



## PHSC 107

# How the World Works (Lecture)

Tu, Th · 11:00 am – 12:15 pm · 1/22/2019 – 5/13/2019 · WB 911 - Chicago



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WB 816

Office Hours: Tu · 12:25 pm – 1:25 pm

[Changes to this syllabus may be made when deemed appropriate.](#)

Last updated: February 4, 2019

## Description

This course seeks to enable students to observe and understand the world around us and how it works, using the lens of physical science. Participants will be invited to learn the fundamentals of physics, chemistry, earth science, and astronomy, and to use them to gain a new perspective on science and everyday life.

## Prerequisites

None

## Learning Goals

These are the broad goals I have for this class. Note that they overlap and build on each other.

- Effective Communication. This is a university-wide goal. Solve problems in a team, give and receive reasoned arguments with compassion and courage.
- Conceptual understanding. Know and apply physical laws governing the behavior of particles, extended objects, gases, and liquids, as well as chemistry and earth science.
- Awareness of social justice and engagement in civic life. The third university-wide goal. I see the classroom as a microcosm of society, and so we will learn to work together and support each other in attending to the needs that are alive in us and others.
- What are yours? I want this class to be meaningful for everyone, so I invite you to share with me your goals for the course.

## Required Texts and Course Materials

### Course Web Page

Visit <https://blackboard.roosevelt.edu>.

### Text

- P. G. Hewitt, J. Suchocki, L. A. Hewitt, *Conceptual Physical Science, 6th ed.*, Pearson, 2017. ISBN-13: 978-0-13-406049-1.

## Online Assignments

- Visit [the course website](#) and navigate to:

Course Tools → Pearson's MyLab & Mastering

When you access the link first time, you should enter your Pearson's username and password. Sometimes, old accounts cause inconsistencies; so, my quick solution to help one of the class members was to open a new Pearson's account (with another email address), and then log in the Pearson website. Once logged in, you will be given options to buy eText and Mastering access. If you have the copy of textbook already, you need to buy the Mastering at this level. Then you will be linked to the resources from the Blackboard links without second-step login process.

You do not need a course ID to register the Pearson product as long as you are using the Blackboard links. Thus, please do not email me to ask the course ID. Course IDs are not used for Modified Mastering products any more.

## Calculator

For exams, you may want a calculator available to you. A basic scientific calculator without extended memory and external communication capability can be used during exams. Smart phones cannot be used as calculators because technically they are computers with extended memory and communication capabilities.

## Schedule

Please see *Tentative Schedule* at the end of this document.

## Course Structure

I want to use class time for the thing that is unique about it—the in-person interaction of students with the instructor and with each other. I want to spend less time delivering content and more time having discussions and activities. This will improve your success and our mutual satisfaction as we teach and learn from each other.

### Before Class

- **Read** the assigned textbook chapters. First, scan the relevant sections and, if necessary, the whole chapter. Does it appear that the material involves completely new ideas, or is it just the application of what you have already learned? If the material does involve new ideas, how do the new ideas fit into what you have already learned? Then, read the relevant new section(s) slowly. Keep relating what you read to your current understanding. The most important strategy that will help you learn better is called *interrogation*. Interrogation means continually asking yourself the same question when reading the text: "*Why is this true?*"<sup>1</sup>
- **Complete** the Pre-Lecture Assignment by 11:59 pm the evening before a lecture that begins a new chapter.

### During Class

- We'll figure out what's going on in some demonstrations of physical phenomena, it'll be great. Also expect to practice problem-solving skills, often in small groups.
- At the end of class, there will often be time to reflect on what we learned and what we still want to know.

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<sup>1</sup>Advice from E. Etkina, M. Gentile, A. Van Heuvelen, *College Physics, 1st ed.*, Pearson, 2014.

### After Class

- **Read** the book as soon as possible after new material is discussed in class while the material is still fresh in your mind, using the above recommendations and asking “*Why is this true?*”
- **Weekly Online Homework.** Skills are learned through practice. This is the practice part. I encourage you to work in a group to help each other learn. These are generally published three days before the material is covered in lecture and due on Fridays by 11:59 pm —after the last lecture on the topic.

To **succeed at problem-solving:** Try to solve the “checkpoints” that are provided in the chapters without looking at the solution. After finishing, compare your solution to the one described in the book. Then try the homework problems.

