

# PHYS - PHYSICS

## PHYS 1111 Introductory Physics I (3-0-3)

An introductory course which will include mechanics (kinematics, dynamics, work and energy, momentum and collisions, and rotational motion and statics), and may also include thermodynamics and waves. Elementary algebra and trigonometry will be used.

**Prerequisite(s):** (MATH 1113 with a minimum grade of C or MATH 1131 with a minimum grade of C or MATH 1113H with a minimum grade of C or MATH 1131H with a minimum grade of C) and PHYS 1311 (may be taken concurrently)

## PHYS 1112 Introductory Physics II (3-0-3)

Prerequisites: PHYS 1111 and PHYS 1311 each with a grade of C or better; Co-requisite: PHYS 1312. An introductory course which will include electrostatics, electric current and circuits, and electromagnetism, and may also include optics and modern physics. Elementary algebra and trigonometry will be used.

**Prerequisite(s):** (PHYS 1111 with a minimum grade of C and PHYS 1311 with a minimum grade of C and PHYS 1312 (may be taken concurrently))

## PHYS 1125 Physics of Color and Sound (3-0-3)

A basic physics course intended primarily for non-science majors with little mathematics background. Topics will include properties of waves, sound and light, and the principles and applications of acoustics and optics.

## PHYS 1211K Principles of Physics I (3-1-4)

An introductory course which will include material from mechanics, thermodynamics and waves. Elementary differential calculus will be used. This course has a laboratory component that requires a lab kit.

**Prerequisite(s):** MATH 1501

## PHYS 1212K Principles of Physics II and Lab (3-1-4)

Syllabus at- <http://www.georgiacenter.uga.edu/ecore/syllabi/phys1212k.html> An introductory course that will include material from electromagnetism, optics, and modern physics. Elementary differential and integral calculus will be used. This course has a laboratory component that requires a lab kit. Students must either purchase this kit or obtain the materials through other means. Please check under the Required Materials section in the course syllabus for the specific requirements and costs.

## PHYS 1311 Introductory Physics I Lab (0-2-1)

Selected laboratory experiments paralleling the topics covered in PHYS 1111.

**Prerequisite(s):** (MATH 1113 with a minimum grade of C or MATH 1131 with a minimum grade of C) and PHYS 1111 (may be taken concurrently)

## PHYS 1312 Introductory Physics II Lab (0-2-1)

Prerequisites: PHYS 1111 and PHYS 1311 each with a grade of C or better; Co-requisite: PHYS 1112. Selected laboratory experiments in electricity magnetism, optics and modern physics.

**Prerequisite(s):** (PHYS 1111 with a minimum grade of C and PHYS 1311 with a minimum grade of C and PHYS 1112 (may be taken concurrently))

## PHYS 1325 Physics of Color and Sound Lab (0-2-1)

Corequisite: PHYS 1125. Laboratory course to accompany Physics of Color and Sound. Individual laboratory experiments, demonstrations, and discussions relating to acoustics and optics.

## PHYS 2211 Principles of Physics I (3-0-3)

Prerequisite: MATH 1131 with a grade of C or better; Co-requisite: PHYS 2311. An introductory course which will include mechanics (kinematics, dynamics, work and energy, momentum and collisions, and rotational motion and statics), and may also include thermodynamics and waves. Elementary calculus will be used.

**Prerequisite(s):** (MATH 1131 with a minimum grade of C and PHYS 2311 (may be taken concurrently))

## PHYS 2211K Principles of Physics I and Lab (3-1-4)

Principles of Physics I and Laboratory is a 4 semester credit hour introductory course which will include material from mechanics, thermodynamics and waves. Elementary differential calculus will be used. This course is available through eCore.

**Prerequisite(s):** MATH 1501 with a minimum grade of C or MATH 1131 with a minimum grade of C

## PHYS 2212 Principles of Physics II (3-0-3)

Prerequisites: PHYS 2211 and PHYS 2311 and MATH 1132, each with a grade of C or better; Co-requisite: PHYS 2312. An introductory course which will include electrostatics, electric current and circuits, and electromagnetism, and may also include optics and modern physics. Elementary calculus will be used. (Course fee required.)

