

PHY 2425
Engineering Physics I
(Eng Phy I)

Fall 2012
North Ridge Campus

PHY 2425-007

Section # 007 and Synonym: 14843

Times and Place: Lecture: MW 3:00-4:20 P.M., **Room 2213**

Lab: MW 4:30-5:50 P.M., **Room 2228**

Credit: 4 credit hours.

Instructor: Dr. Michael McGraw

Office: PB4

Office Hours: MW 2:00 – 3:00 PM **E-mail Address:**

mmcgraw@austincc.edu

Web Site: www.austincc.edu/mmcgraw

Textbook: Fundamentals of Physics - Volume 2, 9th Edition,
Halliday, Resnick & Walker

Prerequisites

Prerequisites: 1) Grade of "C" or better in MATH 2413 or equivalent, 2) concurrent enrollment or credit in MATH 2414 or its equivalent, 3) one year of high school physics or grade of "C" or better in PHYS 1401.

All students will have one week to produce a copy of proof that they have satisfied the course prerequisites. If you do not have the prerequisites, you will be withdrawn from the course.

The first two math items that we will dive into are: **Trigonometry** and **Vectors**

Grading

Grading: There will be three (3) exams and a final exam.

The four <u>exams</u> :	36%
The <u>final exam</u> :	19%
The <u>lab</u> :	25%
The <u>homework</u> :	10%
<u>Quizzes, class work</u> :	10%

Class attendance and other activities will be accounted for as part of the class work.

The **distribution of grades** is as follows:

90-100	= A
80-89	= B
70-79	= C
60-69	= D
59 and below	= F

"C" or Better

Important Note: You must earn a grade of "C" or better in the laboratory portion of the course ***as well as*** a grade of "C" or better in the lecture portion of the course in order to earn a grade of "C" or better in the course.

The Lecture components include the Homework, Exams, Quizzes, in class assignments, attendance and participation.

Typical Student Grade Sheet

Name
Address
E-mail Address

SUMMARY	
Exams (36%)	32.1
Labs (25%)	24.8
Final (19%)	13.5
Quiz (10%)	9.0
Homework (10%)	6.5
FINAL GRADE	85.9

70% Levels	Required	Actual
Lecture	52.5	61.1
Lab	7.0	9.9



Homework	
Chapter	Grade
1	20.0
2	20.0
3	18.0
4	18.0
5	20.0
6	15.0
7	20.0
8	18.0
9	15.0
10	0.0
11	0.0
12	0.0
13	18.0
14	20.0
15	18.0
16	0.0
17	0.0
18	
19	

Average	12.9
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Labs	
No.	Grade
1	10.0
2	10.0
3	9.5
4	10.0
5	
6	10.0
7	9.5
8	10.0
9	10.0
10	10.0
11	10.0
12	10.0
13	10.0
14	10.0
15	10.0

Average	9.9
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Quiz	
No.	Grade
1	90
2	
3	
4	
5	

Average	90.0
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Exams	
No.	Grade
1	93.0
2	88
3	71.0
4	105.0

Average	89.3
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Final Exam
Grade
71.0

69

Studying Physics

Subject Matter: We will cover chapters 1-20 with a few sections in these chapters being omitted.

Assigned Reading

- Reading assignments might not be long but they are dense.
- You might have to read a section several times before you understand it.
- Read the chapter **BEFORE** the lecture - not **AFTER**.
- Have questions in mind before the lecture. I welcome questions.
- Don't let something go by unanswered - it will come back to bite you.

Study Tips – <http://www.oberlin.edu/physics/dstyler/StudyTips.html>
Keep Up; Read Aggressively; Listen Aggressively

Course Objectives

- To further develop the concepts and language of physics.
- To further develop problem-solving methodologies involving mathematics.
- To further develop the use of graphs and charts to communicate.
- To strengthen the concepts and ideas introduced in class and show the link between theory and experiment.
- To further develop experimental techniques.
- To further develop the concept of experimental design.
- To develop technical writing through the process of writing formal lab reports.
- To develop critical thinking.

Methodology: Lecture/Laboratory. The lectures will consist of demonstrations, explanations of the basic ideas and physical concepts, techniques for solving problems and class discussions. Some **problem solving sessions** will also be included and in these the student will be an active participant.

Homework: About 12-15 problems will be assigned from each chapter. The homework will be due at the beginning of the class on the due date. *Working problems is the single most important way to learn and apply the basic ideas you are studying in this course and the best way to prepare yourself for the exams.*

Important Note on Homework

<http://www.oberlin.edu/physics/dstyer/SolvingProblems.html>

Rules for Doing Problems

- Read the question carefully.
- Draw the appropriate diagram and label it.
- Write down the given information.
- Write down what you are trying to find.
- Write big so your work can be read easily.
- Maintain the equality - write each step on a new line.
- Show all your work – don't skip steps.
- Make sure you have answered the question.
- Don't forget the SI units.
- Round off answers to three significant figures and use proper scientific notation.
- Draw a box around the answer(s).

