### Course Information:

<table>
<thead>
<tr>
<th>Course Prefix/Number:</th>
<th>PHY 121</th>
<th>Course Title:</th>
<th>Introductory Physics I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester:</td>
<td>200220 (Spring 2003)</td>
<td>CRN (Section Code):</td>
<td>21520</td>
</tr>
<tr>
<td>Class Days/Times:</td>
<td>Tuesday and Thursday 9:10—11:00</td>
<td>Room:</td>
<td>Rincon F208 West Campus</td>
</tr>
<tr>
<td>Credit Hours:</td>
<td>4</td>
<td>Prerequisites:</td>
<td>high school algebra</td>
</tr>
<tr>
<td>Co-Requisite:</td>
<td>PHY 121LB</td>
<td>Teaching Format:</td>
<td>lecture</td>
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<td></td>
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<td>Estimated Study Time:</td>
<td>12 hours per week</td>
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</tbody>
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### Instructor Information:

<table>
<thead>
<tr>
<th>Name:</th>
<th>Steve Olson</th>
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<tbody>
<tr>
<td>US Mail:</td>
<td>Pima Community College</td>
</tr>
<tr>
<td></td>
<td>2202 W. Anklam Rd.</td>
</tr>
<tr>
<td></td>
<td>Tucson, Az. 85709-0270</td>
</tr>
<tr>
<td>Voice Mail:</td>
<td>(520) 206-4848, mailbox number: 65139</td>
</tr>
<tr>
<td>E-mail:</td>
<td><a href="mailto:solson@pimacc.pima.edu">solson@pimacc.pima.edu</a></td>
</tr>
<tr>
<td>Availability:</td>
<td>Office hours: By appointment</td>
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### Instructional Materials:

- **Required Text:** Physics, fifth edition, volume 1
- **Authors:** Cutnell and Johnson
- **Note:** Textbooks are available at the West Campus bookstore and other academic bookstores in town. The PCC Bookstore can be accessed and books ordered via the Internet at www.Pima.bkstr.com.

### Course Description:

Introduction to general physics for programs requiring a one-year, non-calculus based physics course. Includes mechanics and heat.
PHY 121 Course Syllabus

Course Objectives: Upon completion of this course, the student will be able to:

- Use MKSA metric system of measurement in lab and in problem solving.
- Use specific mathematics skills (powers of 10, trigonometric functions, vectors, simultaneous equations,) to solve physics problems.
- Identify and solve problems involving constant velocity and constant acceleration.
- Apply kinematic equations to solve falling body problems.
- Apply principles of algebra and kinematics to solve projectile problems.
- Apply Newton's three laws of motion and principles of kinematics to solve force (dynamics) problems.
- Apply concepts of work and energy to solve problems in mechanics.
- Apply concepts of momentum and impulse (including conservation) to solve collision and separation problems.
- Apply concepts of rotational kinematics and dynamics to problems involving rotational motion.
- Apply concepts of temperature and heat as energy to solve problems concerning the transfer of heat and effects of heat on systems.
- Apply 1st and 2nd laws of Thermodynamics to systems to solve problems involving work, heat, and thermodynamic cycles.
- Apply microscopic and macroscopic versions of gas laws to solve problems describing the behavior of gases.
- Apply principles of fluid mechanics to solve problems related to fluids with special emphasis on Archimedes’ principle.
- Apply principles of elasticity (Hooke's Law) and equations to solve problems involving simple harmonic motion.

Course Outline:

I. Nature of Physics
   A. Science and scientific method
   B. Fundamental and derived quantities
   C. Measurement and the metric system
   D. Math preparation
      1. Powers of ten
      2. Metric system
      3. Trig. introduction
      4. Vector addition and components

