PHYSICS 262

a syllabus

University Physics II College of Eng. For. & Nat. Sciences
Summer II 2012 Dept. of Physics & Astronomy

Class	8:30 – 10:55 a.m. Mon-Tu-Wed-Th, room 19-233, from July 9th – Aug 7th.
Instructor	Dr. David Cole
Credit	3 credit hours
Office	Bldg. 19, room 224, phone 523-8017, hours TBA
Text	We will be using the text called *Fundamentals of Physics* by Halliday & Resnick, and Jearl Walker, 9th edition, inside the WileyPlus online homework program. For about $100 you get access to the Ebook inside WileyPlus as well as access to the online homework. From within the Ebook you can also purchase a paper copy of that semester's volume for an additional fee. This is the same system you used in PHY 161. Please follow the instructions you have to register yourself into the HW system and purchase your choice of text. The eInstruction classroom participation system remote control unit (bookstore) is required and will be used for all in-class quizzes. Optional Materials: Any calculus-based physics book that you have used in the past.
Prereq	PHY 161 is a pre-req and MAT 137 is a co-req. It is strongly recommended that you be proficient in vector algebra and trigonometry.

Class Description and Objectives

This is the second semester of a 3 semester calculus-based introductory physics sequence and is commonly taken by students with physical science, math or engineering majors. The course objective is to instill an understanding of the basic laws of electricity, magnetism, light and thermodynamics, and to foster a life-long appreciation and interest in science itself.

It is critical that you keep up with the class and do the assigned problems. No matter how experienced you are, you will have difficulty with the problems on the tests unless you have first done similar examples as homework. The good news is that no matter how intimidated you are, you will be able to do the test problems if you do the homework. As such, homework will be assigned each class period and will be due before the beginning of the next class period. ALL homework will be done via the web using the WileyPlus Tutorial system, and you are required to register yourself into this system and complete your HW assignments online. There will also be one or more short (~ 5 to 10 minute) daily quizzes that will be held in class at random times. If you are late or absent you may/will miss the quiz, and there will be no chance for make-ups without an officially excused absence. As these quizzes will be a large part of your grade, I encourage you to "bite the bullet", be here on time and attend every class. In general, ALL of the quizzes will be done with the "eInstruction classroom participation system remote control unit", and so you are required to register yourself into this system, and to bring your 'clicker' to class every day. Bring your text and a calculator to class every day. If you do not own a calculator, you will need to buy one: Nothing fancy--not programmable or the graphing kind--it just needs to have trig and inverse trig capability.

Class Structure

The classes will consist of some "lecturing", but I will also have demonstrations, discussion with partner time, and problem solving sessions. I am constrained to present a certain amount of material, and the summer pace will be 16 chapters in 18 days.

This is a "weed-out class"—I am being honest with you!
I know that some of you may not want to take this class, and are anticipating a long series of bad experiences. My job is partly to change your mind, and to smile at the end of the summer when you tell me that you actually enjoyed the class. As such, my job also includes helping you to get a good grade, and not "allowing" you to act on any temptation to drop. However, if you are feeling bad about this class, you must come and talk with me. I know the problems are difficult, but once you understand them you will think that it is no big deal. I will choose some office hours soon-- if those times don't work for you, please make an appointment with me.

In general you will actually need to understand the concepts, as opposed to only memorizing them. You should plan on spending at least 6 to 8 hours outside of class for each class day.

The course will cover chapters 21 – 33, but skipping most of 31, and then cover 18 - 20. We will cover 'Electricity and Magnetism', Chapters 21-33, first, and then return to 'Thermodynamics', Chapters 18 - 20. Some chapters will be treated in more depth and or breadth than others.

About the Lab

Most degree programs do not require the lab with the lecture section of this course. They are therefore separate. However, some degree programs do require Physics 262 lab. If in doubt, check with your academic advisor. You may have to take phy 262 L in the future. Lab grades will have no effect whatsoever on course grades, and vice-versa. There is no lab section for this class being offered this summer.

Grades

I will follow the typical 90-80-70-60 percentage grading scale. The components of the grade are:

Homework	25%
Daily Quizzes	25%
Test #1	15%
Test #2	20%
Test #3	15%

I do not drop any grades, but at the end of the semester I look at everything. If you had a bad day or week, I will certainly notice that fact and take it into account.

