

West Chester University
Department of Physics
Physics 100 – Elements of Physical Science
Section 01

Meeting Time: MWF 1:00 - 1:50 pm
Meeting Place: SEC 208
Instructor: Jeffrey J. Sudol (Dr. Jeff)
Office: Science and Engineering Center 362
Office Phone: 610-436-2572
Office email: jsudol@wcupa.edu
Office Hours: M2-3, W11-12, R3-4, F11-12, F2-3

Course Description

This particular section of Physics 100 – "Elements of Physical Science" offers you the opportunity to develop a deep understanding of the meaning of the term "energy". We will explore the largest sources and sinks of energy in the global economy and connect them to the energy costs of the day-to-day activities of individuals. We will further explore physics-based solutions to the problems of impending shortages in energy sources and the environmental effects of energy consumption, such as climate change. The content areas of this course include dynamics, thermodynamics, electromagnetism, electronics, quantum mechanics, and nuclear physics.

Required Course Materials

A calculator capable of manipulating powers of 10. Usually, this means a scientific calculator. I recommend the Casio *fx* 260 solar. It's inexpensive and does not require batteries.

Website

This course has a D2L website associated with it. I will post all the course documents and announcements on the D2L website on a regular basis. Please check D2L daily for updates.

Course Goals

PHY 100 is an approved General Education course in the Sciences. During each class, we will engage in several types of in-class activities designed to help you meet the student learning objectives of the course. All the student learning objectives fall under the umbrella of the following General Education goals: (i) employ quantitative concepts and mathematical methods and (ii) think critically and analytically. (For more information on the General Education goals at West Chester University, click here: [General Education Requirements](#).) In-class activities include think-pair-share exercises, ranking tasks, interactive lecture demonstrations, and interactive problem-solving sessions. The extent to which you have met the student learning objectives of the course will be assessed by exam.

Attendance Policy

Attendance is required to perform well on the exams, statistically speaking.

Absent due to illness

If you are absent for an exam due to any circumstance that demands medical attention, I require documentation that you fulfilled your obligation to seek medical attention. I do not need to know, nor do I care to know, the nature of your medical condition. Moreover, Federal Law (HIPAA) protects your right to privacy regarding any medical condition, so I cannot ask, nor will I ask, about your medical condition. I only require documentation that informs me that you fulfilled your obligation to seek medical attention. (Any additional information that you share with me is voluntary.)

If you are absent due to illness for an exam, you must contact me within one calendar day of the absence to make arrangements to take the exam. You must also present me with the required documentation to explain your absence.

If you are going to be absent for an extended period of time, please contact the [Office of Student Affairs](#) (OSA) and complete the "Request Instructor Notification of Absences Form". The OSA will generate a letter to inform me of your extended absence. That letter gives me the authority to continue to extend the scheduled assessment for you.

University-sanctioned events

If you will be participating in a University-sanctioned event that occurs at the same time as an exam, you must notify your instructors of your participation in the event at least one week prior to the exam. Documentation supporting your participation in the event is required. We will then make arrangements for you to take the exam at a later date. For more information on University Sanctioned Events, click here: [Undergraduate Catalog: University Sanctioned Events](#).

Absent due to circumstances beyond your control

If you are absent for an exam due to circumstances beyond your control, you must contact me within one calendar day of the absence to explain the absence and provide evidence that the circumstance was indeed beyond your control*. For example, you live in a remote part of Pennsylvania and commute. On the day of the exam, a large tree falls across the only road which gives you access to the rest of the world. Take a picture of the tree, pin it to your location on a map, and send that to me.

*The law protects your privacy in a number of matters. I'm not going to ask any questions that might violate your right to privacy. Whatever information you send me to explain your absence is voluntary, and I will hold that information in confidence, but if your absence falls in an area where your privacy is a concern, please consult with the Office of Student Affairs regarding your absence first, even if that takes a few days.

Assessment

Your "grade" in this course will be based on your performance in the following categories of assessment with the following weights.

