BASIC PHYSICS,
Phys-007-20

Summer 2022– Syllabus
(Tentative)

Description and Structure of the Course

Second Session July 11, 2022 – August 12, 2022
Monday through Friday, 1:00 – 2:30 p.m.
Twenty five classes, ninety minutes per class
Classroom: Reiss #502
Professor: *Mark A. Esrick*

Textbooks[1]

1. Paul G. Hewitt, *Conceptual Physics*, 12th Edition(required)
2. Paul G. Hewitt & P. R. Wolf, *Problem Solving in Conceptual Physics*, 12th Edition (required)

Grading

	Percentage of Final Grade
Homework	**50%**
Midterm	**25%**
Final Examination	**25%**

Course Outline

In this 3-credit, algebra-based course, we will study the basic principles used to describe and explain physical phenomena. We will cover topics in Classical Physics, which include Mechanics, Waves, Sound, Heat, Electricity, Magnetism, Light Waves, basic ideas in Quantum Physics, and time permitting, an introduction to the Special Theory of Relativity. This course is appropriate for non-science majors, and for those desiring a more conceptual and less mathematical introduction to physics before taking a two semester physics course required for science majors, and for those interested in gaining insight into the physical laws that governing observed phenomena. We will emphasize the conceptual understanding of the laws of nature and their applications in explaining and predicting the way matter and energy interact. A midterm, covering the first ten chapters will be given out at the end of class on July 26 and will be due July 29. A second exam covering chapters not covered on the midterm, will be given out on the last day of classes and will be due by 5:00 pm, August 15. Students are expected to attend every class, and I will check attendance at the beginning of every class. In the unlikely event that classes are not held in person, but virtually, via Zoom, please keep your cameras on during class so that we all can see, and get to know, each other. I encourage you to work together on homework problems when running into difficulties (for example via Zoom, if classes are virtual), and to email me with questions. I will have office hours in 526 Reiss (or via Zoom if classes are virtual), at times to be decided on the first day of classes.

Note:

Please check with your advisor at your home institution to determine if this course will meet the criteria for obtaining academic credit at your institution.

This course does not satisfy the science requirement at Georgetown University.

Tentative Chapters and Timetable

Date	Topic	Chapters
(1) Monday 7/11/2022	About Science – Measurements & About Motion; Newton's 1st Law	1, 2
(2) Tuesday 7/12/2022	About Motion; Newton's 1st Law (cont)	2
(3) Wednesday 7/13/2022	Linear Motion	3
(4) Thursday 7/14/2022	Newton's 2nd Law of Motion	4
(5) Friday 7/15/2022	Newton's 2nd Law of Motion – cont.	4
(6) Monday 7/18/2022	Newton's 3rd Law of Motion	5
(7) Tuesday 7/19/2022	Momentum	6
(8) Wednesday 7/202022	Momentum Work & Energy	6, 7
(9) Thursday 7/21/2022	Rotational Motion	8

Date	Topic	Chapters
(10) Friday 7/22/2022	Gravity, Projectile & Satellite Motion **(Exam 1, given out at end of class, due 7/26/2022)**	9 &10
(11) Monday 7/25/2022	Temperature, Heat & Expansion	15
(12) Tuesday 7/26/2022	Heat Transfer	16
(13) Wednesday 7/27/2022	Thermodynamics	18
(14) Thursday 7/28/2022	Vibrations & Waves	19
(15) Friday 7/29/2022	Sound	20
(16) Monday 8/1/2022	Electrostatics	22
(17) Tuesday 8/2/2022	Electric Current	23
(18) Wednesday 8/3//2022	Magnetism	24

Date	Topic	Chapters
(19) Thursday 8/4/2022	Electromagnetic Induction	25
(20) Friday 8/5//2022	Properties of Light	26
(21) Monday 8/8/2022	Light Waves Light Emission	29, 30
(22) Tuesday 8/9/2022	Light Quanta	31
(23) Wednesday 8/10/2022	The Atom and the Quantum	32
(24) Thursday 8/11/2022	Special Theory of Relativity	35
(25) Friday 8/12/2022	Special Theory of Relativity **(On chapters not covered on first exam. Given out at end of class & due by 5:00 pm, 8/15/2022)**	35

[1] The textbooks will be available in the GU bookstore, but they may be available at a lower price on the Internet.