

PHYS 2102 Laboratory Syllabus

Spring 2017

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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 instead of Moodle 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
- 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: $\geq 90\%$: 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: $20 \times 3 = 60$ points
- 4 Numerical Problems: $4 \times 10 = 40$ points

Total = 100 points

PHYS 2102 Laboratory Schedule **Spring 2017**

Lab Location: Burson 151

Pre-lab due at the beginning of each lab.

Dates	Lab Activity
Week of Jan 23 rd	Lab 1: Electrostatics and Electric Field
Week of Jan 30 th	Lab 2: Electric Fields and Potentials
Week of Feb 6 th	Lab 3: Capacitors
Week of Feb 13 th	Lab 4: Charging, Discharging and Combination of Capacitors
Week of Feb 20 th	Lab 5: Current and Voltage in a DC circuit: Ohm's Law
Week of Feb 27 th	Lab 6: Current and Magnetism
Week of March 6 th	Spring Break, No Labs
Week of March 13 th	Lab 7: Magnetic Force and Electrical Current
Week of March 20 th	Lab 8: Faraday's Law of Electromagnetic Induction
Week of March 27 th	Lab 9: AC through a LCR circuit
Week of April 3 rd	Inclement weather makeup lab
Week of April 10 th	Spring Weekend, No labs
Week of April 17 th	Final Exam