are not limited to:

a. Monopolizing classroom discussions  
b. Failing to respect the rights of other students to express their viewpoints  
c. Talking when the instructors or other students are speaking  
d. Constant questions or interruptions which interfere with the instructor’s presentation  
e. Overt inattentiveness (e.g. sleeping or surfing the internet)  
f. Creating excessive noise  
g. Entering the class late or leaving the class early  
h. Use of cell phones or pagers in class  
i. Inordinate or inappropriate demands for time or attention  
j. Poor personal hygiene (e.g. noticeably offensive body odor)  
k. Refusal to comply with faculty direction  

Students exhibiting these types of behaviors can expect a warning from the instructor or dismissal for the lesson in which the behavior occurs. Failure to correct such behaviors can result in dismissal from the course.  

More extreme examples of disruptive behavior include, but are not limited to:

a. Use of profanity or pejorative language  
b. Intoxication  
c. Verbal abuse of instructor or other students (e.g. taunting, badgering, intimidation)  
d. Harassment of instructor or other students  
e. Threats to harm oneself or others  
f. Physical violence  

Students exhibiting these more extreme examples of disruptive behavior may be dismissed from the lesson or the entire course.  

Students dismissed from a lesson will leave the classroom immediately or may be subject to additional penalties. Dismissed students are responsible for any course material or assignments missed.
Students dismissed from a course have the right to appeal the dismissal to the department head responsible for the course. Appeals beyond the department head may also be pursued. If no appeal is made or the appeal is unsuccessful, the student will receive a grade of WF (withdrawal – failing) regardless of the current grade in the course.

Conditions attributed to physical or psychological disabilities are not considered as a legitimate excuse for disruptive behavior.

The description of disruptive behavior and listings of examples of disruptive behavior are taken from the Web sites of James Madison University, the University of Delaware and Virginia Tech.

Changes or additions to this syllabus, including reading, exam schedule, grading, and course policies can be made at the discretion of the instructor at any time.

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Last update: August 10, 2013

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