Course: **222, Section: 002 and 016**
TA: Mohamamdreza Rezaee

**Email:** mrezaee@utk.edu

**Office:** Nielsen Physics Building, Room 609-18/ SERF Building, second floor, Lab 225

**Office Hours:** Please contact me by email to arrange an appointment.

**Tutorial hours:** Friday 1:15-2:25, room 201, Nielsen Physics Building

**Recitation hour:** One hour before Lab, room 608

**Laboratory manual:** Introductory Physics Experiments by Dr. James E. Parks

**Summary of Introductory Physics Laboratory Goals:**

The Art of Experimentation: The introductory laboratory should engage each student in significant experiences with experimental processes, including some experience designing investigations.

*Experimental and Analysis Skills:* The laboratory should help the student develop a broad array of basic skills and tools of experimental physics and data analysis.

*Conceptual Learning:* The laboratory should help students basic physics concepts.

*Understanding the Basis of Knowledge in Physics:* The laboratory should help students understand the role of direct observation in physics and to distinguish between inferences based on theory and the outcomes of experiments.

*Developing Collaborative Learning Skills:* The laboratory should help students develop collaborative learning skills that are vital to success in many lifelong endeavors.

**Grading:**

Lab Report: 40%

Attendance: 30%

Quizzes: 30%

**Lab reports due date:**
Lab reports are due one week after the experiment is performed. They must be handed in at the beginning of the recitation or in my mailbox before the recitation.
Lab report:

(1). Separate title page: A title page should include the following: (1) the name of the experiment, (2) your name, (3) the name of your partner, (4) the course name and number, (5) the section number, (7) the date.

(2) Purpose and method: This should be short: a paragraph or two describing what measurements were made and for what purpose. Procedural details should not be given.

(3) Data tables: The original or photocopies of the original data sheets, collected in class and initialed by the instructor, should come first. Neatened or expanded versions of the data with additional derived quantities may come next. Remember labels, units, and uncertainties.

(4) Calculations, including Error analysis: Whenever possible calculations should be done in the lab. Include in your calculations the units associated with any variable and, where appropriate, cancel units or change them to derived units. If you do the calculations with the spreadsheet, remember to put labels and units on any additional columns, and state in the report how these columns were calculated.

(5) Graphs, when appropriate, should include a title, and axis labels with units. These should also be done in the lab, if possible. If straight line fitting is performed on the data, either by hand or with a linear regression program, remember to record the slope and intercept and their uncertainties.

(6) Conclusions: This should include a brief discussion of the main findings. For example: “We found that there is a linear relationship between the measured variable … and … This can be seen from the graph and is predicted by the theory.

➢ Attendance: You are supposed to attend each laboratory period and do all experiments in your assigned section. In general, you will not be permitted to do your experiments in another section.
➢ Preparation: Before each laboratory you are expected to read the experimental write-up and any related sections of the text so that you are familiar with the theory and the experimental procedure.
➢ Conduct: Eating and drinking are not permitted in the laboratory. Of course, loud talking and disruptive behavior are also prohibited.

IMPORTANT NOTE:

Please keep in mind that I am not supposed to do the experiment on behalf of you. You should do your best during the lab time and use your lab manual carefully to get the steps done. All the details have been explained in the manual clearly. If after all attempts you could not figure out how to do and find the results then you can ask and collaborate with other groups which have already done it. As your third choice; you can ask me and I always will be happy to help. Remember that lab is a good opportunity for you to learn and feel how scientific researches and activities proceed. So get involved and enjoy it!