COURSE AND INSTRUCTOR INFORMATION

Course: PHY 140 (General Physics II)
Lecture Location: Merion 112
Lecture Time: MWF: 1:00 pm – 1:50 pm (**section 02**)
MWF: 2:00 pm – 2:50 pm (**section 03**)

Instructor: Anil K. Kandalam (Dr. Kandalam or Dr. K)
Office Location: Schmucker Science South, SS 403A
Email: akandalam@wcupa.edu
Office Hours: M, W, F: 9:00 am – 10:00 am; Thursday: 12:00 noon – 2:00 pm

COURSE DESCRIPTION

PHY140 is the second semester of a year-long introductory physics sequence. In PHY130 we discussed the properties of motion arising from mass. In Physics 140 covers electricity, magnetism, circuits, optics, quantum mechanics, and nuclear physics. A passing grade in PHY130 is the prerequisite for this course.

We will be using concepts from PHY130 on a daily basis as well as a good deal of algebra. If you feel that your skills are weak in either of these two areas, please feel free to come and see me during office hours or by appointment. I am willing to work with you and help you catch up.

EXPECTATIONS

This is a fast pace course. For a successful completion of this course, you are not only expected to come to the class regularly, but also take notes in the class regularly, solve the problems assigned in the class, and read the example problems from the text book. **In order to keep up with the pace of the course, I strongly suggest you to read the sections in the text indicated in the schedule before you get to class**.

In addition, you are expected to get the solutions from the instructor for the problems that you could not solve correctly on the homework and the exams.

REQUIRED COURSE MATERIALS

Textbook: Physics, by Cutnell and Johnson, 9^{th} edition*

Other Required Materials: The Wiley-Plus access code for the text book*
Laboratory Notebook (see lab syllabus for details)
Physics 140 lab manual handouts (will be posted on D2L)

**An online copy of the textbook is available with the Wiley-Plus code.*

SPECIFIC COURSE OBJECTIVES

Students completing this course will be able to

- Develop a fundamental understanding of principles of electrostatics, electric current, magnetostatics, electromagnetic induction, geometrical and physical optics, and modern physics.
- Apply these concepts in solving problems
- Exercise and develop reasoning skills
- Develop problem solving skills

UNIVERSITY GENERAL EDUCATION GOALS

This course strives to have students meet the following general education goals:

1. Ability to communicate effectively
2. Ability to employ quantitative concepts and mathematical methods
3. Ability to think critically and analytically

D2L

This course has a D2L page. I will post lecture slides, problems etc. to D2L. I will make a good faith effort to post draft versions prior to the lecture, *but these may have few revisions*.

ASSESSMENT

Student learning will be assessed through weekly homework assignments, three examinations, laboratory, and the final exam.

The final grade assessment for this course will be based on the following:

- Labs ……15%
- Homework ……..20%
- Exams (3 @ 15% each)……45%
- Final exam…..……..20%

Letter grades will be assigned on the following scale. However, I reserve the right to adjust the weights of individual components, or the scale to account for unforeseen circumstances.

93 – 100 %	A	73 – 76 %	C
90 – 92 %	A–	70 – 72 %	C–
87 – 89 %	B+	67 – 69 %	D+
83 – 86 %	B	63 – 66 %	D
80 – 82 %	B–	60 – 62%	D–
77 – 79 %	C+	59% or lower	F

LABS

This course has a laboratory component. Your lab grade will be factored into your final grade for this course. Please see the lab syllabus for more details.

HOMEWORK POLICIES

This course will utilize an online homework system via Wiley-Plus. Homework will be assigned every week, starting from the first week of classes. Typically, the assignments are due by **10:00 PM (EST) on the due date**. **No late submissions are allowed.** I reserve the right to modify homework frequency and due-dates to reflect unforeseen circumstances. I will not drop any homework grades.

Please remember that you are responsible for completing homework assignments in a timely manner and informing me of problems, if any, in accessing the homework. Failure to complete an assignment because you could not access the homework an hour before it is due is not an excuse. It cannot be overemphasized the importance of spending time on these assignments. ***The assigned homework is the minimum amount of practice a highly gifted student would need. I highly suggest doing more, as many as possible, practice problems. Please note the textbook has answers for all of the odd problems.***

REGULAR EXAM POLICY

Four in-class exams (closed book) will be given during the course of the semester. Each of these exams will consist of a combination of multiple choice questions (conceptual and numerical) and open-ended numerical problems for which the students are expected to show all the work (math steps). *I will drop the lowest exam grade.*

If you miss an exam: In you miss an exam, you will receive a ZERO on that exam. The policy of dropping an exam score is meant to alleviate the need for make-up exam. This means every student has one in-class exam that they can for whatever reason, sickness, family emergency, etc., not be counted. **Therefore, I will not give a make-up exam**. The exceptions, however, are limited to the absences related to University Sanctioned Events (see below). If you miss an exam for a University Sanctioned Event you must notify me in advance so that we can arrange for you to take the exam in a manner consistent with its integrity. You must also provide some form of documentation (performing arts program, competition schedule etc.

