

PHYS 203B-001: COLLEGE PHYSICS

SYLLABUS (Spring 2017)

Department of Physics, Southern Illinois University–Carbondale

Last updated: January 17, 2017

1 General information:

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Class meetings: MWF 10-10:50 AM, in Neckers 440.

Office hours: MWF 11-12:30 PM; T 2-3 PM; R 11-11:30 AM.

2 Prerequisites:

Conceptual understanding of the natural phenomena described in this course usually requires a good mathematical background. A strong aptitude for algebra and basic mathematical techniques will be necessary for the course. The following is a partial list of the necessary mathematical techniques: Algebra, Geometry, Trigonometry, Vector algebra, Solutions of simultaneous equations, Significant figures.

Completing PHYS 203A is an official prerequisite for the course. Remember that MATH 109 or 111 or 125 or 140 or 150, with a grade C or better, was a prerequisite for PHYS 203A.

3 Course description

The course will broadly cover the topics of Electricity and Magnetism, Light and Optics, and Modern Physics. These are covered in the final fifteen chapters of the textbook. We will cover a fair amount in the limited time.

Electricity and Magnetism involves the study of interactions of electrically charged materials. We will, in particular, study the unification of electricity and magnetism first observed by Michael Faraday and formulated in the Maxwell equations.

Light, and electromagnetic waves in general, is understood as oscillations of electric and magnetic fields. We will study the behavior of light in the context of geometrical optics, which are known as laws of reflection and refraction.

Electricity and Magnetism of Maxwell's equations predicted that the speed of light is a constant, and led to the development of Theory of Relativity and Quantum Mechanics. We shall explore these developments under Modern Physics.

Textbook

The following is the assigned textbook for the course:

Physics, John D. Cutnell & Kenneth W. Johnson,
9th Edition, John Wiley & Sons, Inc.

Homework problems will be assigned from the above textbook.

An older edition of the assigned textbook, or most of the similar textbooks in the market, should be sufficient for the course. Openly licensed textbooks are also decent substitutes for the assigned textbook, for example,

OpenStax College, College Physics. OpenStax College. 21 June 2012.

This publication is licensed under a Creative Commons License 4.0 International. The electronic copy of the textbook is available for free at <https://openstaxcollege.org/textbooks/college-physics/get>. A professionally printed copy of the publication is available for \$48.50. Supplemental resources, including the Student Solution Manual, is available for free at <https://openstaxcollege.org/textbooks/college-physics/resources>.

Web-page

SIU Online, powered by Desire2Learn, at

<https://online.siu.edu>,

a password protected site, will be used to post grades and necessary materials for the course. Homework will be administered by an online service at

<http://www.webassign.net>,

which requires the student to register and make a payment. The class key needed to enroll with webassign for this course is

siuc 6472 0203.

4 Course work

Evaluation

Homework	30 %
Midterm Exams ($3 \times \sim 16.7\%$)	50 %
Final Exam	20 %

Homework

Homework will be assigned on every chapter covered, at <http://www.webassign.net>. Homework will be based on the concepts covered in the classroom and will mostly be problems from the textbook. The web based system allows students to take multiple trials to get the right answer and gives instant feedback on the correctness of their final answer. Note that the web based software does not grade the detailed steps of your work, instead it only checks your final answer. Nevertheless, students will be expected to show detailed steps of their thought process in tests and quizzes. Further, answers should have appropriate units and significant figures.

Students are encouraged to discuss the homework with their classmates and everyone around them. Since the web based system is designed such that each student gets a slightly different version of the question, it reduces the chance of outright cheating.

Exams

Four examinations (including the final exam) will be administered.

Midterm Exam 01	February 10 (Friday, in class)
Midterm Exam 02	March 10 (Friday, in class)
Midterm Exam 03	April 14 (Friday, in class)
Final Exam	May 10 (Wednesday, 10:15 AM-12:15 PM)

The midterm exams will assess you on concepts covered in lectures, textbook material, and homework. All the midterm exams will be cumulative, but you are advised to concentrate more on topics covered in the later part of the semester. Unlike homework, the exams will be graded manually, and will be used to get a general notion of the students development in the course. There will be no make up exams. If your absence from the exam is properly authorized with an appropriate "University form for Excused Absences", which usually needs to be given to the instructor before the absence, your score in the Final Exam will be used to cover for the missed exam.

Grading

The grading involves 30 % of homework and 70 % of exam. Generally, it is significantly easier to score in homework in comparison to exams. In the past, seventy percent of the students scored more than ninety percent in homework, while only ten percent scored more than ninety percent in exams.

The following is the grading scheme for the course. Here x is the final score in percent. The final column is a recommendation of a possible breakup that one can aim for the corresponding grade.

$85 \leq x \leq 100$	A	(97 % in homework, 80 % in exams)
$72 \leq x < 85$	B	(90 % in homework, 65 % in exams)
$60 \leq x < 72$	C	(80 % in homework, 50 % in exams)
$40 \leq x < 60$	D	
$0 \leq x < 40$	F	

If your final grade falls too close to a borderline, and if you have an average of more than seventy percent in homework, your grade will be rounded to the next integer.

