Physics 4A (Spring 2017)  
Syllabus

Instructor Information

Instructor: Joe McCullough, Ph.D.  
Office: Room 826A  
Telephone: 479-6521  
E-mail: jomccull at cabrillo dot edu

Office Hours:  
Mon. 10:00 – 10:45  
Tues. 10:00 – 10:45 and 12:45 – 1:45  
Thur. 9:45 – 10:45 (room 834)  
Also by appointment.

PLC Hours:  
Mon. 12:45 – 3:15  
(room 834) Tues. 1:45 – 2:45

Course Information

Class Meetings:  
Lecture (room 806) M, T, Th 11:10 – 12:25  
Lab (room 802) W 8:00 – 11:05 or 11:15 – 2:20 or 2:45 – 5:50  
PLC (room 834) at least 50 minutes drop-in

Text:  
Fundamentals of Physics (9th Edition), Halliday, Resnick, and Walker  
Volumes 1 and 2

Class Website:  
http://www.cabrillo.edu/~jmccullough/physics4a

Student Learning Outcomes:

1) Analyze and solve novel problems using the concepts, equations and methods of mechanics, fluids, and waves in both independent and collaborative settings.

2) Investigate physical phenomena experimentally using appropriate equipment and methods, and make valid comparisons with theoretical predictions.

3) Clearly communicate results of scientific inquiries in both oral and written form.
Grading Policy

Course work will be weighted as follows:

- Class Participation: 5%
- PLC Activities: 10%
- Lab Reports: 10%
- Homework: 10%
- Quizzes: 15%
- Celebration 1: 15%
- Celebration 2: 15%
- Final Celebration: 20%

Total: 100%

Grade cutoff levels:
- A: 90%
- B: 80%
- C: 70%
- D: 60%

These cutoff levels may drop but they will not rise. I do not grade on a curve so you are competing only with yourself. I encourage you to work in small groups with other students as much as possible.

Class Participation: Your attendance and eager participation in the class will help you learn, and thus it should also help your grade. In “lecture”, we will be using a remote controlled student response system (clickers) that will record your responses to various multiple-choice questions that I will ask during class. Your class participation grade will be based on the percentage of these questions that you have answered, regardless of whether or not your answers were correct.

Note: You may be dropped from this course if you miss seven classes.

PLC Activities: The drop-in Physics Learning Center / STEM Center (room 834) will be open every day. You are required to complete PLC activities that will take approximately 50 minutes each week. These activities are designed to support analytical and conceptual learning of the material and should be worked in small groups for best learning. To get credit for the PLC activities each week, you must show your work to a tutor or instructor in the PLC and have them initial a sign out sheet. You must also record your hours every single week on your PLC sign-in sheet.

Note: I also encourage you to work on your homework assignments in small groups in the PLC/Stem Center whenever possible.
Lab Reports: Active participation and attendance in lab is mandatory. Please take lab notes in ink on loose sheets of paper while in lab. Labs will be collected every other Wednesday, one of which will be a formal lab report. The Lab Report Guidelines handout describes the format you should use for these reports, which should include names (you and your partners), title, date, experimental procedure, data organized into tables or graphs (may be printouts from Excel or other program), calculations/results and a discussion/conclusion.

**Note: You will automatically be dropped from this course if you miss two labs.**

Homework: Questions and problems from the text will be assigned and collected approximately once a week. Your success in the class will depend largely on the effort that you invest in these. I encourage you to work on the homework assignments in small groups, however, make sure you write up your answers individually.

Assignments must be placed on the instructor’s desk before class begins on the due date. Assignments turned in after that are considered late. If you cannot attend class, arrange to have a friend turn in your problem set or use one of your two NQA coupons. Please use the format described in the Homework Guidelines handout to get full credit. The homework solutions will be posted on the course website the same day the homework is turned in.

Quizzes: A 15-20 minute quiz will be given at the beginning of class the day that homework is turned in. Each quiz will test you on the concepts and problems covered in class, in lab, in the PLC activities, and in the homework. You will do well on the quizzes as long as you attend every class, focus on understanding the concepts as well as the equations, and keep up with the homework. Quizzes will be closed book but you are allowed a 4” by 6” index card full of notes and equations.

Celebrations: There will be two celebrations and a comprehensive final celebration. The celebrations will consist of approximately 30% conceptual questions and 70% problems. They will cover all course material including textbook readings, lectures, labs, homework assignments, quizzes, and PLC activities. Celebrations will be closed book, but you will be allowed to bring one 8.5” by 11” sheet of paper filled with notes and formulas. A written excuse (medical, legal, family emergency, etc.) must be provided if a celebration is missed – preferably prior to the celebration.
**Expected time commitment:**

You should expect to spend about 16 hours per week (inside and outside of class) studying Physics 4A. Spending less time than this will decrease your chances of doing well in this course.

