Our goals for our students in Bio 242 laboratory

Bio 242 is an SLQW2 course. Below, we state our goals for you as students in this course such that you will be successful and get the most from the lab experience.

1. **Lab bench skills** – Students will learn to use all the equipment needed for lab with at least a basic proficiency. Any equipment we use in this lab is a fundamental tool in labs everywhere and you will be *expected* to have proficiency using them. The instructional staff will be observing your work frequently to make sure you are using the tools properly and efficiently.

2. **Protocols**: We want our students to study the lab protocols in advance of lab such that they know what they will be doing and why. Protocols should be thought through not as a series of minute, linear steps, but rather as overall tasks, e.g., the making of an extract. If you know where the protocol is headed, each step will make sense. In this way, you will have a better frame of reference for the entire lab activity each week. Furthermore, when you write up the Methods section in your papers, this is the process you must use to describe how you did your experiment.

3. **Quantitative applications:** Calculations for making up solutions, dilutions, VC=VC, percent solutions, molarity, statistics, etc., are, again, fundamental skills expected of you in any lab setting. We want these skills to become routine – they are the staple of day-to-day lab life.

4. **Theory/conceptual background of lab exercises**: This is the science at the heart of each lab experience. We want our students to understand the relevance of each lab experience to the broader concepts of biology. Ideally you will come to lab each week having thought about the conceptual basis of the lab and why it is important.

5. **Process of science:** We will spend significant time teaching experimental design, statistical analysis, and written scientific communication of results. NO ONE should leave this course without a good working knowledge of *how* scientific inquiry is conducted, start to finish, and how to communicate your results in a journal style paper.

6. **Collaboration skills:** Modern scientific inquiry is nearly always a collaborative effort involving people in one lab, or, very frequently, two or more labs working together. We want our students to learn to be good and effective collaborators, flexible and accommodating as needed to make sure the work is completed in a timely fashion and to the best ability of the group. Groups will have opportunity to do a self-evaluation twice during the semester, after each PI lab is completed.