NORTH LAKE COLLEGE
5001 N. MacArthur Blvd.
Irving, Texas 75038-3899
DALLAS COUNTY COMMUNITY COLLEGE DISTRICT

COURSE SYLLABUS
Physics 1402 (75200)
Math/Science/Sport Science
Location: P330, Telephone: 972-273-3500

Instructor Information:
Roseanne Zhang
rzhang@dcccd.edu
Office Hours: Most Time after class/lab
Science Learning Center: P333 (free tutor available)

Course Information
Course title: Physics Course number: 1402
Section number: 75200 Credit hours: 4
Class meeting time and room: 6-8-2013 to 8/3/2013
Lec: | S 8:00am – 1:00 pm C227 Lab: S 1:15pm – 6:15 pm C227
Course description: This course is an algebra based Physics class with lab requirements, students can be both science and non-science major.
Course prerequisites: College Algebra. Physics 1401

Required or Recommended Textbooks and Materials
Instructor’s lecture notes and lab material will be provided as hard copy in each class. No soft copy will be available to the students. The lecture notes are provided to the students once and only once.

Course Objectives
1. To obtain an understanding of the basic physical laws of the universe.
2. To obtain a background for future study in majors required this course.
3. To learn problem solving skills.
4. To understand and apply method and appropriate technology to the study of natural sciences.
5. To apply knowledge learned in physics to everyday life and your future study

Specific Course Learning Outcomes
Following the successful completion of this course, you will:

1. Perform calculations related to topics included in PHYS 1402:
   a. Be able to express, interpret and utilize relationships between concepts of physics.
   b. Solve problems using metric/SI units.
2. Describe the basic theory on molecule kinematics and thermal dynamics.
3. Define temperature, specific heat, ideal gas law, three laws of thermal dynamics, and perform experiments involving these concepts.
4. Determine the relationship between electric forces, electric field, electric potential and energy, understand basic electric circuit, current, voltage; resistance and capacitance. Solve related calculations and labs.

5. Determine the relationship between electricity and magnetism, Lorentz force and Faraday effect, know basic E & M wave theory and its great history, and perform related calculations and can use learned knowledge to explain some common E & M phenomenon in everyday life.

6. Classify wave types and determine the wavelength relevant to different E & M waves.

7. Understand the geometric optics and wave optics, understand the principle of commonly used optical devices, can do related calculation, and ray tracing diagram.

8. Get the knowledge of the limitations of classical physics, and learn the fundamentals of 20th century modern physics. Know the fundamental hypothesis of modern physics, and great contributions of relativity and early quantum mechanics, be able to perform calculations on deBroglie wave length, Einstein’s equation on Photo-electric effect.

9. Perform measurements using laboratory equipment as well as everyday objects to determine quantitatively the outcome using the laws of physics. Also be able to do experiments by using computer simulated materiel.

Course Outline See Appendix A

Means of Assessment of Course Learning Outcomes

A. Class Attendance
   Class attendance is required. If you are absent in class more than 4 times for any reason, you will not get an “A” grade. Tardiness more than 40 minutes or leaving class more than 40 minutes earlier will be count as absent.

   Attendance score = \[
   \frac{\text{Number of classes attended}}{\text{Number of classes available}}
   \]

B. LABORATORY GRADE
   The grade received in lab will be based on the following factors:
   1. Attendance and Performance - 40%
   2. Lab Reports - 60%

   Material covered in lab will be tested on regular lecture exams. Lab is teamwork; everyone must participate and help each other.

   Tardiness in lab more than 20 minutes will be counted as -20 in your lab score. Tardiness in lab more than 40 minutes will be counted as absent with zero score for that lab.

   One and only one lowest lab score will be dropped to calculate your lab average. If you miss a lab, the score for that lab will be zero. For any reason, you course grade will NOT exceed your lab grade, if you lab average is 58, your course grade will be “F”. There is a warning for my “A” oriented students, if you missing more than 2 labs without documented excuse, you are very unlikely to get “A” in physics.

   Cheating in the lab is not allowed, if one group or person copies other group/person’s data, if found, the lab grade for both group or person will be zero.

   Test review attendances is required, they will be count as labs.

C. TESTS
   Four major tests covering homework and lab assignments and class materials. The dates and material covered are listed in the course calendar.

