PHYS 2102 Laboratory Syllabus

Spring 2018

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COURSE MATERIAL REQUIRED:
- Textbook: Electricity, Magnetism and Optics (Physics 1102/2102 Lab Manual) by Dr. Shree K Bhattarai, University of North Carolina – Charlotte. Publisher: Stipes Publishing LLC. [This book is available at UNCC bookstore only].
- Calculator
- Index card (5” X 3”)
- Pencil to complete lab report, eraser
- A thin binder to keep your lab reports, homework and quizzes. Retain it until your grade has been posted.

COURSE INFORMATION:
Physics 2102 laboratory is a course in experimental physics which must be taken concurrently with the lecture course, PHYS 2102. The laboratories are chosen to coincide with topical coverage in the lecture as much as possible.
This course uses Canvas as a learning management system. Canvas can be accessed at canvas.uncc.edu. You would need to use your UNCC credentials to log in.

COURSE OBJECTIVES:
- To conduct an organized and scientific investigation in order to experimentally verify the theoretical concept introduced in the lecture
- To familiarize students with experimental apparatus and scientific method of data collection and analysis
- To derive conclusions from the results based on your understanding of the relevant physics
- To study and understand introductory physics concepts via computer simulation experiments and exercises

LABORATORY ACTIVITIES:
- 9 laboratory experimental sessions (Top 8 labs will be counted)
- One in-class laboratory exam
**COURSE GRADING:**

**In-Class Experiment Lab Reports:**
- Pre-Lab Preparation:------------------------------- 10 points
- Lab Report:-------------------------------------- 85 points
  - 50% points for active participation in lab exercise. Deduction will be made for:
    - Tardiness
    - Not having your own calculator
    - Not having lab manual
    - Answering or making a phone call; and/or texting
    - Performing task unrelated to lab (e.g. surfing web, coursework etc)
  - 50% points for the content of your lab report
    - Lab report completed with pencil
    - Showing calculations
    - Properly filled data tables
    - Properly drawn graphs
    - Analysis
    - Writing proper unit of measurement
    - Problems and Questions
- Index Card and Communication Exercise --------------- 5 points

Total: 100 points per lab

**Calculation of Overall Lab Grade:**

- Lab. Reports from In-Class Experiment: --------------- 80%
- Laboratory Exam: ----------------------------------- 20%

Total: 100%

(Grade assignment: >= 90%: A, 80-89.9: B, 70-79.9: C, 60-69.9: D, < 60%: F)

**LAB ATTENDANCE POLICY/ MAKE-UP LABS:**

There are NO Make-up labs.
- If you miss a lab due to reason which classifies as genuine reason for absence as per university policy (http://provost.uncc.edu/policies/classroom-attendance), you should talk with your TA and lab coordinator to find a suitable time to do the make-up lab. All make up labs should be completed before the lab exam.
- If you miss a lab due to reasons beyond your control, it will be upon the discretion of lab instructor whether or not to grant you a make-up lab.
**Academic Integrity:**

Students have the responsibility to know and observe the requirements of *The UNCC Code of Student Academic Integrity* (See the UNCC Catalog.). This code forbids cheating, fabrication or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Any special requirements or permission regarding academic integrity will be stated by the instructor, and are binding on the students. Academic evaluations in this course include a judgment that the student’s work is free from academic dishonesty of any type; and grades in this course therefore should be and will be adversely affected by academic dishonesty. Students who violate the code can be expelled from UNCC. The normal penalty for a first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases the course grade is reduced to F. Copies of the code can be obtained from the Dean of Students Office. Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty to the course instructor.

*Although the data collection during the lab is a group effort, data analysis and answering the questions related to the obtained data MUST be individual effort. Failure to do so will be treated as a case of academic dishonesty and will be dealt according to the University Policy.*

**LABORATORY REPORTS**

You will use your lab manual pages to complete the lab reports. Follow the procedure and fill the appropriate tables, draw graphs, do calculations. Once you completed your lab report, print your name, your partner’s name and the date. Tear off the associated pages from your manual and hand them to your instructor. **The report will be graded by your instructor and returned back to you at the beginning of the following lab session. Please make sure you picked up your graded lab work every lab session.** You should complete the Pre-Lab before coming to the lab and it is due at the beginning of the lab session.

*Please retain your graded lab reports at least until the final grade is posted. Make sure you ask for your graded lab report with your TA every lab session and keep it in a binder. In case of any grade disputes at the end of the semester, it will be student’s responsibility to furnish the lab report to the TA or lab coordinator.*

**LABORATORY EXAM**

You will be given a lab exam the last week of your lab session. The exam will be closed book, closed lab reports and will be conducted with no lab partners. Equation sheet will be provided.

**Exam Format:**

- 20 Multiple choice questions: 20 X 3 = 60 points
- 4 Numerical Problems: 4 X 10 = 40 points

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Total = 100 points
**PHYS 2102 Laboratory Schedule**  
**Spring 2018**

**Lab Location: Burson 151**

All pre-labs are due at the beginning of each lab.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Lab Activity</th>
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<tbody>
<tr>
<td>Week of Jan 8th , 15th, and 22nd</td>
<td>No Labs</td>
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<tr>
<td>Week of Jan 29th</td>
<td><strong>Lab 1</strong>: Electrostatics and Electric Field</td>
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<tr>
<td>Week of Feb 5th</td>
<td><strong>Lab 2</strong>: Electric Fields and Potentials</td>
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<tr>
<td>Week of Feb 12th</td>
<td><strong>Lab 3</strong>: Capacitors</td>
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<td>Week of Feb 19th</td>
<td><strong>Lab 4</strong>: Charging, Discharging and Combination of Capacitors</td>
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<tr>
<td>Week of Feb 26th</td>
<td><strong>Lab 5</strong>: Current and Voltage in a DC circuit: Ohm’s Law</td>
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<td>Week of Mar 5th</td>
<td>SPRING BREAK</td>
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<tr>
<td>Week of Mar 12th</td>
<td><strong>Lab 6</strong>: Current and Magnetism</td>
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<td>Week of Mar 19th</td>
<td><strong>Lab 7</strong>: Magnetic Force and Electrical Current</td>
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<td>Week of Mar 26th</td>
<td>Inclement Weather Makeup labs</td>
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<td>Week of April 2nd</td>
<td><strong>Lab 8</strong>: Faraday’s Law of Electromagnetic Induction</td>
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<td>Week of April 9th</td>
<td><strong>Lab 9</strong>: AC through LCR circuit</td>
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<tr>
<td>Week of April 16th</td>
<td><strong>Final lab exam</strong></td>
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