This course syllabus is intended as a set of guidelines for PHYS 1401. Both North Lake College and your instructor reserve the right to make modifications in content, schedule, and requirements as necessary to promote the best education possible within prevailing conditions affecting this course.

Instructor Information:

Dr. Maria Hossu  
mhossu@dcccd.edu  
972-273-3492  
Office Location: C229  
Office Hours: M-W 9:30AM-9:45AM  
M, W 2:00-2:30PM

Course Information

Course title: Gen Physics  
Course number: PHYS 1401  
Section number: 75111 and 75112  
Credit hours: 4  
Class meeting time: Lab M-F 07:30AM -- 09:30AM or 12PM-2 PM C225  
Lecture M-F 09:45AM -- 11:45AM C253

Course description: This course is for pre-dental, biology, premedical, pre-pharmacy, and pre-architecture majors and other students who need a two-semester technical course in physics. Fundamental concepts are presented in lecture and laboratory including the kinematics, dynamics, conservation of energy and momentum, fluid statics, simple harmonic motion and wave with applications to sound.

Course prerequisites: DMAT 0093; ESOL 0044 or have met the Texas Success Initiative (TSI) standard in Reading.
Required or Recommended Textbooks and Materials

  
  **ISBN:** 0-13-060620-0

  
  **ISBN:** 978-0-7575-4872-7

Course Objectives

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 obtain an understanding of the basic physical laws of the universe.
2. To obtain a background on everyday phenomena you will encounter in your life.
3. To learn problem solving skills.
4. To understand and apply method and appropriate technology to the study of natural sciences.
5. To recognize scientific and quantitative methods and the differences between these approaches and the other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.
6. To identify and recognize the differences among competing scientific theories.
7. To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
8. To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

Specific Course Learning Outcomes

1. Perform calculations related to topics included in Physics 1401.
   a. Be able to express, interpret, and utilize relationships between variables
   b. Solve problems using complete, thorough setups with metric and SI units, significant figures, and dimensional analysis.
2. Define the six kinematic variables and recognize and apply the five kinematic equations to solve kinematic problems in one and two dimensions.
3. Analyze and apply Newton’s Three Laws to solving dynamic problems.
4. Define kinetic and potential energy and apply these definitions to the solution of kinematic problems.
5. Define momentum and apply the definition to the solution of conservation of momentum problems.
6. Define torque, center of mass and use these concepts to solve rigid body equilibrium problems.
7. Define pressure, density, specific gravity and apply these ideas in the solution of fluid static problems.
8. Solve simple harmonic motion problems related to spring mass and simple pendulum problems.
9. Define wave mechanic variables and apply these ideas to solving problems in determining frequency, wavelength and velocity of sound waves.

For each of the problem types listed above be able to apply the ideas to practical problems

**Course Outline**

Please see Appendix A.

**Means of Assessment of Course Learning Outcomes**

Group solving problems, lab reports, quizzes, multiple choice and free response questions exams, individual presentations.

**Evaluation Procedures**

**EXAMS**

There will be **four exams** (including the final exam) in this course. The tests will be a combination of multiple choices and free response problems. You can drop the lowest grade if you choose to do a presentation.

**LABORATORY GRADE**

**The lab will be done in teams.** The grade is determined by the accuracy and quality of the lab work and your participation in the team. Each team will present a **laboratory report** that is clear and concise and follows the guidelines handed out in the laboratory. Will have problem solving sessions during the labs, with assignments that will count toward the lab grade.

**HOMEWORK**

Homework will be assigned for each chapter, but not collected.

A **presentation** based on a subject from your life and explained with physics laws and principles, using research and analysis of printed materials as well as online sources **is optional.** It will be graded and has the same weight as a test. The grade of the presentation will reflect the student’s:
1. Ability to analyze and interpret printed materials for the research done.
2. Ability to produce clear, correct and coherent prose adapted to the purpose and audience.
3. Ability to communicate orally in clear, coherent, and persuasive language.
4. Ability to think and analyze at a critical level. Critical thinking embraces methods of applying both qualitative and quantitative skills analytically and creatively to the subject matter in order to evaluate arguments and to construct alternative strategies.

5. Ability to use computer based technology in communication, problem solving, and acquiring information.

6. Ability to listen to the questions posed by the audience, analyze and interpret his research to respond to the questions asked in a coherent, clear language.

See ecampus for a detailed rubric.

QUIZZES- will count as extra credit.

Exams and Assignments

Tests  (The lowest grade will be dropped if you choose to have a presentation)  =80%

Lab grade  =20%

All the lab reports are due at the end of the laboratory activity.

Grading Scale

Your final grade will be determined as follows. Quizzes will count as extra credit.

<table>
<thead>
<tr>
<th>Final Average</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>90-100</td>
<td>A</td>
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<tr>
<td>80-89</td>
<td>B</td>
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<td>70-79</td>
<td>C</td>
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<td>60-69</td>
<td>D</td>
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<tr>
<td>0-59</td>
<td>F</td>
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</tbody>
</table>
**Discipline/ Course/ Department/Policies**

**Classroom Etiquette**
No cell phones or beeping devices allowed.
Please be courteous to others, collegiate attitude is expected from all students.