5 Syllabus Attachment

The Provost Office has created a “Syllabus Attachment” to assist the student. It lists and provides web links for many elements that are important for a student. Kindly find it attached.

IMPORTANT DATES *

Semester Class Begins:	01/17/2017
Last day to add full-term course (without Dean's signature):	01/22/2017
Last day to withdraw from the University with a full refund:	01/27/2017
Last day to drop a full-term course for a credit/refund:	01/29/2017
Deadline to apply to graduate at the end of this term:	04/2/2017
Final examinations:	05/8–05/12/2017
Commencement:	05/13/2017

*For more detailed information on the above deadlines, please visit <http://registrar.siu.edu/calendars>. For add/drop dates that apply to shorter-than-full-term courses, please look at the Schedule of Classes search results at <http://registrar.siu.edu/schedclass/index.php>

SPRING SEMESTER HOLIDAYS

Martin Luther King Jr.'s Birthday Holiday 01/16/2017

Spring Break 03/11—03/19/2017

WITHDRAWAL POLICY ~ Undergraduate only

Students who officially register for a session must officially withdraw from that registration in a timely manner to avoid being charged as well as receiving a failing grade for those classes. An official withdrawal must be initiated by the student, or on behalf of the student through the academic unit, and be processed by the Registrar's office. For the proper procedures to follow when dropping courses and when withdrawing from SIU visit: <http://registrar.siu.edu/students/withdrawal.php>

INCOMPLETE POLICY~ Undergraduate only

An INC grade may be assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments for the course. An INC must be changed to a completed grade within one full semester (undergraduates), and one full year (graduate students), from the close of the term in which the course was taken or graduation, whichever occurs first. Should the student fail to complete the remaining course requirements within the time period designated, the incomplete will be converted to a grade of F and such grade will be computed in the student's grade point average. For more information visit: <http://registrar.siu.edu/grades/incomplete.php>

REPEAT POLICY

An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit more than once. For students receiving a letter grade of A, B, C, D, or F, the course repetition must occur at Southern Illinois University Carbondale. Effective for courses taken Summer 2013 or later, only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned.

This policy will be applied to all transferrable credit in that only the last grade will be used to calculate grade point average. Only those courses taken at the same institution are considered repeats under this policy. See full policy at

<http://registrar.siu.edu/students/repeatclasses.php>

GRADUATE POLICIES

Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please refer to the graduate catalog at

<http://gradschool.siu.edu/about-us/grad-catalog/>

DISABILITY POLICY

Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must contact DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements.

<http://disabilityservices.siu.edu/>

PLAGIARISM

Student Conduct Code <http://srr.siu.edu/student-conduct-code/>

Guidelines for Faculty http://pvcaa.siu.edu/_common/documents/Plagiarism/Guide%20to%20Preventing%20Plagiarism.pdf

SAFETY AWARENESS FACTS AND EDUCATION

Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here:

<http://safe.siu.edu>

SALUKI CARES

The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: call (618) 453-1492, email siucares@siu.edu, or <http://salukicare.siu.edu/>

SIU's EARLY WARNING INTERVENTION PROGRAM (EWIP)

Students enrolled in courses participating in SIU's Early Warning Intervention Program might be contacted by University staff during a semester. More information can be found at the Core Curriculum's Overview webpage:

<http://corecurriculum.siu.edu/program-overview/>

EMERGENCY PROCEDURES

We ask that you become familiar with **Emergency Preparedness @ SIU**.

Emergency response information is available on posters in buildings on campus, on the Emergency Preparedness @ SIU website, and through text and email alerts. To register for alerts visit: <http://emergency.siu.edu/>

STUDENT MULTICULTURAL RESOURCE CENTER

The Student Multicultural Resource Center serves as a catalyst for inclusion, diversity and innovation. As the Center continues its work, we are here to ensure that you think, grow and succeed. We encourage you to stop by the Center, located in Grinnell Commons, to see the resources available and discover ways you can get involved on the campus. Visit us at <http://inclusiveexcellence.siu.edu/>

LEARNING AND SUPPORT SERVICES

Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:

Tutoring : <http://tutoring.siu.edu/>

Math Labs <http://math.siu.edu/courses/course-help.php>

WRITING CENTER

The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit:

<http://write.siu.edu/>

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY

Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: <http://diversity.siu.edu/#>

MILITARY COMMUNITY

There are complexities of being a member of the military community and also a student. Drill schedules, calls to active duty, complications with GI Bill disbursement, and other unforeseen military and veteran related developments can complicate academic life. If you are a member of the military community and in need of accommodations please visit Veterans Services at <http://veterans.siu.edu/>

Additional Resources:

ADVISEMENT: <http://advisement.siu.edu/>

SIU ONLINE: <https://online.siu.edu/>

SALUKI SOLUTION FINDER: <http://solutionfinder.siu.edu/>

MORRIS LIBRARY HOURS: <http://libguides.lib.siu.edu/hours>