

Cell and Molecular Biology – BISC 440 Lab – Fall 2014

Sect 1: 10-12:50pm Wednesday Sect 2: Wednesday: 2-4:50pm

Instructor: John Romanowski Jr, 310 Shoemaker Hall, x2002, jromanow@olemiss.edu

Office Hours: THURSDAY ONLY: 9am-11am, 1pm-4pm

Description:

The laboratory segment of BISC 440 is designed to expose students to common molecular biology techniques and methods for observing cells and gene activity. The emerging field of molecular cell biology involves numerous techniques that are in widespread use across the biological spectrum, including medical research, forensic science, evolutionary biology, ecology and conservation biology, biochemistry, and pharmacology.

In this lab, students will use the basic tools of molecular biology to analyze gene and protein expression. Detailed procedures for all experiments will be provided one week prior to the lab. **Students are expected to have read the background material and the procedure before coming to the lab. Protocol for each procedure will be distributed via Blackboard. It is also expected that these are printed before lab.**

Grades:

pGLO figure = 15%, Midterm = 22.5%, LacZ/Immuno figure = 15%, Proteomics figure = 15%, Final = 22.5, and Participation = 10%

ATTENDANCE IS REQUIRED. Each unexcused absence will result in 10% deduction in **FINAL LAB GRADE**. If you know you will be absent due to court date, doctor's appt., interview, etc., you are expected to contact J.Romanowski **1 WEEK** ahead of scheduled day.

ATTENDANCE IS REQUIRED. MISSED LABS CANNOT BE MADE UP AND WILL RESULT IN A 0.

Make up exams:

Students can make up exams immediately after the final exam **ONLY** if they have documentation regarding their absence.

PARTICIPATION

At the end of the semester, an overall participation grade will be given based on criteria including but not limited to: interaction with laboratory team members, laboratory instructor, and active participation within the lab itself.

READ* Late Homework/Assignments:** Unless supported with valid documentation, late assignments WILL NOT be accepted.

****The schedule below is subject to change at the discretion of the instructor to accommodate instructional and/or student needs****

General Expectations:

Cell phones should be off/silenced and inside a bag. If you need a calculator for problems, you are welcome to use a calculator, not a phone. **Food and drink are not allowed in the laboratory.**

Registering for BISC 440 translates to full recognition and acknowledgment of the information provided.

| Week | # | Lab | Announcements |
|---------------|----------|---|---|
| 8/25 | 1 | Introduction Syllabus, Lab Groups, Lab Overview | |
| 9/1 | 2 | pGLO Bacterial Transformation | |
| 9/8 | 3 | Analyze pGLO transformants HIC Chromatography set up | Figure Handout on Blackboard |
| 9/15 | 4 | HIC Chromatography | |
| 9/22 | 5 | LacZ Staining Transgenic <i>Drosophila Embryos</i> Localization of gene express | <i>pGLO/GFP figures with detailed figure legends due next week</i> |
| 9/29 | 6 | Analyze Embryos | <i>pGLO/GFP figure DUE @ beginning of lab.</i> |
| 10/6 | 7 | Immunohistochemistry Antibody Staining Localization of proteins <i>in vivo</i> | |
| 10/13 | 8 | Analyze Embryos | <i>LacZ and Immuno-stained figures with detailed figure legends due next week</i> |
| 10/20 | 9 | LAB MID TERM | <i>LacZ/Immuno-stained figures due at beginning of lab</i> |
| 10/27 | 10 | Proteomics Purification, SDS-PAGE, & staining of muscle proteins | |
| 11/3 | 11 | Western Blot SDS-PAGE, Western Blot of unstained muscle proteins | |
| 11/10 | 12 | Immunodetection Probe blot with anti-myosin light Standard curve of W.Blot/SDS-PAGE | |
| 11/17 | 13 | Analyze Western Blot/SDS-PAGE Identification of Muscle Proteins | <i>Proteomics figure with detailed figure legends due next week</i> |
| 11/24 - 11/28 | | THANKSGIVING BREAK | |
| 12/1 | 14 | FINAL LAB EXAM | <i>Proteomics figure with detailed figure legends due</i> |