

Course Information

- Instructor: Dr. David A. Macaluso
- Office: C.H. Clapp Building, room 119
- Telephone: (406) 243-6641
- Email: david.macaluso@umontana.edu
- Lectures: MTWTr, 10:00 AM – 10:50 AM, CHCB 131
- Office Hours: Monday, Tuesday & Wednesday 11-12. I am happy to help students and answer questions outside my normally scheduled office hours as well and I strongly encourage students to seek my assistance whenever necessary.

Course Description

This course will introduce students to the fundamental concepts of Classical Physics. We will explore Kinematics (in 1-D, 2-D, and circular motion), Gravity, Work & Energy, Momentum, Fluids, Oscillations & Waves, and Thermodynamics. We will also concentrate on developing **problem solving skills** and math skills. This course will also stress the application of logical methodology in scientific inquiry and analysis.

Learning Outcomes

Upon completion of this course, students should have:

1. A qualitative and quantitative understanding of the fundamental concepts of classical physics.
2. Improved critical thinking and problem solving skills.
3. An appreciation for the rigorous nature of scientific methodology in evidence-based inquiry.
4. An improved ability to take previously learned concepts and techniques and apply them in new and unfamiliar situations.

Textbook

Physics: Principles with Applications, 7th Edition – Douglas C. Giancoli
Access to Mastering Physics for online homework

Add/Drop/Withdraw

Please refer to the University policy on adding, dropping, and withdrawing from the course at <http://www.umt.edu/registrar/students/dropadd.php>.

From the 16th through the 45th instructional day, all classes must be dropped using Drop forms (instructor signature required, advisor signature required for undergraduates). **\$10 fee applies.**

From the 46th to the last instructional day prior to finals week, classes must be dropped using the Drop form (instructor and Dean signatures required, advisor signature required for undergraduates). **\$10 fee applies.**

Websites

Online homework: <http://www.masteringphysics.com>
Grades and other materials will be posted on Moodle

Expectations

This is a university-level physics course. The expectations are therefore appropriate for students who should all be familiar with the concepts of personal responsibility, accountability, and academic honesty. Specifically:

Attendance

Exams will be based on lectures and in-class problems and discussions. In addition, quizzes and iClicker lecture questions (points which **cannot** be made up without having made prior arrangements with me) represent a significant percentage of the course grade. Thus regular attendance, while not mandatory, is vital to student success. **I strongly encourage regular attendance.**

Prerequisites/Corequisites

All students must have completed the prerequisite courses (M122 or M151 or equivalent) and to be concurrently enrolled in the co-requisite lab course (PHSX 206N).

Reading Assignments

Students are expected to read the assigned material **before** class. Quizzes will be given during class that will be based at least partially on the reading. These quizzes will not be demanding, so reading ahead will both prepare you for the upcoming lecture and help assure you earn the “low hanging fruit” of reading quizzes.

Homework Assignments

Weekly homework assignments make up a large portion of your grade and are the primary tool by which you learn physics and develop your problem solving skills. These assignments usually take 2-5 hours to complete so don't procrastinate. **One “unit” represents 3 hours of student work and this is a 4-unit course, so it should occupy 12 hours per week; three hours and twenty minutes in-class, and over eight hours outside of class per week.**

Mathematics

The language of physics is math. You must be comfortable with algebra, geometry, and trigonometry to succeed.

Do not use cell phones or computers/laptops/notebooks in class. The only electronics permitted in class are your iClicker remotes.

Grading Policy

Exams (four @ 10% each)	40%
Cumulative Final Exam	25%
Homework	20%
Quizzes & iClicker Questions	15%

Grades will be based on the traditional letter grade percentage scale (90s = A/A-, 80s = B+/B/B-, etc.). This course can only be taken with **the traditional grading option.**

Final course grades are assigned based on the final student distribution. Students will not be given a lower grade than what is traditionally assigned to a given final percentage, i.e. a grade of 80% will be *at least* a B-.

iClicker Remotes

We will be using iClicker remotes in this class. Because internet connectivity is poor on this floor of this building, all students must use an actual remote: smartphone iClicker apps will *not* be supported. Lecture iClicker content will start the first class in Week 2 (Tuesday, September 6th).

