Course Syllabus

Lecturer: Dr. D. J. Drake  
   Email: djdrake@valdosta.edu  
   Office: Nevins Hall 2210  
   Office hours: T&R 12:30-1:30 pm, F 12:00-1:30 pm, and by appointment


Required Laboratory Manual: *PHYS 2211K Laboratory Manual* by Dr. D. J. Drake, Ed. 2 (available in the bookstore for $13.00)

Suggested Texts:

2. *CRC Standard Mathematical Tables and Formulae* by Daniel Zwillinger, CRC Press

Prerequisite: PHYS 2211K with a grade of "C" or better  
Corequisite/Prerequisite: MATH 2262

Hours of Credit: 4

Warning: PHYS 2212K is a hard course, one that requires lots of reading, calculations, and writing. Carefully consider your schedule, as this class will eat up a vast amount of your free time. Students taking over 12 hours, or with work or family commitments should consider taking this course some other term.

Course Schedule:  
Lecture: T&R 3:30-4:45 pm, Nevins Hall 3012  
Lectures will be devoted to discussing and clarifying text material, to working illustrative problems, and to demonstrating physical principles and their applications. Your experience will be most rewarding if you read the sections to be covered (see Course Outline) before coming to lecture. You may not understand all the material, but a prior reading will help you focus your attention on the portion of the lecture that covers it. As soon after lecture as possible, study the text and the notes you took in class. Remember these rules:

1. You are required to know not only what is covered in the lectures, but also what is covered in the text book.
2. You are required to attend all assigned class sessions for this course, see Course Outline for more details on specific class periods.
3. You must bring a scientific calculator to all class and lab sections. *Please note that a cell phone cannot be used in place of a calculator at any time in the course, this includes, but is not limited to, in class assignments, quizzes, tests, and exams.*
4. You are required to take notes in each lecture session. This means you must have proper materials for each class: paper, pencil/pen, scientific calculator, etc. Any student who does not take notes during the lecture will be asked to leave the
5. No laptop, desktops, PDAs, I-pads, or tablets will be allowed in class.
6. All cell phones should remain on silent, not vibrate, and out of sight during all scheduled class sessions, including lecture, recitation, and laboratory sessions.
7. Students may not wear any hats, caps, scarves, or hoods at any time during this course, except by permission of the instructor.
8. Students may not wear dark glasses or goggles at any time during this course, except by permission of the instructor.
9. Any student found sleeping or working on material for another course during the lecture session will be immediately asked to leave, without exception.
10. All VSU-related correspondence should be conducted via VSU email addresses. This does not include email correspondence through Hotmail, Yahoo, Blazeview, etc.

**Laboratory: Section A: R 9:00-10:50 am, Nevins Hall 3044**
Due to the nature of this course, topics in the lecture and the lab will not always be phased such that the student sees the topic in the lecture first. **Attendance is required** in the laboratory part of this course. For more information see the section on laboratory assignments.

**Recitation: T 9:00-9:50 am, Nevins Hall 3044**
The recitation will be devoted to problem solving techniques and group activities. Attendance is not required for the recitation part of this course. However, it is strongly advised that you attend all sessions since they will offer valuable tools which can help in the understanding of all course material. Students may not wear any hats, caps or hoods while in the recitation. Any student found sleeping or working on material for another course during the recitation session will be immediately asked to leave, without exception.

**Course Description:** Part II of an introductory course in calculus-based physics. Topics include electromagnetism, optics, and waves. Elementary differential and integral calculus will be used. Three lecture hours, one 2-hour laboratory, and 1-hour recitation session per week.

**Material to be Covered:** This course is designed to teach the principles of physics through the study of electromagnetism, optics, and waves. Work will be done with electric fields, magnetic fields, and basic circuit analysis. An introduction to light, optics, and waves will also be included in this course. Those taking this class must be proficient in algebra, trigonometry, and elementary differential and integral calculus; work will involve linear, quadratic, and circular functions, using scientific notation, graphing data, factoring polynomials, and solving systems of equations. From an engineering or science perspective, a student will be able to apply advanced mathematics and physical principles to demonstrate that he/she understands the principles of electromagnetism and optics through problem-solving and course discussions.