### Grading Weights and Scale

Pre-Lecture Assignments	9%	A	92–100%	B-	76–79%	D+	60–63%
Homework	19%	A-	88–91%	C+	72–75%	D	56–59%
Exams (4)	18%/Exam	B+	84–87%	C	68–71%	D-	52–55%
		B	80–83%	C-	64–67%	F	0–51%

### Exams

There are 4 exams. The final exam will only include material from the most recent topics. The exams will generally include conceptual multiple choice and may include some short answer/essay questions.

### Late Work and Make-up Assignments

No makeup exams will be given unless you have a legitimate excuse. I should be contacted ASAP regarding the missed exam and a makeup scheduled. Documentation of the absence is necessary and will be verified in order for the exam grade to count.

No makeup assignments will be given. Late work (online assignments only) is accepted however 10% penalty per day will be applied.

### Classroom Expectations

I want to make the classroom an educational space conducive to student learning, where we seek and speak the truth (about science and life) with courage and compassion. If we agree on expectations about how we will act, then we all will probably be happier and more productive. We will mutually agree on these expectations during the first week of class, and they will form an amendment to this document.

I must acknowledge, however, that as the instructor, I have been given a greater capacity to exercise power over how we interact during class. If we cannot resolve problems mutually, I may act without your input to prevent and mitigate disruptive behavior in the classroom, as these behaviors interfere with the learning process.

### Attendance

I do not require attendance. I will be recording attendance during some classes, but only for course evaluation, program evaluation, and compliance with government regulations.

### Academic Integrity

I do not tolerate academic dishonesty in my class. Please don't do it. I don't like it for at least three reasons. First and foremost, I don't think one learns as much when one doesn't put in the effort requested by me. If

you think you aren't learning from something that I request of you, please let me know and we can talk about it. Second, when someone looks at your grade, they assume that this grade represents what you yourself earned in the class and how you performed. If you are dishonest during the class, then your grade does not represent you, and their assumption is made false. Finally, if we cannot trust individual students' grades, then we cannot trust their degrees, and the validity of the entire degree system can be called into question. I value the degree system, so I want it to stay trusted.

See [RU policy](#) for what I consider to be dishonest<sup>2</sup>. For plagiarism in particular, if you use an idea that someone else thought of that isn't common knowledge, then you need to give credit to the person who thought of it first. This includes copying material verbatim as well as paraphrasing it.

For combating dishonesty, I use a three-strike system. For the first offense, you earn zero points for that question or section of the assignment. For the second offense, you earn zero points for the entire assignment. **For the third offense, you will earn an F for the course.**

## Challenges to Inclusion

I recognize that in the current political and socioeconomic climate of our community, the ability for students to comfortably participate in class may be affected by such factors as racial or gender inequality, access to food or housing, and substance abuse. Any student who faces such challenges to their security or access to food or housing is urged to contact the Office of the Dean of Students (<https://www.roosevelt.edu/policies/student-rights/dean-of-students>). Furthermore, please notify me if you are comfortable in doing so. This will enable me to provide any resources that I may possess.

## Disability

Roosevelt University complies fully with the Americans with Disabilities Act. Details about ADA and Roosevelt's policies and practices are found in the following link: <http://www.roosevelt.edu/StudentSuccess/Disability/Discrimination.aspx>. If you have a condition or disability that requires reasonable accommodation, please alert your instructor or the Academic Success Center as soon as possible, certainly before any assignment or classroom activity that requires accommodation. The Academic Success Center is located in AUD 1050 in Chicago, and the phone number is 312-341-3810. In Schaumburg, the office is in Room 125, and the phone number is 847-619-7978. Email them at [academicsuccess@roosevelt.edu](mailto:academicsuccess@roosevelt.edu).

## Employee Mandated Reporting Requirements

Roosevelt University cares greatly about the health and well-being of our students, staff, faculty, and guests to our campuses. Federal law, specifically Title IX, and the University Sexual Misconduct Policy require that all employees (including TAs, mentors, proctors, and peer tutors) are mandated reporters of incidents involving sexual or gender-based violence or harassment. Further information may be found at this website: <https://www.roosevelt.edu/title-ix>.