**Attendance Policy**
Attendance in all class lectures and labs is mandatory in order to succeed in this course. You are encouraged to ask questions and to participate in class discussions. You are expected to be active in the laboratory and during class activities.

**Participation**
Science is a collaborative effort and students are encouraged to ask questions, give feedback and share their views and experiences.

**Testing Policy for Mathematics & Science Division:** Students taking tests in math and science will NOT be allowed to leave the testing center or the classroom during a test and return to complete the test. **If you leave, you are through testing.**
If you need special accommodations you must submit a request to the Disability Services Office in person (A430) or by phone at 972-273-3165.
Visit [http://www.northlakecollege.edu/services-and-resources/advice-and-assistance/Pages/disability-services.aspx](http://www.northlakecollege.edu/services-and-resources/advice-and-assistance/Pages/disability-services.aspx) for more information.

The **Science Learning Center** (SLC) provides student services in the following subjects (majors and non majors): Biology, Botany, Microbiology, Anatomy and Physiology, Chemistry, Geology, Physics and Ecology.

The center is located in P-333 & P-334 and offers various resources all of which are free to the students. The SLC features tutors, software, videos, CDROM’s, internet, models, places to study quietly, places for group work, and other materials to assist in science classes. In order to access resources of the SLC a North Lake College ID Card is required. The subject specific schedule of tutors is updated every semester and is located at [www.northlakebiology.com/SLC_tutor_schedule.htm](http://www.northlakebiology.com/SLC_tutor_schedule.htm)

When students attend SLC we ask that they sign in and out. This data helps us keep the center stocked, running, and most of all, **free of charge!**

**Contact information**
Center Phone: 972-273-3273
Coordinator: Matthew Dempsey
Lab Assistant: Tara Arrington
[www.northlakebiology.com](http://www.northlakebiology.com)
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 Wednesday, June 26, 2013. 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

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 4 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 (Physics 1401) 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.

3. **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. Problem solving is one of the applications of critical thinking, used to address an identified task.

6. **COMPUTER LITERACY**: Use computer based technology in communications, solving problems, acquiring information

Learning Activities, Outcomes, and Assessment

1. **Learning Activity**: Lab Experiment in which the student will learn to add vectors using graphical and analytical methods.

   a. **Learning Outcomes**: The student will draw a graph adding two two-dimensional vectors and then use the component method of vector addition to add the same two methods.

   b. **Assessment**: The student will communicate the findings in a written report. Final proof of the two processes will be that the two answers are statistically equivalent and that the results can be show to be valid using the force table.

   c. **EEO’s and CCIC’s**: EEO 1 and 2, CCIC 1 and 5.
2. **Learning Activity:** The student will review and analyze Newton’s Laws as they are applied to solving problems.

   a. **Learning Outcomes:** The student will apply these laws to solving dynamic problems.

   b. **Assessment:** The problem solving activity will be graded based on the correct responses.

   c. **EEO’s and CCIC’s:** EEO 4 and 5, CCIC 1 and 5

3. **Learning Activity:** Lab Experiment in which the student will investigate the principle of Conservation of energy.

   a. **Learning Outcomes:** The student will demonstrate understanding of kinetic and gravitational potential energy.

   b. **Assessment:** The student will communicate the findings in a written report. The correct responses will be graded based on the known answers.

   c. **EEO’s and CCIC’s:** EEO 1, 2 and 5, CCIC 1 and 5
### Appendix A

This is a tentative schedule.

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Day of the Week</th>
<th>Chapter(s)</th>
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<tbody>
<tr>
<td>June 5</td>
<td>W</td>
<td>Ch. 1, Measurement, Estimating</td>
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<td>June 6</td>
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<td>Ch. 3, Vectors</td>
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<td>June 7</td>
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<td>Ch. 2, Kinematics in one dim</td>
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<tr>
<td>June 10</td>
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<td>Ch. 3, Kinematics in 2 dim</td>
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<td>June 11</td>
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<td><strong>Test 1</strong></td>
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<tr>
<td>June 12</td>
<td>W</td>
<td>Ch. 4, Dynamics: Newton’s Laws</td>
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<tr>
<td>June 13</td>
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<td>Ch. 4, Dynamics: Newton’s Laws</td>
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<tr>
<td>June 14</td>
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<td>Ch. 5, Circular Motion</td>
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<td>June 17</td>
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<td>Ch. 6, Energy and Work</td>
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<td>June 18</td>
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<td><strong>Test 2</strong></td>
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<td>June 19</td>
<td>W</td>
<td>Ch. 6, Energy and Work</td>
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<td>June 20</td>
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<td>Ch. 7, Linear Momentum</td>
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<td>June 21</td>
<td>F</td>
<td>Ch. 8, Rotational Motion</td>
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<td>June 24</td>
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<td>Ch. 9, Static Equilibrium</td>
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<td>June 25</td>
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<td><strong>Test 3</strong></td>
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<td>June 26</td>
<td>W</td>
<td>Ch. 10, Fluids</td>
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<td>June 27</td>
<td>Th</td>
<td>Ch. 10, Fluids</td>
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<tr>
<td>June 28</td>
<td>F</td>
<td>Ch. 11, Vibrations and Waves</td>
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<tr>
<td>July 1</td>
<td>M</td>
<td>Ch. 12, Sound</td>
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<td>July 2</td>
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<td><strong>Test 4</strong></td>
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