   Tests will typically contain problems similar to those examples in lecture notes, homework assignments and lab work and materials.

   Test Contents:
   • Filling blank/table/chart questions
   • Multiple choice and/or true-false questions, short answer discussion questions
Problem solving questions, in which detailed work process (How do you get your answer?) is required. Showing your work will definitely help you to get better score.

Test Rules:
- You can bring a scientific calculator, ruler and protractor. Of course, you need pens or pencils.
- Bathroom trip is NOT allowed during test unless you report the need of going to the bathroom for health reason before test starts. Otherwise, you turn in your test and leave the room.
- No bathroom trip if the test is conducted in testing center, if you go to bathroom, and back to do the test again, 0 points will be issued for that test.
- All tests are close book, close notes. Scratch paper will be provided.
- Trying to get answers for the test by any means from outside (Cell phone, notes, book, Internet, etc.) is considered as cheating. No communication between students is allowed, talking between students during test is considering as cheating.
- Sharing calculator or anything else between students is not permitted.
- If test is in classroom and you have a question, raise your hand, I will come to you.

Make-up tests:
- If you fail to take the test on time. Zero point will be issued unless formerly verifiable documented proof presented. In that case, a different make-up test will be arranged in the testing center in 3 business days only after the official test time (No extra notice). There is No make-up again for make-up tests.
- 16 points will be deducted from you score for taking it late, unless you have verifiable emergency document. The document needs to be submitted the first class after the test, late document will not be accepted.
- Zero points will be issued if you don’t take the test and also the make-up test. There will be no extension of extension for any reason.

Cheating Policies
- I try to prevent cheating instead to punish cheating. Please don’t cheat!
- However, if you are caught cheating, in the testing center or in classroom, you or both cheating party will receive zero score on that test.

Curve Policies
- I might curve or adjust a certain test score. However, no curve on final exam. No curve on make-up tests, no matter you have an official excuse document or not.
- The scores will only curve up, never curve down. Therefore, don’t worry you get too good grade.
- All curves are on each individual test bases; the same curve policy will apply to all students who take test on time.
- I will never curve on individual needs, such as “I am going to enter Harvard Medicine School, I need an ‘A’”, or “My girl friend will kill me if I get a ‘D’” or “I need an ‘A’ to keep my scholarship”. Therefore, you don’t need to send me emails at the end of semester for changing grade needs, since it will never happen.
- Remember that you earn your grade, not I give you your grade!!!!

D. HOMEWORK
Homework help can be obtained several ways.
- Problems Sessions - during selected class time and at the end of laboratory sessions.
- Tutoring Center – Science Center is located at P333
- Office Hours
  - Individual study groups - it is strongly encouraged that you form small groups to do homework assignments. Early in the semester you should find a group you are comfortable working with that also compliments your individual talents.
  - NOTE: Homework will not be collected and graded unless it is required to submit electronically.

E. EXTRA CREDIT
There will be a "pop quiz" given at the beginning or end of some class or lab sessions. These tests will be worth 12 points each and will cover material from the reading assignment, class lectures, and selected concepts. The average of these pop tests will be determined. This average (0-12) will be counted as an optional and added to your test total if it helps your test average. There will be no makeup pop quiz for any reason.

Evaluation Procedures
Physics 1401-1402 is taught in the traditional lecture lab method. The material will be discussed in class with ample opportunity for class discussion, questions, and demonstrations. In lab, ideas previously discussed in class will be examined in detail. **Scientific Calculators are required.** Mathematical emphasis is placed on understanding the size of various measured quantities as well as obtaining specific numbers.

Your grade will be determined by three required components.
1. **Class Attendance** - 3%
2. **Lab** - 20%
3. **Tests** - 77%
4. Extra credit (maximum 12/4) will be added to your test average.

**Exams and Assignments**

Four tests will have the same weight in grading. The lab reports will form a separate grade. Attendance will be calculated into the final score. Pop-up quiz will be used for extra credit only.