FINAL EXAM POLICY

The final exam (closed book) will include all topics covered (cumulative) in the course and is ***MANDATORY***. Final exam will consist of mostly multiple choice questions (conceptual and numerical) and few open-ended questions. Missing the final exam will result in a zero for the exam unless EXTREME circumstances apply. Even in that case, extra questions will be added to the make-up final. You must bring your university ID to the final exam.

ATTENDANCE POLICY

A regular attendance to the lectures is an important part of this course and I highly recommend it. This is your chance to ask questions, see examples and get help in solving problems. I am here to guide you through the material. Attendance will benefit your understanding and therefore grade. However, I do not give an attendance grade. Students must understand that they are responsible for all material covered and assigned during their absences (excused and unexcused) and that they are responsible for the academic consequences of their absences.
The lab component of this course, however, has a different attendance policy. **Please see lab syllabus for lab attendance policy**.

CONTACT POLICY

Please include ***PHY140 AND OUR MEETING TIME*** in the subject line of any e-mail. I try to respond to e-mail within 24hrs. Although I will try to answer all questions directed to me by e-mail, most problems related to course content are best discussed during office hours.

ELECTRONIC DEVICES POLICY

In order to create a conductive learning environment, please arrange for all electronic devices to be set in silent/vibrate mode and put away. If you need to use a device to accommodate a disability, please see below. If I see anyone **texting or using their cell phones** during the class, I will take 5 points off of the nearest exam grade, and you will be considered "absent" for that day, since you are obviously not mentally present.

DISABILITY STATEMENT

If you have a disability which will require special accommodation, please meet with me as soon as possible to discuss your needs. Also, contact the Office of Services for Students with Disabilities (OSSD)

at (610) 436-3217. Sufficient notice is needed in order to make the accommodations possible. Both the WCU and I desire to comply with the ADA of 1990.

ACADEMIC INTEGRITY & CONDUCT

I have a zero tolerance policy for breaches of academic integrity. Breaches of academic integrity will be investigated and sanctions imposed to the full extent available under University policy. For questions regarding the university Academic Dishonesty, the No-Grade Policy, Sexual Harassment, or the Student Code of Conduct, students are encouraged to refer to their major department's handbook, the Undergraduate Course Catalogue, the Rams Eye View, or the University Web Site. Please understand that improper conduct in any of these areas will not be tolerated and may result in immediate ejection from the class.

UNIVERSITY SANCTIONED EVENTS

If you are participating in a University sanctioned event during one of our scheduled exams you must notify me in advance. You must provide some form of documentation. We can then arrange for you to take the exam in a manner consistent with exam integrity. For details please see the discussion of University Sanctioned Events in the WCU undergraduate catalog.

PHYSICS TUTORING

The Learning Assistance & Resource Center (LARC), (610) 436-2535, offers physics tutoring. **I also strongly encourage you to utilize my office hours.**

INTELLECTUAL PROPERTY STATEMENT

The instructor utilizes copyrighted materials under the "Freedom and Innovation Revitalizing United States Entrepreneurship Act of 2007" (Fair Use Act). Apart from such copyright protected materials, all other intellectual property associated with this course is owned and copyrighted by the instructor, including, but not limited to, lectures, course discussions, course notes and supplementary materials posted or provided or provided to students authored by the instructor, assessment instruments such as exams, and presentation slides. No recording, copying, storage in a retrieval system, or dissemination in any form by any means of the intellectual property of the instructor, in whole or in part, is permitted without prior written permission of the instructor. When such permission is granted, it must specify the utilization of the intellectual property and all such permissions and waivers shall terminate on the last day of the finals in the semester in which this course is held.

Links and references to on-line resources provided by the instructor may lead to other sites. The instructor does not sponsor, endorse or otherwise approve of any information appearing in those sites, nor is responsible in any way for the content of those sites. The instructor makes no warranty or responsibility for the copyright status of such material. However, should problems with copyright status be brought to the attention of the instructor, reference to offending materials will be removed.

