**Lecture:** 10:30 – 12:30 pm, Tu Th
Room: SM 101

**Laboratory**: 12:30-3:30 pm, Th
Room: SM 101

# *Spring 2007*

## *PHYSICS 4B - GENERAL PHYSICS Syllabus* ***(Ticket # 19250)***

**INSTRUCTOR:** Mrs. Katherine Meyer-Canales **OFFICE:** SM 141 (Science/Math Building)

**COURSE WEBSITE:** ***http://www.saddleback.edu/AP/mse/phys/*** (then scroll down to the PH 4B link)

**PHONE:** (949) 582-4593 **E-MAIL:** kmeyer7@saddleback.edu

**OFFICE HOURS (if I am not in my office during these hours, check in SM 101 or SM 102):**
**M:** 10:30 – 11:30 am & **M, Tu, W, Th:** 3:30 – 4:30 PM & **by appointment!**

**PREREQUISITE:** PH 4A

***This course is a calculus-based introduction to classical electromagnetism, and will investigate the following topics: electrostatics, magnetic fields, electromagnetic induction, electromagnetic radiation and waves, interaction of radiation and matter.***

**REQUIRED MATERIALS:**

- Handouts: Prior to lecture/lab you are to print the course handouts (consisting of example problems, summary tables, lab experiments etc.) for the appropriate chapter or lab exercise from the course website and bring them with you to class. IF YOU DO NOT HAVE A PRINTED COPY OF THE LABORATORY EXPERIMENT FOR THAT DAY'S LAB, YOU WILL NOT BE ALLOWED TO PARTICIPATE IN THE LAB.
- Textbook: *Fundamentals of Physics* (7th Ed., Vol. 2, ISBN 0-471-42960-0) by Halliday, Resnick and Walker, John Wiley and Sons; (You must bring your book to class every day!) If you plan on taking PH 4C you might consider purchasing the *Extended Edition* (ISBN 0-471-23231-9) or *International Edition* (softcover, ISBN 0-471-46508-9) online as it will save you $ and contains all chapters (1 - 44) found in volumes 1 & 2.
- Recommended Text: *Conceptual Physics* (any edition) by Paul Hewitt (A copy of this text can be checked out from the reserve desk in the Saddleback College Library under your professor's name.)
- Laboratory Notebook: A three-ringed binder (1-2 inches) **to be used for laboratory experiments and formal/informal reports only, no lecture material should be in the lab notebook.** (See *Lab Information* sheet for details on the set-up of lab notebook.)
- Floppy Disk: IBM compatible for use in the laboratory (flash drives are not always compatible with our new computers)
- Scantrons: For midterm and final exams: Form No. 882-E
- Basic Scientific Calculator: One that **does NOT have programming capabilities or graphics**, but does have all trigonometric functions and logarithms. It might be useful to be able to store a number. You will not be allowed to use a programmable and/or graphics calculator, a palm top or a laptop computer **on quizzes**. I realize this will require many of you to purchase a new calculator and I apologize for the inconvenience. The TI-30XIIS ($20) is strongly recommended or lower cost & complexity calculators e.g. *TI 30XA, Casio FX260* and *Sharp EL531LB* all fit the above specifications.
- Engineering paper (Murray pad) or graph paper (~1/4 inch squares): Recommended for problem assignments and lab. Available at Staples (100 sheets for ~$5.00, Item No. 601021) and possibly available in the campus bookstore.
- Pencil: Required for all quizzes and exams, strongly recommended for problem assignments. A #2 pencil is needed on the midterm and final.
- Straight Edge: Sometimes needed in class, on quizzes/exams and for problem assignments.

**COURSE GOALS AND ORGANIZATION:** Physics uses observation and experimentation of physical phenomena to formulate theories and laws which attempt to describe the universe in which we live. Mathematics is an essential tool needed in the study of physics, because it allows us to predict and describe future behavior in a particular situation. To attain a solid understanding of physics you must have a conceptual understanding of the laws of physics and be able to apply the mathematical formulation of the laws of physics, which is necessary to successfully solve physics problems. I have *two main goals* for this course. *First*, that you *develop a conceptual understanding of the nature of physics*. *Secondly*, that you *develop the valuable problem solving skills and attitude needed for studying physics and other natural sciences*.

**READING:** The "Course Outline" lists the chapters you are to read for each class session. You are strongly encouraged to read the chapter before the lecture on that topic. You are expected to read the appropriate laboratory experiment before coming to the laboratory portion of the course.

