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PHSX 205N.01: College Physics I

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Syllabus – PHSX 205N (College Physics I) 2016 Spring Section 01

Instructor and Course Information

- Instructor: Dr. Benjamin Grossmann
- E-mail: benjamin.grossmann@umontana.edu
- Office Phone: (406) 243-2013
- Office Location: CHCB 232
- Office Hours:
  - Monday, Tuesday, Wednesday ??:?? am–?:?? pm
  - If you need to meet with me outside my office hours, you can make an appointment.
- Course Request Number: 32331
- Credits: 4
- Lecture Schedule: Monday, Tuesday, Wednesday, Thursday 8:10 am–9:00 am
- Lecture Location: CHCB 131
- Prerequisite: M 122 (College Trigonometry), or M 151 (Precalculus), or equivalent
- Pre/Corequisite: PHSX 206N (College Physics I Laboratory)

Course Description and Expectations

College Physics I is the first of two algebra-based introductory physics courses. In this course, you will study basic concepts in physics and develop problem solving skills. It is essential that you keep up with the material as the concepts presented in this course build on each other.

The use of mathematics will be necessary for understanding the topics that we will cover. The mathematics we will use in this course are algebra, geometry, and trigonometry. It is imperative that you are comfortable with these to be successful in this course.

To be successful in this class, time will need to be spent outside of lecture reviewing information from the course. It is highly recommended that you keep up with the reading assignments to gain a better understanding of the concepts being presented in lecture. Homework assignments also make up a large portion of your overall grade. These assignments will usually take 2–5 hours to complete, so don't wait until the last minute to start your homework. Remember, one credit hour represents three hours of work by the student, including class time. Being a four credit course, you can expect to put around 12 hours per week into the course to be successful.

Course Materials

College Physics: A Strategic Approach, Knight, Jones, and Field, 3rd edition.
> The hard copy of this textbook is available as a single book or divided into two volumes. This course will only cover material found in the first volume. If you plan on taking College Physics II after this course, then you may want to have the full textbook.

MasteringPhysics.
> This online homework system will be used for regularly assigned homework. An access code is bundled with the course textbook sold at the Bookstore. It is also possible to buy an access code separate from the textbook at the Bookstore or online. If you acquired an account within the last two years, then you can use that account as your access is good for 24 months.

Moodle.
> This course management system is used by the university and requires your NetID to log in. Grades and other course materials (including this syllabus) will be posted on Moodle.

Scientific Calculator.
> You will need a basic scientific calculator with logarithmic and trigonometric functions. You are expected to learn how to use your calculator. Do not expect to get help using it during an exam.

Notebook.
> The type of notebook you use doesn't matter (e.g. spiral notebook, three-ring binder, composition notebook). Taking good notes can be a useful learning aid. Besides taking notes during lecture, also take notes as you read the book and study. If you have questions when you're studying, write them in your notebook. Nobody can answer your questions if you've forgotten what they are.

Course Objectives

Physics requires problem solving skills, and one of the purposes of this course is to help you practice these valuable skills. If you rely heavily on memorization of facts, laws, and formulas without understanding how to use these pieces of information or how they relate to each other, then you will not succeed in this course.

During this course, you should develop your skills in the following areas:

Quantitative Reasoning.
> This includes tasks such as estimating the value of an unknown quantity and evaluating the reasonableness of numerical answers.

Transference of Ideas.
> This includes the ability to apply learned concepts in new contexts and to combine concepts when analyzing a situation.

Critical Thinking.
> This is the application of various cognitive skills in solving problems. It includes, but is not limited to, determining how different aspects of a problem are related and evaluating solutions and ideas for correctness.

Understanding and application of basic principles and theories of classical physics. The topics we will be covering will include:

- Kinematics.
- Newton's laws of motion.
- Collisions and conservation of momentum.
- Work and conservation of energy.
- Temperature and heat.
- Fluids and pressure.
- Oscillations and waves.

Homework Problems

Regular homework problems will be done through the MasteringPhysics online homework system. If you already have an active account, you will only need log in and join the homework section for this course. Otherwise, you will need to create an account. To do so, you will need the following information:

- A valid email address.
- An access code. It will look like a sequence six of capitalized words connected by hyphens.
- The course ID: `MPGROSSMANN75273`

When joining the homework course within MasteringPhysics, you may be asked to select the book being used for the course. Be sure you select the correct book.