**Prerequisite(s):** (PHYS 2211 with a minimum grade of C and PHYS 2311 with a minimum grade of C and MATH 1132 with a minimum grade of C and PHYS 2312 (may be taken concurrently))

## PHYS 2212K Principles of Phys II and Lab (3-1-4)

An introductory course that will include material from electromagnetism, optics, and modern physics. Elementary differential and integral calculus will be used. This course has a laboratory component that requires a lab kit. This course is available through eCore.

**Prerequisite(s):** ((PHYS 2211 with a minimum grade of C and PHYS 2311 with a minimum grade of C) or PHYS 2211K with a minimum grade of C) and eCore Introduction with a score of C

## PHYS 2311 Principles of Physics I Lab (0-2-1)

Selected laboratory experiments paralleling the topics covered in PHYS 2211.

**Prerequisite(s):** MATH 1131 with a minimum grade of C and PHYS 2211 (may be taken concurrently) with a minimum grade of C

## PHYS 2312 Principles of Physics II Lab (0-2-1)

Selected laboratory experiments paralleling the topics covered in PHYS 2212.

**Prerequisite(s):** (PHYS 2211 with a minimum grade of C and PHYS 2311 with a minimum grade of C and MATH 1132 with a minimum grade of C and PHYS 2212 (may be taken concurrently))

## PHYS 3100 Waves and Optics (3-0-3)

Mechanical waves; superposition; Fourier analysis. Application of wave techniques to sound and light; electromagnetic spectrum. Refraction, diffraction, reflection, and dispersion as applied to lenses, mirrors.

**Prerequisite(s):** (PHYS 2212 (may be taken concurrently) and PHYS 2312 (may be taken concurrently))

## Restriction(s):

Students in the University College college may **not** enroll.

## PHYS 3200 Twentieth Century Physics (3-2-4)

Prerequisite: Physics 2212 and Physics 2312 with a grade of C or better OR permission of the instructor. This course will introduce topics of 20th century Physics including special relativity, the photoelectric effect, wave-particle duality, lasers, nuclear and atomic physics and other topics as selected by the instructor.

**Prerequisite(s):** (PHYS 2212 with a minimum grade of C and PHYS 2312 with a minimum grade of C)

**PHYS 4100 Survey of Quantum Mechanics (3-0-3)**

Prerequisite: PHYS 2212 and 2312 or permission of instructor.

Introduction to basic quantum mechanics; properties of light and matter; models of nuclear and subatomic structure, photon and atomic energy, nuclear reactions, radioactive decay, wavefunctions.

**Prerequisite(s):** (PHYS 2212 and PHYS 2312)

**Restriction(s):**

Enrollment limited to students in the following colleges:

- Academic Affairs
- College of Educ Health Prof
- College of Letters Sciences
- College of the Arts
- Library
- Turner College of Business Technology

**PHYS 4899 Undergraduate Research in Physics (0-0-(1-3))**

Prerequisite: Approval of Instructor. Independent study in a selected area of physics. Open to students capable of performing independent scholarly work, which may include literature reviews, writing, planning, conducting and reporting research, and developing projects or experiments. Proposal required. May be repeated for credit (S/U grading). Variable hours.

**Repeatability:** Repeatability for credit up to 8 times or 16 hours.

**Restriction(s):**

Students in the University College college may **not** enroll.

**PHYS 5555U Selected Introductory Topics in Teaching Physics (2-2-3)**

Prerequisites: Permission of instructor and PHYS 1111/1311/1112/1312 or PHYS 2211/2212/2311/2312. Designed for students who plan to teach physics or physical science at the secondary school level. Introduction to the research about best practices of teaching physics and student learning of physics. Fall term enrollees focus on the topics of mechanics and waves. Spring term enrollees focus on electricity and magnetism. May be repeated once for credit.

**Repeatability:** Repeatability for credit up to 1 times or 4 hours.

**Restriction(s):**

Enrollment limited to students in the Department Prerequisite college.

**PHYS 7110 Conceptual Physics I (3-0-3)**

Designed for science teachers in the secondary and middle schools. No prior knowledge of physics is assumed. Course includes both lecture and laboratory. Dynamics, energy concepts, properties of matter, heat and thermodynamics, electricity, and magnetism. GOML course offered by Georgia State

**Restriction(s):**

Enrollment is limited to Graduate Level level students.

**PHYS 7120 Conceptual Physics II (3-0-3)**

Sound, light, atomic and nuclear physics, relativity and astrophysics, energy and the future, and advancing technology.