

Physics 1402-A4
College Physics II
Blinn College – Bryan Campus
Spring, 2009

Course Information Sheet

Instructor: Antonio Mondragon
Office: G234
Office Hours: M-R 11:10 am – 11:40 am

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

Classroom Locations and Meeting Times:

Lecture	Lab
Room G213 M-F 11:40 am – 1:35 pm	Room G215 M-F 1:45 – 3:40 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 have a grasp of the concepts listed below and be able to solve problems using algebra, basic trigonometry and these concepts. Lecture and laboratory work will focus on the following 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*. **This course ID is BLINN1402A4SU209**
- Required Laboratory Manual: *Physics 1402 Laboratory Manual*. Available at copy center on first floor of G Building (Bookstore Building).
- A scientific calculator.

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. 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, using their official Blinn email address, 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.

Missing lecture or lab counts as one absence. If a student misses both 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.

Blinn Email

Students are assigned an E-mail address that must be checked regularly for official Blinn communications and course information. For information go to www.blinn.edu/acadtech/studentemail/ . The address is of the form: Firstname.LastnameLast2digitsBlinnID@buc.blinn.edu .

Laboratory Work

Except for a few circumstances, you will have only one lab period in which to work on the laboratory experiments. Additional class time for working on these experiments will be given solely at the discretion of the instructor. This means that 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.

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.**

Electronic Devices

Cell phones and electronic devices should be off in the class/lab except in an emergency situation.

Calculators

Calculator memories **must** be cleared before every exam. Violations will be considered to be an academic dishonesty matter.

Dress Code

Faculty and students are expected to dress appropriately in the classroom and lab following generally accepted standards of neatness, cleanliness, modesty and good taste.

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. 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 19-32 in the text. The material covered on the exams and tentative dates for the exams are as follows:

Exam	Material Covered	Date (tentative)
1	Chapters 19-21	Mon., July 13
2	Chapters 22-24	Mon., July 20
3	Chapters 25-27	Mon., July 27
Final Exam	Chapters 19-32	Thu., Aug. 6, 11:40 am – 1:35 pm

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

Quizzes: Numerous quizzes will be given. Many will be group quizzes completed during class while working with other members of your class. On group quizzes you may also use your class notes and the textbook. Each person will turn in their own copy of each group quiz. There will be quizzes that you work on individually and many will not be announced in advance. Students' lowest quiz grade will be dropped. There will be no make-up quizzes.

Exams: All exams will be closed-book and closed-note exams. Any or all exams may be replaced with a higher score on the Final Exam. There will be no make-up exams.

Labs: There will be at least eight lab exercises during the Summer session. Your lowest lab grade may be dropped. There will be no make-up labs.

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 (15% each), Final (25%), Labs (10%), Online homework (10%), Quizzes (10%).

Important dates to remember:

Monday, July 6	Classes begin
Tuesday, July 7	Last day to register
Tuesday, July 28	Last day to drop course with a grade of "W"
Thu., Aug. 6, 11:40 am – 1:35 pm	Final Exam

Blinn College grading system [Board Policy Manual EGA(LOCAL), issued 05/24/2004]:

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

D = 60 – 69 Passing; F = < 60 Failing