PHYSICS I (PHY 170)

COURSE AND INSTRUCTOR INFORMATION

Course: PHY 170 (Physics I)
Lecture Location: Merion 112
Lecture Time: MWF: 11:00 am – 11:50 am
Recitation Time: Thursday 2:00 pm – 2:55 pm

Instructor: Anil K. Kandalam (Dr. Kandalam or Dr. K)
Office Location: Schmucker Science South, SS 403A
Email: akandalam@wcupa.edu
Office Hours: Monday, Wednesday: 1:00 pm – 3:00 pm
Thursday: 10:00 am – 12:00 noon or by appointment

REQUIRED COURSE MATERIALS

Textbook: Fundamentals of Physics (10th edition) by ***Halliday, Resnick & Walker*** (John Wiley & Sons) Volume 1 (Ch. 1 – 20).

Other Required Materials: The Wiley-Plus access code for the text book*
A Turning Technologies Response Card RF LCD clicker
Laboratory Notebook (see lab syllabus for details)
Physics 170 lab manual

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

COURSE GOALS AND STUDENT OUTCOMES

Our goals are to explore, analyze, and investigate the world around us and to gain a better understanding of how and why various physical phenomena occur. In our study of these physical phenomena, we aim to use our mathematical tools to aid us in gaining not only a qualitative conceptual perspective, but to provide a quantitative applied understanding as well.

Course PHY170 is an approved course in the WCU General Education Program. It is designed to help students meet the following General Education goals:

1. *General Education Goal #2:* ***Ability to employ quantitative concepts and mathematical methods:*** Virtually every topic discussed in the class will have a quantitative aspect that will require advanced mathematics (calculus). These methods will be employed during class examples, recitation quizzes, midterm exams, and laboratory sessions.
2. *General Education Goal #3:* ***Ability to think critically and analytically***: New concepts will be presented each week that build upon previously discussed material. The relationships and connections between the concepts will require students to think critically and analytically about the reason the physical phenomena occur and how they occur. Critical and analytical thinking are essential for applying these interconnected yet seemingly diverse concepts to efficiently solve homework and exam problems.

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*.

EXPECTATIONS

This is a fast paced course. If you note the schedule at the end of this syllabus, you will see that we cover approximately one chapter per week. The curriculum of this course is determined in such a manner that you should leave this course with a broad knowledge of a variety of physical phenomena and a better understanding of how to view and approach physical problems. This is the reason most of you have been required by your majors to take this class. 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**.

GRADING

Student learning will be assessed through weekly homework assignments, midterm examinations, laboratory, and the final exam. The final grade assessment for this course will be based on the following:

- Clicker Quizzes…….5%
- Laboratory...……20%
- Homework ……...10%
- 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

CLICKER QUIZZES

During lectures, a number of **questions** will be asked throughout the semester, that you will answer using a Turning Technologies Response Card RF (radio frequency) "**clicker".** To register your clicker for this course, go to D2L and follow the instructions shown in the short video that appears on the screen. It is **your responsibility** to have an operational clicker at every lecture. **Do not "loan" your clicker to another student, as that is an honor code violation. Hand-written answers will not be considered.**

LABORATORY

This course has a laboratory component. Most weeks you will have a lab session. Your lab grade will be factored into your final grade for this course. You must purchase the PHY170 lab manual from the university book store. The allotted laboratory time is only 2 hours; therefore, it is your responsibility to prepare for the lab session by reading the instructions **before lab each week**. At the end of the semester,

your lab instructor will give your lab grades to me and I will record exactly what he/she provides. All lab issues are to be discussed with your lab instructor. 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 **11:00 PM (EST) on the due date**. Solutions to all homework problems will be available on Wiley-Plus immediately after the assignment is due. So, **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.

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: If 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

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.

The date and time of the final exam for this course (as set by the registrar, as of 01/11/2016) is:

Friday, May 6, 2016 from 10:30 am – 12:30 pm

You should plan to be available for the entire finals week. We have in past semesters had to reschedule finals due to weather related events. The final exam will be held in Merion 112.

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**.

COURSE SCHEDULE: A tentative schedule for the course is given in the next page. I will try to follow it as closely as possible. **I reserve the right to modify the schedule as needed over the course of the semester** (due to snow or for any other reason).