Policies and Procedures

- The four midterm exams will be on Fridays from 10:00 – 10:50 AM in CHCB 131 (see schedule). You will be given a universal notecard for each exam. You are **NOT** allowed to use a smartphone or any notes during the exams. You are only allowed a calculator* and something to write with (*programmable calculator lids must be stored in your bag/pack).
- The final exam will be held in the classroom, CHCB 131 (see schedule).
- **Late homework will not be accepted and there are no make-up exams except where prior arrangements have been made with me. Otherwise, late homework and missed exams will be scored as a zero.**
- This is a large lecture hall with approximately 100 students, so please:
 - Arrive on time (we start on the hour now!) as lectures will begin promptly (with a “free iClicker point”).
 - Do not start packing your things early - I will (usually) not keep you late.
- Keep phones and tablets/laptops put away during lecture. **THIS IS A DEPARTMENT POLICY FOR THIS COURSE. Smartphones/computers are not allowed at any time in class or during exams.**
- All email correspondences with me must be to/from an official UM email address.

Academic Honesty

I encourage students to work together and to seek assistance from me whenever necessary. However, work submitted in this class must be the original work of the student. In addition, the majority of your grade will be based on quizzes and exams that test your mastery of the homework problems, so doing the problems on your own will give you the best chance to succeed.

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

Students with Disabilities:

Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. “Reasonable” means the University permits no fundamental alterations of academic standards or retroactive modifications. For more information, visit the Disability Services for Students website at <http://life.umt.edu/dss/>.

Registering for Mastering Physics

1. Go to www.masteringphysics.com
2. Click the STUDENT link under REGISTER
 - If you purchased an access code**
 - A. Click yes, I have an access code and accept the licensing agreement
 - B. Create a User Name and Login
 - C. Enter your Mastering Physics access code (you may also need the school zip code which is 59812)
 - D. Complete the registration
 - If you have not purchased an access code**
 - A. Click the button for *no, I need to purchase online access now*
 - B. Choose the course text
 - C. Decide if you want the etext or not
 - D. Login to Mastering Physics
3. Join the course using Course ID **MACALUSO93390**.

Tentative Course Schedule (dates, topics and readings subject to change)

August

Date	Day	Topics	Reading
8/31	Tr	Syllabus, Course Introduction	

September

Date	Day	Topics	Reading
9/4	M	Labor Day – no class	
	T	Measurement, Units, & Estimation	Ch. 1
	W	Estimation Activity, Motion in One Dimension	Ch. 2 (Sections 1-5)
	Tr	Motion in One Dimension	Ch. 2 (Sections 6-8)
9/11	M	Motion in Two Dimensions – Vectors	Ch. 3 (Sections 1-4)
	T	Motion in Two Dimensions – Projectile Motion	Ch. 3 (Sections 5-6)
	W	Motion in Two Dimensions – Projectile Motion	Ch. 3 (Sections 7-8)
	Tr	Forces & Newton’s Laws	Ch. 4 (Sections 1-4)
9/18	M	Forces & Newton’s Laws	Ch. 4 (Sections 5-6)
	T	Forces & Newton’s Laws	Ch. 4 (Sections 7-8)
	W	Forces & Newton’s Laws – Problem Solving Day	Review Ch. 4
	Tr	Forces & Newton’s Laws, Ch. 1-4 Review	Review Ch. 1-4
9/22	F	EXAM 1, 10:00 – 10:50 AM, CHCB 131	Chapters 1 - 4
9/25	M	Return Exams, Circular Motion	Ch. 5 (Sections 1-2)
	T	Circular Motion, Orbits, & Gravity	Ch. 5 (Sections 4-6)
	W	Circular Motion, Orbits, & Gravity	Ch. 5 (Sections 7-8)
	Tr	Circular Motion – Problem Solving Day	Review Ch. 5

