



PHYS 021: General Physics II

General Information

Term: 2019 Summer Session	Class Sessions Per Week: 5
Instructor: Staff	Total Weeks: 5
Language of Instruction: English	Total Class Sessions: 25
Classroom: TBA	Class Session Length (minutes): 120
Office Hours: TBA	Credit Hours: 4

Course Description:

This course, following General Physics I, continues the study of General Physics. Main topics discussed in this course include: electricity and magnetism, the study of natural phenomena in the fields of electromagnetism, light, geometrical and wave optics, and quantum physics. Some concepts from General Physics I will reappear here such as: position, velocity, acceleration, force, Newton's laws of motion, work and energy. Some topics in the field of modern physics will also be introduced.

Prerequisite: PHYS 011 General Physics I.

Course Materials:

Fundamentals of Physics, David Halliday, Robert Resnick, Jearl Walker, 10th edition.

Course Format and Requirements:

This class is in the format of lectures only. Attendance at lectures is vital to get a thorough understanding of the material. Students are responsible for lecture notes, any course material handed out, and attendance in class, while attendance will not to be formally recorded.

Course Assignments:

Homework

There will be 6 homework assignments randomly assigned through the whole semester. No late HWs will be accepted.

Quizzes

Quizzes will be based on the homework problems, and will be given on the beginning of class. There will be 6 quizzes during the semester and the lowest scores will be dropped, no make-up quiz will be provided.

Exams

There will be two in-class midterm exams and one cumulative final exam. The exams will be based on the homework, textbook, and lectures. Both quantitative and conceptual questions will appear on the exams. A formula sheet will be provided with the exam. Students will need to bring a calculator to all exams.

**Course Assessment:**

Quizzes	10%
Homework	10%
Midterm Exams 1	25%
Midterm Exams 2	25%
Final Exam	30%
Total	100%

Grading Scale (percentage):**A+: 98-100****A: 93-97****A-: 90-92****B+: 88-89****B: 83-87****B-: 80-82****C+: 78-79****C: 73-77****C-: 70-72****D+: 68-69****D: 63-67****D-:60-62****F: <60****Academic Integrity:**

Students are encouraged to study together, and to discuss lecture topics with one another, but all other work should be completed independently.

Students are expected to adhere to the standards of academic honesty and integrity that are described in the Wuhan University's *Academic Conduct Code*. Any work suspected of violating the standards of the *Academic Conduct Code* will be reported to the Dean's Office. Penalties for violating the *Academic Conduct Code* may include dismissal from the program. All students have an individual responsibility to know and understand the provisions of the *Academic Conduct Code*.

Special Needs or Assistance:

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have



learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.

Course Schedule:

Class 1:

Overview of the course;
Go through syllabus;
Electric Charge;
Coulomb's Law

Class 2:

Electric Fields:
Test Charge;
Superposition of Fields;
Field-Line Diagrams

Class 3:

Superposition of Fields (Cont.);
Field-Line Diagrams (Cont.)

Class 4:

Quiz 1

Conductors;
Electric Potential Energy;

Class 5:

Voltage
Resistance;

Class 6:

Resistance (Cont.);
Dielectrics

Class 7:

Current;
Circuits, Current, Ohm's Law

Class 8:

Quiz 2



Ohm's Law;
Resistance in parallel;
Resistance in series

Class 9:
Resistance in parallel (Cont.);
Resistance in series (Cont.);
Review for midterm 1

Class 10:
Midterm Exam 1

Class 11:
Power;
Kirchoff's Rules

Class 12:
Capacitor;
Capacitance;
Capacitance in parallel;
Capacitance in series

Class 13:
Quiz 3
Magnetic fields;
Magnetic Forces;

Class 14:
Right Hand Rule;
Magnet field and Currents

Class 15:
Ampere's Law;
Faraday's Law of Induction

Class 16:
Quiz 4
Faraday's Law of Induction (Cont.);
Lenz's Law, Inductance;



Lenz's Law;

Class 17:

Electric generators;

E-M waves

Review for midterm 2

Class 18:

Midterm Exam 2

Class 19:

Frequency, Wavelength;

Doppler Effect

Class 20:

Reflection;

Geometric Optics;

Mirror Equation, Magnification;

Refraction, Lens equation

Class 21:

Quiz 5

Dispersion;

Physical Optics;

Superposition

Class 22:

Wave properties of light;

Interference;

Constructive & Destructive, Double Slit;

Thin films, Diffraction

Class 23:

Quiz 6

Relativity;

Time Dilation, Velocity Addition;

Mass-Energy Equivalence, General Relativity;

Class 24:



Quantum Physics:

Planck, photons

Wave/Particle Duality, Uncertainty Principle

Class 25:

Fission, Radioactivity, Fusion, Mass/Energy Equivalence;

Cosmology & Fundamental Forces

Review for final exam

Final Exam (Cumulative): TBA