### Syllabus

**Physics 2425**  
**Fall 2013**


**Lecture:** Dr. Bogdana M. Bahrim

**Office:** 100B, Archer Building  
Phone # 880-8034

**Office hours:** W: 11:00 – 11:30 am, F: 11:00 – 11:30 am, or by appt.

**Help sessions:** To be announced in class

<table>
<thead>
<tr>
<th>Week starting with …</th>
<th>Chapter</th>
<th>Homework problems</th>
</tr>
</thead>
</table>
| 1        Aug 26       | 2       | **P2:** 3, 5, 13, 17, 18, 25, 37, 39, 41, 48, 51, 73, 82, 93, 94.  
No lab |
| 2        Sept 2 – No class | 3       | **P3:** 9, 26, 38.  
No lab |
| 3        Sept 9       | 4       | **P4:** 7, 13, 22, 30, 32, 38, 43, 48, 49, 58, 67, 87, 104, 108.  
Lab #1 |
| 4        Sept 16      | 5       | **P5:** 31, 37, 45, 53, 55, 57, 64.  
Lab #2 |
| 5        Sept 23      | 6       | **P6:** 4, 9, 20, 23, 28, 43, 48, 57, 66, 79, 81, 96.  
Sept 27 - Review  
Lab #3 |
| 6        Sept 30      | 7       | **P7:** 14, 15, 21, 22, 26, 31, 57, 62.  
Sept 30 – Exam 1  
Lab #4 |
7       Oct 7  8 ——> P8: 6, 19, 24, 27, 29, 31, 34, 56, 65.
15       Oct 14 ——> P15: 9, 17, 30, 31, 32, 33
          Lab #5

          Lab #6

9       Oct 21  10 ——> P10: 4, 12, 37, 41, 46, 47, 56, 57, 57.
10       Oct 23 - Review  11 ——> P11: 4, 9, 29, 37, 49, 55, 85, 93.
      Oct 25 - Exam 2          Lab #8

11       Nov 4  12 ——> P12: 10, 21, 23, 28, 34, 37.
          Lab #9

12       Nov 11  13 ——> P13: 31, 36, 37, 41, 43, 44, 45, 46, 47, 48, 49, 50.
          Lab #10

13       Nov 18  14 ——> P14: 31, 33, 57, 59, 64, 71.
          Nov 29 – No class  No Lab

15       Dec 2 – Exam 4  No Lab
1. COURSE OBJECTIVE: This course is designed for Physics and Engineering majors, with previous training in fundamentals of physics (PHYS 1370, or PHYS 1401). You are expected to be able to apply mathematics: algebra, trigonometry and calculus. All students must have successfully completed or be enrolled in Calculus II (Math 2414). The laboratory is a required and integrated part of the course.

2. EXAMINATIONS: There is no make-up for exams missed. If a student has a good reason for missing an exam, the instructor must be notified immediately. Failure to give earliest possible notification will result in a grade of zero for that exam. Waiting until the next day of class is unacceptable.

3. ATTENDANCE POLICY: Students are expected to be on time to all Physics 2425 functions. Students who arrive late may be denied admittance to class.

4. STUDENTS WITH DISABILITIES: must notify the instructor in the first day of class.

5. HOW TO DO HOMEWORK PROBLEMS:
   1) turn your calculator off
   2) start each problem on a new page
   3) state the problem in your own words: list the quantities that you are given, and the quantities you want to find
   4) when appropriate, sketch a diagram of the problem
   5) find or derive the equations that let you solve the problem,
   6) solve the equations, using algebra
   7) write down your final equation again, and put in numbers and units,
   8) now, and only now, you may turn on the calculator, and do the arithmetic to get your final answer
   9) write down the final answer with units.
6. **Drop Dates and Drop Policy:**

Please make note of the three dates indicated in this drop policy. Any drop will be your responsibility; I will not drop a student from the course.
* **September 11, 2013:** (Census Date—Six Drop Rule does not apply) A student may drop or withdraw without consulting with the instructor. The Six Drop Rule does not apply to a drop before 5:00 PM.
** **September 30, 2013:** (Six Drop Rule applies) A student may drop or withdraw from the course without academic penalty and receive a Q, however, the Six Drop Rule applies after 5:00 PM on September 11, 2013. The student will consult with the instructor and the Records Office to initiate a drop.
*** **November 4, 2013:** (Six Drop Rule applies) Last day to drop or withdraw with academic penalty; the student must be passing the course at the time of the requested drop in order to receive a Q. The drop form, including all required signatures, must arrive in the Records Office by no later than 4:00 PM. No drop is allowed after this date except in extreme extenuating circumstances. Any “late drop” must be approved by the instructor, department chair, college dean, and provost.

7. **Core Curriculum Objectives for PHYS 2425:** Upon completion of this course, the student will demonstrate his or her abilities to think critically, communicate quantitative information, develop empirical and quantitative skills, and work in team:

1. **Critical Thinking:** Develop and present a logical, consistent plan to solve a problem, recognize consequences of the solution, synthesis the information, and articulate a reason for choosing solution method. The analysis of data and observable facts will result in informed conclusions.
2. **Communication:** Use and present quantitative information in connection with an argument or problem solution and explicate it in an effective format. Demonstrate abilities to communicate the interpretation of ideas in writing.
3. **Empirical and Quantitative:** Manipulate and analyze numerical data or observable facts resulting in informed conclusions. Report a detailed solution to a problem using experimental data, with evidence to relevant contextual factors and possible approaches for solving the problem. Draw insightful conclusions.
4. **Teamwork:** Ability to work well in a team, to cooperate in collecting experimental data, to contribute in any leadership role, to accept leadership and guide the group to successful results.