II. Linear Motion and Kinematics
   A. One dimensional kinematics
      1. Constant velocity motion
      2. Constant acceleration (kinematic eqns. falling bodies)
   B. Two dimensional kinematics
      1. Projectile motion
      2. Circular motion (optional)
III. Dynamics
   A. Newton's laws of motion (force)
      1. Gravity - weight
      2. Friction
   B. Centripetal force (optional)
IV. Work and Energy
   A. Physical definition of work
   B. Kinetic and potential energy
   C. Conservation of energy, work-energy theorem
V. Linear Momentum
   A. Impulse
   B. Conservation of linear momentum
      1. One dimension
      2. Two dimensions
   C. Elastic and inelastic collisions
VI. Rotational Motion (optional)
   A. Kinematics
   B. Dynamics
   C. Angular momentum
   D. Rotational work and energy
VII. Heat
   A. Temperature and temperature scales
   B. Heat and energy
   C. Heat transfer
   D. Heat effects
   E. Laws of thermodynamics
VIII. States of Matter
   A. Gases
      1. Macroscopic description - gas laws
      2. Microscopic description - kinetic theory of gases
   B. Liquids
      1. Hydrostatics - Pascal's, Archimedes' principles
      2. Hydrodynamics - Bernoulli's Principle, continuity
   C. Solids (optional)
      1. Elasticity - Hooke's law
      2. Simple harmonic motion

Course Requirements:  Three midterm tests, ten homework assignments, one final test.

Each homework assignment is worth 5 points and is due before 9:30 a.m. on the date shown on the class calendar. Late assignments receive a score of zero. Corrections of each assignment are due the next time homework is collected (e.g., corrections for hw 5 are turned in at the same time that hw 6 is turned in). Each corrected assignment is worth 5 points and late corrections receive a grade of zero. Corrections for hw 10 are due on May 8.

The four tests are on the dates shown on the class schedule. Missed tests receive a grade of zero. No make-up tests will be given. You may take a test early if you have an acceptable reason for missing the examination day and if you make arrangements at least one week in advance.
PHY 121 Course Policies

Attendance:
There is no attendance component to your grade but regular attendance is still expected. Students who do not attend lectures usually fail or score much lower than what they are capable simply due to the difficulty of keeping up with the material. Students who miss the first two class meetings may be dropped to make room for other students.

Academic Integrity:
- Violations of scholastic ethics are considered serious offenses by Pima Community College, the Physics Department and by your instructor. Students may consult the PCC Student Handbook sections on student code of conduct, on scholastic ethics and on the grade appeal procedure. Copies are available at PCC campus libraries and at http://www.pima.edu/~coadmissions/studresp.htm.
- All work done for this class must be your own. You may use work from books and other materials if it is properly cited. Copying from a book without proper reference or from a person under any circumstances will result in a 0 for the assignment, and at the instructor's discretion, possibly an F for the course.
- Students may consult the PCC Student Handbook sections on student code of conduct, on scholastic ethics and on the grade appeal procedure. Copies are available at PCC campus libraries and at http://www.pima.edu/~coadmissions/studresp.htm.
- Copying from books, notes, or other’s work during a test will result in a grade of 0.

ADA Compliance:
Pima County Community College District strives to comply with the provisions of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Students with disabilities requiring special accommodations must notify the instructor of this need or directly contact the Disabled Student Resources Office on your campus at the beginning of the semester.

Classroom Behavior:
- Because of insurance limitations, non-registered visitors are not allowed at class sessions or on field trips.
- Possession of drugs, alcohol or firearms on college property is illegal.
- Eating, drinking, smoking and soliciting are not allowed in classrooms.
- Pets, telephones, pagers and other electronic devices that distract students are not allowed in classrooms.
- Students creating disturbances that interfere with the conduct of the class or the learning of others will be asked to leave.

Withdrawals:
Students may withdraw (grade “W”) from class by April 9 without instructor permission. Students who have not submitted any assignments nor taken any exams at the 45th day census date are assumed NOT to be participating in the class and will be withdrawn. Please be sure to withdraw yourself by April 9 if you do not expect to complete the class; otherwise you may receive an "F" grade.
PHY 121 Grading System/Policies

There are five components to the final grade: three midterm tests, one final test, and homework. Each component is worth 100 points and the lowest of the midterm and homework grades is dropped.