**In class:**  Lectures (3 hours 45 minutes)  
Lab (3 hours)  
PLC (2 hours 5 minutes)  

**Outside of class:**  Reading textbook (2 hours)  
Homework (3 hours)  
Studying (2 hours)

**Miscellaneous:**

**Students with Special Circumstances:**

If you have a medical condition or learning impairment that requires some special classroom accommodations, please meet with me during my office hours to discuss your needs as soon as possible. Prior to meeting with me, you should meet with a Disabled Student Services counselor or a Learning Disabilities Specialist to officially verify your disability and to obtain an Accommodations Request Form.

**Policy and Attendance:**

Quizzes and celebrations are based on information presented in lecture so attendance is critical to your success. *You may be dropped from this course if you miss seven classes.*

It is also imperative that you arrive exactly on time. It is rude to your fellow students and to me when you are late. Repeated tardiness, according to the Cabrillo College guidelines, may be defined as disruption, and disruptive students may be dropped at the instructor's discretion. Students tardy a total of seven times may be dropped from the course.

**Policy on Academic Dishonesty:**

I assume that the student is familiar with Cabrillo College’s policy on academic dishonesty, which states that cheating or plagiarism is “prohibited conduct.” In this class, cheating is considered to be copying any other source but your own, including looking at someone else's paper during a quiz or celebration.

Although I highly encourage students to work together in small groups on homework assignments, the solutions to each problem **must be** written up individually.

Copying someone else’s work will result in a zero on the assignment or exam for the first offense and an F in the course for the second offense.
Policy on Cell Phone Usage:

There is a strict no cell phone policy during lectures and labs. If you chose to violate this policy by using your cell phone to text, check email, and/or surf the web, you will receive a slip of paper similar to the one below. You will then have a choice of either leaving class for the day or losing 20% off of your class participation grade at the end of the semester.

Violation of Cell Phone Policy

You are receiving this paper because you have chosen to violate the No Cell Phone Policy by using your cell phone during class or lab.

If you are receiving this during lecture, you have the choice of either leaving class immediately for the day or losing 20% off of your class participation grade at the end of the semester.

If you are receiving this during lab, you will lose 20% off of your grade for this lab.

Policy on Late Assignments:

Assignments (HW, lab reports, …) must be turned in by the beginning of class on the day they are due. Any assignment turned in after that time is considered late and will be marked down 50%. Late assignments must be turned in by the next class meeting. After that, no late assignments will be accepted.

You will get two NQA (No Questions Asked) coupons similar to the one below that you may use at any time during the semester. These coupons will allow you to turn in a HW assignment or lab report up to one day late without penalty.

NQA Coupon 1

No Questions Asked

This coupon entitles you to turn in one assignment up to one meeting day late without penalties. May be used for homework or lab reports.

Print name ____________________________

Assignment ____________________________

Sign here ____________________________
**TBA (To Be Arranged) Hours:**

Physics 4A requires 50 minutes per week of arranged hours to be fulfilled in The Physics Learning Center (PLC) / STEM Center in Room 834. It is the students’ responsibility to record their attendance each time they attend the PLC. The instructor will collect and check these hours periodically. These hours are required, tracked, and the assignments graded. Arranged hours are class time and all students are expected to meet this number of hours per week to fulfill the requirements of this course.

**PLC Policies and Procedures:**

- TBA hours (i.e. PLC assignments) must be worked on cooperatively in small groups of 2 – 4 students.

- PLC exercises and experiments must be completed and signed off between 9:00 am and 4:00 pm during the times that an instructor is available. The times are posted online (see PLC schedule) and in the PLC.

- Students must sign in on the log-in computer when they enter the PLC and sign out when they leave.

All PLC exercises and experiments are posted on the Physics 4A web site at:

[http://www.cabrillo.edu/~jmccullough/physics4a/4a_plc.html](http://www.cabrillo.edu/~jmccullough/physics4a/4a_plc.html)

The weekly schedule of topics for TBA assignments is listed below.

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<th>Week #</th>
<th>Weekly TBA Assignments</th>
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<td>Introduction to the STEM Center and PLC procedures</td>
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<td>Week 2</td>
<td>1 Dimensional Motion</td>
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<td>Week 3</td>
<td>Constant Acceleration &amp; Vectors</td>
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<td>Week 4</td>
<td>Motion in 2- and 3- Dimensions</td>
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<td>Week 5</td>
<td>Newton's Laws</td>
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<td>Week 6</td>
<td>Group Review for Celebration #1</td>
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<td>Week 7</td>
<td>Partner Review of Study Habits, Learning Styles, and Celebration #1</td>
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<td>Week 8</td>
<td>Work and Energy</td>
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<td>Real World Physics</td>
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<td>Week 11</td>
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<td>Week 13</td>
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<td>Week 15</td>
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