October

Date	Day	Topics	Reading
10/2	M	Work & Energy	Ch. 6 (Sections 1-3)
	T	Work & Energy	Ch. 6 (Sections 4-7)
	W	Work & Energy	Ch. 6 (Sections 4-7)
	Tr	Work & Energy	Ch. 6 (Sections 8-10)
10/9	M	Linear Momentum	Ch. 7 (Sections 1-4)
	T	Linear Momentum	Ch. 7 (Sections 5-7)
	W	Linear Momentum – Problem Solving Day	Review Ch. 7 (Sections 1-7)
	Tr	Linear Momentum, Ch. 5-7 Review	Review Ch. 7
10/13	F	EXAM 2, 10:00 – 10:50 AM, CHCB 131	Chapters 5 - 7
10/16	M	Rotational Motion	Ch. 8 (Sections 1-4)
	T	Rotational Motion	Ch. 8 (Sections 2-6)
	W	Rotational Motion	Ch. 8 (Sections 5-8)
	Tr	Rotational Motion – Problem Solving Day	Ch. 8 (Section 9)
10/23	M	Static Equilibrium	Ch. 9 (Sections 1-2)
	T	Static Equilibrium	Ch. 9 (Sections 3-4)
	W	Static Equilibrium – Problem Solving Day	Review Ch. 9 (Sections 1-4)
	Tr	Fluids	Ch. 10 (Sections 1-6)
10/30	M	Fluids	Ch. 10 (Sections 7)
	T	Fluids	Ch. 10 (Sections 8-14)
	W	Fluids – Problem Solving Day	Review Ch. 10
	Tr	Ch. 8-10 Review	Review Ch. 8-10
11/3	F	EXAM 3, 10:00 – 10:50 AM, CHCB 131	Chapters 8 - 10

November

Date	Day	Topics	Reading
11/6	M	Oscillations & Waves	Ch. 11 (Sections 1-3)
	T	Oscillations & Waves	Ch. 11 (Sections 4)
	W	Oscillations & Waves	Ch. 11 (Sections 7-9)
	Tr	Oscillations & Waves	Ch. 11 (Sections 10-12)
11/13	M	Oscillations & Waves	Ch. 11 (Sections 13-15)
	T	Oscillations & Waves – Problem Solving Day	Review Ch. 11
	W	Sound	Ch. 12 (Sections 1-3)
	Tr	Sound	Ch. 12 (Sections 4-6)
11/20	M	Sound	Ch. 12 (Sections 7-9)
	T	Sound – Problem Solving Day	Review Ch. 12
	W	Student Travel Day – no class	<i>Look ahead to Ch. 13-15</i>
	Tr	Thanksgiving Break – no class	<i>Look ahead to Ch. 13-15</i>
11/27	M	Temperature & Kinetic Theory	Ch. 13 (Sections 1-4)
	T	Temperature & Kinetic Theory	Ch. 13 (Sections 5-7)
	W	Temperature & Kinetic Theory	Ch. 13 (Sections 5-8)
	Tr	Ch. 11-13 Review	Review Ch. 11-13
12/1	F	EXAM 4, 10:00 – 10:50 AM, CHCB 131	Chapters 11 – 13

December

Date	Day	Topics	Reading
12/4	M	Heat	Ch. 14 (Sections 1-8)
	T	Thermodynamics – The 1 st Law	Ch. 15 (Sections 1-3)
	W	Thermodynamics – The 2 nd Law	Ch. 15 (Sections 4-6)
	Tr	Thermodynamics – Entropy	Ch. 15 (Sections 7-11)
12/11	M	Thermodynamics – Problem Solving Day	Review Ch. 15
	T	Last Day of Class: Final Exam Review, Evaluations	
12/15	F	Final Exam 8:00 AM – 10:00 AM, CHCB 131	Ch. 1-15