

Physics 1402-A2 & A5
College Physics II
Blinn College – Bryan Campus
Fall 2009

Course Information Sheet

Instructor: Mr. Kris Byboth

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Office: G202

Tel: (979) 209-7451 (w/voicemail)

Office Hours: MTWH 9:50 - 10:35 am & 2:05 – 2:50 pm

(Other times by appointment or when my door is open)

Course Web site: <http://www.blinn.edu/brazos/natscience/kbyboth/>

Classroom Locations and Meeting Times:

Lecture	Lab
A2 Room 213 MW 10:35 am – 11:50 am	Room 233 MW 12:00 pm – 1:15 pm
A5 Room 214 MW 2:50 pm – 4:05 pm	Room 231 MW 4:15 pm – 5:30 pm

Course Description:

A continuation of Physics 1401. Topics covered include fundamentals of electricity, magnetism, light and some modern physics.

Prerequisites: Physics 1401 .

Core Curriculum Course:

This is a course in the 42-hour Core Curriculum of Blinn College. Students will develop proficiency in appropriate intellectual competencies, exemplary educational objectives and general perspectives. The URL of the Blinn College core curriculum web site is: www.blinn.edu/corecurriculum.htm.

Course Objectives and Student Learning Outcomes:

Upon completing this course, students should be able to accomplish the following goals using algebra and basic trigonometry. Lecture and laboratory work will focus on these learning outcomes.

- Apply Coulomb's law describing the electrostatic interaction between point charges and solve qualitative problems involving Gauss's law.
- For discrete charge distributions, calculate the net electric field, net potential and the electric potential energy; solve problems involving relationships among electric fields, potential and potential energy.
- Solve problems involving capacitors with and without dielectrics.
- Analyze basic DC circuits, including calculating equivalent resistances, equivalent capacitances, currents and voltages.
- Analyze the transient response of circuits such as RC and RL.
- Find the force on charged particles and current-carrying wires due to magnetic fields, and find the magnetic field due to currents.
- Apply Faraday's law and Lenz's law to problems involving electromagnetic induction.
- Solve problems involving combinations of resistors, capacitors and inductors driven by AC sources.
- Solve problems involving electromagnetic radiation, including problems on such concepts as energy density, intensity, polarization, radiation pressure and momentum.
- Use the principles of geometric optics to solve problems involving reflection and refraction of light in applications such as plane mirrors, spherical mirrors and thin lenses.
- Use the principles of physical optics to solve problems involving interference and diffraction of light.

- Apply principles of modern physics to solve problems involving quantization of energy and momentum on topics such as blackbody radiation, the photoelectric effect and the Compton effect.

Overall objectives for the course include the following:

- The student will maintain grade of **D** (60%) for completion of the course. This grade will include both lecture and laboratory components.
- The student will develop improved problem-solving skills.
- The student will develop an enhanced appreciation for the integration of physics and math and improved skill in interpreting the physical meaning of mathematical equations which occur naturally in the course.

Laboratory work will be chosen to reinforce the above lecture topics. The student will demonstrate in the laboratory an understanding of the experiment through writing a report that analyzes the data and interprets the results.

Textbooks and other materials:

- Required Textbook: James S. Walker, *Physics*, 3rd edition (Vol. II)
- Required Homework System: Students *must* purchase an access key to [MasteringPhysics](#), the textbook publisher's online homework system. This is bundled with the textbook at the Blinn bookstore. Alternatively, the access key can be purchased online at www.masteringphysics.com; be sure to select the Walker text above to pair with *MasteringPhysics*. The *MasteringPhysics* Course ID for section A2 is **BLINN1402A2FA09**. The *MasteringPhysics* Course ID for section A5 is **BLINN1402A5FA09**. *****Make sure to enter it exactly as is given here or I will not be able to retrieve your grades.*****
- Required Laboratory Manual: *Physics 1402 Laboratory Manual*. Available for a nominal fee at the copy center on the first floor of the Bookstore Building on the Blinn campus.

A scientific calculator

- Calculator memories **must** be cleared before entering the room before every exam. Violations will be considered as academic dishonesty.

ADA Statement:

Students with physical or learning disabilities must contact the [Office of Disability Services](#) (Room 165, Science Bldg.) to receive accommodation on exams and assignments. The Office of Disability Services will provide the student with an accommodation letter specifying the accommodations that are to be provided to the student. The student must present this letter to the instructor in order to receive accommodation. Accommodation is not retroactive.

