

# 11:115:436 - Molecular Toxicology Laboratory - Spring 2016

**Class Information:** Tuesday 10:50 AM - 1:50 PM, Lipman Hall Room 207

## Instructors:

Dr. Lori White

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Dr. Keith Cooper

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Lipman Hall Room 125

**Office Hours:** Arranged via email.

**Learning Goals:** The objective of this class is to acquaint students with current laboratory techniques used in toxicological research. Our learning goals for the semester are:

1. Students will be able to perform basic techniques of toxicological research, and know what each technique tests.
2. Students will be able to write a proper hypothesis, and be able to correctly analyze data from the experiments.
3. Students will demonstrate an ability to write about the data and integrate the data into the field in a competent manner.

## Lab Schedule:

Date:	Topic:	Lab Performed:	Assignments:
Jan 19	Introduction		
Jan 26	Developmental Toxicology, Zebrafish as a Model Organism	Dose Response (students are expected observe fish development everyday)	Due: Question Set 1
Feb 2		Histopathology , Alcian Blue Staining	Due: Question Set 2
Feb 9		Statistics and Data Analysis	Due: Question Set 3
Feb 16	Molecular Toxicology	RNA Isolation and RT-PCR	Due: Lab Report 1
Feb 23		Cyp1a qPCR, Protein Isolation, EROD Assay	Due: Question Set 4
Mar 1		qPCR and EROD Data Analysis, Begin Cyp1a Western	
Mar 8		Finish Cyp1a Western	Due: Question Set 5
Mar 15	Spring Break		
Mar 22			Due: Lab Report 2
Mar 29	In Vitro Methods and Genotoxicity	Modified Ames Mutation Assay	
Apr 5	Cell Culture Techniques	Cell Culture: Seeding and Treating Cells	
Apr 12	Cancer Toxicology	Comet Assay and 3T3 Cell Transformation Assay	Due: Question Set 6
Apr 19		Genomic DNA Isolation, PCR amplification of p53 hotspot regions, p53 Sequencing	
Apr 26	Drug Metabolism	Metabolite Profiling using HPLC-UV	Due: Question Set 7

\*\*\* LAB REPORT 3 will be due May 2<sup>nd</sup>, the last day of classes!!!

## **Assessment:**

**Assignments:** The laboratory schedule lists the due dates for all assignments. All assignments will be submitted via the sakai portal and will be subject to analysis by turnitin.com. Assignments are due by the start of the lab period: **10:50 AM of the day it is due. No late assignments will be accepted.**

**Lab Reports:** Lab reports are to be written in **journal article format**. \*\*\*\*This website gives REALLY good tips and advice for writing up a lab report. Please follow the format and advice on this site (especially the one about finding a good example paper from primary literature to emulate)  
<http://colinpurrington.com/tips/write-ups>

**General Conduct:** Students are expected to come to class prepared, having read the protocols and notes and completed any required calculations. The use of cell phones and beepers is not permitted; please switch all phones to silent. Students are to follow the accompanying list of laboratory rules labelled "Laboratory Rules and Guidelines". Please pay special attention to the dress code. Because this is a toxicology laboratory and we will be handling hazardous chemicals, gloves, lab coats, and eye protection is required. Please also dispose of chemicals and reagents in their designated areas. Food is not permitted in the lab areas.

**Attendance:** Attendance to class is required. Given the nature of the class and the specific timing required for each experiment, there will be no makeup labs. Any unexcused absences can only be excused by a letter from the Deans office. Twenty points will be deducted per absence. Students will still be expected to obtain any data and complete all assignments.

**Lateness:** Lateness will result in point deductions from the lab performance grade. If you arrive after the conclusion of the pre-lab, you will not be permitted to participate in lab; this will be considered an absence. You will still be expected to obtain any data and complete all assignments.

**Academic Integrity and Plagiarism:** 100% adherence to the Rutgers academic integrity policy is expected. Please visit <http://studentconduct.rutgers.edu/> to view the entire policy. Violations of academic integrity will not be tolerated. Plagiarism, in particular, is a growing problem and is defined as the appropriation of someone else's work without proper attribution. For the purposes of this class and for scientific writing in general, the rules on plagiarism are even stricter. While discussion is encouraged, all submitted work must be your own.

The purpose of the lab reports and the weekly assignments is for us to gauge *your* understanding and *your* knowledge; therefore, *you* must be "heard" through what you write. Therefore, in some cases, paraphrasing and citing is not necessarily enough. If you are at all unclear about whether something would appear as being plagiarized please do not hesitate to ask. Acts of plagiarism will result in a zero grade.

**Grading:** Total = 200 points

Lab reports = 60% (3 lab reports x 40 points each = 120 points)

Questions = 35% (7 question sets x 10 points each = 70 points)

Laboratory Performance = 10% (10 points)