

Syllabus and course policies, Physics 204

1 Basic information

Course title	Physics 204, College Physics II
Instructor	Palash Banerjee
Contact	SCI B-201 , palash.banerjee@uwsp.edu
Student hours	T 11 am — 12 noon, WF 12 noon — 1 pm, in SCI B-212.
Pre-requisite	Physics 203 and knowledge of algebra and trigonometry.
Textbook	"Physics" by Walker.
Also required	a lab notebook, a straightedge and a protractor, a scientific calculator, and a three-ring binder.

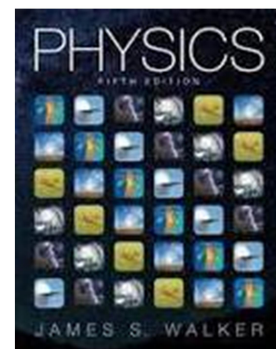


Figure 1: Your textbook

2 Course description

Physics 204 covers topics in electric fields, voltage and electric circuits, magnetic fields, and optics. I'll spend class time introducing you to the fundamental principles and their applications. And I would also like to introduce you to the "physics way" of learning. By this, I mean I'll show you how to

1. Put the concepts and principles first, talk about the physics, and make the proper arguments,
2. Draw neat graphics and pictures to support your arguments, and
3. Support your arguments and graphics with analytical work.

Doing physics this way will make your learning more structured and systematic and you will begin to discover patterns. Identifying these patterns will make your learning easier and somewhat fun. There will be fewer things to memorize and this will free up your mind so you can spend more time discussing and solving interesting scientific problems in physics. To support this style of learning, I'll use class time to discuss a limited number of fundamental topics but in greater conceptual depth with lots of examples.



Figure 2: Also required — a lab notebook, a three ring binder for the handouts, a straightedge and a protractor, as well as a scientific calculator.

3 Learning outcomes

The assignments in this course support the following learning outcomes:

1. You should be able to explain the fundamental principles in physics and apply them to the solution of scientific problems. And you should be able to design and perform an experiment, and be able to explain the results you obtain from that experiment.
2. You should be able to improve your writing skills and learn to present your work clearly. If you write clearly, you will think clearly and this will sharpen your analytical skills.

4 Course assignments

1. **Homeworks:** Homeworks will be assigned weekly and be due beginning of class Friday. You may expect approximately 13 ± 1 homeworks during

the course. You may work together in a group but you *may not* copy each others' work. All your homework assignments count equally and I will *not* drop any homework score.

2. **Discussion:** Discussion time will be spent reviewing important concepts and taking a short and friendly quiz. All your discussion assignments count equally and I will *not* drop any discussion score.
3. **Laboratory:** The physics laboratory is where you learn to use some common electrical instruments, perform careful measurements, reduce the data to results using analytical methods, and present a neatly written account of your work. I consider these four steps to be part of the standard scientific workflow and you should conscientiously practice these skills. Your lab notebooks will be due Monday and I will drop your lowest score.
4. **Exams:** There will be *two* midterm exams during the semester held during lab times and one final exam. *All* the exams count and no score will be dropped. If you miss any exam, you will receive a zero for that exam.

5 Grading and evaluation

I will calculate your grade based on a weighted percentage of your scores as shown in Table 1. Your final letter grades will be determined as shown in Table 2.

I do *not* grade on a curve. Scores will be rounded up according to the following example: 86.6 – 86.9% will be rounded up to 87% and become a B+, but 86.0 – 86.5% will remain at 86% and will earn a B.

6 Other course policies

1. If you are going to be late on an assignment, please let me know. I will accept only one late assignment and no excuses are needed. Subsequent late assignments will not be accepted.
2. No make-up labs will be offered and no make-up exams will be offered.
3. Make-up work will only be accepted in the case of excused absences. Excused absences include death in the immediate family, illness with a note from the appropriate health care professional, religious observance, or an event in which you officially represent UWSP and the event directly conflicts with an exam or lab. Excused absences must be approved with documenting materials prior to the date of absence.
4. Please *do not* copy each others homeworks, class assignments, laboratory reports, and examinations and pass them off as your own. Any such incidents will be treated seriously and in accordance with University policy.
5. Food and drinks are not permitted in the laboratory.
6. The schedule for the finals is set by the University. I will not schedule an early final exam for whatever reason. Please don't ask.

Assignment	Value
Homeworks	18%
Laboratory work	15%
Discussion quiz	7%
1st exam	20%
2nd exam	20%
Final examination	20%

Table 1: Each assignment category contributes a weighted percentage to your overall grade.

Total score	Grade
93% and above	A
90–92%	A-
87–89%	B+
83–86%	B
80–82%	B-
77–79%	C+
73–76%	C
70–72%	C-
67–69%	D+
60–66%	D
below 60%	F

Table 2: Your final letter grades will be determined based on this table.

7. I *do not* assign work for extra credit and there are *no* bonus points that you can earn. Once you hand in your final exam, there is nothing more you can do to change your grade.

7 Course schedule

The tentative course schedule is shown in the table below. I will try my best to follow this but I may decide to spend more or less time on certain topics depending on how the semester proceeds.

Week	Chapter: Topic	Laboratory
(1) Sept 3	Ch 19: We meet electrostatic interactions.	The electroscope.
(2) Sept 10	Ch 19: We discover electric fields and learn some analytical methods.	Extension of a wire.
(3) Sept 17	Ch 20: We find a connection between electric fields, work done, and the electric potential.	Mapping electric field lines.
(4) Sept 24	Ch 20: We apply the theory of fields and potentials to electrical devices.	Electric circuits I.
(5) Oct 1	Ch 21: We meet the theory of electrical conduction.	Electric circuits II, Energy and power.
(6) Oct 8	Ch 21: We construct the theory of dc circuits and learn about sensors and instruments.	Mid term exam 1.
(7) Oct 15	Ch 22: We learn how to generate magnetic fields.	Electric circuits III, an emf device.
(8) Oct 22	Ch 22: We meet magnetic forces and learn about cyclotron orbits.	Electric circuits IV, RC circuits.
(9) Oct 29	Ch 23: We discover how to generate an induced current.	Electric circuits V, Building a photodetector.
(10) Nov 5	Ch 25: We encounter the awesomeness of polarized electromagnetic waves.	Electric circuits VI, Energizing a solenoid.
(11) Nov 12	Chs 25 & 28: We build the wave model for light and learn to draw phasor diagrams.	Mid term exam 2
(12) Nov 19	Ch 26: We build the ray model for light and learn about refraction and lenses.	Thanksgiving break
(13) Nov 26	Ch 27: We find a use for the ray model and discuss focal planes and imaging systems.	Electric circuits VII, A detector for polarized light.
(14) Dec 3	Ch 30: We build the quantum model for light and learn about photons and the photoelectric effect.	Converging lenses.
(15) Dec 10	We catch up and review and realize we love ♡physics♡.	Corrective optics.
(16) Dec 17	Final exam, Tue Dec 19, 10:15 am — 12:15 pm in SCI A-208.	