

# PHYS 2102 Laboratory Syllabus

Spring 2023

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## **COURSE MATERIAL REQUIRED:**

- Textbook: Electricity, Magnetism, and Optics – Sixth Edition (Physics 1102/2102 Lab Manual) by Dr. Shree K Bhattarai. Publisher: Stipes Publishing LLC (ISBN: 978-1-64617-382-2). [This book is available at UNCC bookstore only].
- Scientific Calculator (any kind)
- 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. You will need to look at these to prepare for your final exam.

## **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. All lab sessions are in-person.

This course uses **Canvas** as a learning management system. Canvas can be accessed at [canvas.uncc.edu](https://canvas.uncc.edu). You would need to use your UNCC credentials to log in.

## **COURSE OBJECTIVES:**

By the end of the semester, student should

- able to conduct an organized-scientific investigation in order to experimentally verify the theoretical concept introduced in the lecture,
- be familiar to the experimental apparatus and scientific method of data collection and analysis,
- capable of deriving conclusions from the results based on their understanding of the relevant physics, and
- competent with introductory physics concepts via computer simulation experiments and exercises.

## **LABORATORY ACTIVITIES:**

- 10 in-class laboratory sessions
- All labs are compulsory, one least score lab will be dropped
- One in-class laboratory exam (Mandatory). If you do not attempt the exam, even you have passing grade, you will fail this course.

## **COURSE GRADING:**

### **In-Class Experiment Lab Reports:**

#### **LAB 1- LAB 10:**

- Pre-Lab Preparation: ----- 10 points
- Index card: ----- 5 points
- Lab Report: ----- 85 points
  - ✓ 50% points for active participation in the 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 tasks unrelated to the lab (e.g. surfing the web, coursework, etc.)
  - ✓ 50% points for the content of your lab report
    - Lab report completed with pencil
    - Showing calculations
    - Properly drawn graphs and properly filled data tables
    - Analysis
    - Writing proper unit of measurement
    - Problems and Questions

#### **Lab Exam:**

- ✓ Review of Numerical problems that would help for your course final exam

#### **Calculation of Overall Lab Grade:**

- Lab 1 to Lab 10: 80%
- Final 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 and MAKE-UP LAB POLICY**

You are supposed to be in the lab room at least 5 minutes before the actual lab time. If you are more than 10 minutes late for the lab session, we will deduct 10% of the lab score. If you are late by more than 20 minutes, you will be considered absent and you will receive

a zero grade for that particular lab. The attendance sheet will be circulated during the lab session. Don't forget to sign in for every lab session.

You will perform a lab experiment in a group of 2 or 3 students. Working in a group of more than 3 is not allowed unless we have insufficient lab equipment.

After each lab session, you must disassemble the lab apparatus and clean up the workstation. If you miss doing it, we will deduct 5% of the lab grade.

**There are NO Make-up labs.**

- If you miss a lab due to a reason which classifies as a genuine reason for absence as per university policy (<http://provost.uncc.edu/policies/classroom-attendance>), you must let your TA and lab coordinator know about it before missing the lab. Furthermore, it is your responsibility to talk with your TA and 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 the lab instructor whether or not to grant you a make-up lab.

**PRE-LAB and LAB REPORTS**

Please read the lab manual before coming to the lab and complete the pre-lab worksheet. You will find it in your lab manual. The pre-lab is due at the beginning of the lab session. Any pre-lab document turned in after the lab session, will not be graded.

You will use your lab manual pages to complete the lab reports. Follow the procedure and fill the appropriate tables, draw graphs, and 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.**

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 the student's responsibility to furnish the lab report to the TA or lab coordinator.

**LABORATORY EXAM**

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

**Exam Format:**

- 20 Multiple choice questions: 20 X 3 = 60 points
  - 4 Numerical Problems: 4 X 10 = 40 points
- Total = 100 points

### **FOOD/ DRINKS and CELLPHONE POLICY:**

No food and drinks are allowed in the lab. You must keep your cell phone in silent mode or need to turn it off during the lab session. The cell phone is not allowed to use as a calculator.

### **MISSING LAB GRADE POLICY:**

If your lab grades are missing in the canvas grade book, you must let your instructor know about it before the lab exam. If you do not inform it earlier in the semester, your lab instructor will not be able to change it.

If you have any questions regarding the lab, you are supposed to contact your TA first. If you couldn't get a clear answer, then forward it to the lab coordinator.

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

*A student can leave early only if he has completed all lab activities. Students leaving the lab room early without completing lab activities will receive a grade of zero for that lab.*

## **PHYS 2102 LABORATORY SCHEDULE - SPRING 2023**

Lab Location: Burson Building, room 153

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

<b>Dates</b>	<b>Lab Activity</b>
Week of Jan 9 <sup>th</sup>	<b>No Lab</b>
Week of Jan 16 <sup>th</sup>	<b>No Lab</b> <b>Syllabus Quiz due, check your canvas account</b>
Week of Jan 23 <sup>rd</sup>	<i>Complete pre-lab before coming for Lab 1. Prelab can be found at the beginning of each lab in the manual.</i> <b>Lab 1: Electrostatic</b>
Week of Jan 30 <sup>th</sup>	<b>Lab 2: Electric Fields and Potentials</b>
Week of Feb 6 <sup>th</sup>	<b>Lab 3: Capacitors</b>
Week of Feb 13 <sup>th</sup>	<b>Lab 4: Charging, discharging, and combination of Capacitors</b>
Week of Feb 20 <sup>th</sup>	<b>Lab 5: Current and voltage in a DC Circuit: Ohm's law</b>
Week of Feb 27 <sup>th</sup>	<b>No Lab</b>
Week of Mar 6 <sup>th</sup>	<b>Lab 6: Current and Magnetism</b>
Week of Mar 13 <sup>th</sup>	<b>Lab 7: Magnetic force and Electromagnetic Induction</b>
Week of Mar 20 <sup>th</sup>	<b>Lab 8: Faraday's Law of Electromagnetic Induction</b>
Week of Mar 27 <sup>th</sup>	<b>Lab 9: AC through a LCR Circuit</b>
Week of Apr 3 <sup>rd</sup>	<b>No Lab</b>
Week of Apr 10 <sup>th</sup>	<b>Lab 10: Reflection, refraction, and nature of image formed by convex lens</b>
Week of Apr 17 <sup>th</sup>	<b>Final Exam</b>
Week of Apr 24 <sup>th</sup>	<b>No Lab</b>
Week of May 1 <sup>st</sup>	<b>No Lab</b>
Week of May 8 <sup>th</sup>	<b>No Lab</b>

## **TITLE IX Reporting Obligations**

UNC Charlotte is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. UNC Charlotte has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with civil protective orders, and more. Please be aware that all UNC Charlotte employees, including faculty members, are expected to relay any information or reports of sexual misconduct they receive to the Title IX Coordinator. This means that if you tell me about a situation involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, I am expected to report the information to the Title IX Coordinator. Although I am expected to report the situation, you will still have options about how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need. If you wish to speak to someone confidentially, you can contact the following on-campus resources who are not required to report the incident to the Title IX Coordinator: (1) University Counseling Center ([counselingcenter.uncc.edu](http://counselingcenter.uncc.edu), 7-0311); or (2) Student Health Center ([studenthealth.uncc.edu](http://studenthealth.uncc.edu), 7-7400). Additional information about your options is also available at [titleix.uncc.edu](http://titleix.uncc.edu) under the “Students” tab.