PUBLIC SAFETY

The Emergency Communications Committee recommends that the number of WCU's Department of public safety be available on every course syllabi. WCU Department of Public Safety: (610) 436-3311.

COURSE SCHEDULE: This schedule is tentative and is subject to revision.

Date		Lecture	Reading	Laboratory
W	Jan. 22	18. Electric Charges, Forces, and Fields	18.1 – 18.2	**NO LABORATORY**
F	Jan. 24	18. Electric Charges, Forces, and Fields	18.3 – 18.4	
M	Jan. 27	18. Electric Charges, Forces, and Fields	18.5	Introduction
W	Jan. 29	18. Electric Charges, Forces, and Fields	18.6	
F	Jan. 31	18. Electric Charges, Forces, and Fields	18.7 – 18.9	
M	Feb. 3	19. Electric Potential and Electric Potential Energy	19.1 – 19.2	Electric Charges
W	Feb. 5	19. Electric Potential and Electric Potential Energy	19.3	
F	Feb. 7	19. Electric Potential and Electric Potential Energy	19.4 – 19.5	
M	Feb. 10	19. Electric Potential and Electric Potential Energy	19.5 – 19.6	Electric Field
W	Feb. 12	20. Electric Current and Direct-Current Circuits	20.1 – 20.3	
F	Feb. 14	20. Electric Current and Direct-Current Circuits	20.4 – 20.6	
M	Feb. 17	**TEST 1: Chapters 18 – 19**		Ohm's Law
W	Feb. 19	20. Electric Current and Direct-Current Circuits	20.7 – 20.8	
F	Feb. 21	20. Electric Current and Direct-Current Circuits	20.11 – 20.12	
M	Feb. 24	20. Electric Current and Direct-Current Circuits	20.13 – 20.14	Resistors in Series
W	Feb. 26	21. Magnetic Force and Magnetic Fields	21.1 – 21.2	
F	Feb. 28	21. Magnetic Force and Magnetic Fields	21.3 – 21.5	
M	Mar. 3	21. Magnetic Force and Magnetic Fields	21.6 – 2.17	Resistors in Parallel
W	Mar. 5	21. Magnetic Force and Magnetic Fields	21.8 – 21.9	
F	Mar. 7	22. Electromagnetic Induction	22.1 – 22.3	
M	Mar. 10	22. Electromagnetic Induction	22.4 – 22.5	RC Circuits
W	Mar. 12	**TEST 2: Chapters 20 – 21**		
F	Mar. 14	22. Electromagnetic Induction	22.6 – 22.7	
M W F	Mar. 17 Mar. 19 Mar. 21	**SPRING BREAK**		**SPRING BREAK**
M	Mar. 24	22. Electromagnetic Induction	22.8 – 22.9	Induction
W	Mar. 26	24. Electromagnetic Waves	24.1 – 24.3	
F	Mar. 28	24. Electromagnetic Waves	24.4 – 24.5	
M	Mar. 31	24. Electromagnetic Waves	24.6	Snell's Law
W	Apr. 2	25. Reflection of Light: Mirrors	25.1 – 25.3	
F	Apr. 4	25. Reflection of Light: Mirrors	25.4 – 25.6	
M	Apr. 7	**TEST 3: Chapters 22, 24**		Thin Lenses
W	Apr. 9	26. Refraction of Light: Lenses	26.1 – 26.3	
F	Apr. 11	26. Refraction of Light: Lenses	26.5 – 26.7	
M	Apr. 14	26. Refraction of Light: Lenses	26.8 – 26.10	Interference
W	Apr. 16	26. Refraction of Light: Optical Instruments	26.11 – 26.14	
F	Apr. 18	27. Interference and Diffraction	27.1 – 27.2	
M	Apr. 21	27. Interference and Diffraction	27.5	Diffraction
W	Apr. 23	27. Interference and Diffraction	27.6 – 27.8	
F	Apr. 25	29. Quantum Physics	29.1 – 29.4	
M	Apr. 28	**TEST 4: Chapters 25 – 27**		**NO LABORATORY**
W	Apr. 30	29 – 30. Quantum Physics & Atomic Physics	29.5, 30.1 – 30.3	
F	May 2	30 – 31. Atomic Physics & Nuclear Physics	30.5 – 30.7, 31.1	
M	May 5	31. Nuclear Physics and Radioactivity	31.3 – 31.7	