Please notice the effect upon your grade if you miss any of the HW or Quizzes.

Details

Recitation
There is no recitation for the summer---it costs you too much!

HW & Exams
In general, homework will be assigned every class and due for every class, and the due date & time is fixed electronically; this means that your hw will not be accepted if it is late by even a single minute. Late homework can be accepted by manually changing the electronic due date in the WebA system, but you must talk to me and have a "University excused" reason for me to do this. There are no make-ups for daily quizzes unless arrangements have been made with me in advance. There are no make-ups for tests except for University excused absences. This information must also be communicated to me in advance (see the attached policies). The date and time of each exam will be discussed in class and will vary somewhat due to our progress through the material. Regardless of the date and time chosen, all 3 exams will be scheduled during our regular class time and are required for each student.

Get a Group
Working in groups to solve the homework problems is not only permitted, it is encouraged! Do yourself a favor and find some people you think are trustworthy, exchange phone numbers, and pick certain times of the day and week to regularly meet in a study area. Please do not simply copy someone else's work, as you will pay for it on the tests and quizzes.

Exams, again
There will be 3 in-class exams. Their dates will be announced in advance, and depend on our progress through the material.

Exam 1 will cover the "electricity" part of the course (chapters 21 – 27).

Exam 2 will cover the "magnetism" part of the course and its unification with electricity; which means "light" (chapters 28-33). It is worth more than the other exams because the material is more complex. Exam 2 is cumulative.

Exam 3 will cover the "thermo" part of the course (chapters 18-20). Exam 3 is NOT cumulative.

Quizzes & HW
There will be several dozen Qs and HWs during the semester, each worth different numbers of points in general. To make things more even, I will weight each Q and each HW in my excel spreadsheets so that the scores are somewhat balanced. For example, a HW worth 6 points, when you turn it in, will still make about the same impact on your grade as a HW worth 30 points. Keep this in mind when attempting to calculate your own Q and HW scores, and when deciding if you should skip out on some of the work---do not!

Academic Honesty
Both myself and the engineering profession have absolutely no patience with cheating. Anyone cheating on an exam will receive a zero on that exam, and possibly a failing grade in the course. Using someone else's clicker is dishonest. If anyone is caught using another student's clicker for a quiz, both the true owner of the clicker and the user may receive a zero for the entire "In-class quizzes" portion of the grade and possibly a failing grade in the course . Academic dishonesty information will be given to the Dean of Students and a written copy of the incident may be attached to your official NAU file.

More Policies
The attached pages review the standard Department and University policies.

Environmental Responsibility

There is a growing effort on this campus to increase faculty, administrative, and student awareness of fundamental environmental issues. In fact, NAU is nationally recognized for its role in this nascent effort. Students, who are in fact leading the way in this reform, continue to place pressure on the curriculum to acknowledge and reflect such basic ideas as conservation and sustainability.

As future citizens with a college degree, your knowledge and ability will allow your ideas and actions to have a disproportionately large effect upon the environment. As such, it is appropriate, and perhaps even critical, that your classes begin to validate and increase your environmental awareness.

The content of this class will not change; we will cover the same amount of the same material as previous classes, but I will take the opportunity to point out, along the way:

a) The background, rationale, and repercussions of the ideas and actions of the past.
b) Possible and probable implications of current technology and behavior.
c) Alternate possibilities, thinking and language.

PHY 262 Estimated Schedule

July 9 – Aug 7

M Tu W Th	8:30 – 11 am	18 days of class
Chap 21-33	skip 31	Chap 18-20

July 9	chap 21
July 10	21 & 22
July 11	22
July 12	22 & 23
July 13	**An extra class, potentially….**
July 16	23
July 17	24
July 18	24 & 25
July 19	25
July 23	Exam 1 and chap 26
July 24	26 & 27
July 25	27
July 26	27 & 28
July 27	**An extra class, potentially….**
July 30	28
July 31	28 & 30
Aug 1	30 & Exam 2
Aug 2	18 & 19
Aug 6	19 & 20
Aug 7	20 and Exam 3

End of Course

HW will be due each morning of class.
Quizzes will take place during each class.