I. Locator Information:

Semester: Spring, 2014

Instructor: Jianshi Wu

Course # and Name: Phys 121-01, College Physics I

Office Location: ST 318 233

Semester Credit Hours: 4

Office hours: WM: 3 - 5 p.m.; MWF: 11 a.m. - 1 p.m.

( Available at other times by appointments. )

Day and Time Class Meets: MWF :10-10:50 a.m. (ST 228)
Lab R: 9-10:50 a.m. (ST 234)

Office Phone: 672-1926

Total Contact Hours for Class: 5

Email address: jwu@uncfsu.edu

FSU Policy on Electronic Mail: Fayetteville State University provides to each student, free of charge, an electronic mail account (username@uncfsu.edu) that is easily accessible via the Internet. The university has established FSU email as the primary mode of correspondence between university officials and enrolled students. Inquiries and requests from students pertaining to academic records, grades, bills, financial aid, and other matters of a confidential nature must be submitted via FSU email. Inquiries or requests from personal email accounts are not assured a response. The university maintains open-use computer laboratories throughout the campus that can be used to access electronic mail.

Rules and regulations governing the use of FSU email may be found at http://www.uncfsu.edu/PDFs/EmailPolicyFinal.pdf
II. COURSE DESCRIPTION

PHYS121, College Physics I
A calculus-based introductory study of Newtonian mechanics, wave motion, thermodynamics and related concepts, with special emphasis on problem-solving and with laboratory experiences providing practical knowledge in handling laboratory apparatus, data collection, and data interpretation related to topics discussed in the lectures.


III. DISABLED STUDENT SERVICES

In accordance with Section 504 of the 1973 Rehabilitation Act and the Americans with Disabilities Act (ACA) of 1990, if you have a disability or think you have a disability to please contact the Center for Personal Development in the Spaulding Building, Room 155 (1st Floor); 910-672-1203.

IV. TEXTBOOK


IV. STUDENT LEARNING OUTCOMES

Upon completion of this course all students will be able to:
A. Identify the fundamental laws and principles of classical mechanics, wave motion, and heat, including the following:
   1. Newton's laws of motion;
   2. Newton's law of gravity;
   3. Conservation laws of Newtonian mechanics;
   4. Characteristics of vibrations and wave motion;
   5. The laws of thermodynamics.
   (Assessment: Tests and Quizzes)

B. Recall the important terms and basic formulas, in conjunction with the units of measurements in physics, including:
   velocity (speed)  acceleration  mass  force
   weight  impulse  momentum  work
   energy (kinetic energy and potential energy)  power
   angular velocity  angular acceleration  angular momentum
moment of inertia  pressure  stress  strain
amplitude  period  frequency  wavelength
wave speed  intensity  temperature  heat
(Assessment: Homework, Tests and Quizzes)

C. Interpret word problems in terms of the symbols used in
The mathematical expressions of the laws of physics.
(Assessment: Homework, and Tests)

D. Choose an appropriate procedure in the solution of
problems that illustrate the principles and laws of
physics. (Assessment: Homework, and Tests)

E. Apply those principles and laws to a systematic and
coherent explanation of physical phenomena, and relate the
major concepts of physics to biology, chemistry, and the
earth/space sciences. (Assessment: Lab reports)

F. Apply practical knowledge in handling laboratory
apparatus, data collection, and data interpretation, and
use computer software in data processing.
(Assessment: Lab reports)

This course addresses the following competencies specified
By the North Carolina Department of Public Instruction.

1.0 Explain the major concepts and principles of
physics. Teachers should demonstrate competence and
understanding in their ability to investigate:

1.1 the properties of matter, including but not limited
to, spatial characteristics, inertia, gravity, density,
magnetic, optical, electrical, and radioactivity.

1.2 kinematic relationships, dynamics, momentum, and
Newton’s laws.

1.3 Work, energy, and power principles using applications.

1.4 Conservation principles, charge, mass, energy, and
momentum through appropriate laboratory activities.

1.5 Wave mechanics and sound phenomena through laboratory
exercises and problem-solving.

1.6 Principles of thermodynamics, including the heat
equivalent of work.

2.0 Understand the interrelationships among the sciences,
and relate the major concepts of biology, the earth/space
sciences, and chemistry to physics.
3.0 Apply appropriate mathematics to investigations in physics and the analysis of data.