Exams..... 25% each

I have scheduled a total of five exams. **At the end of the semester, I will drop your lowest exam score and average the remaining exam scores.**

It sounds nice, but here's the catch!

Except for *Absences due to illness*, *Absences due to circumstances beyond your control*, and *University-sanctioned events*, as described above, there are no excused absences. There are no makeup exams, and you cannot take an exam early or late.

What does this mean? It means that if you miss a regular exam, you receive a score of a zero on that exam. I drop the lowest exam score, so you can miss one regular exam, and it will not affect your final grade.

I do this for the following reason. It takes me about eight hours to write an exam. The exams are exquisitely crafted to test the objectives of the course, and the exam scores represent an accurate measurement of how well the students (and I) have met the objectives of the course (we are a team). If I were to allow students to take exams at different times, I would have to write multiple exams to preserve the integrity of each exam (this reflects a professional code of ethics; it's nothing personal), and I would have to do so in a way that all the exams test the same objectives equally well. So, "makeup exams" represent a huge time sink, and I cannot simultaneously commit to such a large time sink and provide you with a low-cost, high-quality education.

I assign letter grades according to the following scale.

96.7 - 100.0	A+ (the same as an A here at WCU)
93.4 - 96.6	A
90.0 - 93.3	A-
86.7 - 89.9	B+
83.4 - 86.6	B
80.0 - 83.3	B-
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and so on...	

I do not norm-reference (or scale) grades.

I also reserve the right to introduce different forms of assessment as needed and to alter the weight of each of the categories of assessment in the event of some unforeseen circumstance.

Extra Credit

Don't even think about asking for extra credit.

continued below...

Course Schedule

	<u>Date</u>	<u>Lecture</u>	<u>Topic</u>
M	Jan. 22	1	The Big Picture: Sources and Sinks
W	Jan. 24	2	The Big Picture: Solutions
F	Jan. 26	-	Exam #1
M	Jan. 29	3	Forces acting on a vehicle ($F_{net} = 0$)
W	Jan. 31	4	Forces acting on a vehicle ($F_{net} = 0$)
F	Feb. 02	4	Newton's 2nd Law
M	Feb. 05	5	Friction and Drag
W	Feb. 07	6	Work done by the engine against friction and drag
F	Feb. 09	7	Forces acting on a vehicle ($F_{net} \neq 0$)
M	Feb. 12	8	Work done by the engine to change speed
W	Feb. 14	9,10	Real World Examples
F	Feb. 16	11	Solutions (How to reduce transportation costs)
M	Feb. 19	-	Exam #2
W	Feb. 21	12,13	Energy Transfers and Transformations
F	Feb. 23	14	Temperature, Thermal Energy, Heat
M	Feb. 26	15	First Law of Thermodynamics
W	Feb. 28	16	Specific Heat, Latent Heat
F	Mar. 01	17	Second Law of Thermodynamics (efficiency)
M	Mar. 04	18	Engines
W	Mar. 06	18	Refrigerators
F	Mar. 08	19	Global Warming (a simple model)
M	Mar. 11	-	<i>No Class - Spring Break</i>
W	Mar. 13	-	<i>No Class - Spring Break</i>
F	Mar. 15	-	<i>No Class - Spring Break</i>

Note: A "Lecture" represents a conceptual whole. Some lectures are shorter than one class period; others are longer than one class period.

Course Schedule (continued)

