Lecture Tuesday/Thursday 11:00 am - 12:15 am
Meyer 121

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TBA

Course Description

Do you know how electricity is generated and transported? How instruments create music? Why the sky is blue and why there are rainbows? Why they are called "cell phones"? What makes refrigerator magnets stick? How do computers work? How your computer monitor and plasma screen TV produce their colors and pictures?
All of the devices that define contemporary living are applications of basic scientific discoveries. The principles underlying these devices are fascinating as well as useful, and explain as well many of the natural features and phenomena of the world around us. This course familiarizes you with some basic principles of physics through their applications to selected devices such as CD and DVD players, radio and cell phones, the basic electronic components of computers, lasers and LEDs, why the sky is blue, how rainbows are made, and lenses. In learning the basic physics behind these modern inventions, you will develop a deeper understanding of how the physical world works and gain a new appreciation of everyday phenomena that are ordinarily taken for granted. The course is designed for non-science students with an interest in the natural world. The basic physical ideas needed to understand how things operate are presented using some mathematics, but none beyond elementary high school-level algebra and the binary number system.

Course texts and accompaniments

1. How Things Work, 6^{th} Edition by Louis A. Bloomfield *with WileyPLUS access*
2. How Things Work Laboratory Manual.

Assessments

Assessment	**Weight**	# of dropped
Homework Assignments (WileyPLUS)	20%	1 Lowest
Laboratory	30%	1 Lowest
Exam 1	12.5% Thursday, March 3, 11:00 am	NO EXAMS
Exam 2	12.5% Thursday, April 14, 11:00 am	DROPPED
Final Exam	25% TBA	

- **No alternative examination dates (i.e. no make-up dates) will be offered.**
- **The final examination will be cumulative.**
- All examinations will be in multiple-choice format.
- You will need to bring a calculator to all examinations. You may not use a cell-phone, or any other communication device, during the examinations.
- A formula sheet will be provided.
- If you are ill and cannot appear, a medical certificate is required within 48 hours of the examination date.
  - If you are excused from one or more midterm examinations, the grade of the excused examinations will be calculated based on the grades of other examinations.

  - If you are excused from the final examination, an incomplete will be assigned. You must discuss a make-up plan with the course instructor.
- Students who are absent from an examination during the semester without an excuse will receive a grade of zero on that examination.

Please note:
The two in-class examinations, homework assignments, labs, and final examination provides a more than adequate basis for you to demonstrate how well you've learned the material and for us to determine an accurate course grade. There will be no exceptions in grade assessment made for anyone; in particular, extra credit papers or assignments will not be allowed. Please understand that this is to ensure fairness and uniformity of grading standards for everyone.

Lectures

Lectures will cover the same materials as the textbook,but not necessarily from the same perspective. You are encouraged to ask questions on topics discussed in lectures and/or the textbook.

Lecture recordings and Zoom streaming

- All lectures will be recorded via Zoom, and recordings will be available on Brightspace.
- During the first three weeks, lectures will be streamed via Zoom. You can take lectures remotely if you cannot attend in-person lectures during this period. The Zoom link for the lectures is `https://nyu.zoom.us/j/98132208083`. The link is also available on Brightspace.
- If in-person lectures cannot be held, lectures will go online. Any change in instruction mode will be announced through Brightspace.

Course Grade

Your total numerical score, calculated from the components listed above, correspond to the following letter grades:

	Score ≥ 90 = A	$90 >$ Score ≥ 86 = A-
$86 >$ Score ≥ 82 = B+	$82 >$ Score ≥ 72 = B	$72 >$ Score ≥ 68 = B-
$68 >$ Score ≥ 64 = C+	$64 >$ Score ≥ 54 = C	$54 >$ Score ≥ 50 = C-
$50 >$ Score ≥ 40 = D	$40 >$ Score = F	

- **There is no extra credit in this course.**
- **There are no curves in this course.**
- The cutoffs for each letter grade *might be* lowered but they will not be raised.
- Laboratory grades will not be altered to fit a common average or standard deviation.
- Scores will be rounded to two decimal places at the end of the semester.

WileyPLUS

- Assignments will be delivered through the WileyPLUS platform. Please see Brightspace for the WileyPLUS course ID for CORE-UA 214 in Spring 2022.
- Each assignments will consist of a combination of quantitative and conceptual questions.
- **Late assignments will be penalized. Please see the Policies section for the details.**

Laboratory

These weekly sessions are an important part of the course. You must be registered for one lab section. You will have to submit a lab report for each experiment performed. The lab report has to

include answers to all questions and any data you may have collected. The lab report will be due in lab one week after the experiment has been performed.

