

**Forensic Molecular Biology Laboratory**  
**CHE 348**  
**Spring 2009**

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**Office Hours:**

I don't have regularly scheduled office hours. I am happy to help any time I am around if my schedule permits. To be sure of my availability please make an appointment.

**Laboratory Description:**

Pre laboratory lectures and laboratory instruction are given in body fluid stain identification and modern DNA typing methods used in forensic biology. Emphasis is placed on PCR technology and STR fragment analysis. Proper technique and handling procedures of biological evidence will be demonstrated, as well as an understanding of the theoretical principles of biological analysis.

**Required Materials:**

Required Manual: Quarino, L., Kishbaugh J.  
*Forensic Molecular Biology & Population Statistics Laboratory Manual*, Spring 2009  
Cedar Crest College Bookstore

Required Items: Forensic Science Laboratory Kit  
Cedar Crest College Bookstore

**Laboratory Objectives:**

1. To familiarize the student with the current state of forensic biological testing and the role of a forensic biologist in a forensic investigation.
2. To develop competency in the use of equipment and techniques typically employed in a forensic biology laboratory.
3. To discuss different types of biological evidence encountered in a forensic investigation and the analyses of each.
4. To introduce the student to the proper documentation and handling of physical evidence containing biological evidence.
5. To develop good documentation and note-taking skills.
6. To develop competency in the utilization of population statistics in DNA testing.

### Laboratory Outcomes:

1. The student will understand the history and current state of forensic biological testing and the role of a forensic biologist in a forensic investigation. The student will also understand the role that the scientific method plays in a forensic biological investigation.
2. The student will develop competency in the use of laboratory equipment and techniques typically employed in a forensic biology laboratory
3. The student will know the different types of biological evidence encountered in a forensic investigation and the analyses of each.
4. The student will demonstrate good documentation skills in the description of physical evidence and their analysis.
5. The student will learn the proper methods for the handling of biological evidence.
6. The student will develop competency in the application and understanding of population statistics in biological testing.

### Grading Policy:

Each laboratory exercise will be graded based upon documentation skills and correctness in following direction and procedure. Each laboratory exercise will be worth 100 points. The laboratory final will be 250 points. Any quizzes given during the semester will be worth 25 points. The breakdown of assessment is as follows:

Laboratory Exercises	60%
Laboratory Final	20%
Quizzes	10%
Participation	10%

Your final grade will be based on the following:

Grades:

90-100	A	76-77	C+
88-89	A-	70-75	C
86-87	B+	68-69	C-
80-85	B	60-67	D
78-79	B-	Below 60	F

### Laboratory Attendance Policy:

Attendance for each laboratory session is mandatory. **Be advised that some laboratory exercises may require more than the allotted time of the scheduled laboratory.** Be prepared to stay after the laboratory session ends. **Two laboratories require a set-up period one day before the laboratory exercise begins.** Note these dates below and plan accordingly. Laboratory work will not be done without the instructor present. **No independent laboratory work is allowed.**

**Quiz & Exam Policy:**

A final exam will be assigned by the Registrar's Office for final exam week (May 6<sup>th</sup> – 13<sup>th</sup>). Quizzes will be given periodically throughout the semester either announced or unannounced. Make-ups will only be given if a student has proper documentation for missing a laboratory session.

**Honor Code:**

Cedar Crest College students should uphold community standards for academic and social behavior in order to preserve a learning environment dedicated to personal and academic excellence. Upholding community standards is a matter of personal integrity and honor. Individuals who accept the honor of membership in the Cedar Crest College community pledge to accept responsibility for their actions in all academic and social situations and the effect their actions may have on other members of the College community.

**Academic Standards of Integrity:**

Incumbent from the Honor Code, academic integrity and ethical behavior provide the foundations of the Cedar Crest scholarly community and the basis for our learning personally and intellectually honest and to ensure that other students do the same. This standard applies to all academic work (oral, written, or visual) completed as part of a Cedar Crest education. Students who breach the Academic Standard of Integrity – as set forth in the types of academic misconduct specified under the Faculty Handbook, Book 4.B.2.a – are subject to sanctions imposed by an instructor, a department chair, the provost, or the Board of Trustees. Such sanctions can range from, but are not limited to, the expectation to redo an assignment, the reduction in grade for an assignment determined by the provost or the Board of Trustees, may result in suspension or expulsion from the college, or the withholding, denial, or rescinding of academic degrees.

**Laboratory Protocol:**

Be courteous to those around you and be aware of what is going on in the laboratory environment. Do not do anything you are unsure of, when in doubt always ask. Proper disposal and techniques are required for all students to have a successful lab. Come to laboratory prepared, which means reading the laboratory ahead of time and doing any other related reading needed to understand the methods and techniques being employed in the current laboratory session. All lab notebooks are due at the end of the laboratory period. They will be located outside OBC 5 by the following Monday afternoon.

**Disabilities:**

Students with documented disabilities who may need additional accommodations should discuss these needs with their instructor during the first week of class. Students with disabilities who wish to request accommodations should contact the Advising Center.

**TENTATIVE LABORATORY SCHEDULE:**

<b>Date</b>	<b>Start</b>	<b>Laboratory Topics &amp; Objectives</b>
1/19		Lab Introduction, Lab 1: Pipet Accuracy
1/26		Lab 2: Evidence Processing, Examination & Documentation
2/2		Receive & Document Sexual Assault Kit, Lab 3: Presumptive Testing
2/9	2/8	Labs 4 & 5: Confirmatory Testing
2/16		No Lab – AAFS
2/23		Lab 6 : DNA Extraction - Exemplars
3/2		Lab 7: DNA Quantitation – Exemplars
3/9		No Lab – Spring Break
3/16		Lab 8: DNA Amplification – Exemplars
3/23		Lab 9: Genotyping – Exemplars
3/30	3/29	Analyze Exemplar Data, Lab 6: DNA Extraction – Case Samples
4/6		Lab 7: DNA Quantitation – Case Samples
4/13		No Lab – April Break
4/20		Lab 8: DNA Amplification – Case Samples
4/27		Lab 9: Genotyping – Case Samples
5/4		Analyze Case Samples & Lab 10: Likelihood Ratios
5/6-5/13		Laboratory Final Scheduled by the Registrar’s Office