**PHYS 2212K Motto:** Pay attention, ask questions, complete work before deadlines, *or take this class a second time.*
Core Curriculum Objectives:
   Area D: Students will demonstrate understanding of the physical universe and the nature of science, and they will use scientific methods and/or mathematical reasoning and concepts to solve problems.

Departmental Curriculum Objectives:
   1. Students will demonstrate knowledge in the fundamental branches of physics
   2. Students will apply techniques of mathematical analysis (algebra, geometry, trigonometry, and calculus) to physics problems.

Final Course Grade: A letter grade is determined only at the end of the term. Course grades will be based on test grades, final exam grade, assigned homework, laboratory work, and quizzes. The relative weight is the following:
   Final Exam: 25%
   Tests: 20% each
   Lab reports, Quizzes, and In-class Assignments: 15%

The course grading scale will be follows:
   A  90% - 100%
   B  80% - 89%
   C  70% - 79%
   D  60% - 69%
   F  0 - 59%

Notes on grades:

   A: An “A” student must display superior performance in his/her course work, which includes the ability to process, comprehend, and apply complex concepts and ideas to the physical universe. A student who earns this grade will go beyond simple requirements for the class and seek to excel in all assigned work, such as visiting the tutors regularly, asking questions about any problems on a previous test, quiz, or homework which were incorrect, reading the text and lecture notes before class, and trying additional problems from the textbook.

   B: A “B” student will display above average performance in his/her course work. A student earning this grade will go beyond minimum requirements in terms of preparation for class and completion of assignments. Typically these students will visit the tutor on a regular basis to discuss homework or test preparation materials and perform additional problems in preparation for any scheduled test.

   C: A “C” student will meet the minimum requirements for the course. A student who earns this grade will display adequate performance in all course work and in class discussions. A “C” student will typically visit the tutor just before a test, do the homework the night before the assignment is due, and come to class on time with all required materials.
D: A “D” student is performing below the minimum requirements for the course. This usually includes failure to complete or turn in assignments on time, failure to adequately answer in class discussion questions, and the inability to comprehend complex ideas. Students who earn a grade of “D” often do not go to see the tutors and do the homework the night before the assignment is due, but do not finish the entire assignment.

F: A student receiving a grade of “F” has failed to meet the requirements of the course. Typically this means that the student did not complete or turn in assignments, does not take adequate notes in class for review for tests/exams at a later date, cannot answer discussion questions in class without help from others, and normally fails to come to class on time, if at all.

Note: Don’t wait until you’re drowning to seek help. The first time water hits your face, make sure you can still survive.

How to calculate your final course grade:

Final Grade:

Score on Test 1: \[ \text{_______} \times 0.20 = \text{_______} \]
Score on Test 2: \[ \text{_______} \times 0.20 = \text{_______} \]
Score on Test 3: \[ \text{_______} \times 0.20 = \text{_______} \]
Final Exam: \[ \text{_______} \times 0.25 = \text{_______} \]
Average all Q, I, and L scores: \[ \text{_______} \times 0.15 = \text{_______} \]
Total points to get final grade: \[ \text{_______} \]

Final Exam: The final exam for this class will be held on Friday, December 11, 2015 at 2:45 pm. Although the final exam will be cumulative, a majority of the exam will be devoted to material covered after Test 3, see course outline. You will be allowed a calculator (cannot be shared with another student), pencil/pen, scrap paper, and the formula sheet provided to you on the first day of class. All tests must be turned in at the end of the class period with no exceptions. No student is allowed to share scrap paper, calculator, or formula sheet with any other student. A make-up exam can be granted only if the absence is considered an excused absence as listed in the attendance policy below and is at the discretion of the professor. You may not have a cell phone on or near your person during the final exam. If one is found, you will automatically receive a 0 for the exam grade and be asked to leave the room. This includes, but is not limited to being on the floor under your seat, clipped to your belt, or sitting on another desk or chair nearby.

