# BROOKHAVEN COLLEGE
## Course Syllabus for PHYS 1402- Sec 26001- College Physics II
### Summer 2018

**FACULTY**
Instructor Thomas Taylor
**Phone:** (325) 356-6094
**Email**: thomast@dcccd.edu

**OFFICE HOURS**
By Appointment Only
Appointments need to be made at least 24 hours in advanced

**ROOM LOCATION AND TIME/DAYS**
Lab: K251 FROM 9:40 – 11:40 MTWR
LECTURE: K254 FROM 11:50 – 1:50 MTWR

**COURSE NUMBER**
1402-26001

**COURSE TITLE**
College Physics II

**CREDITS**
Three Semester Credit Hours (3-1-0)

**PREREQUISITE COURSES**
MATH 1314 and MATH 1316 or MATH 2412, PHYS 1401

**PRE-REQUISITE SKILLS**
Understanding of basic to advanced trigonometric formulas and identities and know how to implement them in general physics questions. A strong mathematical background in college algebra is a must. An understanding of Newtonian Physics.

**COURSE DELIVERY**
The course will be delivered at Brookhaven Community College Rooms K254 (Lecture Room) and K251 (Lab Room)

**COURSE DESCRIPTION**
The second semester of an algebra and trigonometry - based fundamental principles of physics sequence. The principles and applications of electricity and magnetism, including circuits, electrostatics, electromagnetism, waves, sound, light, optics, and modern physics topics are

studied with emphasis on problem solving. Laboratory experiments supporting the topics are included.

**STUDENT LEARNING OUTCOMES**
Upon completion of the College Physics II the graduate will be prepared to:

1.  Learn to reason qualitatively and logically about physics phenomena from the subjects of electricity and magnetism, waves, and modern physics.
2.  Become adept at problem solving through applications in these subjects
3.  Acquire an understanding of science as a process
4.  Solve problems involving the inter-relationship of fundamental charged particles, and electric forces, fields, and currents.
5.  Apply Kirchhoff's Rules to analysis of circuits with potential sources, capacitance, inductance, and resistance, including parallel and series capacitance and resistance.
6.  Solve problems in the electrostatic interaction of point charges through the application of Coulombs Law
7.  Solve problems involving the effect of magnetic fields on moving charges or currents, and the relationship of magnetic fields to the currents which produce them
8.  Use Faraday's and Lenz's Laws to determine electromotive forces and solve problems involving them.
9.  Articulate the principles of reflection, refraction, diffraction, interference, and superposition of waves.
10. Describe the characteristics of light and the electromagnetic spectrum.

**REQUIRED TEXTS AND MATERIALS**

| | |
|---|---|
| **Title** | **Physics** |
| **Author** | Douglas C. Giancoli |
| **ISBN** | 978-0-321-62592-2 |
| **Publisher** | Pearson Education |
| **Publication Date** | June 6, 2013 |
| **Binding** | Trade Cloth |
| **Type** | Print |
| **Price** | $292.60 |
| **Required** | |

**REQUIRED TEXTS AND MATERIALS**

| | |
|---|---|
| **Title** | **Physics 1402-2426** |
| **Author** | Anahita Sidhwa |
| **ISBN** | 978-1-56870-258-2 |
| **Publisher** | Hewell Publishing |
| **Publication Date** | January 1, 1996 |
| **Binding** | Trade Paper |
| **Type** | Print |
| **Price** | $26.93 |
| **Required** | |
| **Description** | Lab Book |

Lab book should be purchased through the bookstore.

**OTHER REQUIRED MATERIALS**

- You should have a calculator of a Ti-83 or higher. CAS systems are allowed on tests and homework

**GRADING SYSTEM**
Course grades will be dependent upon completing course requirements and meeting the student learning outcomes.

The following grading scale is in use for this course:
A = 90.00-100 points
B = 80.00-89.99 points
C = 70.00-79.99 points
D = 60.00-69.99 points
F = 0-59.99 points

**EVALUATION AND GRADES**

Graded assignments, activities and percent of the overall course grade:

| | |
|---|---|
| Assignments | 20% |
| Project | 10% |
| Exams | 30% |
| Lab | 20% |
| Quizzes | 20% |
| TOTAL COURSE GRADE | 100% |

**TEACHING STRATEGIES**

Students are expected to be "active learners." It is a basic assumption of the instructor that students will be involved (**beyond the materials and lectures presented in the course**) discovering, processing, and applying the course information using peer-review journal articles, researching additional information and examples on the Internet, and discussing course material with their peers, and instructor.