**Grading Scale (Non-Negotiable)**

*Important: For any reason, your course grade will NOT exceed your lab grade, if you lab average is 58, your course grade will be “F”.*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tr>
<td>A</td>
<td>89.5 and above</td>
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<td>B</td>
<td>79.5 and above</td>
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<td>C</td>
<td>69.5 and above</td>
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<tr>
<td>D</td>
<td>59.5 and above</td>
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<tr>
<td>F</td>
<td>59.4 and under</td>
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**Discipline/ Course/ Department/Policies**

**Late Paper (Assignment) Policy:** 5 points will be deducted from the score.

**Student Responsibilities:** Attend the class, read the notes, do the homework, find the right answer from the source and website provided, do the very helpful test review very seriously, not only get grade for the course, but also get a good training in science methodologies, get interested in physics

**Classroom Etiquette:** No cell phone use when class is in session, no internet access with laptop computers, asking question about class discussion topic is encouraged. Distracting loud private talking is discouraged, even stopped by moving the seating properly.

**INSTITUTIONAL POLICIES**

**ACADEMIC DISHONESTY**
The Student Code of Conduct prohibits academic dishonesty and prescribes penalties for violations. According to this code, which is printed in the college catalog, "academic dishonesty", includes (but is not limited to) cheating, fabrication, facilitating academic dishonesty, plagiarism, and collusion”.

Academic dishonesty may result in the following sanctions, including, but not limited to:
1. A grade of zero or a lowered grade on the assignment or course.
2. A reprimand.
3. Suspension from the college.

**NOTIFICATION OF ABSENCE DUE TO RELIGIOUS HOLY DAY(S)**

Students who will be absent from class for the observance of a religious holiday must notify the instructor in advance. Please refer to the Student Obligations section of the college catalog for more explanation. You are required to complete any assignments or take any examinations
missed as a result of the absence within the time frame specified by your instructor.

**REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT**
In accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, any student who feels that he or she may need any special assistance or accommodation because of an impairment or disabling condition should contact the ADA/ACCESS Office at (972) 273-3165 or visit Room A-430 at North Lake College. It is the policy of NLC to provide reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to contact the ADA/ACCESS Office.

**DROP POLICY**
If you are unable to complete this course, you must officially withdraw by (Day of the week), (Month/Date/Year). Withdrawing is a formal procedure which you must initiate; your instructor cannot do it for you.

All Dallas County Community Colleges charge a higher tuition rate to students registering the third time for a course. This rule applies to the majority of credit and Continuing Education / Workforce Training courses. Developmental Studies and some other courses are not charged a higher tuition rate. Third attempts include courses taken at any DCCCD college since the fall 2002 semester. For further information, go online to: http://www.DCCCD.edu/thirdcourseattempt.

**FINANCIAL AID STATEMENT**
Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate are also subject to this policy.

To apply for financial aid in the DCCCD, students must complete FAFSA (Free Application for Federal Student Aid) on the web at http://www.fafsa.ed.gov.

**COUNSELING SERVICES**
Counseling services for personal issues are provided to all students currently enrolled at North Lake College. These services are provided by licensed professionals who are bound by confidentiality (within ethical parameters) at no charge. With the assistance of a counselor, students are able to identify, understand, resolve issues and develop appropriate skills. To make an appointment call 972-273-3333 or visit A 430.

**STOP BEFORE YOU DROP**
For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: https://www1.dcccd.edu/coursedrops.
**WRITING CENTER (A309)**
The Writing Center supports and supplements classroom instruction by providing focused, individualized writing instruction in response to the specific needs of the student. Its services are available to all North Lake students, not just those enrolled in English classes. The tutors are skilled writing specialists who can help students clarify writing tasks, understand instructors' requirements, develop and organize papers, explore revision options, detect grammar and punctuation errors, and properly use and document sources. Rather than merely editing or "fixing" students' papers, the Writing Center staff focuses on helping students develop and improve their writing skills.

Located in Room A309, the Writing Center is open 8:00 AM to 9:30 PM Monday through Thursday and 8:00 AM to 5:00 PM on Friday. Saturday hours are 9:00 AM to 2:00 PM during fall and spring semesters. Hours will vary during other sessions. Students who have scheduled an appointment in advance will have a tutor available to work with them at their scheduled time. Walk-ins are welcome, but they may have to wait for an opening or make an appointment for a later time, perhaps a later day. To schedule an appointment, come by the Writing Center, call 972-273-3089, or email nlcwritingcenter@dcccd.edu.

**Exemplary Educational Objectives**

The following Exemplary Educational Objectives have been identified by the Texas Higher Education Coordinating Board and the DCCCD as important objectives to be developed and enhanced by the specific learning activities in Physics courses.

