

**Towson University**  
**PHYS 212 (004,005) : Physics II, Electricity and Magnetism**  
**Syllabus (Fall 2025) (Morning)**

**Instructor: Animesh Chakraborty**

**Office: SC 4150M**

**Office Hours: Tue, 1.45 p.m. —2.45 p.m., Thursday 11.30 a.m – 12.30 p.m.**

**Email: Achakraborty@towson.edu**

**Lecture : Tue, Thurs 12.30 p.m. – 1.45 p.m. Room: SC2321**

**Lab Instructor & Contact Info:**

Section 004: Wed 9.00 p.m.– 11.45 p.m. Animesh Chakraborty (achakraborty@towson.edu )

Section 005: Wed 1.00 p.m. – 3.45 p.m. Animesh Chakraborty (achakraborty@towson.edu )

**Learning Assistants:**

**Course Description:** In this class, you will use mathematical equations to describe and perform calculations relating to electricity and magnetism, optics, and electromagnetic waves. You will study the electric field, electric potential, electric forces on charged particles, circuits, magnetic fields and Lorentz forces. You will learn about light and image formation by lenses and mirrors. Emphasis will be placed on problem solving and critical thinking. This is an introductory course in physics, meant as a sequel to introductory algebra-based mechanics, and attempts to describe the physical world around us using math and the concepts of classical physics.

**Prerequisite:** PHYS 211 and MATH 115 or very good standing in high school algebra and trigonometry.

**GenEd II.A. (CORE 8)**

**Learning Goals:**

- Use scientific vocabulary and examples to describe major ideas of physics.
- Use quantitative reasoning to analyze and evaluate scientific information.
- Demonstrate knowledge of methods used to collect, interpret, and apply scientific data.
- Identify, describe, critique, and construct observations, inferences, operational definitions, aspects of scientific design, and conclusions.

**Required Materials:**

- 1) Free: Textbook: OpenStax *College Physics*:  
<https://openstax.org/details/books/college-physics>
- 2) The Expert TA Online Account (\$32.50)
- 3) Lab Manual
- 4) Scientific Calculator
- 5) Binder or several spiral bound notebooks for keeping track of class notes, homework, labs

**Grading Policy:**

Homework (Expert TA)	20 %
Labs	20 %
Quizzes	40 %

Final Exam (Cumulative)	20%

Final course grades will be based on percentage of total points earned.

Percentage	Grade
90 +	A
87-89	A-
84-86	B+
81-83	B
78-80	B-
75-77	C+
70-74	C
65-69	D+
60-64	D
<60	F

**Final course grades will be based on percentage of total points earned. The total grade is computed based on all components of the course. (Homework, Labs, and Quizzes). Your Final grades will not be rounded up. The weighted total column on blackboard represents your grade in the class.**

#### **Homework (20%):**

Homework will be assigned online through **The Expert TA**.

Look on Blackboard for a document with online registration instructions. When you register, the system will prompt you for pay before you can join the online class. If you need any further help with registration or throughout the entire semester, you can contact the support team directly at [main@theexpertta.com](mailto:main@theexpertta.com)

Sets of problems and conceptual questions will be assigned as homework through Expert TA. **You should treat it as “written” homework and it is suggested that you keep a spiral bound notebook (or well-organized loose-leaf paper) where you record the assignments, work on them, and then enter your final answers into the Expert TA system.** Most of the questions asked will not be quick calculations, so keeping track of how you are solving the problems will be extremely beneficial to your learning. You can access the same assignment as many times as you wish before the posted deadline, and even afterwards, but answers submitted late will be subject to additional deductions.

Please follow all instructions announced in lecture or posted on Blackboard in regards to the homework. No homework assignments will be dropped.

#### **Quizzes (40%):**

Beginning in week 2, there will be a quiz given on the material covered in class. See the tentative schedule for details. Each quiz will consist of qualitative problems and quantitative problems. You will be given 30 minutes to complete the quiz. **You will be allowed to drop 1 quiz. There are no makeup quizzes. With a University excuse I maybe able to excuse for up to two quizzes.**

For all quizzes, you are allowed to use one page where you can write your formulas, notes etc., but not a problem worked out. You are **NOT** allowed to use a computer, phone or other electronic device other than a calculator. Obviously communication with anyone except the instructor during the quiz time is not allowed. The work you present must be your own and sharing information is a violation of the academic integrity policy.

### **Final Exam (20%)**

There will be a cumulative final exam for the course. It will include basic questions on the main topics of the class. You are allowed to use one page where you can write your formulas, notes etc., but not a problem worked out.

### **Laboratory (20%)**

Your lab instructor will discuss expectations and procedures in detail. The labs are divided into two parts: Actual labs, and review material. Review materials will be worksheets with problems for you to solve.

Your final lab grade will make up a total of 20% of your grade for the entire course.