**POLICY:** Please do not ask grading questions during class time. Write a detailed description of what you want me to review and why, then turn it in to me or approach me during office hours. I will return it to you with my decision and if you want to speak with me further, see me in office hours. Physics questions are welcomed in class, but disputes over scoring are not.

**QUIZZES:** There will be a 20 point quiz on almost every chapter. Quizzes will usually contain one or two multiple-choice conceptual questions then a shorter, easier problem (all worth 10 pts) and a second more difficult problem like homework problems / examples from lecture (10 pts). There will be no make-up quizzes, however I will **drop your lowest quiz score** and will give two **bonus quizzes** which can replace your lowest quiz score(s) from any chapter. Quizzes will usually be given during the next lecture/lab session after that chapter's homework was due. During lecture I will specify which formulas you should have memorized for the quiz and which formulas I will provide for you. Don't hesitate to remind me of this!

**EXAMINATIONS:** One midterm exam (given during 3-hour laboratory) and a final exam (given during finals week) will be given on the dates noted in the **Course Outline**. There are NO make-up exams. The midterm will consist of 3 to 5 workout problems on the chapters specified in the **Course Outline** and 15-20 multiple choice conceptual questions like those on the quizzes and seen in class. The final exam will be cumulative and follow the same format as the midterm, including the fact that I will try to give you 3 hours to complete it, instead of just 2 hours. Bring a Scantron form No. 882-E for the multiple-choice portions of the midterm and final exams. On the midterm and final exam, I will provide you with an **equation sheet**, which you will have a chance to preview. It will contain some of the highlighted-numbered equations from the textbook [or Katherine's equivalent form(s) of such an equation] and some definitions, conversions, etc.

**PROBLEM ASSIGNMENTS:** Thorough completion of ***Homework Assignments*** is an essential element for success in this course! At least ten problems/questions will be assigned for each chapter, **see *Homework Assignments*** for a list of chapters and corresponding problems/questions. It is strongly recommended that you NOT depend on the Student or *Instructor's Solution Manual* when completing your homework as you will regret it!

**LABORATORY:** See the ***Laboratory Information*** sheet for details and Lab **Grading Criteria**.

**PARTICIPATION:** Attendance and participation in lecture and laboratory are worth up to **20 lab points**, points may be deducted or added if individuals are unprepared during periodic checks to see if lab notebooks are kept up to date and pre-labs are done.

**GRADING CRITERIA** (Note: **BONUS points** are **QUIZ** points.):

**Overall:**

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| Formal Labs & Participation | 10 % | Quizzes | 30 % |
| Midterm | 30 % | Final Exam | 30 % |

A: 90-100% B: 89-80% C: 79-65% D: 64-50%

**DUE TO LIABILITY ISSUES, under no circumstance** will an individual (children included) be allowed to attend either the lecture or laboratory courses unless he/she is officially registered in the class.

**TUTORING SERVICES & CHILDCARE:** Science/Math tutors usually available 8 am – 8 pm, M–Th, 1st floor of Library (LAP), room 114, 582-4519. For childcare, call Child Development Center on campus, 582-4302, M-F, 6 am – 6 pm.

**CELL PHONES:** All cellular phones are to be turned **off** (not just silenced) upon entering the classroom and must be **off the desk and in your back-pack/bag during ALL exams and quizzes**. Repeated violations will be dealt with severely, with up to a two day suspension.

**SPECIAL SERVICES:** If you have specific disabilities requiring accommodations, please let me know early in the semester, so that your learning needs may be appropriately met. You will need to provide documentation of your disability to the Special Services Office in the Student Services Center, Room 113.

**ACADEMIC INTEGRITY:** Academic dishonesty can result in failure of the course and removal from the class. I hope that your academic integrity will prevent this from ever becoming an issue. The ***Math, Science, and Engineering Division Policy on Academic Integrity*** must be viewed at: www.saddleback.edu/ap/mse/integrity.pdf Every student in my courses must read the policy, sign it agreeing that you will comply with it and return the signed copy to Katherine no later than the second class session as part of the first assignment.

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| Drop With Refund by: ***January 19, 2007*** | Drop **Without** "W" by: ***February 13, 2007*** |
| Elect CR/NCR by: ***February 13, 2007*** | Drop **With** "W" by: ***April 4, 2007*** |
| Last day to add classes online w/ APC: ***January 28, 2007*** | |