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PHSX 205N.01: College Physics I

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Course Request Number	Subject	Course Number	Section Number	Credits
33115	PHSX	205N	01	04

Instructor: Amber M. Jessop
email: amber.jessop@umontana.edu
Office: CHCB 232
Office Hours: TWR: 9:10 – 10:00 am, or by appointment.
Lectures: MTWR 8:10 – 9:00 am in CHCB 131
Prerequisite: M 122 (College Trigonometry), or M 151 (Precalculus), or equivalent.
Corequisite: PHSX 206N (College Physics I Laboratory)

Course Overview and Expectations

The goal of this course is to give you a sound introduction to classical physics. This will include studying basic concepts in physics and development of problem solving skills. Some areas of interest will include: kinematics, Newton's laws of motion, work and conservation of energy, circular motion, collisions and conservation of momentum, fluids and pressure, oscillations and waves, and temperature and heat.

This is a university science course and will be taught at that level. It is essential that you keep up with the material from the start as the concepts presented in this course build on each other. The use of mathematics will be necessary for understanding the topics we will cover. It is imperative that you are comfortable with algebra, geometry and trigonometry to be successful in this course.

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 that are posted on the schedule 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 (more if your math skills are sub-par), 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 Material

Textbook: *Physics: Principles with Applications*, D. C. Giancoli, 7th ed (Prentice Hall).

Online Content: *Mastering Physics* on-line homework system.

Regular homework problems will be done on-line through this system.

It is accessible at <http://www.masteringphysics.com/>.

An access code is bundled with the course textbook sold by the Bookstore.

Moodle course management system.

This is the on-line course management system used by the University of Montana.

Some features used in this course will include the posting of announcements and grades.

It is accessible at <http://umonline.umd.edu/>.

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

Course Objectives

Physics requires problem solving and critical thinking. One of the purposes of this course is to help you practice these invaluable skills while getting a sound understanding of introductory physics. You will need to understand how and when to utilize resources available to you. If you rely heavily on memorization of facts, laws, and formulas without understanding how to use these pieces of information, then you will not succeed in this course. During this course, you should reasonably develop the following in order to improve your problem solving skills:

- QUANTITATIVE UNDERSTANDING OF PHYSICS – Utilize appropriate mathematical models while recognizing their assumptions and limitations, estimate values of unknown quantities, perform mathematical operations accurately and evaluate the reasonableness of numerical answers.
- QUALITATIVE UNDERSTANDING OF PHYSICS – Understand and apply basic principles and theories of classical physics using different representations of the same concept (written descriptions, graphs and data tables, pictures and diagrams, and mathematical equations).
- CRITICAL THINKING AND PROBLEM SOLVING SKILLS – Analyze problems to determine what is being asked and combine learned concepts to develop the best approach to provide a solution. Solve problems competently and confidently, using mathematics and other strategies to derive and manipulate relationships between physical quantities.
- TRANSFERENCE OF IDEAS – Understand how to apply previously learned concepts in new contexts.

Homework Problems

Regular homework problems will be done through the *MasteringPhysics* on-line homework system. Daily homework assignments will have between 3 and 5 problems (15 to 20 each week). In general, each problem is worth 5 points. After an assignment is due, you can go back and rework problems for extra practice; however, this will not change your score. LATE HOMEWORK WILL NOT BE ACCEPTED.

If you've used *MasteringPhysics* before, then you already have an account and will only need to join the homework course. Otherwise, you will need to create an account.

Registering for *Mastering Physics*

1. Go to www.masteringphysics.com and click the STUDENT link under REGISTER
 - If you have purchased an access code:
 - Click the button for “Yes, I have an access code.” Click CONTINUE and accept the licensing agreement.
 - Create a User Name and Login that you will use for the rest of the semester
 - Enter your *Mastering Physics* access code. You may need the school's zip code, which is 59812
 - Complete the registration
 - If you have not purchased an access code:
 - Click the button for “No, I need to purchase on-line access now.”
 - Choose the course text, *Physics, 7th edition*, Giancoli
 - Decide if you want the etext or not
 - Follow the steps above
2. Login to *Mastering Physics*
3. Join the course using the Course ID – MPJESSOP21629

Exams

There will be three midterms exams that will focus primarily on material covered since the previous exam. The fourth and final exam, which will be comprehensive. The use of a calculator is allowed on all exams. All other electronic devices are prohibited. Exams will be closed book, but you will be provided with a sheet of equations and information. It is in your best interest to familiarize yourself with the equation sheet before each exam.

Exams will be held according to the following schedule:

Exam 1:	Thursday	February 20	6:10–8:00 pm	CHCB 131 or NULH
Exam 2:	Thursday	March 20	6:10–8:00 pm	Urey Lecture Hall
Exam 3:	Thursday	April 17	6:10–8:00 pm	Urey Lecture Hall
Final Exam:	Wednesday	May 14	10:10 am–12:10 am	CHCB 131

Make-up exams will only be given if a notice is given at least one week in advance for known scheduling conflicts or under extreme circumstances. The dates of exams are subject to change if necessary.

Grading

This course can be taken for a tradition letter grade only (A, B, C, D, F) with possible + or – suffixes. The Credit/No-credit option is not available for this course. Students should expect a typical grading scale (e.g. 90 - 100% is an A, 80-89% is a B, etc), but grade boundaries will be lowered if deemed appropriate. Course grades are determined from the following course components:

30%:	Homework
45%:	Midterm Exams (15% each)
25%:	Final Exam

The last day to drop the course for a W is April 7. Dropping the course on April 8 or later will result in a letter grade of WP or WF.

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 on-line at http://life.umt.edu/vpsa/student_conduct.php.

Course Accommodation

This course is accessible to and usable by otherwise qualified students with disabilities. To request reasonable program modifications, please consult with the instructor. Disability Services for Students will assist the instructor and student in the modification process. For more information, visit the Disability Services website at <http://www.umt.edu/disability>.

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. Dan Reisenfeld, 132 CHCB.

Course Outline

The materials covered each week are subject to change. Weekly homework due dates and exam dates will be announced in class and/or posted on-line.

Week	Dates	Topics Covered	Reading	Exams
1	Jan 27 - 31	Introduction 1D Kinematics	Ch.1 Ch.2	
2	Feb 3 - 7	Vectors 2D Kinematics	Ch.3	
3	Feb 10 - 14	Dynamics Newton's Laws	Ch.4	
4	Feb 17 - 21	Circular Motion	Ch.5	Exam 1 Feb 20 Location TBA
5	Feb 24 - 28	Gravitation Work and Energy	Ch.5 Ch.6	
6	Mar 3 - 7	Energy Conservation Impulse, Collisions, Momentum	Ch.6 Ch.7	
7	Mar 10 - 14	Center of Mass Rotational Kinematics & Dynamics	Ch.7 Ch.8	
8	Mar 17 - 21	Rotational Energy and Momentum Statics	Ch.8 Ch.9	Exam 2 March 20 Urey Lecture Hall
9	Mar 24 - 28	Fluids	Ch.10	
10	Mar 31 - Apr 4	Spring Break		
11	Apr 7 - 11	Oscillations and Waves	Ch.11	
12	Apr 14 - 18	Waves - Acoustic and Sound Intensity	Ch.12	Exam 3 April 17 Urey Lecture Hall
13	Apr 21 - 25	Temperature Ideal gas law	Ch.13	
14	Apr 28 - May 2	Kinetic Theory Heat	Ch.14	
15	May 5 - 9	Thermodynamics	Ch.15	
16	May 12 - 16	FINAL EXAM WEEK		Final: Wednesday at 10:10 am to be held in CHCB 131