Roles: In order to facilitate the preparation of the lab report, you will be working in groups of *three* or *four.* There are four roles that your group members will fill; while each member takes primary responsibility for one role and for the portion of the lab report related to that role, please keep in mind that the experiment is a group effort and you should all be aware of the dilemmas faced by your peers and the decisions that they make. Also, except when writing the report, these lab experiments often involve "all hands on deck"--with every group member contributing to the construction, execution, and analysis of an experimental protocol. The division of labor will be as follows:

1. *The Journalist:* This person is primarily responsible for taking notes of everything that happens during the experiment and writing up the "Journal" section of the lab report.

2. *The Data Interpreter:* This person primarily deals with tabulating and displaying the data, operating the computer, and writing up the "Data and Interpretation" section of the lab report.

3. *The Critic:* This person is primarily responsible for taking notes during the class presentations and discussions and for writing the "Evaluation" section of the lab report.

4. *The Checker:* This person is primarily responsible for checking all sections of the lab report before it is turned in, reading the comments made by the grader on past lab reports, and suggesting ways to improve. This person also acts as a "manager" of the lab tasks, stepping in where help is needed and coordinating the group's efforts to ensure the lab is completed efficiently and on-time. The Checker is responsible for writing the cover page of the lab report, which includes a descriptive title, the abstract, and the names & roles of the participants, and the Introduction. In a group of three, the role of checker is shared by all group members.

Assign these roles among your group, and sign in below:

1. The Journalist: _____
(Responsible for Section II: What was done)

2. The Data Interpreter: _____
(Responsible for Section III: Data & Interpretation)

3. The Critic: _____
(Responsible for Section IV: Evaluation and Conclusions)

4. The Checker: _____
(Responsible for Section I: Introduction, plus the cover page: Title & Abstract)

Lab Reports

At the end of the experiment, your team will hand in a complete lab report. This is your chance to communicate your work in a style similar to what published scientific journals would require (with a little extra info for your TA). This report must include three components:

A Journal: A clear and concise discussion of what you did, how you designed your experiment, and what results you got, written so that an absent student could understand and repeat your experiment. If you followed false trails that you gave up, you should explain them here with your reasons for giving them up.

Data and Interpretation: A presentation of your data in a form that would be easy for an absent student to understand. Include a discussion of what your data means, what conclusions you've drawn from your data, and a persuasive *case* to convince your reader that your conclusion is valid. Keep in mind that a record of raw (un-manipulated) data would never be published by a scientific journal--what of the data that you have collected is *necessary* to make your case? Is this data sufficient and convincing?

Evaluation: After you've had a chance to see what data and conclusions other groups have gotten, it's important to go back and reconsider what you've done. Here is where you discuss how you could improve upon your experiment (design or analysis), in light of what you learned during lab and during the class presentations. This is also the place to expand upon the interdisciplinary nature of these labs--how are the things you have studied in other science classes connected to what you have done and learned here? Do you see other possible applications of these research ideas and experimental techniques?

Hand in your finished lab report before you leave. There is no out-of-class lab work required and no late-submissions are permitted.

Below are the general guidelines for grading lab reports.

Criterion: Lab Report (as a team)	
Design and thoughtfulness. Did your team do a careful and thoughtful job in creating your experiment, and was this thought reflected in the journal?	7 pts
Clarity and completeness. Did your team explain your experiment so that someone could reproduce it?	8 pts
Persuasiveness. What conclusions did your team draw from your data and were you able to back up these conclusions with this data in a convincing way?	8 pts
Evaluation. After observing the experiments of other groups, were you able to critique your own lab, propose constructive changes, or explain why your experiment was better than those of your classmates? (The question you are answering in your evaluation is, "If I got to re-do this experiment next week, how would I do it differently?")	7 pts