Doing Problems

- After you read the question you might not remember how to solve the problem. Never mind – just start writing.
- A blank sheet of paper is not very inspiring – fill it up.
- Go on to step 2 and start drawing and labeling the diagram – this will start your mind going and you will build up some momentum and the paper won't be blank anymore.

By systematically approaching the solution of the homework problems you are furthering your understanding of the material. This is the best way to ensure success in this course. Homework not done according to the above rules will not be graded.

Grading the Homework

- Homework assignments are due at the **beginning** of the class period on the due date.
- Two problems, from each assigned homework set, will be chosen randomly and graded. The same two problems will be graded on everyone's paper for that assignment.
- These two problems will be given a maximum credit of five (5) points each.
- An additional ten (10) points per assignment will be given if all of the problems are attempted and a good effort has been made to solve them.
- Each homework assignment is worth a maximum of twenty (20) points.

Do Your Own Work

The solution of homework problems should be the result of your own work.

Homework solutions copied from another student, copied from a solution manual or from some solutions available online, will not be graded and you will get a zero for that homework set.

In short, copying homework (or anything else concerning this course) will not be tolerated and will be dealt with according to the rules of the College.

Late Homework Policy: Late homework will be accepted the next class (following the due date) with a 20% penalty. No late homework is accepted after that.

Laboratory

Laboratory: This semester you will do about twenty experiments. You must do all the experiments and your lab grade will be based on these experiments. You will be given a separate write up that describes each of the experiments. You will be given another handout that will outline the format for the lab reports.

Lab reports are due at the beginning of the lecture on the due date. A missed experiment must be made up the following Friday, which is the make-up day.

Lab reports not turned in on time are considered late. Late lab reports will be accepted until the next class meeting. No lab reports will be accepted after that. **Late lab reports will receive only 80% of the full credit.**

Make-Up Lab

The labs are open on Friday from 9:00 A.M. until 12:00 P.M. However, Friday **IS NOT** an alternative to the regular lab time.

You may only make up two (2) labs.

Please contact the Lab personnel in advance to let them know you will be making up a missed lab. One of the lab assistants will help you with the set-up so that you can do the experiment.

When you make up an experiment, you must write down the date, the time, the room number and the name of the assistant who helped you and supervised the experiment and then **have the lab assistant sign your data sheet.**

Also, please sign the log sheet to indicate that you were in the lab on that Friday.

Exams

Exams: The exams will be composed largely of problems to be solved, **similar to the homework**. Credit for the solution of a problem is usually given for the procedure including the diagram, the basic equation which forms the starting point of the calculations, and some reasoning, explanation or justification of the steps or answers.

The Final Exam is a cumulative exam and will cover all the material covered during the semester.

Missed Exams: You should make every effort to ensure that you do not miss an exam for this course. If you know that you will miss an exam, due to events beyond your control, **you must contact the instructor prior to the exam if at all possible**. A make up exam will be given at the discretion of the instructor.

Preparing for Exams

The Exams are Problem Based - Solving Problems is an ART

Your understanding of the course material will be assessed based on your ability to do the problems.

Practice Solving Problems:

Work the examples in the text

Do the Homework - Very important.

10% of your grade

Improves your exam and quiz grades

Review Questions - Available on line

(<http://www.austincc.edu/mmcgraw>)

Problem solving tips

<http://www.oberlin.edu/physics/dstyler/SolvingProblems.html>

Participation

Participation: Physics is a participatory activity and you are the main player in that activity. My responsibility this semester is to help YOU learn physics. I can explain it to you, but I can't make you understand it. The understanding part is up to YOU. Participation includes:

- Arriving at class on time
- Being prepared
- Taking part in class discussions
- Class quizzes
- In class assignments

If a lecture or laboratory session is missed the student is still responsible for the material that was covered.

Misc.

Attendance policy: (a) Quizzes and other class work and activities will count for 10% of the credit. This includes class attendance. If you miss a class, you cannot make up the work given on that day and the credit that goes with it.

The only exceptions are documented absences due to sickness or other extraordinary circumstances. You must show documentation (a doctor's report is an example) which shows that you could not have attended class on that day. (b) *If you miss more than four (4) classes, you may be withdrawn from the course unless you missed class due to an exceptional circumstance.*

Withdrawals: This is your responsibility. The last day to withdraw is **Monday, November 26th.**