# SUNY, Buffalo State University

Syllabus

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| **Course Name**: PHY 112: University Physics II, CRN 1103 | **Schedule/Lecture**: M, W, F 10:00 to 10:50 am (SAMC 357) |
| **Semester**: Spring 2023 | **Schedule/Lab**: Thursday 9:25 to 12:05 pm (SAMC 357) |
| **Instructor**: Dr. Arjun Pathak | **Mode**: *in-person* |
| **Email**: pathakak@buffalostate.edu | **Office Hours**: Mon, Wed 11 am to 12 pm |
| **Phone**: 716-878-6233 | **Office**: SAMC 283 |
| **Credit hour:** 5 | **Instructional Hours:** 4/2 |

**Course Description**: Continuation of PHY 111. Calculus-based introduction to electricity, magnetism, and optics. Includes laboratory. Required for majors. Prerequisite: PHY 111 (or equivalent) Co-requisite: MAT 162.

**Course Student Learning Outcomes (SLOs):**

**1**. Manipulate measurement equipment; record and interpret simple direct measurements of physical quantities; judge the quality of these measurements; construct simple electric circuits.

**2**. Perform and interpret experiments; collect, identify and evaluate evidence for physical models that predict and describe electrical and magnetic phenomena.

**3.** Describe physical models using a variety of representations: words, including physics vocabulary; graphs, electric and magnetic field diagrams; algebra, calculus, pictures, and diagrams. Use these representations to solve problems, generate alternative explanations, and analyze physical systems.

4. Apply physical models to practical situations to solve qualitative and quantitative problems; predict the outcome of experiments and explain phenomena; analyze the behavior of objects and systems using physical models and principles.

**Course Format:**

**1.** This course is scheduled to teach face-to-face.

**2.** There will be a total of 8 to 10 labs. There is a total of four tests, three midterms, and one final, all tests will be in-person. The Final will be comprehensive.

**3.** The lecture meets Monday, Wednesday, and Friday from 10:00 to 10:50 AM. The lab is on Thursday from 9:25 to 12:05 PM.

**4.** Lab and Problem-Solving Session (PSS): The laboratory includes hands-on experiments and demonstrations that emphasize quantitative measurements, analysis of data, and interpretation of results. If time permits, about 40 mins PSS will be scheduled every week, which takes place in the first hour of the Lab class. The lab reports/homework assignments are due at the beginning of the following lab.

**5.** Textbook: Modified Mastering Physics for Physics for Scientists and Engineers: A Strategic Approach with Modern Physics 4th Edition, and Student Workbooks volume 2, by Randall Knight

**6.** Student Assess Kit - Mastering Physics, 4th edition, is required for online homework. Weekly HW will be assigned from mastering physics; you should purchase the access code. How to get access to Mastering physics has been announced on Brightspace. Some homework will be written and handed in; most will be done online. Written homework should be turned in at the beginning of class on the day it is due. Written homework will usually be accepted later that same day, but you must make sure I get it before I leave school. Written homework turned in after the due date will be 50% off unless you have a good excuse. No homework problems will be accepted after the problems are gone over in class or after the graded homework is turned back. Online homework will usually be due on Tuesday at 11:59 pm and/or Thursday at 11:59 pm unless otherwise stated. Late HW submission won't get full credit.

**7.** Quizzes will usually be given every week, generally at the beginning of the lab or sometimes beginning of the lecture.

**Class participation:** Class participation is part of your grade and is strongly encouraged to help you learn the material. Questions are encouraged from the class during lectures. Students are expected to read the assigned pages in the text before class starts. In fact, reading logs will be collected at the beginning of many classes to see if you read the assigned material. Participation in class activities receives bonus points and applies to your final grade. *The maximum possible earning bonus points is 150, a total of 150 points equivalent to 3%*

**Policy regarding the use of cell phones, and cameras:** Cell phones should be turned off in the classroom/lab except when absolutely necessary. No camera allows for taking the class picture. No texting is allowed during class. No cell phones are allowed during quizzes and tests. *Headphones are not allowed to use in the class/Lab.*

**Brightspace**: I will be using our Brightspace website to post announcements, PowerPoint presentations, class readings, etc., so I encourage you to check the website frequently. I will also periodically send emails to your Buffalo State student email account; therefore, I expect you to check your email regularly. If you have a question or problem in HW, or lecture and would like to see me, make an appointment by email. I have a *60 mins response policy*; which means I will reply to your email as soon as possible.

### Evaluation and Grading Scale:

Final grades for the course will be based on the following. I reserve the right to lower grade cutoffs but will not raise them.

| Score | Grade |
|---|---|
| 90.0 to 100 | A |
| 85.0 to 89.9 | A- |
| 81.0 to 84.9 | B+ |
| 77.0 to 80.9 | B |
| 73.0 to 76.9 | B- |
| 68.0 to 72.9 | C+ |
| 63.0 to 67.9 | C |
| 58.0 to 62.9 | C- |
| 54.0 to 57.9 | D+ |
| 50.0 to 53.9 | D |
| Less than 50 | E |

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| **Homework** | **11%** |
| **Reading Log** | **4%** |
| **Midterm, 3 exams** | **39%** |
| **Quizzes** | **15%** |
| **Lab** | **16%** |
| **Final** | **15%** |
| **Total** | **100%** |

*Bonus points: Maximum earning bonus points 150, a total of 150 points equivalent to 3%*

