

**PHYS 2124 ACTS Common Course – PHYS 2044
General Physics II- Section 002
Spring 2016**

Class Meeting Times and Locations:

Lecture: MWF, 11:00 AM – 11:50 AM, McEver 36

Lab: Various (you must be separately registered for the lab, PHYS 2010)

Instructor:

Benjamin L. Davis, PhD

Office: McEver 11

Phone: 479-968-0310

Email: bdavis47@atu.edu

Office Hours:

Mondays & Fridays: 10:00 AM – 10:50 AM & 12:30 PM – 1:50 PM

Wednesdays: 10:00 AM – 10:50 AM

Catalog Course Description:

Introductory electricity and magnetism, wave motion, optics, and elementary quantum concepts. Lecture three hours, laboratory one hour. \$40 laboratory fee. Co-requisite: PHYS 2010. Prerequisite: Permission of instructor; prerequisite or co-requisite, MATH 2934.

Textbook:

Fundamentals of Physics by Halliday / Resnick / Walker – 10th Edition

Justification/Rationale for the Course and Its Objectives:

This course is the continuation of Physics I. The first course dealt with motion, force, mechanics, thermodynamics, etc.; whereas this course will extend the rigorous methods of physics primarily to electromagnetism. Additional concepts will include wave motion, optics, and a general introduction into quantum mechanics. Students will be expected to exhibit adequate mathematical skills and their logical application to solve physics problems. Learning how to learn is paramount when seeking the truth behind seemingly non-intuitive concepts. The lecture will provide a theoretical approach to the courses concepts and the laboratory will allow a hands-on opportunity to test the theories.

Blackboard:

Grades as well as various documents such as the syllabus will be posted on Blackboard, which may be accessed at <https://bblearn.atu.edu/>.

FERPA:

Due to the Family Educational Rights and Privacy Act (FERPA), grades can only be communicated in direct conversation with (and only with) the student or via Blackboard. Email is not considered a secure means of communication for grades. Please understand that I will not answer any grade-related questions via email.

Assessment:

The course graded on the following scale: $A \geq 87.5\% > B \geq 75\% > C \geq 62.5\% > D \geq 50\% > F$. Grades will be precisely calculated and arbitrary rounding will not occur. Contributions to the overall grade come from each of the following categories according to the percentage weights:

- Laboratory (25%) – Students will be graded on attendance and post-lab quizzes that will be administered via Blackboard.
- Quizzes (10%) – In-class quizzes will be given in order to assess attendance and comprehension. Quizzes will be worth two points, one for attendance and one for a correct answer. At the end of the semester, your lowest two quiz scores will be dropped.
- Homework (15%) – Weekly homework assignments will be due the class period following the completion of a section (see “Homework” on Blackboard). On each homework assignment, all problems will receive credit for a reasonable attempt and one randomly selected problem will receive credit for accurate completion. The total score for an assignment will be weighted 50% for completion and 50% for the accuracy of the randomly chosen problem. At the end of the semester, your lowest homework score will be dropped.
- Exams (30%) – Three exams, 10% each. Textbook and notes may be consulted during the exam.
- Final Examination (20%) – the Final will be comprehensive. Textbook and notes may be consulted during the exam.
 - Students will be assigned a grade for the Final that is equal to the average of their three exams minus one standard deviation. Students may choose to skip the Final and accept this grade or make an attempt to achieve a better grade by actually taking the Final.

Attendance / Make-up Policy:

Due to the built-in drops, no make-up quizzes will be offered and late homework will not be accepted. Exams may be made-up by appointment for excused absences only (documentation and forewarning is required). The Final Examination may not be made-up because it is optional.

Schedule (Tentative):

January 11 – 15: Electric Interactions (Chapter 21)

Monday, January 18: Dr. Martin Luther King, Jr. Day

January 20 – 25: The Electric Field (Chapter 22)

January 27 – February 1: Gauss’s Law (Chapter 23)

February 3 – 8: Work and Energy in Electrostatics (Chapter 24)

February 10 – 15: Charge Separation and Storage (Chapter 25)

Wednesday, February 17: Exam 1

February 19 – 24: Magnetic Interactions (Chapter 28)

February 26 – March 2: Magnetic Fields of Charged Particles in Motion (Chapter 29)

March 4 – 9: Changing Magnetic Fields (Chapter 30)

March 11 – 16: Changing Electric Fields (Chapter 32 - 33)

Friday, March 18: Exam 2

March 21 – 25: Spring Break

March 28 – April 1: Electric Circuits (Chapter 26 - 27)

April 4 – 8: Electronics (Chapter 31)

April 11 – 15: Ray Optics (Chapter 34)

April 18 – 25: Wave and Particle Optics (Chapter 35 – 36)

Tuesday, April 26: Exam 3

Wednesday, April 27: Reading Day

Tuesday, May 3, 8:00 AM – 10:00 AM: Comprehensive Final Examination