4.0 Relate the concepts and principles of physics to contemporary, historical, environmental, technological, and societal issues.

5.0 Locate resources; design and conduct inquiry-based, open-ended investigations in physics; interpret findings, communicate results, and make judgments based on evidence.

VI. COURSE REQUIREMENTS AND EVALUATION CRITERIA

A. Grade Scale:
The letter grade awarded will be determined by the following scale:

- 90 -- 100 : A
- 80 -- 89 : B
- 70 -- 79 : C
- 60 -- 69 : D
- 59 & below : F

B. Attendance Policy:
In keeping with the attendance policy mandated by the University, students who have missed 10% contact hours will be assigned an interim grade “EA” for warning purpose, a student will be assigned a grade of "EA", if the student has been absent in excess of 8 contact hours.

C. Graded Assignments:
1. 14 best scores for homework assignments are averaged for the overall evaluation. Bonus points are awarded to the other assignments turned in on time. More assignments turned in on time, more bonus points earned.

2. 4 best scores for lab reports are averaged for the Overall evaluation. Bonus points are awarded to the other lab Report if it is turned in on time.

3. Quizzes will be administered at the beginning of the class for bonus points.

4. 10 bonus points may be awarded towards the regular tests for special assignments to be announced in class.

D. Evaluation of Lab Reports:
Objectives and theory : 10% ;
Lab work and data taken : 60% ;
Data Processing : 20% ;
Presentation of results and comments : 10% .
Rubric for each lab will be posted on Blackboard.

E. Grade Distribution:
The student's grade for the course will be computed in
accordance with the following distribution:
Three Regular Tests : 40 %
Final Exam ( comprehensive ) : 30 %
Laboratory Work : 20 %
Homework : 10 %

F. Policy on missed and late assignments:
Assignments turned late without an acceptable excuse will be graded with 10% deduction for each week after the due date. The deadline for a late assignment is three weeks from the due date.

G. Other Rules and Requirements:
Attendance:
The attendance policy of the University will be strictly adhered to. The student is required to attend lecture, recitation, and laboratory sessions, except in cases of illness or unforeseen emergency. In the latter cases, it is the responsibility of the student to contact the instructor about the steps that must be taken towards making up any missed work. It is recommended that the student contact the instructor within twenty-four hours of having missed a lecture / recitation / laboratory session or an exam.

Students are expected to be in class on time. Therefore, attendance will be taken promptly at the very beginning of each class period. Any student coming 15 minutes after the beginning of the class hour will have been marked absent.

Student must take all tests and the final exam. A make-up test is possible for documentary absence from a test with an acceptable excuse, but this courtesy will not be extended to the student who is simply not prepared on the day of a test. Undocumented absence from a major commitment such as a test or any assignment deadline commitment automatically earn the student a grade of "FAILURE" for that commitment. If the student anticipates a conflict of the scheduling of any course requirement with some personal event notice should be given to the instructor before the conflict in order to have consideration given to the problem.

Assignments:
Assignments for this course consist of word and/or Numerical problems chosen from the full set at the end of each chapter. The assignments for each chapter should be turned in at the beginning of the class hour on the due date. The deadline is three weeks from the due date. Absence from class is not an excuse for missing homework assignments. If
abnormal circumstances seem likely to prevent the student from meeting a deadline, a one-day notice in advance of the deadline should be extended to the instructor for special consideration.

The student is encouraged to devote as much time as possible to the thorough understanding of the concepts and Techniques involved in the solution of the problems, since these reflect heavily in the questions of the exams. The list of homework problems is given in the assignment schedule.

Laboratory sessions are scheduled to allow students to familiarize with the instrumentation of classical physics. The activities and results of each experiment are to be described and discussed in a written report. Laboratory reports are to be turned in at the beginning of the class hour on the due date (i.e. two weeks from the day when the experiment is carried out).