**Attendance**

**1.** Attendance is required for the lecture and the lab. Attendance will be taken for all lectures and the lab, and all attendance will count toward your bonus points. If you are absent in the lab, you cannot submit the lab report, and automatically lose the lab grade. Students will be allowed up to three absences (for any reason) with no loss to their bonus points, (this does not apply to the lab). After that, any missed classes will not get bonus points as part of their attendance. If you have a major problem, such as an extended illness, talk to me about it. We might be able to work something out. Students that miss a class are still responsible for all material covered, assignments given, and announcements made in class. Late arrival and early departure from the class are disruptive and should be avoided. *A total of more than three times late or early departure by 15 mins considered absence in the class/lab.*

**2.** Students may get excused absences. Examples of excused absences: absences that are related to personal illness or medical emergency, death or critical illness in the immediate family, jury duty, military duty, religious observances, or participating in university-related activities, such as varsity sports. Students should notify instructors before missing class for excusable absences or within 24 hours after the class meeting. If the student has excused absences and missed the lab, quiz, or test, a make-up lab/quiz/test will be scheduled.

**3.** Examples of unexcused absences: vacation, job-related responsibilities, working on class assignments, activities sponsored by other departments or classes, child-care responsibilities, or extended personal leave are considered

unexcused absences. Students should schedule activities that do not justify excusable absences, such as job or internship interviews, or non-emergency medical appointments, outside of class times.

**4.** If students miss class for any reason, they are responsible for obtaining notes and announcements from another student. The instructor will provide handouts if the student requests.

***Tentative* Schedule** (Chapters are from Physics, by Knight, 4th Edition).

| Week | Monday | Wednesday | Thursday | Friday |
|---|---|---|---|---|
| *Week 1*, Jan. 30 – Feb 3 | Pre-Test/CH22 | Ch. 22 | Lab 1/PSS/Q1 | Ch. 22 |
| *Week 2*, Feb. 6 - 10 | Ch. 22 | Ch. 22 | Lab 2/PSS/Q2 | Ch. 23 |
| *Week 3*, Feb. 13 - 17 | Ch. 23 | Ch. 23 | Lab 3/ PSS/Q3 | Ch. 23 |
| *Week 4*, Feb. 20 - 24 | *President day* | Ch. 24 | **Test 1** | Ch. 24 |
| *Week 5*, Feb. 27 – March 3 | Ch. 25 | Ch. 25 | Lab 4/ PSS/Q4 | Ch. 25 |
| *Week 6*, March 6 - 10 | Ch. 26 | Ch. 26 | Lab 5/ PSS/Q5 | Ch. 26 |
| *Week 7*, March 13 - 17 | Ch. 27/Q6 | Ch. 27 | Lab 6/ PSS/Q7 | Ch. 27 |
| *Week 8*, March 20 - 24 | Ch. 28 | Ch. 28 | **Test 2** | Ch. 28 |
| *Week 9*, March 27– 31 | *Break* | | | |
| *Week 10*, April 3 – 7 | Ch. 29 | Ch. 29 | Lab 7/ PSS/Q8 | Ch. 29 |
| *Week 11*, April 10 – 14 | Ch. 30 | Ch. 30 | Lab 8/ PSS/Q9 | Ch. 30 |
| *Week 12*, April 17 – 21 | Ch. 31/Q10 | Ch. 31 | **Test 3** | Ch. 32 |
| *Week 13*, April 24 – 28 | Ch. 32 | Ch. 32 | Lab 9/ PSS/Q11 | Ch. 32 |
| *Week 14*, May 1 – 5 | Ch. 33 | Ch. 33 | Lab 10/ PSS/Q12 | Ch. 34 |
| *Week 15*, May 8 – 12 | Ch. 34 | Ch. 34/Q13 | Review/post-Test | Ch. 34 |
| *Week 16*, May 15 – 19 | **Final – Monday** May 15, 9:40-11:30 AM | | | |

**Other considerations:**

Students should have access to Brightspace since announcements, log forms, and various solutions will be posted there.

Students should save all graded material both to study from and in case of any disagreement about grades.

Homework handed in on paper should have explanations for how you got all the answers.

Students are expected to have a scientific calculator and to know how to use it. Only regular calculators are allowed during quizzes and tests. No cell phones, laptops, tablets, or ipads are allowed during quizzes and tests.

Sharing a single calculator during quizzes and tests is also not allowed.

Students are expected to know basic trig functions (sine, cosine, tangent, etc.), also differentiation and integration

**Important University Policies and Information:**

**Disabilities**—Any student who requires accommodations to complete the requirements and expectations of this course because of a disability is invited to make his or her needs known to the instructor and the Director of Student Accessibility Services, 120 South Wing, 878-4500.

**Disruptive Behavior**— Disruptive behavior (cell phones, talking, noise, tardiness, etc.) by students in my class will not be tolerated. Whenever I deem a student to be acting in a disruptive or threatening manner, I will exercise

my right to ask that individual to leave the classroom. If refused, I will exercise my right to notify University Police. The responding officer will determine whether an arrest should be made or whether a referral to medical or counseling staff is appropriate. If a student is perceived as a danger to himself, herself, or others, the Dean of Students may propose an interim suspension until a hearing is held. Any student removed from class will have the right to a hearing.

**Academic Misconduct Policy**—All students at the University are expected to display honesty and integrity in completing course requirements and following university academic regulations. Academic misconduct refers to any form of plagiarism or cheating on examinations or assignments (including the provision of answers), and it is inconsistent with the aims and goals of Buffalo State. Anyone caught cheating on a test will receive an automatic E for the course.

**Tutoring, Writing, and Math Assistance**—Free tutoring and workshops covering many topics (e.g., study skills, time management) are available through Academic Commons, 878-5223.