**NOTE:** Information in this syllabus should be considered as “preliminary”. All students are responsible for changes announced in lecture and via class Email.

# Course Organization

The pure online course is taught every summer and every-other calendar year. This course is comprised of materials collected during a prior year’s instance of the “Simul-taught” class. The major differences are that the materials may contain out of date references (*e.g.* hearing about a snow day while taking the class in June) and eliminates the recitation component of the class. The class has exactly the same rigor as the prior class since the material is identical.

# Lecture

Lecture recordings viewed as “punctuated echo”. Attendance is recorded by answering mouse-based clicker questions that are embedded inside the lectures.

# Recitation

Recitations are eliminated in the pure online class as a component of the grade. Nonetheless, the importance is the recitations in helping students with their homework is well recognized. Therefore recordings of past recitations are available to all students, but no recitation-component of the grade is used.

# Physics for Scientists and Engineers: Foundations and Connections, Extended Version with Modern PhysicsRequired Material

1. Textbook:
   1. Title: Physics for Scientists and Engineers.
   2. Author: Deborah Katz
   3. You may acquire the book in any form:  
      Hardcover, Paperback, Loose leaf, eBook.
   4. The least expensive is eBook.
   5. **Be certain that your purchase includes WebAssign.**
2. All Course Information handed out in lecture.
3. A **NON-Programmable** calculator.
   1. Exams allow no formula sheets.
   2. Calculator should have:
      1. Addition, subtraction, multiplication, division.
      2. Trig functions.
      3. Log functions.
      4. Square root.
   3. Calculator must not have ability to store formulas.
   4. Practice with your exam calculator even on homework.
4. An account in the WebAssign system (see below).
5. A clicker from the Turning Point Company

# Grade Determination

The grades will be calculated based upon the following percentages:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Exam 1 | Exam 2 | Final | ~~Recitation~~ | Homework | Attendance |
| Percentage | 15% | 15% | 30% | ~~10%~~ | 15% | 15% |

These contributions add up to 90% (because of the missing recitations) and are therefore scaled to 100% when formulating grades. Your final score based upon the weightings listed above will be compared to the following scale to determine the letter grades (*i.e.* there is NO CURVE):

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | F |
| Percentage | > 90 | 85-89 | 80-84 | 75-79 | 70-74 | 65-69 | 60-64 | 55-59 | 50-54 | 45-49 | < 45 |

# Homework

The homework is electronic and delivered through WebAssign. Rosters of the class are pre-loaded into WebAssign and students merely lick on the Black-board-based-link to access the homework.

# Daily Tasks

To aid in student progress, the Blackboard site contains a folder called “Daily Tasks” which is located inside the “Documents” area. Each day has a folder that contains a set of course links which aid the student in measuring their own progress. These dates are the DUE DATES of the enclosed material. It is highly advisable that students strive to get ahead of the due dates to allow extra study time prior to exams.

# Material & Exam Level

The material covers all the following topics

* Units and Vectors
* Kinematics
* Force
* Circular Motion
* Energy and Momentum
* Rotational Kinematics
* Rotational Energy
* Torque
* Angular Momentum
* Simple Harmonic Motion
* Waves and Music
* Fluids
* Calorimetry and Heat Transfer
* Kinetic Theory of Gases/Ideal Gas Law
* Engines, Refrigerators, and Heat Pumps

The level of the class can be judged by the following comments on the exams:

* Midterm 1 is guaranteed to include derivative calculus.
* Midterm 2 will include Moment of Inertia derived by integral calculus.
* The final exam will include a complete analysis of a Refrigerator, Engine or Heat Pump:
  + Determining the P,V,T at all endpoints in the P-V state diagram.
  + Determining U, Q, and W for all processes.
  + Determining Wtotal, Qhot, Qcold
  + Determining the efficiency or performance coefficient, as appropriate.

# Getting Help

## Office Hours

Office hours shall be held vis the SB Connect service in Blackboard. This allows students from anywhere to experience a live audio and video chat session with the instructor(s) and are primarily directed toward homework help.

## Review Videos

Review videos are available posted on the course web page. Up to 3% extra credit is available for viewing them all. They are divided into headings by “learning objective” and are not a perfect match to the book (they are better).

## Review Sessions

Professor Hemmick has developed a tradition of holding **extensive** review sessions outside of class. Recordings of these sessions are put into the Daily Tasks folders on the day before the exam. Since there is ~8 hours of recorded material per exam, students should schedule their time carefully.

The philosophy is simple. The exams in this course are tough but fair. We will work as hard as necessary so that by the time you take them they will seem easy. High scores on a tough exam is the explicitly stated goal of the instructor and should be the same goal for all students. Scheduling of these reviews will be done in lecture.

# Exams

Exam schedules are embedded into the Daily Tasks folder(s). Students who can come to the university at the appointed time will have a room provided for taking the exam. Off campus students must instead find a so-called testing center. Testing centers are EASY to find as they are so common these days. The following testing centers are easy to find:

* Nearly every major university
* Nearly every community college
* Most public libraries
* Most tutorial companies (*e.g.* Sylvan Learning Centers)

Because the class has hundreds of students who will be taking remote exams, the professor ABJECTLY REFUSES to participate in the process of each student making their reservations at a testing center. Please share this stipulation from the syllabus with any testing center that requests contact from the professor. If they continue to require contact from the professor, find another testing center.

Once a testing center has been identified, the student is required to “register” their testing center via the form posted on the Blackboard web page. Please keep the following in mind:

* TYPE CAREFULLY! If the Email address has a typo, you’re exam won’t arrive.
* Inform your testing center that the ONLY contact they will receive from me is the Email containing the exam as an attachment sent in the early hours on the morning of the exam.
* Try to schedule your test time to have some overlap with the test being given at SBU. In the many cases where this is impossible, you will take a different but equivalent exam.
* If you write on the back of the exam at a testing center:
  + Indicate on the front page that work continues on the back
  + SPECIFICALLY REMIND your testing center to scan the backs of the pages.