

## Physics 222 – Section 005 - Recitation and Lab

**Recitation: Nielsen 608, Wednesday 4:40-5:30 PM**

**Laboratory: Nielsen 510, Wednesday 5:45-7:35 PM**

**Instructor:** Mostafa Hussein

**Email:** mhussei3 (AT) utk (DOT) edu

**Office Hours:** Nielsen 201 (Tutoring Center), Tuesday 1:15-2:25 PM or by appointment.

**Lab Manual:** *Contemporary Introductory Physics Experiments* by Dr. James Parks

**Grading Scheme:** (out of 100%)

40% Attendance, Participation and Lab Work

30% Lab Reports

30% Quizzes

**Attendance and Lab work:** Attendance is **mandatory** for both recitation and lab sessions. Each student should have an active role (**Participation**) in performing the experiments and analyzing the data with the lab partner to produce the results. If for any reason a student cannot attend the recitation or the lab sessions, s/he should let me know as soon as possible.

**Lab Assignment:** Read and study the experiment due to be performed **before** the lab.

**Lab Reports:** Lab reports are due a week from performing the experiment and should be handed in at the beginning of the recitation or before 4:40 PM in my mailbox when there are no labs scheduled; no late lab reports will be accepted. Each student must present his/her own lab report. Lab reports should be written in the student's own words. Each lab report will be graded on a scale from 0 to 10. Plagiarism is not tolerated; copying from the lab manual, or others is an automatic ZERO on the report. The lowest lab report score will be dropped. Graded lab reports will be returned to the students the next lab (typically a week from submission).

**Quizzes:** At the start of each recitation, I will give a short quiz on the material covered in the lecture, submitted homework, previous week's recitation, performed experiments, or the experiment of the day. Each quiz will be graded on a scale from 0 to 10. No make-up quizzes; the lowest quiz score will be dropped.

**University Disability Statement:** Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the Office of Disability Services at 865-974-6087 in 2227 Dunford Hall to coordinate reasonable accommodations for students with documented disabilities.

Please Read the [Campus Syllabus](#).

<b>Laboratory Schedule Nielsen Room 510</b>	
<b>Date</b>	<b>Experiment</b>
15-Jan	Electric Fields
22-Jan	Ohm's Law I & II
29-Jan	Ohm's Law I & II (continued)
5-Feb	Wheatstone Bridge
12-Feb	Joule Equivalent of Electrical Energy
19-Feb	Magnetic Fields - Helmholtz Coils
26-Feb	e/m - Charge-to-Mass Ratio
5-Mar	Ampere's Law
12-Mar	RC & RL Circuits
19-Mar	No Lab - Spring Break
26-Mar	Photoelectric Effect
2-Apr	Hydrogen Balmer Series and Rydberg Constant
9-Apr	Radioactive Half-life of Barium-137m
16-Apr	No Lab - Spring Recess
23-Apr	Lab Makeup

## **Guide to Laboratory (Technical) Report Writing**

**Lab Reports should be turned in a week after the experiment has been performed!**

- I. **Title page:** A title page should include the following:  
(the title information can be included on the first page instead of a separate page.)
  - i. The Title of the experiment,
  - ii. Your name **and** the name of your lab partner,
  - iii. The course name and number and the section number,
  - iv. The name of your lab instructor,
  - v. The date the experiment is performed, **and** the date the report is submitted.
- II. **Introduction:** In your own words, explain the **scientific purpose of the experiment** and its significance. Clearly state the relevant physical laws, main equations and the definitions of the symbols used.
- III. **Experimental Method:** This should be short: a paragraph or two describing what measurements you made and for what purpose. You are trying to show that you understand the relationship between the experimental procedures and the theory. You can make use of labelled diagrams and figures to illustrate the equipment used. **PROCEDURAL DETAILS SHOULD NOT BE GIVEN, unless they are in some way original or non-standard.**
- IV. **Data, Tables and Graphs:** The data obtained from the experiment should be neatly presented in an appropriate form. All tables should be organized with a clear heading, each column must be labeled with the corresponding quantity symbol and units. You should include the original data sheets filled during the lab with the additional derived quantities. Graphs should include a title, and axis labels with units. The information obtained from the graphs should be clearly marked. **REMEMBER HEADINGS, LABELS AND UNITS.**
- V. **Results, Errors and Discussion:** Describe and show the details of your computations and associated error analysis. If you performed the calculations with the spreadsheet, state how the columns were calculated (a sample calculation). Discuss the main findings of the experiment, referring to the graphs and data obtained, and point out the key relationships between the variables. Compare the experimental results to the known or expected theoretical values. Identify the sources of the errors and indicate if the errors were systematic or random.
- VI. **Conclusions:** Argue whether the experiment was successful or not, referring to the main findings of your experiment and the error analysis. Suggest ways of improving the experiment in order to reduce the errors and obtain better results. **AVOID MAKING SUBJECTIVE AND PERSONAL STATEMENTS.**
- VII. **Questions:** Answer all assigned questions posed in the lab manual giving FULL answers, describing and showing all your work.

## Useful Technical Laboratory Report Checklist:

- Read comments** on your previous lab reports and ensure that you are correcting previous mistakes.
- UNITS** correctly stated for any value(s) mentioned.
- Main Equations** used should be presented and the symbols defined.
- In the **Experimental Procedure**, declare any special adjustments you made to your experiment.
- Data calculations and Graph labeling should be checked for **correctness**.
- Data, Tables and Graphs should be presented appropriately in an **organized manner**: i.e. no stray columns jumping pages.
- If you plan on solving the Questions by hand, they should be in a **legible handwriting**.
- Show your full work in solving the **Questions**.
- Avoid** repetition and run-on sentences. Do not include irrelevant information.
- If you attach any data or questions at the end of the report please **clearly indicate** that in the report.
- Please use a **technical, formal and specific** language: no use of subjective words such as etc., pretty, very, good, bad, a lot, nice, like or dislike.
- Spell Check**: Proof read your lab report before submitting it.