Class Policies

Attendance

The College District believes that class attendance is essential for student success; therefore, students are required to promptly and regularly attend all their classes. Each class meeting builds the foundation for subsequent class meetings. Without full participation and regular class attendance, students shall find themselves at a severe disadvantage for achieving success in college. Class participation shall constitute at least ten percent of the final course grade. It is the responsibility of each faculty member, in consultation with the division chair, to determine how participation is achieved in his or her class. Faculty will require students to attend class regularly and will keep a record of attendance from the first day of class or the first day the student's name appears on the roster through final examinations. If a student accumulates one week's worth of unexcused absences during the semester, he or she will be sent an e-mail by the College requiring the student to contact his or her instructor and schedule a conference immediately to discuss his or her attendance issues. Should the student accumulate two weeks' worth of unexcused absences he or she will be administratively withdrawn from class.

There are three forms of excused absence officially designated by Blinn College: (1) observance of religious holy days: The student should notify his or her instructor not later than the 15th day of the semester concerning

the specific date(s) that the student will be absent for any religious holy day(s); (2) representing Blinn College at an official institutional function and (3) official involvement in a high school activity for “dual credit” students. Other excuses will be considered and may be considered excused at the instructor’s discretion, with documentation.

**** Any student wishing for an absence to be excused must email me before noon on the day following the absences explaining why the absence should be excused. In cases where it is not possible to email a phone call before noon is required.**

**** Missing any part of lecture or lab counts as one absence. If a student misses both the lecture and lab periods for a given day, this counts as only one absence.**

Dropping

If a student chooses to drop the course, it is that student’s responsibility to complete a drop order at the Office of Enrollment Services. Failure to do so could result in a grade of F in the course.

Make-up work

Students will not be permitted to make up any work including tests except in extremely rare circumstances. Before any make-ups are permitted, students must provide the instructor with appropriate documentation for an excused absence. Permission to make up work will be granted solely at the discretion of the instructor.

Laboratory Work

When you are working through the experiments, you should focus on making sure you have made all the required measurements and have recorded all the required data. Only after this is completed should you spend class time working through calculations called for in the experiment. If you do not complete the calculations in class, I expect you complete them outside of class. Most of the calculations and questions will be completed outside of class.

Eating and Drinking

Eating and drinking are not allowed in classrooms or laboratories.

Classroom Civility

Members of the Blinn College community, which includes faculty, staff and students, are expected to act honestly and responsibly in all aspects of campus life. Blinn College holds all members accountable for their actions and words. Therefore, all members should commit themselves to behave in a manner that recognizes personal respect and demonstrates concern for the personal dignity, rights, and freedoms of every member of the College community, including respect for College property and physical and intellectual property of others.

If a student is asked to leave the classroom because of uncivil behavior, the student may not return to that class until the issue is resolved. A written resolution report is sent to the Dean for Academic Affairs.

Mobile Phones and Electronic Devices

All the functions of all personal electronic devices designed for communication and/or entertainment (cell phones, pagers, beepers, iPods and similar devices) must be turned off and kept out of sight in all Blinn College classrooms and associated laboratories. Any non-compliance with this policy will be addressed in accordance with the Blinn College civility policy (Administrative Policy). Additionally, any communication understood by the instructor to be in the nature of cheating will have consequences in accordance with this Blinn college policy section regarding academic dishonesty [FLB (Local)]. Students exempted from this policy section include, active members of firefighting organizations, emergency medical services organizations, commissioned police officers, on-call employees of any political subdivision of the state of Texas, or agencies of the federal government. Exempted students are expected to set the emergency-use devices on silent or vibrate mode only.

The civility policy calls for the student to be asked to leave the classroom. The student then must schedule a meeting and meet with the instructor before her or she will be allowed to return to class. Note that since the student would then have missed part of the class they would be counted absent for that day.

******E-mail Communication**

All Blinn students have been assigned a Blinn email address in the form

Fristname.LastnameLast2digitsBlinnID@buc.blinn.edu

Your initial password is your student id number.

This e-mail account is accessed at <http://mail.live.com>

It is the student's responsibility to regularly check this e-mail account. Any e-mail communication sent by the instructor or the college to this account is assumed to be received and is an official method of communication.

Scholastic Dishonesty

Blinn College does not tolerate cheating, plagiarism, or other acts of dishonesty. Definitions of these acts and procedures for dealing with them are described in "Scholastic Dishonesty" in the [Blinn College Student Handbook](#), copies of which are available at the information desk in the Administration Building. On group quizzes, consultation with the members of your lab group is expected and, in fact, encouraged. You may also wish to consult with your lab partners in preparing your laboratory report. However, **each student is expected to hand in his or her own lab report**. Also, in your lab reports, you are expected to be **absolutely honest** when presenting your data and answering questions about your results. This means that you **do not ever falsify, erase, white out, or otherwise alter** your experimental results, nor do you ignore or exclude some data points when drawing conclusions about your experimental results without presenting a convincing argument stating *why* those data points should be ignored or excluded. Furthermore, cheating on exams will not be tolerated. Any violation of these rules may result, at the very least, in your receiving a zero for any work affected by the violation.