Classroom lectures are designed to be discussion-based learning (assuming students have read material) rather than lecture based. This means that students have the obligation to read course material before class and have questions over reading material.

**EVALUATION**

Tests: The course is divided into three units, with a test after each unit. A list of objectives for each unit will be distributed and should be used to prepare for the test. Each test is worth 10% of your overall grade and will be administered in class. The third test will be taken in class on the published date of the final exam. The final is comprehensive. Tests will be multiple-choice, true-false, fill in the blank, Calculations and essay. Students are expected to follow the Brookhaven College code of student conduct at all times and dishonesty will not be tolerated.

Assignments: Reading the text and referring to other information sources are all important aspects of this course. Questions from the text will be assigned, and classroom activities like short quizzes will be done regularly. Due dates for all assignments will be announced in class and late assignments will not be accepted without prior permission. Points for regular class attendance and class participation will also be given.

Project: All students are required to do a project worth 10% of your overall grade. This is a research activity that may include real-time observations, or the creative expression of ideas learned during the semester. Projects will be evaluated in the following categories: idea and design, regularity and effort, execution and data, write-up, and presentation. You will receive further guidance about this during class.

Labs: There will be ten indoor lab exercises during the scheduled lab time. Each lab is worth 2% of your overall grade. Please do not miss any labs, but if you do, it is your responsibility to make them up during the open lab time within two weeks. **A student must make a passing grade in lab to receive a passing grade in the course.**

**UNIT 1:**

- Chapter 16 – Electric Fields
- Chapter 17 – Electric Potential
- Chapter 18 – Electric Current
- Chapter 19 – DC Circuits

**UNIT 2:**

- Chapter 20 – Magnetism
- Chapter 21 – Electromagnetic Induction
- Chapter 22 – Electromagnetic Waves
- Chapter 23 – Light Optics

**UNIT 3:**
- Chapter 24 – Wave Nature of Light
- Chapter 27 – Early Quantum Theory
- Chapter 28 – Quantum Mechanics
- Chapter 30 Nuclear Physics

**GENERAL POLICIES RELATED TO THIS COURSE**
**Other Policies**

1. The deadline for withdrawal is July 31, 2018. If you are unable to complete the course, it is your responsibility to withdraw, by filling in the appropriate forms. Failure to do so will result in a performance grade which may be an F

2. You cannot drop more than 6 courses during your entire undergraduate career unless it qualifies as an exemption.

3. Failure to attend classes could result in a loss of financial aid. Please check with the Financial Aid Office prior to withdrawing.

4. All students must be certified. For this course students must complete the Questionnaire and the Orientation Quiz to be certified.

5. Students on F-1 visas cannot withdraw without permission of the International Student Advisor.

6. DCCCD Colleges will charge additional tuition for students who register for a third or subsequent time for a course.

7. Code of Student Conduct – Your registration in this course implies your acceptance of the DCCCD Code of Student Conduct. As a college student you are considered a responsible adult and no form of scholastic dishonesty will be tolerated. Scholastic dishonesty includes but is not limited to cheating on a test, plagiarism and collusion.

8. Please follow netiquette rules when you communicate with your instructors or fellow students. These

can be found at http://www.learnthenet.com/learn-about/netiquette/

9. Students may access their grades during the semester on eCampus and their final letter grade on eConnect.

10. The Family Educational Rights and Privacy Act (FERPA) gives students certain rights with respect to their educational records. See complete statement at the link below.

