

# Fundamental Physics II [Phys 132]

## Description of Lab Final

During the fourteenth week of the semester [April 28 – May 1], you will need to come into the laboratory to complete your Lab Final. The final will ask you to answer a few simple questions by using the lab equipment, but will provide you with **few instructions** as to the best way to go about making your measurements. The tasks you are asked to carry out, however, will be very similar to those that you have encountered in the regular lab experiments this semester, and you should have no trouble completing the final if you have understood what we have done in these experiments.

*The final will consist of two questions. The first will ask you to identify the makeup of an unknown AC circuit based on measurements that you make with the oscilloscope. The second will ask you to measure a certain optical parameter for an unknown specimen.*

A box of equipment will be provided during the final, and you will be allowed to borrow whatever equipment you need from the box in order to complete your experiments. You will also have access to all of the equipment that normally sits in the lab room [oscilloscopes, optical benches, etc...], and will be allowed to use your calculator. You will **not** be allowed to use books, notes, or any other reference materials during the exam, nor will you be permitted to consult with anyone.

Because the answers to the questions you are posed will typically be brief, it is of paramount importance that you describe in **painful detail the methods and calculations** by which you arrived at your results. The best responses will contain at least these five key elements:

- (1) A description of the experimental procedures you used in taking your data
- (2) A list of the raw data itself
- (3) The numerical uncertainty associated with any measured quantities
- (4) A clear explanation of any calculations or manipulations you have performed on your data in order to produce your final results
- (5) The numerical uncertainty associated with your final result

In the event that your final asks you a *qualitative* question as opposed to a *quantitative* one, some of these elements may be unnecessary [e.g., #(5)], but you should still give a detailed account of what you have done as per the previous steps.

Ultimately, your grade will depend on the soundness and accuracy of your experimental technique, the correctness of your theoretical arguments, and of course, on the correctness of your final answer. The only way that the grader will know what a smashing job you have done in each of these arenas is if you document it. So **write it down!**

Good Luck!