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<tr>
<td>Test 1</td>
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<tr>
<td>Homework</td>
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<tr>
<td>Final Test</td>
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<td>Total</td>
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Drop the lowest.

Final grade | Point range
-------------|-------------
A            | 360—400     
B            | 320—359     
C            | 280—319     
D            | 240—279     
F            | 0—239       

Incomplete (I) grade:
- Incomplete grades are only for students who miss the final test but have a grade of C or higher on all other work. Students must request "I" grades in writing and provide adequate documentation. Final decisions regarding an incomplete grade are made by the instructor. Incompletes are generally reserved for medical and family emergencies that occur at the end of the semester. All requests for incompletes must be submitted to the instructor by May 13.

Special Withdrawal (Y) grade:
The "Y" grade is an administrative withdrawal given at the instructor's option when no other grade is deemed appropriate. Your instructor must file a form stating the specific rationale for awarding this grade. "Y" grades are discouraged since they often affect students negatively. To receive a "Y," you must request it in writing by May 13.

Make-up Exams:
- No make-up exams are given. Since the lowest of the class exam grades is dropped, students missing an exam will have that exam grade dropped.

Final Grades: Students will receive a grade transcript from the college mailed to the address given with registration materials at the end of the semester when all grades have been recorded. For privacy and security reasons, instructors may not post grades and are advised NOT to give grades over the telephone. Students who wish to check grades may call MAX 2000 at 206-4880.
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<td>Jan 14</td>
<td>Jan 16</td>
<td>March 18</td>
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<td>Chapter 7</td>
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<td>April 17</td>
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<td>Chapter 11</td>
<td>Chapter 12, hw 8</td>
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<td>Feb 18</td>
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<td>April 22</td>
<td>April 24</td>
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<tr>
<td>Chapter 4</td>
<td>Rodeo</td>
<td>Chapter 12</td>
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<td>April 29</td>
<td>May 1</td>
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<tr>
<td>Chapter 4</td>
<td>Chapter 5, hw 3</td>
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<td>Review, hw 10</td>
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<td>March 4</td>
<td>March 6</td>
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<td>Test 3</td>
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<td>Chapter 6</td>
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**Homework Assignments**

- **Hw 1:** chapter 1, 1,3,5,7,8,9,11,13,15,17,19,21,22,24,31,41,43
- **Hw 2:** chapter 2, 3,5,7,13,17,19,21,22,23,24,25,27,28,29,31,33,35,37,41,42,43,45,47,48,51,53,55,65,68,71
- **Hw 3:** chapter 3, 1,3,5,7,8,9,13,15,19,20,21,23,25,27,29,35,37,39,61,63
  - chapter 4, 1,3,5,8,11,13,15,21,25,35,37,39,42,43,46,47,49,52,53,55,58
- **Hw 4:** chapter 4, 59,61,65,67,69,71,75,79,81,85
  - chapter 5, 1,2,3,6,9,12,13,15,17,19,21,23,24,25,36
- **Hw 5:** chapter 5, 37,39
  - chapter 6, 3,5,7,9,11,13,15,17
- **Hw 6:** chapter 6, 20,22,25,29,30,31,33,35,37,39,41,45
- **Hw 7:** chapter 7, 1,3,5,13,15,17,19,23,27,29,31,33,34,37,39,49,51
- **Hw 8:** chapter 11, 1,3,5,7,10,11,13,15,19,21,23,25,29,30,33,35,39,42,43,44,48,49,53,54,55
- **Hw 9:** chapter 11, 57,59,62,63,64,65,69
  - chapter 12, 3,4,11,13,17,19,27
- **Hw 10:** chapter 12, 33,41,51,55,57,59,70,82,87,89
  - chapter 13, 1,3,5,7,11,17,18,19,27,31,33,38

Each homework assignment should be turned in twice. The dates for the initial submissions are marked on the calendar. After the homework is turned in, recorded, and returned, you should make corrections in red ink and re-submit the assignment. Corrections are due the next time homework is collected. For example, you will be turning in corrections for hw 1 on the same day you turn in hw 2 (February 6). Corrections for hw 10 are due on May 8.