	<u>Date</u>	<u>Lecture</u>	<u>Topic</u>
M	Mar. 18	20	Real World Examples
W	Mar. 20	20	Solutions (How to reduce heating/cooling costs)
F	Mar. 22	-	Exam #3
M	Mar. 25	21	Do work to separate charge
W	Mar. 27	22	Ohm's Law
F	Mar. 29	23	Resistors in Parallel
M	Apr. 01	23	Resistors in Parallel
W	Apr. 03	24	Power
F	Apr. 05	25	Real World Examples
M	Apr. 08	26	Solutions (How to reduce electronics costs)
W	Apr. 10	-	Exam #4
F	Apr. 12	27	Unit Conversions
M	Apr. 15	27	Unit Conversions
W	Apr. 17	28	Real World Examples (Replacing fossil fuels)
F	Apr. 19	29	Counting Carbon
M	Apr. 22	30	World Food Supply
W	Apr. 24	31	Alternative Sources: Fission
F	Apr. 26	32	Alternative Sources: Fusion
M	Apr. 29	33	Alternative Sources: Wind Turbines
W	May 01	34	Alternative Sources: Solar Panels
F	May 03	35	It's not Easy Being Green
M	May 05	-	<i>No Class</i>
T	May 06	-	Exam #5 1:00 - 2:55 pm

Intellectual Property Statement

All the course materials are the intellectual property of the instructor or another author. Your use of these materials is restricted to your own studies for the duration of this course. It is a violation of Federal Law for you to distribute copies of these materials to anyone in any format at any time.

Electronic Equipment in the Classroom (Unplug)

Except for calculators, I do not permit the use of cell phones, cameras, voice recorders, computers, or similar electronic equipment in the classroom unless you need to use such a device to accommodate for a disability, in which case you should schedule a meeting with me to discuss the proper use of the device and the data obtained with that device as soon as possible. The spirit of the rule is that the classroom should be an electronic free zone where we tune out the distractions of the world and focus on learning physics. The classroom is a place of dialogue, and the electronic gadgets of our modern culture are not necessary for that dialogue to take place.

The policies below are common to all WCU syllabi.

Email Policy

Per the Undergraduate Catalog, you are required to activate and maintain the email account created for you by West Chester University. I will not use any other email account to communicate with you. I do not have internet access from home. I do not forward my email to my phone. This means that a day or two might pass before I respond to any messages that you send to me. Plan ahead.

Disability Statement

If you require special accommodations because of a disability, please meet with me as soon as possible to discuss your needs. Supporting documentation from the [Office of Educational Accessibility](#) is required. For more information regarding this policy, click here: [Undergraduate Catalog: Services for Students with Disabilities](#).

Policy Regarding Grade Assignments

Grade assignments are final and cannot be changed once submitted at the end of the semester, unless a clerical or computational error is discovered. "No Grade" assignments are made only under extraordinary circumstances. Credit by Examination is not available for this course. For more information, click here: [Undergraduate Catalog: Grade Changes](#).

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Academic Integrity Statement

If you commit a violation of academic integrity, you will receive zero credit for the entire course. This is not negotiable. For more information regarding violations of academic integrity, click here: [Undergraduate Catalog: Academic Integrity Policy](#).

Student Code of Conduct

I will dismiss students from class for any violation of the Student Code of Conduct and initiate the disciplinary action appropriate to the violation. For more information regarding violations of the student code of conduct, click here: [Student Code of Conduct](#).

Reporting Incidents of Sexual Violence

The University requires faculty members to report to the University's Title IX Coordinator (610-436-2433) incidents of sexual violence that students share with faculty. Faculty members are also obligated to report to the person designated in the University Protection of Minors Policy incidents of sexual violence or abuse of a student who was, or is, a child (a person under 18 years of age) at the time the abuse allegedly occurred. Detailed information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is available at the [Office for Diversity, Equity, and Inclusion](#).

Inclusive Learning Environment and Anti-Racist Statement

Diversity, equity, and inclusion are central to West Chester University's mission as reflected in the WCU Mission Statement, Values Statement, Vision Statement, and Strategic Plan: Pathways to Student Success. Guidance on how to report incidents of discrimination and harassment is available at the [Office for Diversity, Equity, and Inclusion](#).

Emergency Preparedness

All students are encouraged to sign up for the University's free WCU ALERT service, which delivers official WCU emergency text messages directly to your cell phone. For more information, visit <https://www.wcupa.edu/wcualert/>. To report an emergency on campus, call the Department of Public Safety at 610-436-3311 or 911.