**Lab manuals will be sold through Copies Plus for the spring semester and NOT the University Store.**

Copies Plus is located in the Cook Library Lobby. Hours for the first two weeks will be 7:30am – 6:00pm. Afterwards, the hours will be 7:30 – 4:00.

Students may purchase lab manuals using cash, One Card, or personal check. No credit cards are accepted at this time.

### **Missed Assignments:**

If you miss a class/assignment due to an excused absence, you will receive an exemption from those assignments. No make up work will be given. This will not count as your dropped quiz assignment. Please see below for a description of an excused absence. In general, it is highly recommended to contact me in advance if you know you are going to miss a class.

**If you miss a class due to an unexcused absence you will receive a zero for any assignments missed.**

**Excused Absences: It is consistent with the Towson University Policy to excuse absences of students for the following reasons, if the student provides the instructor with adequate notice and documentation:**

- 1) Religious observance where the nature of the observance prevents the student from attending class
- 2) Illness or injury that prevents the student from attending class; You must notify me asap of your absence and provide a note from a doctor or hospital with the appropriate dates during the first class when you return. Should you miss because you are experiencing COVID symptoms, you must have notified the university and been told to quarantine in place.
- 3) Participation in University activities at the request of Towson University authorities (e.g. Intercollegiate Athletics, Forensics Team, Dance Company, etc.)
- 4) Compelling verifiable circumstances beyond the control of the student.

### **Resources for Assistance:**

If you are struggling in the course, and would like extra help, some of your options are:

- Come to office hours to speak with the professor. No appointments necessary!
- Come to special tutoring or review sessions set up for the course and announced in class.
- Tutoring in the New Science Complex Student Success Center (I will post when they become available).
- Use online physics sites such as:
  - <http://www.physicsclassroom.com/curriculum/>
  - <http://hyperphysics.phy-astr.gsu.edu/hbase/HFrame.html>
- Use online math resource sites such as:
  - Purple Math: <http://www.purplemath.com/>
  - S.O.S. Mathematics: <http://www.sosmath.com/index.html>

### **Academic Integrity Policy:**

Cheating or plagiarism will result in consequences, including a zero grade on the assignment or an F grade for the course, and result in a report being filed to the Academic Integrity Board, depending on the severity of the incident.

Lab reports, homework, quizzes, worksheets, and exams must show individual work, and not merely duplicate paragraphs from online sources, previously discussed problems, or other students' work.

For details, see <http://inside.towson.edu/generalcampus/tupolicies/documents/03-01.00%20Student%20Academic%20Integrity%20Policy.pdf>

### **Diversity Statement:**

The Department of Physics, Astronomy and Geosciences (PAGS), in accordance with the Fisher College of Science and Mathematics (FCSM) and with the Towson University Strategic Plan, support initiatives that promote diversity at FCSM faculty, staff and students. We are committed to increasing the quality and diversity of our students, faculty and staff while increasing retention and curriculum initiatives. To obtain further information related to diversity initiatives, please visit <http://wwwnew.towson.edu/fcsm/diversity/> and [http://wwwnew.towson.edu/physics/Diversity\\_Plan.asp](http://wwwnew.towson.edu/physics/Diversity_Plan.asp)

### **Students with Disabilities:**

Under the provisions of Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, the university may not discriminate in the recruitment, admission, educational process, or treatment of students. Students who have self-identified, provided documentation of their disability, and requested reasonable accommodations are entitled to receive approved modification of programs, appropriate academic adjustments or auxiliary aids that enable them to participate in and benefit from all educational programs and activities. Any student requiring accommodation(s) due to a disability please make an appointment with the instructor and provide a memo from Disability Support Services authorizing the required accommodation(s).

Office of Disability Support Services: Admin. 232, 410-704-2638,

<http://www.towson.edu/dss/index.asp>

### **Mask Policy:**

The University has set clear expectations about mask wearing for the safety of all in our community. KN95 face coverings over the nose and mouth are no longer required while indoors. Students may still choose to wear a mask if they wish. If the policy changes, I will notify each person as soon as possible.

**Instructor reserves the right to modify/make changes to the syllabus if needed.**

### **Important Dates**

25- August (Mon)	First day of classes.
01- Sept (mon)	Labor day holiday
03- Sept (Wed)	Change of Schedule period ends for full term; Last day to drop a course with no grade posted to academic record; Last day to add a course.
17- Oct	Fall break
03- Nov (Monday)	Last day to withdraw from a semester course with a grade of "W." Last day to change to Pass or Audit grading options.
26 – 30 <sup>th</sup> Nov	Thanksgiving holiday
Dec 8 <sup>th</sup> (Monday)	Last day of classes.
Dec 9th (Tuesday)	<b>Final Exam SC 2321, 12.30 p.m. to 2.30 p.m</b>