Homework assignments will be spread throughout each week. There will generally by twenty problems each week, grouped into sets of five problems. A problem set will normally be due at 11:59 pm each Tuesday, Wednesday, Thursday, and Friday. In general, each individual problem is worth 5 points. Many problems have multiple parts, and the points are spread equally among all parts.

For each part of a problem, every incorrect answer will reduce the number of points you can earn for that part. When required to type in an answer, incorrect answers reduce the number of points you can earn by 5% for that part of the problem. For multiple choice questions, the point reduction is dependent upon the number of choices available, such that for n choices, the reduction is $(100\%)/(n-1)$ for each incorrect response.

There is a *Give Up* button available if you decide you cannot answer a particular part of a problem. If you use the *Give Up* button, no points can be earned for that part of a problem, but you can still get credit for other parts of a problem if you answer them correctly. If you find you are using the *Give Up* button, then please visit me for help. It's almost never a good idea to give up and throw your grade away.

After an assignment is due, you can go back and rework problems you completed for extra practice; however, this will not change your score.

If you do not complete a problem before it is due, it can still be finished for partial credit. The points you can earn will be reduced by 0.3% every hour after the problem is due until a maximum reduction of 50% has been reached (this occurs after a week). Any problems not completed by the end of the last day of the semester can no longer be completed as all homework assignments will be closed.

Exams

There will be five exams in this course, four evening exams and one in-class exam.

All exams will be closed book. The use of a calculator is allowed on all exams. For each exam, you will be provided with a sheet of equations and information.

Exams will contain different types of questions. Questions which can possibly be guessed correctly (e.g. multiple choice questions) won't have partial credit allowed. Computational problems can earn partial credit. Most of the points for these problems will usually be for the correctness of your written solution leading to your answer.

Be aware that the evening exams occur outside regular lecture hours. The exams are scheduled on the following dates and times:

- Exam 1: Monday, 6:10 pm–8:00 pm, February 22
- Exam 2: Monday, 6:10 pm–8:00 pm, March 21
- Exam 3: Monday, 6:10 pm–8:00 pm, April 18
- Exam 4: Tuesday, 10:10 am–12:10 pm, May 10

The dates scheduled for the exams are subject to change if necessary. Final Exams are subject to the University schedule, which can be found on-line through the Office of the Registrar. Finals Week Schedules (http://www.umt.edu/registrar/students/finalsweek2/)

Make-up exams will only be given with advanced notice for known scheduling conflicts or under extreme circumstances. If you need to reschedule an exam, you must submit an Exam Reschedule Form. The form is available on the Moodle course web page.

Grading

This course can be taken for a tradition letter grade (A, B, C, D, F) with possible + or − suffixes. The Credit/No-credit option is not available for this course. Course grades are determined from the following course components:

- 30% from homework problems.
- 25% from the exam with the highest score.
- 20% from the exam with the second to highest score.
- 15% from the exam with the third to highest score.
- 10% from the exam with the lowest score.

The grading scale for determining a letter grade is as follows:

- $90 \leq (A-) < 93 \leq (A)$
- $80 \leq (B-) < 83 \leq (B) < 87 \leq (B+) < 90$
- $70 \leq (C-) < 73 \leq (C) < 77 \leq (C+) < 80$
- $60 \leq (D-) < 63 \leq (D) < 67 \leq (D+) < 70$
- $0 \leq (F) < 60$

Students should expect that no course curving will occur. Any of these grade boundaries may be lowered only if it is deemed appropriate to do so. If your exam scores demonstrate a significant improvement over the semester, it may be possible for your course score to have a small amount added to it to better reflect your improved abilities. This will be exercised at the instructor's discretion.

Academic Honesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online.
The Student Conduct Code (http://www.umt.edu/vpsa/policies/student_conduct.php)

Students with Disabilities

University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommason Center 154 or (406) 243-2243. I will work with you and Disability Services to provide an appropriate modification.
Disability Services for Students (http://www.umt.edu/dss/)

Complaint Procedure

If anyone is having issues with the way that the course is being taught or the way that material is being presented I hope that you will come to me first to express your concerns. If you feel that you cannot come to me with these issues, you can contact the chair of the department, Dr. Andrew Ware, CHCB 132.