



Physics II | Lecture and Lab

Academic Year 2020-2021

Course Information

Course Numbers

PHYS216/PHYS216L

Total Units

4 (3 Lecture + 1 Lab)

Time Requirement

75 hrs (Lecture 45hrs + Lab 30hrs)

Course Details

Recommended Prerequisites

Physics 1 or equivalent with a minimum grade of C or better.

Course Description

This is the second course of a two-term algebra-based sequence in general physics focusing on thermodynamics, electricity, magnetism and optics. Topics will include; kinetic theory of gasses, thermodynamic processes, waves, electric fields, flux and force, electricity, circuits, magnetism, electromagnetic interactions, induced currents, lenses and mirrors. Students will be able to apply physical laws and principles to practical problems relevant to several scientific fields. Furthermore, the student will understand how observation and experimentation create testable scientific theories and thus offer a strong foundation in problem solving strategies. Students will conduct experiments in lab and submit pre-lab and post-lab assignments describing the relevance of laboratory activities. The laboratory section compliments the theories and concepts discussed in lecture by utilizing hands-on examples. This course is designed to provide an overview of basic biophysics and is primarily for students planning to major in life sciences, medical/dental fields, psychology, and similar professional fields.

Lecture and Laboratory Communication

A website will be set up on Canvas by your instructor.

Log in with your Username and password: <https://scuhs.instructure.com>

Faculty Information

Refer to the Canvas course webpage for this information.

Class Meeting Times

Refer to Canvas course webpage for this information.

Instructional Materials

Required Text(s)

Required Text(s): Physics 3rd Edition by Alan Giambattista, Betty Richardson, Robert C. Richardson

SCU Physics II Laboratory Manual (available on Canvas)

Scientific Calculator: Graphics or text-memory calculators are not allowed for use during quizzes or exams. If you bring one you will have to take your quiz without a calculator. You are encouraged to obtain a scientific calculator with exponents and logarithms immediately, rather than the day before a quiz or an exam. It is important to be comfortable with the calculator that you are using, rather than to be struggling to locate the keys for certain mathematical operations. For example, a TI-30X IIS is acceptable.

Course Purpose

Student Learning Outcomes

At the conclusion of this course, a successful student should be able to:

1. Demonstrate thorough knowledge and understanding of the fundamental principles and core concepts of Physics.
2. Apply their knowledge to appraise scientific and technical literature in the field of Physics
3. Assess problems in the field of physics and develop solutions or strategies to solve those problems based on logic and the knowledge acquired during this course.
4. Professionally construct and express their ideas, thoughts, and concepts in chemistry through written and verbal communication.

Course Learning Objectives: Please refer to the appendix for a full list of course objectives.

Course Schedule

(subject to slight modifications by the instructor)

Week	Lecture	Assessment
1	Module 1: Electric Forces and Fields	Reading Assignment, Module Quiz, Practice, Module Exam
1	Module 2: Electric Potential	Reading Assignment, Module Quiz, Practice, Module Exam
2	Module 3: Electric Current and Circuits	Reading Assignment, Module Quiz, Practice, Module Exam
2	Module 4: Magnetic Forces and Fields	Reading Assignment, Module Quiz, Practice, Module Exam
3	Module 5: Electromagnetic Induction	Reading Assignment, Module Quiz, Practice, Module Exam
3	Module 6: Reflection and Refraction of Light	Reading Assignment, Module Quiz, Practice, Module Exam
4	Module 7: Temperature and the Ideal Gas Law	Reading Assignment, Module Quiz, Practice, Module Exam
4	Module 8: Heat	Reading Assignment, Module Quiz, Practice, Module Exam
5	Module 9: Thermodynamics	Reading Assignment, Module Quiz, Practice, Module Exam

Tentative Grading Procedures

Lecture

Assessment	Total Points	Weight (%)
Reading Assignments	90	9
Practice	180	17
Quizzes	225	22
Exams	540	52
Total	1035	100%

Lab Schedule

(subject to slight modifications by the instructor)

Laboratory	Assessment
Lab 1: Electric Charge, Force, and Energy	Pre-lab, lab report
Lab 2: Capacitance Simulation	Pre-lab, lab report
Lab 3: Capacitors	Pre-lab, lab report Quiz 1
Lab 4: Resistors	Pre-lab, lab report
Lab 5: Magnetism	Pre-lab, lab report Quiz 2
Lab 6: Electromagnetic Induction	Pre-lab, lab report
Lab 7: Optics	Pre-lab, lab report Quiz 3
Lab 8: Noble Gasses and the Ideal Gas Law	Pre-lab, lab report
Lab 9: Law of Cooling and Heating	Pre-lab, lab report
Review	Quiz 4

Tentative Grading Procedures

Lab

Assessment	Points	Weight (%)
Pre-Labs + Lab Reports		40
Lab Quizzes		60
Total		100%

Grading scale:

Please note letter grades will be assigned only at the end of the trimester.

A = 90% to 100%

B = 80% - less than 90%

C = 70% - less than 80%

D = 60% - less than 70%

F = less than 60%

W = Withdrawal

Grading procedures:

The format of assessments may include multiple choice, short answer, labelling, fill-in-the-blank, or matching examinations. Participation points are required and will be assigned by the instructor as the course progresses through the use of any of the following: in class mini quizzes, activities, kahoot online quizzes (www.kahoot.it). For online quizzes students must have a phone, tablet, laptop or other internet connected device to participate. Students must be in class during the participation activities to receive participation marks.



Academic Integrity

Visit SCU's [Academic Integrity](#) page to review policies for professionalism and academic integrity.

Teaching Methods and Activities

The course requires a significant time commitment from students. This commitment is both in terms of reading lecture PowerPoints prior to reading the chapters, as well as reviewing the material and doing “practice” activities. In the five weeks of classes, we will cover 9 modules (chapters).