11. DCCCD policy prohibits harassment, discrimination and sexual misconduct.

12. Policy for work submitted after the deadline – Please contact your instructor by email or phone if you miss any deadlines. Instructors will use their discretion to deduct points, give partial credit or no credit. While we want to help you complete the course, we can recognize it when students are being dishonest. Also, be aware that this is not a self-paced course and due dates are stated in the course calendar to help you complete the course work in the time frame of the semester

13. The instructor reserves the right to add, delete or revise segments of the syllabus if necessary.

14. For policies regarding concealed carry please refer to the link below.
All Policies can be accessed at https://www.Brookhavencollege.edu/syllabusaddendum

**STUDENT RESPONSIBILITY & ATTENDANCE**

Students are expected to attend both lab and lecture portions of this course. Since this course is only 20 days long you will only be allowed 2 unexcused absences. After such, a 5% grade deduction per absence will occur. It is your responsibility to inform me of all absences whenever possible.

**COMMUNICATION**
I will respond to email and/or telephone messages within 24 hours during working hours Monday through Thursday. Weekend messages may not be returned until Monday.

Virtual communication: Office hours and/or advising may be done with the assistance of the telephone, Skype, Join.me, Google Hangouts, etc.

**ASSIGNMENT SUBMISSION**

In this class, all assignments need to be submitted on college ruled paper written CLEARLY. Points WILL be deducted if I am unable to read your work. All problems must be fully worked out to receive full credit.

Assignments are due at the beginning of lab. There will be a 10-minute grace period to allow late students to turn in homework. After 10 minutes all homework is considered late and a zero will be given unless certain circumstances arise.

**LATE WORK OR MISSED ASSIGNMENTS POLICY**

**Late assignments are not accepted without prior approval of faculty. Faculty reserve the right to deduct points for late assignments that are accepted past the original due date.**

**ACADEMIC HONESTY**
Academic honesty is expected on all work. Students are expected to maintain complete honesty and integrity in their classroom experiences. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action from Brookhaven.

Acts prohibited by the college for which discipline may be administered include scholastic dishonesty, including but not limited to, cheating on an exam or quiz, plagiarizing and unauthorized collaboration with another in preparing outside work. Academic work submitted by students shall be the result of their thought, work, research or self-expression. Academic work is defined as, but not limited to, tests or quizzes, whether taken electronically or on paper; projects, either individual or group; classroom presentations; and homework.

**SYLLABUS CHANGES**
The faculty member reserves the option to make changes as necessary to this syllabus and the course content. If changes become necessary during this course, the faculty will notify students of such changes by email, course announcements and/or via a discussion board announcement. It is the student's responsibility to look for such communications about the course on a daily basis.

# COURSE CALENDAR

| UNIT 1 | July 10,11 | Electric Fields | Chapter 16 |
|--------|-----------|-----------------|------------|
| | July 12 | Electric Potential | Chapter 17 |
| | July 16,17 | Electric Current | Chapter 18 |
| | July 18 | DC Circuits | Chapter 19 |
| | July 19 | Review/ DC Circuits | Chapter 19 |
| | July 23 | Test 1 | |
| | | | |
| UNIT 2 | July 24, 25 | Magnetism | Chapter 20 |
| | July 26 | Electromagnetic Induction | Chapter 21 |
| | July 30 | Electromagnetic Waves | Chapter 22 |
| | July 31 | Light Optics | Chapter 23 |
| | Aug 1 | Test 2 | |
| | | | |
| UNIT 3 | Aug 2 | Early Quantum Theory | Chapter 27 |
| | Aug 3 | Quantum Mechanics | Chapter 28 |
| | Aug 6 | Nuclear Physics | Chapter 30 |
| | Aug 7 | Review for Test 3 | |
| | Aug 8 | Test 3 | |

# TENATIVE LAB SCHEDULE

| July 10 | Lab 1 – Electrical Measurement |
|---------|-------------------------------|
| July 11,12 | Lab 2 – Electrical Field Lines and Equipotentials |
| July 16,17 | Lab 3 – Ohm's Law |
| July 18 | Lab 4 – Resistors in series and parallel |
| July 19 | Lab 5 – Kirchhoff's Rules |
| July 24,25 | Lab 6 – RC Circuits |
| July 26 | Lab 7 – Coulombs Law and Magnetic Fields |
| July 30 | Lab 8 – Geometric Optics |
| July 31 | Lab 9 – Focal length of Convex Lens |
| Aug 2,3 | Lab 10 – Interference, Diffraction, and Polarization |