Tests: During this semester you will have three closed book tests. The first will be held on September 10th, the second on October 8th, and the third on November 10th. You will be allowed a calculator (cannot be shared with another student), pencil/pen, scrap paper, and the formula sheet provided to you on the first day of class. All tests must be turned in at the end of the class period with no exceptions. No student is allowed to share scrap paper, calculator, or formula sheet with any other student. Make-up tests can be granted only if the absence is considered an excused absence as listed in the attendance policy below and is at the discretion of the professor.
This policy also applies to any bonus credit for the tests which may be given in class on the day immediately before or after the test. In other words, if you have an unexcused absence on the day any bonus credit is given, then you will not be permitted to complete bonus credit assignment. **You may not have a cell phone on or near your person during any of the three tests in this course. If one is found, you will automatically receive a 0 for that test grade and be asked to leave the room.** This includes, but is not limited to being on the floor under your seat, clipped to your belt, or sitting on another desk or chair nearby.

Note: On the tests and final exam, all letters which are italicized are considered scalar variables. Any bold variable or variable with an arrow overtop is a vector. Any letter that is not italicized or bolded is a unit. Here are two examples:

\[ \mathbf{B} = 2.0 \mathbf{x} B_0 \, \text{G}. \]  
\[ \mathbf{\vec{v}} = \mathbf{\vec{x}} t. \]

*Homework:* Homework problems will be provided on Blazeview each week. Although homework is not required as part of the grade for this course, it is strongly recommended that you try each homework assignment on your own to help practice the concepts you are learning in the lecture. Additional suggested problems will be provided on each chapter’s study guide, also available on Blazeview.

*Laboratory Assignments:* Lab assignments will be given each week. See the Course Outline for the exact schedule for the laboratory sessions. Your lab manual contains specific safety considerations as applicable to each experiment. You are required to follow the safety rules listed in the lab manual and posted in the lab room. **If you violate the safety rules you will be directed to leave the lab meeting and will receive a grade of “zero” for that lab. All students must follow the rules listed below. Failure to do so may mean expulsion from the laboratory and subsequent failure of the entire course.**

1. No food may be consumed in the laboratory at any time.
2. Drinks in plastic screw top bottles will be allowed provided that they remain in your bag at all times. All other beverage containers are prohibited, including, but not limited to, cans, travel mugs, and paper/Styrofoam coffee cups.
3. No student is allowed to use a cellphone in the lab, including as a substitution for a calculator. Cell phones and pagers must be turned off or set to the silent mode while students are in the lab sessions and placed out of sight.
4. All students must obey all safety procedures described in the laboratory manual and discussed by the instructor.
5. All students are required to come to their scheduled laboratory section on time. Students, who are 10 or more minutes late, may not be permitted to join the lab section and could receive a zero for that lab assignment.
6. All students must bring a scientific calculator, copy of the lab manual, USB drive, and pencil/pen to use in the lab.
7. No loose clothing should be worn in the lab, including sweaters, ties, and scarves.
8. Students may not wear any hats, caps, or hoods while in the lab.
9. All students with long hair should be prepared to tie it back during the lab section.
10. Flip flops and sandals may not be permitted in the lab for certain lab assignments. The instructor will notify all students beforehand, to allow students adequate time to bring proper footwear.