Disclosures made to faculty or teaching assistants (TAs) about sexual or gender-based harassment, sexual assault, dating violence, domestic violence, and/or stalking on or off campus must be forwarded to the Title IX Coordinator. The Title IX office will contact any student who discloses an incident regarding student rights, including the option to request an investigation, interim safety measures, and/or academic accommodations. In certain circumstances, the Title IX Coordinator may need to proceed with an investigation, even if none is requested, if there are safety risks to the student or campus community. Participation in the process is voluntary.

If you want a confidential place to disclose sexual assault, sexual harassment or intimate partner violence, there are two confidential advisors on campus who are not mandated reporters. They are: Audrey Guy

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<sup>2</sup>Also see recommendations here: <http://www.roosevelt.edu/Provost/Faculty/AcademicIntegrity.aspx>

(312)244-0426 and LaDonna Long (312)244-0577. Both are available via phone at all hours. The Counseling Center (AUD 470, Phone: 312-341-3538; SCH 114, Phone: 312-341-3548) staff are also NOT mandatory reporters and therefore NOT required to report a disclosure to the Title IX Office.

## Religious holidays

Please let me know as soon as possible if you will miss class because you are observing a religious holiday. Roosevelt University policy<sup>3</sup> requires written notification to me within the first two weeks of the term. Any work you miss because of a religious holiday can be made up.

## Student Code of Conduct

Students enrolled in the university are expected to conduct themselves in a manner compatible with the university's function as an educational institution<sup>4</sup>.

## Withdrawals

The final date for an official withdrawal<sup>5</sup> from this class (meaning a "W" would appear on your transcript) is **March 29**. After that, if you want to withdraw, you'll need to petition the registrar. Petitions are granted only for non-academic reasons after the deadline. If you receive financial aid, it's best to check with your counselor to assure that aid isn't affected by withdrawing from a class.

## Tentative Schedule

An outline of the topics that will be covered in this course appears below. Although I will generally follow the order of presentation found in your textbook, on occasion I will deviate from this order. § stands for Chapter.

TUESDAY		THURSDAY	
Jan 22nd Meeting, reviewing the course syllabus	1	24th Patterns of Motion and Equilibrium. Read §1.	2
29th Newton's Laws of Motion. Read §2.	3	31st Due to weather conditions (No Class)	
Feb 5th Momentum and Energy. Read §3.	4	7th Gravity, Projectiles, and Satellites. Read §4.	5
12th <b>Exam 1</b>	6	14th Fluid Mechanics. Read §5.	7
19th Thermal Energy and Thermodynamics. Read §6.	8	21st Heat Transfer and Change of Phase. Read §7.	9
26th Static and Current Electricity. Read §8.	10	28th Magnetism and Electromagnetic Induction. Read §9.	11

<sup>3</sup><http://www.roosevelt.edu/Policies/ReligiousHolidays.aspx>

<sup>4</sup>Complete policy: <http://www.roosevelt.edu/StudentSuccess/Conduct.aspx>

<sup>5</sup>Complete withdrawal policy: <https://www.roosevelt.edu/current-students/academics/register-classes>

<b>TUESDAY</b>		<b>THURSDAY</b>	
Mar 5th Waves and Sound. Read §10.	<b>12</b>	7th Light. Read §11.	<b>13</b>
12th Spring Break (No Class)		14th Spring Break (No Class)	
19th <b>Exam 2</b>	<b>14</b>	21st Atoms and the Periodic Table. Read §12.	<b>15</b>
26th The Atomic Nucleus and Radioactivity. Read §13.	<b>16</b>	28th Elements of Chemistry. Read §14.	<b>17</b>
Apr 2nd How Atoms Bond and Molecules Attract. Read §15.	<b>18</b>	4th Mixtures. Read §16.	<b>19</b>
9th How Chemicals React. Read §17.	<b>20</b>	11th Two Classes of Chemical Reactions. Read §18.	<b>21</b>
16th <b>Exam 3</b>	<b>22</b>	18th Organic Compounds. Read §19.	<b>23</b>
23rd Rocks and Minerals. Read §20.	<b>24</b>	25th Plate Tectonics and Earth's Interior. Read §21.	<b>25</b>
30th Shaping Earth's Surface. Read §22.	<b>26</b>	May 2nd Geologic Time —Reading the Rock Record. Read §23.	<b>27</b>
7th <b>Exam 4 (Final Exam: 11:00 am - 1:30 pm)</b>	<b>28</b>	9th	<b>29</b>

All reading assignments for lecture and lab are from their respective textbooks.  
 I reserve the right to make changes to this schedule, as necessary.