



**University of International Business and Economics
International Summer School**

PHY 160 Introductory Physics I

Term: June 12th – July 7th, 2023

Instructor: Prof. Shanshan Chen

Home Institution: Renmin University of China

Email: schen@ruc.edu.cn

Class Hours: Monday through Friday, 120 minutes each day (2,400 minutes in total)

Discussion session: 2 hours each week

Office Hours: TBD

Total Contact Hours: 64 contact hours (45 minutes each, 48 hours in total)

Credit: 4 units

Course Description:

Calculus-based introduction to Physics designed for students not in the physical sciences. The material to be covered is basically the first half of a standard College Physics course, Mechanics and thermal dynamics. This is an intensive course, especially given the limited time frame, and students should take this into account.

Course Goals:

The goal is, in addition to having students learn to solve physics problems, to provide students with an overview of how the material taught fits together within a single conceptual framework.

Required Textbook:

Fundamentals of Physics, Volume 1, 10th Edition by David Halliday, Robert Resnick, Jearl Walker
ISBN: 9781118230725

Grading Policy:

The grades will be determined as follows:

30% for homework solutions

30% for the midterm exam

40% for the final exam

Grading Scale:

Assignments and examinations will be graded according to the following grade scale:

| | | | |
|-----------|--------|-----------|----------|
| A | 90-100 | C+ | 72-74 |
| A- | 85-89 | C | 68-71 |
| B+ | 82-84 | C- | 64-67 |
| B | 78-81 | D | 60-63 |
| B- | 75-77 | F | below 60 |

Academic Honesty:

Students are expected to maintain high standards of academic honesty. The work you produce in this class should be the product of your own time in reading, thinking, and writing. Any academic misconduct of any type, especially cheating on an exam, will automatically trigger: (1) expulsion from the course; (2) the issuance of a failing grade for the course, (3) the issuance of a formal report about the student's misconduct to the student's home university, and (4) any other disciplinary or administrative action deemed appropriate by Professor Chen and the leaders of UIBE. Students are allowed to co-operate on, but not copy, homework exercises.

Deadline Policy:

Summer school is very intense and to best ensure your success in this class, students must be proactive in their work. This means that you should not only be disciplined about completing assigned reading and assignments in a timely way, but also that you reach out to me when you have questions.

All work in the class will have a reasonable "window" of time within which to complete it, and because of the limit of a 4-week semester, we don't have a lot of room.

Communication:

Let me know if something is not clear. Let me know if there is a reason you are missing class. Let me know if you need more help. I want you to succeed in learning the material. If something is not working for you, I am not able to do anything about it if I don't know about it.

We can communicate via e-mail, particularly if you just have a quick question. When you e-mail, please be sure to include the class (PHY 160) in your e-mail subject and to include your own name in the body of the e-mail message as well as a clear description of the issue you're asking me about.

Please get in the habit of using the more formal environment of e-mail! I am usually able to respond to e-mail within 24 hours, however, should 24 hours pass by and you have not received a response from me, please contact me again.

Detailed Description of the Course Requirements:

Homework:

This course is designed to build knowledge over time. You can help yourself succeed by keeping on top of the reading and reviewing your notes daily...cramming has proven to be an ineffective way to learn the material!

Discussion:

The topics are designed to help you stay on track by facilitating your interaction with a peer group with whom you can discuss course materials ranging from information and data to “big picture” issues.

Exams:

There will be a final exam at the end of the semester. It will consist of both the written material we have covered in class.

Missed Exams:

In the event that you must miss an exam, please let me know as much in advance as possible. In the case of illness or emergency, you may be eligible to make-up one quiz or exam. Please see me upon your return to class and be prepared to provide written documentation. No make-ups will be offered for unexcused absences.

Course Schedule:

Day 1, Mon: Chapters 1&2 Measurement and Motion along a straight line

Day 2, Tues: Chapters 2&3 Motion along a straight line and Vectors

Day 3, Wed: Chapters 4 Motion in Two and Three Dimensions

Day 4, Thurs: Chapter 5 Force and Motion I

Day 5, Fri: Chapter 6 Force and Motion II

Day 6, Mon: Chapter 7 Kinetic Energy and Work

Day 7, Tues: Chapter 8 Potential Energy and Conservation of Energy

Day 8, Wed: Review

Day 9, Thurs: Mid-term Exam

Day 10, Fri: Chapter 9 Center of Mass and Linear Momentum

Day 11, Mon: Chapter 10 Rotation

Day 12, Tues: **Chapter 11** Rolling, Torque, and Angular Momentum

Day 13, Wed: **Chapter 15** Oscillations

Day 14, Thurs: **Chapter 16** Waves

Day 15, Fri: **Chapter 18** Temperature, Heat, and the First Law of Thermodynamics

Day 16, Mon: **Chapter 19** The Kinetic Theory of Gases

Day 17, Tues: **Chapter 19&20** Entropy and the Second Law of Thermodynamics

Day 18, Wed: **Chapter 20** Entropy and the Second Law of Thermodynamics

Day 19, Thurs: **Review session**

Day 20, Fri: **Final Exam**