Examinations:
Each exam is graded on a 60 / 40 basis; 60 points are allotted to objective questions and 40 points are earned by solving problems. The objective questions emphasize concepts and one-step problems. Partial credit can be earned for any steps toward the solution of the multi-step problems. It is recommended that any examination, missed because of illness or an unforeseen emergency, be made up prior to the next scheduled test.

Blackboard and Email:
Blackboard and email are the official channels of Communication for this course. Students are required to check emails everyday, and to visit blackboard/course PHYS121 for Announcements and Special Assignments.

Other Requirements:
All students are required to have a scientific calculator, and it is expected that the student will ALWAYS BRING A SCIENTIFIC CALCULATOR AND THE TEXT BOOK TO EACH CLASS.

NO SMOKING, EATING AND DRINKING WILL BE ALLOWED IN CLASS.
THE STATE PROHIBITS THE USE OF DRUGS AND ALCOHOL ON STATE PROPERTY.

Students are encouraged to use the software to simplify the calculations for their lab reports. If the calculation is done by the computer a computer printout is required in the lab report.

Consequences for Failing to Meet Behavioral Expectations:
The first time a student violates one of these rules, the instructor will warn him or her privately, either after class or before the next class. (The
instructor reserves the right to warn students publicly if needed.)

VII. ACADEMIC SUPPORT RESOURCES
Students are encouraged to seek academic support at Blackboard (on-line), University College Learning Center, the FSU RISE PROGRAM and the FSU Center for Promoting STEM Education and Research (LSA 329).

VIII. COURSE OUTLINE AND ASSIGNMENT SCHEDULE
This course consists of four phases, and regular tests are administered at the end of each of the first three phases. A comprehensive final examination is given at the completion of the course. An assignment schedule is given with a due date for each assignment.

