INSTRUCTOR: Dr. Ann M. Reagan

CONTACT: email: areagan@csmd.edu (best)
         Voicemail: Ext 4978 from campus numbers
         (301-934-7790, 240-725-5499, 443-550-6199, or 301-870-2309)

OFFICE HOURS: By Appointment
               Room 318, Bldg. B, Leonardtown Campus

COURSE DESCRIPTION: This is the first of a two semester, non-calculus course sequence designed to introduce students to the elementary principles of general physics. Specifically the course covers the mechanical topics of measurements, linear motion, vectors, Newton's laws, circular and rotational motion, conservation of momentum and energy and properties of materials, waves and sound.

PREREQUISITE: MTH 1080 Intermediate Algebra & Introduction to Trigonometry.

CREDIT HOURS: 1
CLASS SESSIONS: Section 76048  T/TH 1:00PM – 2:20PM, Room B213

REQUIREMENTS:
TEXT: College Physics by Raymond A. Serway and Jerry S. Faughn, 8th ed. (Vol. I, Ch 1-14)
CALCULATOR: capable of performing scientific operations (exponential, trigonometric functions, etc.)

FULL SYLLABUS: May be viewed through the course website on Blackboard CE or at website

PERFORMANCE EVALUATION: Student performance will be measured as follows:
4 unit exams: 20 % each, 80% total.
4 to 6 quizzes (non-comprehensive, unscheduled, lowest quiz dropped). 10% total.
Homework (per section): 10% total.
Final grades will be assigned as follows:
90.0 – 100.0% A
80.0 – 89.9% B
70.0 – 79.9% C
60.0 – 69.9% D
Below 60.0% F
GENERAL EDUCATION: The faculty of The College of Southern Maryland has prepared a statement of what it considers to be the components of general education for all students who graduate from one of our two-year programs. This statement appears in the current College Catalog. While no single course can be expected to address all of these components, the sum of the courses a student takes should allow ample opportunity for all components to be experienced.

In PHY1010 lecture, students will have the opportunity to:

15. perform mathematical operations accurately;
16. make mathematical estimates and approximations to judge the reasonableness of results;
17. interpret graphs, tables and charts;
18. understand mathematical information and relationships stated in words;
19. utilize appropriate mathematical models to solve problems while recognizing the assumptions and limitations of the models;
35. apply appropriate theories to solve problems;
57. identify, define, evaluate and solve problems;
58. compare, contrast and classify information and concepts;
59. recognize cause and effect;
69. understand methodologies of natural science;

HOMEWORK: Homework completion is essential to success in this course. Each test and/or quiz will have at least one question based on an assigned Homework problem, so that the student’s grades on both will be greatly improved simply by completing and understanding Homework. Students may be called upon in class to demonstrate the solution to a Homework problem in front of the class. Additional worked problems will be posted online for students desiring more practice. Instructor will be available before or after class to review Homework.

Homework problems for each chapter and quizzes for each section may be assigned for completion in class, at home, or via Blackboard/WebCT.

ATTENDANCE POLICY: Attendance will be checked and recorded every class period. Student are expected to attend every class and will be responsible for any and all announcements, assignments, lectures, materials, handouts, scheduled exams and unscheduled quizzes presented during class.

- Students who miss three or fewer classes will have an extra 10 points added to his/her lowest test grade.
- If you are fifteen minutes late or leave a class fifteen minutes early, you will be counted as absent for the purposes of assessing this bonus.

AUDIT AND WITHDRAWAL POLICY: Students are reminded to consult the College Catalog for dates, procedures, responsibilities and impacts of changing registration status. Friday, November 13, 2009 is the last day to withdraw from a course or change from AUDIT status to CREDIT status or from CREDIT to AUDIT. Students changing to audit status must complete a contract with the course instructor before the November 13 deadline. Failure of an auditing student to comply with the terms of the contract will result in a grade of W for the course.
MAKEUP EXAM POLICY: Makeup exams will be allowed without penalty for legitimate reasons if the instructor is notified in advance or if an emergency occurs. Arrangements for make-up exams are the sole responsibility of the student and must be made directly with the instructor. Completion is generally required within one week of the originally scheduled date. No quiz make-ups will be allowed for any reason.