This online section is five weeks long. Each week’s material is divided into 2-3, for a total of 9 modules (book chapters). The course will follow a linear format, meaning you will complete all of the modules in sequence. The material in each module will include a combination of readings, videos, practice, and other resources. You’ll also complete an exam at the end of each module. You can read about each of the course components below. Each module takes about 5 hours to finish.

Introduction: These sections introduce the content covered in each module and outline the learning objectives. Reading the Introduction will help you identify the central concepts of the module and connect what you will learn to the broader context of the course.

Lecture Online: These sections contain the lecture slides for each chapter. They provide a comprehensive summary of the chapter. Reading the lecture slides prior to do the reading assignments on Learning Smart will help you to formulate your thoughts and promote active learning.

Reading Assignment: These sections are created on “Connect” through SmartBook. They improve reading productivity and provide students with better knowledge retention. SmartBook is an intelligent eBook that applies the adaptive technology of LearnSmart to ensure a focus on content the student hasn’t learned while also promoting long-term retention of learned material. Learn more about this technology at LearnSmart.

Key Point: Its content helps you gain a deeper understanding of the concepts presented in the learning modules and in the textbook. Often, Key Point pages feature animations, games, videos, or other interactive learning resources.

Practice: Each module has been broken down into individual practice sections. This is where you will spend most of your time. Solving physics problems and getting ready for exams.

Exams: There will be 9 exams given at the end of each module. There will be questions that come directly from the textbook chapters, activities, and videos. Questions may come in the form of multiple choices, free response, or fill in the blank. Students will have 120 minutes to complete each exam. These exams are all on Connect. Please pay attention to the due dates. They are final and will not be extended. You must use Tegrity to proctor your exams (all 9 exams). You need to have both video and audio on. The recording should start prior to starting the test and ends after finishing the test. Your face should be in the field of view. In the first module we will require Tegrity be used on one of the Practice sections to make sure all technologies issues are resolved before the first exam.

Online Learning at SCU: MySCU is SCU’s online campus portal. It includes SCU’s learning management system (Canvas). It acts as a single point of access for a variety of campus information. It houses resources such as university policies, campus safety procedures, financial aid forms, class schedules, campus news, library databases, and other electronic resources for faculty, staff, and students.



Your Keys to Success: To be successful in this course, you will need to log in regularly and plan ahead to manage your workload. Your participation will be evaluated based on your discussion board contributions and timely completion of assigned work.

Self-Directed Learning: Online courses require motivation, time management, and self-discipline on the part of the learner. Creating a self-directed learning plan will help you improve your independent study skills. Creating a routine weekly study schedule and a quiet working space will help you stay on pace with the class.

Online Etiquette: You must follow professional and online etiquette guidelines below when interacting with your peers and facilitator in the online environment, including discussion boards. Disagree with others with respect in the form of constructive feedback. Support your position with academic citations from the text or academic literature. Write clearly and concisely, and stay on topic. Do not simply repeat what others have said, but provide new information or analysis. If you quote another student's post, be sure to place it in quotation marks. Be mindful that the written word may be misinterpreted by others without hearing your tone and in the absence of face-to-face cues. Avoid the use of strong or offensive language. Check your spelling and grammar before sending emails or posting to the discussion boards.

Best Practices for Studying Physics II

- Read before and read after each class. Skim the chapter before it is covered in lecture to become comfortable with some of the terms associated with each topic. Review each chapter after it is covered in class to enhance your understanding of what was covered in class.
- Participate during class by taking notes during class and looking over them afterwards. Don't skip class, arrive late, or leave early. Ask questions for clarification when you don't understand the material.
- Stay on top of the Practice assignments. Do the assigned problems as close to the time as when the topic is covered in the class to increase the depth of your understanding of specific concepts and will help you learn the material more efficiently and effectively.
- Do not wait until the night before the Practice is due to start the assignment. You will get more out of it if you take the time to really learn the concepts and review the material without being rushed.
- Find a group of students to study with. Seek out students dedicated to doing well in the course. This makes studying more fun and helps you learn the material better by teaching what you know and learning from your peers what you don't know. Explaining these concepts to others will help you learn the material even better.
- Stay focused by finding an environment where you can study with few distractions.

University Policies

Accommodations

As a learning-centered community, Southern California University of Health Sciences recognizes that all students should be afforded the opportunity to achieve their academic and individual potential. The University recognizes and supports the standards set forth in Section 504 of the Rehabilitation Act and

the American with Disabilities Act (ADA). In accordance with its mission and federal and applicable state laws, the University is committed to making reasonable accommodations for qualified applicants for admission and



enrolled students with disabilities. A student who needs accommodation(s) due to a disability should contact the Academic Support Office located in the Learning Resource Center.

Faculty and Dr./Patient Relationships

SCU faculty are highly skilled. However, per University Policy, health care is offered to students through the University Health System only. Neither preclinical nor clinical faculty can provide advice, assessment, treatment, or other elements that would be considered part of a Doctor-Patient relationship outside of a clinical setting established for that purpose.

Learning Activities

Students are expected to spend at least two hours for each lecture hour of course time per week in activities and assessments outside the classroom. Examples of activities include, but are not limited to: writing papers; reading articles or text; small group work; presentations; completing assignments; preparation for assessments; online activities and other activities that do not include direct instructor interaction and involvement.

All university policies apply to this course and all others. For full policy information please consult the university SCU Policy Manual. For a quick reference guide to the following policies: make-up examination, F-challenge examination, grade posting, results of failing grades, student support information, syllabus amendments, special needs, student conduct, and attendance, please consult the academic policies document housed on the [Online Student Services](#).