Each student must complete the lab assignment. The total numbers of points awarded for each section of the lab assignment are listed in the lab manual for each lab assignment. Lab reports will be required at the instructor’s discretion. Lab assignments/reports are due at the start of each lab on the following week. Note that if you are late to lab, then your lab report is also late and you will be deducted 5 points. In addition, a student who is 10 or more minutes late to lab will receive an automatic zero for that lab assignment without exception and be asked to leave the lab. All lab reports turned in 10 minutes after the start of the scheduled lab session and up to one week late will be 25 points off. If the lab is not turned in by the start of lab on the following week, it will be recorded as a zero. **No lab report/assignments will be accepted by email.** There are **no make-ups** for missed lab assignments. **No grades are dropped for any laboratory assignments.**

**In-class Assignments and Quizzes:** Each student is responsible for reading the text and PowerPoint slides prior to coming to class. In class assignments and pop quizzes based on the text material **may be** given in lecture. A student who arrives after the quiz or assignment has been handed out will not be permitted to take the quiz or complete the assignment and will subsequently receive a zero without exception. There are **no make-ups** for missed assignments or quizzes. **No grades are dropped for any in-class assignments or quizzes.** Your final grade is based upon an average of all In-class assignments, Quizzes, and Laboratory assignment grades you earned throughout the semester.

**Attendance Policy:** The university attendance policy states, "The university expects that all students shall regularly attend all scheduled class meetings held for instruction or examination." An attendance sheet will be provided at all lectures and laboratory meetings. You are expected to sign the sheet for all scheduled sessions. In addition, "All students are held responsible for knowing the specific attendance requirements as prescribed by their instructor. . . . When students are to be absent from class, they should immediately contact the instructor. A student who misses more than 20% of the scheduled classes of a course will be subject to receiving a failing grade in the course.” *Any student missing more than 20% of the lecture sections will automatically receive a failing grade for the course. Alternatively, any student missing 20% or more of the assigned laboratory sessions will be subject to a failing grade for this course.* For this course that is equivalent to missing 3 laboratory sessions. Although attendance is not required in the lecture or recitation, it is strongly encouraged.

There are **six categories** of acceptable reasons under which a student may request a make-up test or exam. Make-up tests will be determined by the professor and at the sole discretion of the professor. These assignments may or may not exactly duplicate the original test or exam.

- **Death or serious illness in the immediate family.** The immediate family includes spouse, children, parent, siblings, grandparents and uncles/aunts. Verification may be required.
- **Serious illness or injury of the student.** A physician/health care professional must be consulted about the injury or illness, and home-rest or hospitalization that would prevent
your attendance, must be prescribed. **Required Verification:** A letter from the student’s physician is required, noting the duration of the time that the student was directed to rest at home.

- **Court ordered appearances or a call to jury duty.** **Required Verification:** A copy of the official notification.
- **Military duty and deployments.** **Required Verification:** A duty bill, note from the commanding officer or a copy of the deployment orders is required.
- **Religious prohibitions.** Verification may be required.
- **Collegiate Athlete.** Verification required

**Student Opinion of Instruction (SOI):** At the end of the term, all students will be expected to complete an online Student Opinion of Instruction survey (SOI) that will be available on BANNER. Students will receive an email notification through their VSU email address when the SOI is available (generally at least one week before the end of the term). SOI responses are anonymous to instructors/administrators. Instructors will be able to view only a summary of all responses three days after they have submitted final grades. While instructors will not be able to view individual responses or to access any of the data until after final grade submission, they will be able to see which students have or have not completed their SOIs, and student compliance may be considered in the determination of the final course grade. These compliance and non-compliance reports will not be available once instructors are able to access the results. Complete information about the SOIs, including how to access the survey and a timetable for this term is available at [http://www.valdosta.edu/academic/OnlineSOIPilotProject.shtml](http://www.valdosta.edu/academic/OnlineSOIPilotProject.shtml).