Description of Course Content and Tentative Class Schedule:

The course will cover Chapters 1-18 in the text. A tentative schedule for lectures and labs is available below. The material covered on the exams and tentative dates for the exams are as follows:

Exam	Material Covered	Date (tentative)
1	Chapters 19-21	Sept 21 st / 22 nd
2	Chapters 22-24	October 12 th / 13 th
3	Chapters 25-28	November 9 th / 10 th
Final Exam and Post-test	Chapters 19 - 32	A2 Mon. 14 th 10:15-12:15 A4 Wed 16 th 12:45-2:45

Criteria for Grading: Grades will be based on labs, quizzes and exams.

- **Exams:** All exams will be closed-book and closed-note work out exams with some multiple choice possible. All work must be presented in clear logical order to receive partial or full credit. Correct answers with little, no, or incorrect justification will be given no credit. There will be four exams and a comprehensive final. The lowest of the semester exams (not including the final) will be dropped.
- **Labs:** There will be eight lab exercises. Students' lowest lab grade will be dropped.
- **Recitation Exercises** In addition to labs much of the lab time will be dedicated to problem solving practice.
- **Online Homework:** We will use the textbook publisher's online homework system, [MasteringPhysics](#). Each assignment will have a due date.
- **Grading summary:** Exams 1-3 (45%), Final (20%), Labs (10%), Online homework (15%), Recitation exercises (10%). Your final exam will replace your lowest semester exam if the final exam is a higher grade.

The grading system of Blinn College is as follows*:

A = 90 – 100 Superior
B = 80 – 89 Above Average
C = 70 – 79 Average

D = 60 – 69 Passing

F = < 60 Failing

*from Board Policy Manual EGA(LOCAL), issued 05/24/2004

Other Important dates to remember:

Last day to register or add classes	Sept. 4 th
Last day to drop course with a grade of "W"	Friday November 20 th
Holidays	Nov. 25 – 27

Idealistic schedule

MONTH	DATE	LESSON
August / September	M 1 st / T 2 nd	Introduction & Chapter 19
	W 3 rd / Th 4 th	Chapter 19
	M 7 th / T 8 th	Chapter 19
	W 9 th / Th 10 th	Chapter 20
	M 14 th / T 15 th	More Chapter 20 & Chapter 21
	W 16 th / Th 17 th	Chapter 21
	M 21 st / T 22 nd	Exam 1
	W 23 rd / Th 24 th	Chapter 22
September / October	M 28 th / T 29 th	Chapter 22 & Chapter 23
	W 30 th / Th 1 st	Chapter 23
	M 5 th / T 6 th	Chapter 24
	W 7 th / Th 8 th	Chapter 24
	M 12 th / T 13 th	Exam 2
	W 14 th / Th 15 th	Chapter 25
	M 19 th / T 20 th	Chapter 25
	W 21 st / Th 22 nd	Chapter 26
November	M 26 th / T 27 th	Chapter 26
	W 28 th / Th 29 th	Chapter 27
	M 2 nd / T 3 rd	Chapter 28
	W 4 th / Th 5 th	Chapter 28
	M 9 th / T 10 th	Exam 3
	W 11 th / Th 12 th	Chapter 29
	M 16 th / T 17 th	Chapter 29
	W 18 th / Th 19 th	Chapter 30
November / December	M 23 rd / T 24 th	Chapter 30
	M 30 th / T 1 st	Chapter 31
	W 2 nd / Th 3 rd	Chapter 31
	M 7 th / T 8 th	Chapter 32
	W 9 th / Th 10 th	Chapter 32
	A2 Mon. 14 th 10:15-12:15 A4 Wed 16 th 12:45-2:45	COMPREHENSIVE FINAL EXAM

** This is a tentative outline of the class. Dates may change. **

The following are suggested supplemental problems from each chapter. They will not be graded but working through these in detail is highly suggested.

Chapter	CQ: Conceptual Questions	CE: Conceptual Exercises	P: Problems
19		CE: 5,11	P: 1,9,13,19,21,47,51,53,65,71
20			P: 1,9,17,27b,33,45,57,63,81
21			P: 5,9,15,19,29,31,37,49,51,57,61,65,67
22		CE: 5,9,15,17,20	P: 5,9,15,17,19,25,33,37,43,49,57,61,64,81
23	CQ: 3	CE: 7,15	P: 3,7,9,15,19,21,23,25,33,35,43,45,53,57,61
24	CQ: 3,7	CE: 5,7,11,15	P: 1,3,15,25,29,33,43,47,51,55,71,75,81
25			P: 17,21,29,43
26			P: 5,9,11,13,23,24,31,33,41,47,49,59,61,65,67,69,70,95
27			1-99 ☺
28			P: 1,5,13,17,51,31,37,39,47
29			P: 3,13,21,37,43,53,61,65,75
30			P: 3,13,15,17,23,27,33,37,43,45,51,55,63,71
31			P: 7,11,15,23,25,31,63
32			P: 1,13,15,17,23,31,35,43