STUDENT INTEGRITY POLICY: Students are expected to perform independently on exams and quizzes without the use of unauthorized materials (books, solved problems, other individuals, etc.). Any violations of the Student Code of Conduct as outlined in the Student Handbook result in a score of zero for the exam or quiz. The violation will be reported to the Director of Student Affairs and to the College Judicial Committee for review and possible disciplinary action.

DISABILITIES AND SPECIAL NEEDS: Students with disabilities who believe that they may need accommodations in this class are encouraged to contact Disabled Student Services in the Learning Assistance Department at 301.934.7614 as soon as possible to better ensure that such accommodations are implemented in a timely fashion.

UNAUTHORIZED PERSONS: Unauthorized persons (children, friends, family members, and any other persons not registered for the course) are not allowed in the classroom. Details of this college policy can be found in the Student Handbook.
Department of Mathematics, Physics, and Engineering

In order for you to be successful in your physics courses, the mathematics, physics, and engineering faculty has developed the following common expectations of all students in physics courses.

1. As a student, you need to take responsibility for your own learning. This includes, but is not limited to:
   - Arriving on time for each class
   - Staying for the entire class and not leaving class early
   - Actively participating in class and not sleeping or putting your head down
   - Not engaging in other activities that detract from the classroom learning experience. No phone calls, text messaging, etc.
   - Bringing the required materials to class. These might include textbooks, notebooks, binders, pencils, pens, and calculators.
   - Taking care of all business (phone calls, bathroom breaks, getting food, drinks, things from cars, etc.) before class starts.

2. You are expected to be an active learner in the classroom as well as out: to participate in group discussion, ask and answer questions, and work problems at the board.

3. You are expected to study your textbook, not merely work problems from it. The best way to do this is to read the section To be covered before the lecture is given, listen to the lecture and take notes, and then study the text again before tackling the practice problems. If this seems like a lot of work, remember that you need to allot 2 hours outside of class for each hour in class. This time commitment increases for online, web-hybrid, and computer-assisted classes.

4. There is no substitute for continued and ongoing Studying and doing homework problems. The best way to learn physics is to do physics.

5. It is your responsibility to keep your homework up-to-date. If you are having difficulty with the course material, then you need to take action right away – do not wait until you have lost all hope! There are several options to get assistance:
   - Talk to your instructor during office hours.
   - Homework review is conducted prior to each class.
   - Visit the student success center on campus. Tutors and hours are available at www.csmd.edu/StudentSuccess/Tutoring/
   - Use online tutoring available at www.smarthinking.com
   - Remember, quizzes and tests draw heavily from assigned homework.

6. Realize that college level physics can be hard and is not always fun.

7. You are given the means to keep track of your grade and are expected to take responsibility for knowing your grade status throughout the semester.
8. Learning physics is different from learning some other subjects. In a physics course, you must be able to do four things:

   a. **Understand** the material.
   b. **Process** the material.
   c. **Apply** what you have learned to solve a problem correctly, and
   d. **Remember** what you have learned in order to learn new material.

9. Another reason that learning physics is different from learning other subjects is that it follows a sequential learning pattern, which simply means that the material learned on one day is used the next day and the next day, and so forth. This building block approach to learning physics is the reason it is difficult to catch up when you fall behind.

10. College physics courses cover twice the material in the same time frame as do high school physics courses. Faculty members have a certain amount of material to be covered each semester. They have to finish certain chapters because the next course is based on the information taught in this course. Improve your study skills so you can keep up!

11. Most physics problems involve the application of the laws of physics and the expression of these laws in mathematical terms. Students not only must understand how to apply the physical laws but also must use mathematical principles well enough to complete the problems with enough speed to finish the test.