Date		Lecture and Recitation	Reading	Laboratory
W	Jan. 20	Introduction & Vectors	3-1, 3 – 2	Introduction
Th	Jan. 21	**Vectors**	3-2 to 3 – 3	
F	Jan. 22	**Ch-3**: Vectors	3-3 to 3-4	
M	Jan. 25	**Ch-3**: Vectors & **Ch-2:** Motion along a straight line	3-4; 2-1	Acceleration
W	Jan. 27	**Ch-2**: Motion along a straight line	2-1, 2-3	
Th	Jan. 28	**Motion in 1-D**		
F	Jan. 29	**Ch-2**: Motion along a straight line	2-4, 2-5	
M	Feb. 1	**Ch-4:** Motion in two and three dimensions	4-1 to 4-3	Free Fall
W	Feb. 3	**Ch-4:** Motion in two and three dimensions	4-4	
Th	Feb. 4	**Motion in Two and Three Dimensions**		
F	Feb. 5	**Ch-4:** Motion in two and three dimensions	4-5, 4-6	
M	Feb. 8	**Ch-5:** Force and Motion – I	5-1, 5-2	**No Lab**
W	Feb. 10	**Ch-5:** Force and Motion – I	5-3	
Th	Feb. 11	**Forces - I**		
F	Feb. 12	**Exam I: Chapters 1 – 4**		
M	Feb. 15	**Ch-6:** Force and Motion – II	6-1, 6-2	Projectile Motion
W	Feb. 17	**Ch-6:** Force and Motion – II	6-2, 6-3	
Th	Feb. 18	**Forces - II**		
F	Feb. 19	**Ch-7:** Kinetic Energy and Work	7-1 to 7-3	
M	Feb. 22	**Ch-7:** Kinetic Energy and Work	7-4 to 7-5	Friction
W	Feb. 24	**Ch-7:** Kinetic Energy and Work	7.6	
Th	Feb. 25	**Work and Kinetic Energy**		
F	Feb. 26	**Ch-8:** Potential Energy and Conservation of Energy	8-1 to 8-2	
M	Feb. 29	**Ch-8:** Potential Energy and Conservation of Energy	8-4 to 8-5	**No Lab**
W	Mar. 2	**Exam II: Chapters 5 – 7**		
Th	Mar. 3	**Conservation of Energy & Momentum**		
F	Mar. 4	**Ch-9:** Linear Momentum & Collisions	9-1 to 9-4	
M	Mar. 7	**SPRING BREAK**		**SPRING BREAK**
W	Mar. 9			
F	Mar. 11			
M	Mar. 14	**Ch-9:** Linear Momentum & Collisions	9-5 to 9-7	Conservation of Momentum
W	Mar. 16	**Ch-9:** Linear Momentum & Collisions	9-8 to 9-9	
Th	Mar. 17	**Collisions & Rotation**		
F	Mar. 18	**Ch-10:** Rotation	10-1 to 10-4	
M	Mar. 21	**Ch-10:** Rotation	10-6 to 10-8	Biomechanics
W	Mar. 23	**Ch-11:** Torque and Angular Momentum	11-1 to 11-4	
Th	Mar. 24	**Torque**		
F	Mar. 25	**Ch-11:** Torque and Angular Momentum	11-5 to 11-8	
M	Mar. 28	**Exam III: Chapters 8 – 11**		**No Lab**
W	Mar. 30	**Ch-12:** Equilibrium	12-1 to 12-3	
Th	Mar. 31	**Equilibrium & Gravitation**		
F	Apr. 1	**Ch-13:** Gravitation	13-1 to 13-5	
M	Apr. 4	**Ch-13:** Gravitation	13-6 to 13-7	

Date		Lecture and Recitation	Reading	Laboratory
W	Apr. 6	**Ch-14:** Fluids	14-1 to 14-4	Archimedes' Principle
Th.	Apr. 7	**Fluids**		
F	Apr. 8	**Ch-14:** Fluids	14-5 to 14-7	
M	Apr. 11	**Ch-15:** Oscillations	15-1 to 15-3	Spring-Mass Oscillator
W	Apr. 13	**Ch-15:** Oscillations	15-4 to 15-6	
Th.	Apr. 14	**Oscillations**		
F	Apr. 15	**Ch-16:** Waves – I	16-1 to 16-4	
M	Apr. 18	**Ch-16:** Waves – I	16-5 to 16-7	Standing Waves
W	Apr. 20	**Ch-17:** Waves – II	17-1 to 17-4	
Th	Apr. 21	**Waves**		
F	Apr. 22	**Ch-17:** Waves - II	17-5 to 17-8	
M	Apr. 25	**Exam IV: Chapters 12 – 16**		**Lab Final**
W	Apr. 27	**Ch-18:** Temperature, Heat, and First Law	18-1 to 18-4	
Th	Apr. 28	**Thermodynamics**		
F	Apr. 29	**Ch-18 and 19:** First Law and Kinetic Theory	18-5, 19-1 to 19-4	
M	May 2	**Ch-19:** Kinetic Theory	19-5 to 19-9	

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 that requires special accommodations under the Americans with Disabilities Act (ADA), please present your letter of accommodation and meet with me as soon as possible so that I can support your success in an informed manner. Also, contact the Office of Services for Students with Disabilities (OSSD) at (610) 436-2564, their email address is ossd@wcupa.edu, and their website is www.wcupa.edu/ussss/ossd. 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.

E-MAIL POLICY STATEMENT

It is expected that faculty, staff, and students activate and maintain regular access to University provided e-mail accounts. Official university communications, including those from your instructor, will be sent through your university e-mail account. You are responsible for accessing that mail to be sure to obtain official University communications. Failure to access will not exempt individuals from the responsibilities associated with this course.

ALL OTHER ACADEMIC POLICIES

For any university wide academic policy not explicitly covered in this document, such NO Grade policies, please consult your major advising handbook, the Undergraduate Catalog, the Ram's Eye View, or University Website.

TITLE IX STATEMENT

West Chester University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University's Title IX Coordinator, Ms. Lynn Klingensmith. The only exceptions to the faculty member's reporting obligation are when a student communicates incidents of sexual violence during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred to the person designated in the University protection of minors policy. Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at the webpage for the Office of Social Equity at http://www.wcupa.edu/_admin/social.equity/.

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.