<table>
<thead>
<tr>
<th>DATE</th>
<th>SESSION</th>
<th>TOPIC</th>
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<tbody>
<tr>
<td>1/13</td>
<td>1</td>
<td>Class orientation Ch. 1, Introduction</td>
</tr>
<tr>
<td>1/15</td>
<td>2</td>
<td>Recitation (Ch. 1)</td>
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<td>1/16</td>
<td>3</td>
<td>Lab 1 (Data Analysis, No Report)</td>
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<td>1/17</td>
<td>4</td>
<td>Ch. 2, Motion in One Dimension</td>
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<td>1/22</td>
<td>5</td>
<td>Ch. 2, Constant Acceleration</td>
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<td>1/23</td>
<td>6</td>
<td>Lab 2 (#2 Density Measurements)</td>
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<td>1/24</td>
<td>7</td>
<td>Recitation (Ch. 2)</td>
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<td>8</td>
<td>Ch. 3, Vectors</td>
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<td>1/29</td>
<td>9</td>
<td>Ch. 3, Multiplying Vectors</td>
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<tr>
<td>1/30</td>
<td>10</td>
<td>Lab 3 (#3 Force Table)</td>
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<tr>
<td>1/31</td>
<td>11</td>
<td>Recitation (Ch. 3)</td>
</tr>
<tr>
<td>2/03</td>
<td>12</td>
<td>Ch. 4, Motion in Two Dimensions</td>
</tr>
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<td>2/05</td>
<td>13</td>
<td>Ch. 4, Relative Motion</td>
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<td>2 / 10</td>
<td>Review (Ch.1 - 5), Pre-test 1</td>
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<td>2 / 12</td>
<td>Ch. 6, Forces</td>
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<td>2 / 13</td>
<td>Lab 4 (#4 Uniform Acceleration)</td>
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<td>* Due date for Lab 3 Report *</td>
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<tr>
<td>2 / 14</td>
<td>Exam 1 (Ch.1 - 5)</td>
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<tr>
<td>2 / 17</td>
<td>Recitation (Ch. 6)</td>
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<tr>
<td>2 / 19</td>
<td>Ch. 7, Work and Kinetic Energy</td>
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<td>2 / 20</td>
<td>Recitation (Ch.7)</td>
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<td>2 / 21</td>
<td>Ch. 8, Conservation of Energy</td>
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<tr>
<td>2 / 24</td>
<td>Recitation (Ch. 8)</td>
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<td>2 / 26</td>
<td>Ch. 9, Systems of Particles</td>
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<td>Ch. 9, Collisions</td>
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<td>Review (Ch.6 - 9), Pre-test II</td>
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<td>Ch. 10, Rotations</td>
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<td>3 / 06</td>
<td>Lab 5(#7 Friction Coefficients)</td>
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<td>3 / 07</td>
<td>Ch. 10, Torque and Rotational inertia</td>
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<td>3 / 08</td>
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<tr>
<td>3 / 17</td>
<td>Recitation, (Ch. 10)</td>
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<tr>
<td>3 / 19</td>
<td>Ch. 11, Rolling</td>
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<tr>
<td>3 / 21</td>
<td>Recitation, (Ch. 11)</td>
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<td>3 / 24</td>
<td>Ch. 12, Equilibrium</td>
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<td>3 / 26</td>
<td>Ch. 12, Elasticity</td>
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<td>3 / 27</td>
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<td>Ch. 13, Gravitation</td>
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3 / 28 39  Recitation (Ch. 13)
       *   Last Day to withdraw from class    *
3 / 31 40  Ch. 14, Fluid Statics
4 / 02 41  Ch. 14, Fluid Dynamics
4 / 03 42  Lab 7 (#12 Energy Conservation)
       *   Due date for Lab 5-6 Report    *
4 / 04 43  Recitation, (Ch. 14)
4 / 07 44  Review(Ch.10 – 14), Pre-test III
4 / 09 45  Ch. 15, Oscillations
4 / 10 46  Recitation (Ch. 15)
       Ch. 16, Waves
4 / 11 47  Exam 3. (Ch.10 – 14)
4 / 14 48  Ch. 16, Superposition of Waves
4 / 16 49  Recitation (Ch. 16)
4 / 17 50  Ch. 17, Sound Waves
       *   Due date for Lab 7 Report    *
4 / 18  ------ Spring Holiday ------
4 / 21 51  Recitation, (Ch. 17)
4 / 23 52  Ch. 18, Temperature and Heat
4 / 24 53  Ch. 18, First Law of Thermo-dynamics
4 / 25 54  Ch. 19, Ideal Gas & Kinetic Theory
4 / 28 55  Recitation, (Ch. 19)
4 / 30 56  Ch. 20, Second Law of Thermodynamics
5 / 01 57  Recitation (Ch. 20)
       Review (Ch. 15 – 20)
5 / 02 58  Comprehensive Review
 Deadline for all assignments and lab reports

Final Exam: Friday, 5/09/14, 10:00 - 11:50 A.M. ST 228
Assignment Schedule:

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IX. TEACHING STRATEGIES

Physics is an experimental science which describes the real world. All physical concepts and theories originate from practice and observations. As a general approach in this course, we will start each topic from the experiences that students can relate to, and then move on to the generalizations and quantifications. This is the way not only making the materials more interesting and easier to understand, but also closer to the way physics is actually practiced. Mathematics is essential to the formulation and derivation of laws of physics, however, we will be more focused on physical concepts, and use mathematics as a tool to unravel the mystery of physical principles. In order to seek a systematic and coherent explanation of physical phenomena through this course, we will include as many applications as possible in problem solving.

X. BIBLIOGRAPHY
RECEIPT OF SYLLABUS

I, _________________________________, HAVE READ the syllabus for Physics 121, Section 1. I have been given a copy of the course syllabus by e-mail and understand a copy is also available on the course Blackboard site. The syllabus details the course information, outline, the method for determining course grade, and lists required materials I am responsible for purchasing. I
understand the expectations and content of the syllabus and agree to complete all assignments to the best of my ability.

Signed_________________________ Date____________________

Print Name__________________________________________
Banner Number________________________________________

COURSE ID AGREEMENT

I, _____________________, agree to the following identification to be used solely for Phys121 Section 1 for the purpose of obtaining grades to monitor my progress and to be used as an identification of all assignments to secure confidentiality.

My identification will be : __________ (four characters—one letter and three numbers Ex. A101) as agreed by my professor and me.

__________________________
Signature and Date