12. During the first few days of class, do not take the attitude that “I already know this material” and start to slack off by not taking notes or not completing homework assignments. Good study habits start from the first day of class. Start practicing good study habits now while the material is familiar to you. In that way, those habits will already be a part of your routine when the material becomes more challenging.

13. Take pride in your work and never let yourself fall into the trap of believing that you cannot do physics. As a youth Einstein’s parents nicknamed him “die Dopperte”, the dopey one. Virtually everybody can do physics, if he or she is willing to work hard enough. **Be persistent and determined in your work.**
The following is intended to be an accurate outline of the course, but the instructor reserves the right to make modifications dependent upon pace and progress, subjects of special interest, and potential class cancellations (e.g., snow days, etc.).

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<th>SESSION</th>
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<td>9/8</td>
<td><strong>Introduction:</strong> What is Physics? Standards of Length, Mass, and Time; Coordinate Systems; Review of Trigonometry; Introduction to Vectors.</td>
<td>Chapter 1</td>
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<tr>
<td>2,3</td>
<td>9/10</td>
<td><strong>Motion in 1-Dimension:</strong> Displacement; average velocity; instantaneous velocity; acceleration; motion diagrams; one-dimensional motion with constant acceleration; freely falling objects.</td>
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<td><strong>Vectors:</strong> Vectors and scalars revisited; some properties of vectors; components of a vector <strong>Two-Dimensional Motion:</strong> Velocity and acceleration in two dimensions; projectile motion; relative velocity Review for Test #1</td>
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<td>9/24</td>
<td><strong>TEST #1</strong></td>
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<td>7,8,9</td>
<td>9/29</td>
<td><strong>The Laws of Motion:</strong> The concept of force; Newton’s First Law; Newton’s Second Law; Newton’s Third Law; some applications of Newton’s Laws; Force of Friction</td>
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<td><strong>Work and Energy:</strong> Work; Kinetic Energy and Work-Kinetic Energy Theorem; Potential Energy; Conservative and Non-Conservative Forces; Conservation of Mechanical Energy; Non-Conservative Forces and the Work-Kinetic Energy Theorem; Conservation of Energy in General; Power; Simple Machines.</td>
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<td><strong>Momentum and Collisions:</strong> Momentum and Impulse; Conservation of Momentum; Collisions; Glancing Collisions. Review for Test #2</td>
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<td>14</td>
<td>10/22</td>
<td><strong>TEST #2</strong></td>
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<td>15,16</td>
<td>10/27</td>
<td><strong>Circular Motion and the Law of Gravity:</strong> Angular Speed and Angular Acceleration; Rotational Motion under Constant Angular Acceleration; Relations Between Angular and Linear Quantities; Centripetal Acceleration; Forces Causing Centripetal Acceleration; Describing Motion of a Rotating System; Newton’s Universal Law of Gravitation.</td>
<td>Chapter 7</td>
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<td><strong>Rotational Equilibrium:</strong> Torque; Torque and the Second Condition of Equilibrium; Center of Gravity; Examples of Objects in Equilibrium; Relationship Between Torque and Angular Acceleration</td>
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<td>11/5</td>
<td><strong>Rotational Dynamics:</strong> Rotational Kinetic Energy; Angular Momentum. Review of chapters 7 and 8.</td>
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<td>19,20</td>
<td>11/10</td>
<td><strong>Fluids and Gases:</strong> Density and Pressure; Variation of Pressure with Depth; Buoyant Forces and Archimedes’ Principle; Fluids in Motion; Other Applications of Bernoulli’s Equation</td>
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<td>25,26</td>
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<td><strong>Vibration and Waves:</strong> Hooke’s Law; Position, Velocity and Acceleration as a Function of Time; Frequency; Amplitude, Wavelength; Types of Waves, Velocity, Reflection and Interference</td>
<td>Chapter 13</td>
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<td>27,28</td>
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<td><strong>Sound:</strong> Sound Waves, Speed of Sound; Energy/Intensity; Doppler Effect: Interference and Standing Waves; Musical Instruments</td>
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<td>29</td>
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