A. **Solving problems using laws, principles, and theories**

Students will learn to develop critical thinking, empirical and quantitative skills in solving physics problems, and communication skills in writing the thought process, the results, and conclusions. The instrument for assessment will be solving complex physics problems using a calculus-based approach. The student should identify the key information and place the problem in the right physics context. The student will evaluate the information provided with insight and will reason carefully starting from clearly stating the premises, to important implications and consequences. The analysis of numerical data and
observable facts will result in informed conclusions. The students will thoroughly interpret the meaning of the results obtained in solving the problem from the physical phenomenon perspective. He/she will synthesize the information in a concise but clear conclusion. Faculty will use a rubric to assess scientific understanding, critical thinking, and empirical and quantitative skills, and communication skills.

B. Experimental Analysis of Physical Phenomena

In a lab environment, the students will learn to consider and discuss different points of view when working in a group and will work effectively with others in order to support a shared purpose. At the end of the lab, the teamwork will be assessed in a lab report turned in by each student, showing the cooperation in data acquisition and analysis; participation in sharing tasks and responsibilities within the group, including the leadership the role. The faculty will use a rubric to assess the teamwork.

LEARNING OUTCOMES:

After completing this course, students should be able to:

1) correctly identify what the physics problem is asking for.
2) correctly identify the relationships that need to be used.
3) show critical thinking through structured processes, by applying the necessary steps to solve the problem logically.
4) apply the math correctly.

8. PROFESSIONAL INTEGRITY: In this course high professional standards, including ethical standards, are promoted. Plagiarism and cheating are serious offences. Penalties can range from a minimum of a zero grade on the invalid instrument to expulsion from the University. For more information, refer to the "Academic Dishonesty" policy in Lamar University handbook.

The instructor reserves all rights to modify the testing schedule and/or to enhance grades in a fair and equitable manner.

9. Academic Integrity: Students are expected to maintain complete honesty and integrity in their academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. Students are specifically warned against all forms of cheating and plagiarism. The Lamar University Student Handbook clearly reads: “Any student found guilty of academic dishonesty in any phase of academic work will be subjected to disciplinary action. Punishable offenses include, but are not limited to, cheating on an examination or academic work which is to be submitted, plagiarism, collusion, and the abuse of source materials.” One aspect of the Handbook’s definition of cheating includes “purchasing or otherwise acquiring and submitting as one’s own work any research paper or other writing assignment prepared by an individual or firm.” Plagiarism is
defined as “the appropriation and the unacknowledged incorporation of another’s work or ideas into one’s own and submitted for credit.” Faculty members in the College of arts and Sciences investigate all cases of suspected plagiarism. Any student who is found cheating in this course will receive a course grade of F.  http://dept.lamar.edu/studentaffairs/handbook.htm

10. **Accommodations:** It is the policy of Lamar University to accommodate students with disabilities, pursuant to federal and state law and to the University’s commitment to equal educational opportunities. Students with a documented disability should contact the Director of the Office of Services for Students with Disabilities (SFSWD) which is located in 105 Communication Building. Students may write to P.O. Box 10087, Beaumont, Texas 77710, call 409.880.8347, fax 409.880.2225 or e-mail SFSWD@lamar.edu. The Director will arrange to meet with the student to determine reasonable academic adjustments and/or accommodations. Additional information is available at http://dept.lamar.edu/sfswd.

11. **Emergency Procedures:**

Many types of emergencies can occur on campus; instructions for severe weather or violence/active shooter, fire, or chemical release can be found at: http://www.lamar.edu/about-lu/administration/risk-management/index.html. Following are procedures for the first two:

**Severe Weather:**
- Follow the directions of the instructor or emergency personnel.
- Seek shelter in an interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside.
- If you are in a multi-story building, and you cannot get to the lowest floor, pick a hallway in the center of the building.
- Stay in the center of the room, away from exterior walls, windows, and doors.

**Violence/Active Shooter (CADD):**

- CALL - 8-3-1-1 from a campus phone (880-8311 from a cell phone). Note: Calling 9-1-1 from either a campus phone or cell phone will contact Beaumont City Police Dispatch rather than University Police.
- AVOID- If possible, self-evacuate to a safe area outside the building. Follow directions of police officers.
- DENY- Barricade the door with desks, chairs, bookcases or any other items. Move to a place inside the room where you are not visible. Turn off the lights and remain quiet. Remain there until told by police it is safe.
- DEFEND- Use chairs, desks, cell phones or whatever is immediately available to distract and/or defend yourself and others from attack.

**The Campus Closure Policy:**

In the event of an announced campus closure **in excess of four days** due to a hurricane or other disaster, students are expected to login to Lamar University website's homepage (www.lamar.edu) for instructions about continuing courses remotely.