Attendance
The lab instructor will deduct points from your lab grade for arriving late or leaving early.

Absence Policy
As with the examinations, excused absences will only be given in the case of illness or observation of a religious holiday. You must notify your lab instructor in advance in writing if you miss a lab due to religious reasons. All other absences will be considered unexcused and will result in a lab grade of zero. **You cannot make up a lab by attending a laboratory session that you are not registered for.**

Late Assignments
Late lab reports will be penalized for each day late (excluding weekends). If you wish to submit a late lab report, you must do so only at your laboratory instructor's office.

Lab Instructors
Each lab instructor will hold a weekly office hour where you can discuss lecture and laboratory material. Office locations and office hour schedule will be announced in lab.

Policies

1. Homework Assignments
   (a) **Late penalty**
      - **Submission within 7 days: 25% penalty, reducing the maximum score to 75%**
      - **Submission after 7 days: 50% penalty, reducing the maximum score to 50%**
   (b) The last day you can submit homework assignments is May 9th, at 11:59 pm. You cannot submit or open assignments afterwards. It is recommended, for example, to take screenshots if you want to review your assignments to prepare for the final examination.
   (c) Please see on WileyPLUS for detailed grading policies, including acceptable error range for numerical questions. You can see the policy by clicking on "View Policies" at the top left corner.
2. Laboratory
   (a) The laboratory grade is based on an average over all labs.
   (b) Any laboratory missed without a prior arrangement with the instructor counts as a zero.
   (c) Lab experiment descriptions must be read before attending each experiment.
   (d) It is important to bring a calculator and your laboratory experiment description to the laboratory sessions.
   (e) In order to get a grade, a lab report must be submitted. It's not enough to just do the experiment or working on the worksheet.
   (f) Your laboratory instructor will provide more information regarding the policy for handing in lab reports.
   (g) **There are no make-up sessions for laboratories.**

Diversity, equity, and Inclusion

We value diversity in this course. The teaching staff will do their best to foster a safe and inclusive learning environment. We expect the same from all of you. Although we provide constructive feedback on each others' academic arguments, we will not judge our peers otherwise. All of you have the right to express yourself, be yourself, and learn about yourself. Please feel free to contact the teaching staff of the course should you have any comments, concerns, or suggestions on diversity, equity, and inclusion.

Course Schedule

Date	Lectures	Laboratory	Due
T Jan 25	Introduction/ Sec 1.1: Skating	No labs	
R Jan 27	Sec 1.2: Falling Balls		
T Feb 1	Sec 1.3: Ramps	Lab 1: Math Review	
R Feb 3	Sect 2.2: Wheels		PS1
T Feb 8	Sec 9.1: Clocks	Lab 2: Kinematics	
R Feb 10	Sec 9.2: Musical Instruments		PS2
T Feb 15	Sec 9.2 (continued)	Lab 3: The Doppler Effect	
R Feb 17	Sec 10.1: Static Electricity		PS3
T Feb 22	Sec 10.2: Xerographic Copiers	Lab 4: Ohm's law	
R Feb 24	Schedule Adjustment		PS4
T Mar 1	Exam Review	Exam Review	
R Mar 3	Exam 1 (Chapter 1, 2, 9)		
T Mar 8	Sec 10.3: Flashlights	Lab 5: Capacitors	
R Mar 10	Sec 11.1: Household Magnets		PS5
T Mar 15	Spring Break		
R Mar 17	Spring Break		
T Mar 22	Sec 11.2: Electric Power Distribution	Lab 6: Magnetism	
R Mar 24	Sec 13.1: Sunlight		PS6
T Mar 29	Sec 13.2: Discharge Lamps	Lab 7: Interference & Diffraction	
R Mar 31	Sec 13.3: LEDs and Lasers		PS7
T Apr 5	Sec 12.1: Radio	Lab 8: Reflection, Refraction,	
R Apr 7	Sec 12.2: Microwave Ovens	& Dispersion	PS8
T Apr 12	Exam Review	Exam Review	
R Apr 14	Exam 2 (Chapters 10, 11, 13)		
T Apr 19	Sec 14.1: Cameras	Lab 9: Spectroscopic Analysis	
R Apr 21	Sec 14.2/14.3		PS9
T Apr 26	Sec 15.1: Nuclear Weapons	Lab 10: The Photoelectric Effect	
R Apr 28	Sec 15.2: Nuclear Reactors		PS10
T May 3	TBD	No labs	
R May 5	TBD		PS11
TBD	Final Exam (CUMULATIVE)		

[†]**Assignment Due Dates**

- All assignments are due by 11:59 pm (EDT). For example, Problem Set 1 is due by Thursday, February 3, at 11:59 pm.