

Physics 284 Modern Physics Laboratory

Fall 2017

Class Meeting time:

Fridays, 10:00 am – 12:50 pm, Faraday 121A

Instructor:

Professor Laurence Lurio

Office: La Tourette 202 (back of the physics office)

Phone: (815) 753-6470

Office hours: Tuesday and Friday 2:00 pm - 3:00pm

Email: llurio@niu.edu

Web Site

<http://webcourses.niu.edu> (Blackboard course page)

Grades and class materials such as lab instructions will be placed on the Blackboard course page.

Course Description:

Introductory experiments in modern physics to accompany PHYS 283.

Course Objectives:

As a result of taking PHYS 284, students will be able to:

1. Use experimental apparatus to collect data in a laboratory setting.
2. Reduce raw experimental data to calculate physically relevant parameters.
3. Estimate the accuracy and errors in their experimental measurements.
4. Document their experimental results and relate them to the theoretical concepts discussed in the lecture class.

Course Skills:

As a result of taking PHYS 284, students will gain experience in the following skills:

- *Collaboration.* - The ability to work with a lab partner.
- *Working with equipment-* The ability to employ experimental apparatus to collect accurate data
- *Data reduction* – The ability to reduce raw data to a form where it can be compared with theoretical predictions.
- *Error analysis* – The ability to estimate the degree of confidence in measured experimental results.
- *Technical writing* – The ability to effectively communicate the results of an experimental measurement.

Lab Instructions

Instructions for all labs will be available on Black Board a minimum of a week before the lab starts. Lab instructions should be downloaded and read before starting the lab.

Grading

The laboratory grade will be based on attendance during lab periods and graded lab reports. The grade breakdown is as follows: Attendance 25%, each lab report 12.5%. The attendance grade is assigned as follows: 10-12 classes A, 9 B, 8 C, 7 D, 0-6 F.

Lab Reports

There will be 6 lab reports. Detailed instructions for writing lab reports are available on the class blackboard page. **Lab reports should be submitted electronically via blackboard and are due before midnight one week after the scheduled completion of the lab.** Any lab report may be rewritten and resubmitted within a week of being returned to the student. The regrade will replace the original grade. Reports that have been submitted late are not eligible for regrades.

Lab Notebooks

All students are expected to keep a lab notebook. Since students will work in teams of two, or occasional three, they should either purchase a lab notebook with carbon paper, or make photocopies at the end of class, so that each student retains a copy of the measurement data. It is each student's responsibility to make sure that they obtain a copy of all the notes from each lab.

Calendar:

Date	Lab
1-Sep	Michaelson interferometer
8-Sep	
15-Sep	Photoelectric effect
22-Sep	
29-Sep	Atomic spectroscopy
6-Oct	
13-Oct	Charge to mass ratio of electron
20-Oct	
27-Oct	Radioactive decay
3-Nov	
10-Nov	Black body radiation
17-Nov	
24-Nov	Thanksgiving
1-Dec	Makeup class (if needed)

Class Policies:

Americans with Disabilities Act: If you need an accommodation for this class, please contact the Disability Resource Center as soon as possible. The DRC coordinates accommodations for students with disabilities. It is located on the 4th floor of the Health Services Building, and can be reached at 815-753-1303 or drc@niu.edu. Also, please contact me privately as soon as possible so we can discuss your accommodations. The sooner you let **us** know your needs, the sooner **we** can assist you in achieving your learning goals in this course.

Class Visitation Policy: Due to liability concerns, only NIU students are allowed to attend at classes at NIU. Guests, including family members and NIU students not registered for the course, will not be permitted to attend class except with prior arrangement with the educator. Because university classes are not developmentally appropriate situations for young children, children will not be allowed in class except in highly unusual circumstances and with the prior approval of the educator.

Academic Misconduct: For a detailed description of the university's definition of academic misconduct, and the process by which it is adjudicated, please refer to the Student Code of Conduct. Sanctions (consequences) for committing academic misconduct include but are not limited to, failure of the assignment, failure of the course, and suspension or expulsion from Northern Illinois University. Cheating and plagiarism of one's own or another's work will not be tolerated. Academic integrity and civility in the classroom are expected of every member of the NIU community. Please review the *Undergraduate Catalog* for more information on this topic.

Syllabus Clause and Contract: This syllabus may be revised and adapted throughout the semester to better serve the needs of the class. The decision to remain in this class upon receipt of the syllabus serves as students' acceptance of the syllabus as a binding contract, meaning they agree with the terms set forth and the expectations of them as members of the class.

Religious Observances: Northern Illinois University, as a public institution of higher education in the State of Illinois, does not observe religious holidays. It is the university's policy, however, to reasonably accommodate the religious observances of individual students in regards to class attendance, scheduling examinations, and work requirements. Such policies shall be made known to faculty and students. Religious observance includes all aspects of religious observance and practice as well as belief. Absence from classes or examinations for religious observance does not relieve students from responsibility for any part of the course work required during the period of absence. To request accommodation, students who expect to miss classes, examinations, or other assignments as a consequence of their religious observance shall provide educators with reasonable notice of the date or dates they will be absent.

Helpful Resources:

ACCESS Tutoring and Support Services (Access to Courses and Careers through Educational Support Services) provides students with several resources for academic assistance. The ACCESS Tutoring and Support Services website (www.niu.edu/access) offers a complete listing of campus resources for tutoring and other academic services available.

Physics Help Room. The physics help room is located in FR 251 and is open M-Th 9-5, F 9-3.

University Writing Center: All students are entitled and encouraged to use the Writing Center in Stevenson Tower South, Lower Level, as a resource for improving their written work. Contact tutors and schedule appointments by walking in, calling 753-6636, or going to www.niu.edu/uwc/.