**Disruptive Behavior Policy:** Disruptive students may be removed from the class. Disruptive behavior includes but is not limited to: offensive language and behavior, incessant talking, interrupting class with personal or non academic concerns, distracting students from the task at hand, drawing on desk tops, taking frequent unscheduled breaks, annoying other students, tardiness, leaving early, using cell phones, or pagers in class, etc. All cell phones, pagers, and beepers must be turned off or set on vibrate during class time. If you realize that you have an incoming call that you must attend to, leave the room quietly to do so. Do not attend to it in class. Students are responsible for being aware of the policies, procedures and student responsibilities contained within the current edition of the Valdosta State University Catalog and Student Handbook.

**How to get an ‘A’ in this course:** Below is a list of suggests from previous students on how to get a good grade in this course.

-- “Come to class every day!!”
-- “Study every day!!”
-- “Check the calendar regularly to see what chapter is being covered.”
-- “Read the book. Do the homework and make sure you understand them, as well as the worksheets.”
-- “Use the study guides. Follow them and they will help.”
-- “Practice reworking problems on your own outside of the class. Things seem to make sense in class, then without the teacher’s help, you realize you don’t know it as well as you thought.”
-- “Do all the homework. It helps a lot!”
-- “Do the homework, study the notes for quizzes the night before, and ask the professor right after class or go to her office if you don’t understand something.”

-- “Start writing your own equation sheet to help study for the test as soon as you see the first equation.”

-- “Always do the homework with the equation sheet beside you. This way you get used to where all the formulas are on the sheet before the tests.”

-- “Ask questions and go to the tutors.”

Classroom and Laboratory Emergency Procedure: In the event of a bomb threat, tornado, or fire, students and staff may be asked to evacuate the building or move to a secure location within the building. Evacuation routes for movement to an external location or to a shelter within the building are posted at the front of the room. Students should review the maps and make sure that the exit route and assembly location for the building are clearly understood. If you have a disability that may require assistance during an evacuation, please let your faculty know at the end of the first class.

Disability Services Policy: Valdosta State University is an equal opportunity educational institution. As such, reasonable accommodations will be made for students with disabilities provided those students have registered with the Access Office for Students with Disabilities in Faber Hall. The phone numbers are 229-245-2498 (V), 229-375-5871 (VP), and 229-219-1348 (TTY). Present your instructor with the documentation. For more information, please visit http://www.valdosta.edu/student/disability/ or email: access@valdosta.edu.

Students Experiencing Academic Difficulties: The Physics and Astronomy Learning Center, located in Nevins Hall 3027, will be available for all students to use from 8:00 AM – 10:00 PM Monday-Thursday and 8:00 AM – 5:00 PM on Fridays. Any student may use the room during this time to study or do homework. Additionally, tutoring will be available starting the second week of class. Look for a schedule of days/times on the door. Students with academic concerns are strongly encouraged to use the learning center.

Students who would like one-on-one tutoring can also contact the staff of the Student Success Center or call them at 229-333-7570. The Student Success Center is located on first floor of Langdale Residence Hall on the main VSU campus. Services provided by the Success Center include tutoring, writing assistance, and help with time management. Students are encouraged to make appointments with Center Staff through the website or by telephone. The center is available to all VSU students, and evening appointments are available at www.valdosta.edu/ssc.

Technology Assistance: This course may require access to a computer. Students having technology problems may contact the Help Desk by phone at 229-245-4357 or e-mail a question at helpdesk@valdosta.edu. The Help Desk is located on the 2nd floor of the Odum Library.

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Disruptive Behavior Policy: Disruptive students may be removed from the class. Disruptive behavior includes but is not limited to: offensive language and behavior, incessant talking, interrupting class with personal or non-academic concerns, distracting students from the task at hand, drawing on desk tops, taking frequent unscheduled breaks, annoying other students, tardiness, leaving early, using cell phones, or pagers in class, etc. All cell phones, pagers, and beepers must be turned off or set on vibrate during class time. If you realize that you have an incoming call that you must attend to, leave the room quietly to do so. Do not attend to it in class. Students are responsible for being aware of the policies, procedures and student responsibilities contained within the current edition of the Valdosta State University Catalog and Student Handbook.

