

PHYS 203A-001: COLLEGE PHYSICS

SYLLABUS (Spring 2018)

Department of Physics, Southern Illinois University–Carbondale

Last updated: February 7, 2018

1 General information:

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Class meetings: MWF 2:00-2:50 PM, in Neckers 440.

Office hours: MWF 4:00-5:30 PM, TR 11:30 AM-12:15 PM.

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 MATH 109 or 111 or 125 or 140 or 150, with a grade C or better, is an official prerequisite for the course.

3 Course description

The course will broadly cover the topics of Mechanics, Thermal Physics, and Wave Motion. These are covered in the first seventeen chapters of the textbook. We will cover a fair amount in the limited time.

Mechanics is the study of motion of an object under the response of applied forces. Motion of an object is described by its position, velocity, and acceleration. Newton's laws of motion describes the motion of an object under the action of forces. Spaceflight is an example of a phenomena in which Mechanics plays a central role.

Thermal Physics studies the form of energy associated with heat. The laws of thermodynamics describes the phenomena involving this form of energy. A car engine is an example of a device that is based on Thermal Physics.

Wave motion studies the transfer of energy from one point to another due to oscillations, without any transfer of matter. Sound, created by human vocal cords, and radio signals are examples of waves.

Textbook

The following is the assigned textbook for the course:

Physics, John D. Cutnell & Kenneth W. Johnson,
10th 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.

Web-page

MyCourses, powered by Desire2Learn, at

<https://mycourses.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 5881 2528.

4 Course work

Evaluation

Homework	25 %
Explanatory Homework	05 %
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.

Explanatory Homework

Explanatory Homework, in striking contrast to the online homework, will be graded primarily for the presentation of the thought process. Intermediate steps will be awarded points. The final answer should have the right units and correct number of significant digits.

Exams

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

Midterm Exam 01	February 12 (Monday, in class)
Midterm Exam 02	March 19 (Monday, in class)
Midterm Exam 03	April 13 (Friday, in class)
Final Exam	May 7 (Monday, 2:45-4:45 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.

Syllabus Attachment

Spring 2018

MISSION STATEMENT FOR SOUTHERN ILLINOIS UNIVERSITY CARBONDALE

SIU embraces a unique tradition of access and opportunity, inclusive excellence, innovation in research and creativity, and outstanding teaching focused on nurturing student success. As a nationally ranked public research university and regional economic catalyst, we create and exchange knowledge to shape future leaders, improve our communities, and transform lives.

IMPORTANT DATES *

Semester Classes Begin:.....**01/16/2018**
Last day to add full-term course (without Dean's signature):**01/21/2018**
Last day to withdraw from the University with a full refund:.....**01/26/2018**
Last day to drop a full-term course for a credit/refund:.....**01/28/2018**
Last day to drop a full-term course (W grade, no refund):.....**04/01/2018**
Final examinations:**05/07–05/11/2018**

The Final exam schedule will be posted the third week of class.

Please verify the above dates with the Registrar calendar and find more detailed information on deadlines at <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 01/15/2018
Spring Vacation 03/10—03/18/2018

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

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

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

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/>

DIVERSITY

Southern Illinois University Carbondale's goal is to provide a welcoming campus where all of our students, faculty and staff can study and work in a respectful, positive environment free from racism and intimidation. *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, and 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/>

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

Need help with an issue? Please visit SALUKI SOLUTION FINDER at <http://solutionfinder.siu.edu/>