

WINTHROP UNIVERSITY

Department of Chemistry, Physics, & Geology

Syllabus

Semester: Spring 2017

Course: PHYS 202 - General Physics II

Credit hours: 4

Pre-requisite: A grade of C or better in PHYS 201

Co-requisite: [PHYS 202L](#)

Lecture: T,R 12:30-1:20, Sims 209 [Course Schedule](#)

Professor: Dr. Ponn Maheswaranathan ([Mahes](#)), Sims 213-B.

Office Hours: M and W: 9:30 - 11 AM, or by appointment.

Phone: 323 4940, **E-mail:** mahesp@winthrop.edu

Textbook: College Physics, by OpenStax, Free Online Textbook: [College Physics by OpenStax](#), [Conceptual Questions and Problems & Exercises](#)

Laboratory: W 2:00 - 4:50 PM or W 5:00 - 7:50 PM or R 8:00 - 10:50 PM.

Students need to register for one of the above lab sections, [PHYS 202L](#).

Laboratory will not meet during the first week of classes.

Course Description:

The PHYS 201-202 sequence covers the major branches of classical physics: PHYS 201 deals with mostly mechanics, wave motion, and sound while PHYS 202 covers thermodynamics, electromagnetism, and optics. The course emphasizes understanding of fundamental physics concepts and principles as well as the development of conceptual and analytical problem solving skills by using physics concepts, principles, and mathematics in the solution of various interesting and challenging real world problems. This course should also help you review and master your algebra, trigonometry, and apply them in physics.

Course Objectives:

- Develop an understanding of physics' role as the most basic of the sciences.
- Demonstrate an understanding of the history of scientific discovery.
- Learn the introductory physics concepts associated with heat, thermodynamics, electricity, magnetism, and optics.
- Gain an understanding of physics' role in technology and in everyday life and to discuss the strengths and limitations of science.
- Develop conceptual and analytical problem solving skills.
- Learn how to design and carry out introductory physics experiments.
- Learn how to use computers for data collection & analysis and graphing.
- Draw conclusions for the experiments and write laboratory reports.

University-Level Competencies:

General Physics II introduces students to the role of scientific reasoning in solving introductory physics problems using algebra & trigonometry (e.g. calculating entropy changes in thermodynamics, calculating magnetic field due to electric currents, and analyzing circuits). They will apply the scientific methodologies of inquiry during the laboratory, PHYS 202L, and write well-reasoned conclusions. They will also be introduced to the history of scientific discovery (e.g., topics and devices are introduced with historical perspectives) and learn that the theories in physics evolve into laws after continuous re-evaluations and arguments. In addition they will see how scientific advances made in a laboratory

transform into useful technological devices (e.g., the development of the transistor from vacuum tube to silicon chip).

Attendance and Participation:

Students are encouraged to attend all the lectures and to actively take part in classroom activities. Regular attendance and good participation efforts will help in the final letter grade assignment for borderline cases.

Homework:

Chapter sections, questions, and problems are assigned for each lecture. It is important that you read the chapter sections before coming to a lecture. After attending the lecture you should re-read the chapter, answer the questions and solve problems. Get help when needed. Homework will be collected via paper and BlackBoard.

Students with Disabilities/Need of Accommodations for Access:

Winthrop University is committed to providing access to education. If you have a condition which may adversely impact your ability to access academics and/or campus life, and you require specific accommodations to complete this course, contact the Office of Accessibility (OA) at 803-323-3290, or, accessibility@winthrop.edu. Please inform me as early as possible, once you have your official notice of accommodations from the Office of Accessibility.

Winthrop's Academic Success Center:

Winthrop's Academic Success Center (ASC) is a free resource for all undergraduate students seeking to perform their best academically. The ASC offers a variety of personalized and structured resources that help students achieve academic excellence, such as tutoring, academic skill development (test taking strategies, time management counseling, and study techniques), group and individual study spaces, and academic coaching. The ASC is located on the first floor of Dinkins, Suite 106. Please contact the ASC at 803-323-3929 or success@winthrop.edu. For more information on ASC services, please visit www.winthrop.edu/success.

Winthrop's Office of Nationally Competitive Awards (ONCA) identifies and assists highly motivated and talented students to apply for nationally and internationally competitive awards, scholarships, fellowships, and unique opportunities both at home and abroad. ONCA gathers and disseminates award information and deadlines across the campus community, and serves as a resource for students, faculty, and staff throughout the nationally competitive award nomination and application process. ONCA is located in Dinkins 222. Please fill out an online information form at the bottom of the ONCA webpage www.winthrop.edu/onca and email onca@winthrop.edu for more information.

Student Conduct Code: The policy on student academic misconduct is outlined in the "[Student Conduct](#)" website and the [Student Handbook](#).

Syllabus change policy: The instructor will make changes to this syllabus as deemed necessary for the progression of the course.

Tests & Final: Three tests (30% total) and a comprehensive final (35%) are scheduled as follows.

Date	Tests and Final	Chapters	Content Description
02-02-17	Test #1	13,14,15, 18	Temperature, Heat, Thermodynamics, Electric Forces, and Electric fields .
02-28-17	Test #2	19,20,21	Electric potential and Electric Circuits.
04-04-17	Test #3	22, 23,24	Electromagnetism, ac circuits, and electromagnetic waves.
		25,26,27	Geometric and Wave Optics.
4/27/17: 11:30AM	Comprehensive Final Exam		

Points & Grade:

Tests: 30% (10% Each), Homework: 10%, Laboratory: 25%, and Final: 35%.

The letter grade will be assigned as follows:

100% - 90% = A 89% - 87% = A- 86% - 84% = B+ 83% - 80% = B 79% - 77% = B-
76% - 74% = C+ 73% - 67% = C 66% - 64% = C- 63% - 60% = D 59% - 0% = F