Academic Misconduct and Dishonesty Policy: Students are expected to abide by the VSU Academic Integrity code. "Academic integrity is the responsibility of all VSU faculty and students. Faculty members should promote academic integrity by including clear instruction on the components of academic integrity and clearly defining the penalties for cheating and plagiarism in their course syllabi. Students are responsible for knowing and abiding by the Academic Integrity Policy as set forth in the Student Code of Conduct and the faculty members’ syllabi. All students are expected to do their own work and to uphold a high standard of academic ethics.” Violation of academic honesty includes, but is not limited to, the following actions:

1. Cheating on an examination or quiz – either giving or receiving information.
2. Copying information from another person for graded assignments, including that information obtained from an Internet source.
3. Using unauthorized materials during tests.
4. Collaborating during examinations.
5. Buying, selling or stealing examinations.
6. Arranging a substitute for oneself during an examination.
7. Substituting for another person, or arranging such a substitution.
8. Plagiarism – the intentional or accidental presentation of another’s words or ideas as your own.
9. Submission of work other than your own for written assignments.
10. Incorporating the words or ideas of an author into one’s paper without giving the author due credit.
11. Collaboration with another person or persons in submitting work for credit in class or lab, unless such collaboration is approved in advance by the instructor.

Any student found committing any of these violations will automatically receive a failing grade for the entire course. For more information visit http://www.valdosta.edu/academics/academic-affairs/vp-office/academic-honesty-policies-and-procedures.php

Course Compliance Statement: Enrollment in this class signifies that the student has agreed to abide by and adhere to the policies and regulations specified above. It is understood that the instructor may adapt or change this syllabus and the assignments contained within it according to circumstances that may arise during the course of the semester.
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<tr>
<th>Week of</th>
<th>Chapters</th>
<th>Labs /Recitations</th>
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<tbody>
<tr>
<td>8/17</td>
<td>T: Introduction, Ch. 21&lt;br&gt;R: Ch. 21 &amp; 22</td>
<td>Lab 01: Math Review</td>
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<tr>
<td>8/24</td>
<td>T: Ch. 22&lt;br&gt;R: Ch. 22 &amp; 23</td>
<td>Lab 02: Mapping Field Lines</td>
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<td>8/31</td>
<td>T: Ch. 23&lt;br&gt;R: Ch. 24</td>
<td>Lab 03: AFG &amp; Oscilloscope</td>
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<td>9/7</td>
<td>T: Ch. 24 &amp; 25&lt;br&gt;R: Test 1 (Ch. 21-24)</td>
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<td>9/14</td>
<td>T: Ch. 25&lt;br&gt;R: Ch. 26</td>
<td>Lab 04: Ohm's Law</td>
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<td>9/21</td>
<td>T: Ch. 26&lt;br&gt;R: Ch. 27</td>
<td>Lab 05: Meter Sensitivity</td>
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<td>9/28</td>
<td>T: Ch. 27 &amp; 28&lt;br&gt;R: Ch. 28</td>
<td>Lab 06: Kirchoff’s Rules</td>
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<td>T: Ch. 29&lt;br&gt;R: Test 2 (Ch. 21-29)</td>
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<td>10/19</td>
<td>T: Ch. 30</td>
<td>Lab 08: RL and RLC Circuits</td>
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<td>R: Ch. 30</td>
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<td>10/26</td>
<td>T: Ch. 31</td>
<td>Lab 09: Measuring e/m</td>
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<td>T: Ch. 32</td>
<td>Lab 10: Reflection and Color</td>
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<td>R: Ch. 33</td>
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<td>11/16</td>
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<td>Lab 11: Images</td>
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<td>R: Thanksgiving Break</td>
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<td>11/30</td>
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<td>R: Ch. 35</td>
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<td>12/7</td>
<td>F: Final Exam (Ch. 21-35) + 2:45-4:45 PM</td>
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