The objective of the study of a natural sciences component of a Core Curriculum is to enable the student to understand, construct, and evaluate relationships in the natural sciences, and to enable the student to understand the bases for building and testing theories.

1. To understand and apply method and appropriate technology to the study of natural sciences.
2. To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.
3. To identify and recognize the differences among competing scientific theories.
4. To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
5. To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

**Core Curriculum Intellectual Competencies**

This course reinforces all of the 6 Core Curriculum Intellectual Competencies defined by the Texas Higher Education Coordinating Board. The CCI’s identified by the DCCCD which are reinforced by PHYS 2425 are as follows:

1. **READING**: Reading at the college level means the ability to analyze and interpret a variety of printed materials -- books, articles, and documents.
2. **WRITING**: Competency in writing is the ability to produce clear, correct, and coherent prose adapted to purpose, occasion, and audience.

3. **SPEAKING**: Competence in speaking is the ability to communicate orally in clear, coherent and persuasive language appropriate to purpose, occasion and audience.

4. **LISTENING**: Listening at the college level means the ability to analyze and interpret various forms of spoken communication.

5. **CRITICAL THINKING**: Critical thinking embraces methods of applying both qualitative and quantitative skills analytically and creatively to subject matter in order to evaluate arguments and to construct alternative strategies.

6. **COMPUTER LITERACY**: Computer literacy at the college level means the ability to use computer-based technology in communicating, solving problems, and acquiring information.

**LEARNING ACTIVITIES, OUTCOMES, AND ASSESSMENT**

**Learning Activities, Outcomes, and Assessment**

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<thead>
<tr>
<th>1. Learning Activity: Laboratory Experiment</th>
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<tr>
<td>a. <strong>Learning Outcomes</strong>: Student will measure the gravitational acceleration at NLC using a pendulum and express it in SI units.</td>
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<tr>
<td>b. <strong>Assessment</strong>: The student will use Newton’s Laws of motion and gather data using the pendulum, communicate the findings in a written report.</td>
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<td>c. <strong>EEO’s and CCIC’s</strong>: EEO 1, 4, and 5, CCIC 1, 2, 3, 4, 5, 6,</td>
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<tr>
<th>2. Learning Activity: Students will divide in groups of 3 to 4 to solve problems involving Newton’s laws. The student in the group will compare answers and reach a consensus on the correct answer. One of the group will present the problem to the class using the blackboard.</th>
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<tbody>
<tr>
<td>a. <strong>Learning Outcomes</strong>: Students will demonstrate application of Newton’s laws of motion to problems involving everyday objects and be able to apply them to the situation stated by the problem.</td>
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<td>b. <strong>Assessment</strong>: Each group will reach the correct answer, checked by the instructor.</td>
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<td>c. <strong>EEO’s and CCIC’s</strong>: EEO 1, 2, 5 and CCIC 1, 2, 3, 4, 5</td>
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<th>3. Learning Activity: Individual presentation of a research topic in physics in the student's everyday life.</th>
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<tr>
<td>a. <strong>Learning Outcomes</strong>: Students will recognize and apply their knowledge to an aspect in their life that can be explained with the physics concepts learned and present their research on the subject to the class.</td>
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<td>b. <strong>Assessment</strong>: The student will present a PowerPoint presentation on the subject of their choice and will show how physics can explain what happens and why, in a concise clear presentation, that should be well organized, concise and clear. The student is successful if the class understands what is presented, can respond to the question posed by the class and instructor.</td>
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<td>c. <strong>EEO’s and CCIC’s</strong>: EEO 1,2,3, 4,5 and CCIC 1,2,3, 4,5,6</td>
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<th>4. Learning Activity: Students will form pairs and compare their hypothesis to projectile motion in different situation.</th>
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<tr>
<td>a. <strong>Learning Outcomes</strong>: Students will analyze what the data of their experiment shows and identify the angle that yields the longest range, and the angle that will have the highest height.</td>
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<td>b. <strong>Assessment</strong>: Students will present the result in writing and are successful when the right angle in chosen.</td>
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<td>c. <strong>EEO’s and CCIC’s</strong>: EEO 1, 2, 3 and CCIC 1, 2, 3, 4, 5</td>
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Lab and class contents are approximately, and subject to changes