

Syllabus for Principles of Physics I (PHY 211 – Section 101) - Fall 2016

Lecture: Science Building, Room 277 – (MWF: 9-9:50am) & (M: 10-10:50am)

Course Description: This is a 4-credit hour, lecture format, introductory physics course that requires the use of algebra, trigonometry, calculus, and vectors to solve real world problems. This course will mostly focus on Mechanics, Waves, and briefly touch on topics related to Thermodynamics (this is the first half of a 2 part introductory series). PHY 211 is “[a] course in the basic principles of physics for physics, mathematics, and engineering majors ~ fall 2016 undergraduate course catalog.”

Objectives: More specifically, the objective of this course is designed to provide you with a basic understanding of: units, vectors, motion in one, two, & three dimensions, velocity, acceleration, conservative & non-conservative forces, work, kinetic energy, potential energy, conservation of energy, momentum, impulse, collisions, periodic motion, mechanical waves, sound & hearing, temperature & heat, rotational motion, systems in mechanical equilibrium, elasticity, basics of fluid mechanics, and if time permits, Kepler’s laws of gravitation; these are all key aspects of science that form some of the fundamental foundations of the physical world that surrounds us every day.

Learning Outcomes: In the process of learning the fundamentals of physics described above in this course, the overarching goal, independent of your major, is to help hone your critical thinking, analysis, problem solving, and quantitative reasoning skills. In order to accomplish this goal successfully, you will be given lots of **practice** via online and written homework problem sets that will both be due weekly. Your individual success in achieving this goal will be **assessed** by your individual performance on in class examinations.

Lectures: Ideally, lectures will contain exciting demonstrations where possible that will illustrate the physical concepts being taught and will also provide you with the background to solve real world problems (mathematical machinery will be given through examples). Ideally, all the forementioned topics will be covered (this will be a fast paced course, 17 chapters in 15 weeks; don’t fall behind, if you do, seek help immediately. Some topics might have to be omitted due to unexpected and unforeseen circumstances that may arise throughout the semester. A tentative course schedule is found at the end of this syllabus. Dates may change on this tentative course schedule; thus, see the most up to date syllabus on MU Online, which includes an up to date schedule of exams, associated weekly PHY202 labs, and an up to date list of topics covered, etc.

Course Instructor Info: Dr. Sean P. McBride[†], Science Building 152, (304)-696-2758, mcbrides@marshall.edu
Office Hours: (M 11-12pm & 2-3pm), (W 10-12pm), & (F 10-12pm) or by appointment
[†]Mailbox located in the Physics Department main office, Science Building, Room 251

Textbook: “University Physics with Modern Physics” by Young and Freedman, 14th Ed.
Your access code to MasteringPhysics should be included with your book, ISBN-13: 978-0-321-98258-2
Register your MasteringPhysics account: www.masteringphysics.com. **Course ID: PHY211F16MCBRIDE**

Co-requisite Courses: MTH 229 - Calculus with Analytic Geometry I & PHY 202 - General Physics Laboratory

Grading:	Online Homework:	30%
	Written Homework:	10%
	In Class Exams (3 total, 12% each)	36%
	In Class Midterm Exam	12%
	In Class Final Exam	12%

Determination of Final Grade*:	90% or above:	A
	80% or above:	B
	70% or above:	C
	60% or above:	D
	59.9% or lower:	F

* I reserve the right to adjust these values based on the overall class performance, thus stay on top of the overall grade distribution to ensure a good grade in the class.

Electronic Devices: All cell phones, headphones, pagers, laptops, I-pads, & other communication devices, etc., should be turned off/silenced and should not be visible during class or exam time; if out during an exam, you earn a zero for the exam.

Computer Requirements: Access to MU Online, MasteringPhysics (MP), and a @marshall.edu email are required. You are expected to check all three frequently. MP is for weekly Online Homework (register with your access and join codes at www.masteringphysics.com). I use MU Online to distribute slides from my lectures, supplementary material, and class performance information; sign in at www.marshall.edu in the upper right corner using your unique MU username and password. I also send notices to your Marshall e-mail account. All electronic course communication must be through your Marshall account (not gmail, yahoo, etc.). Check that your system meets the requirements for MP: <http://www.pearsonmylabandmastering.com/northamerica/masteringphysics/system-requirements/index.html>.

Help for This Course: If you are starting to experience difficulties in this class, there exist several resources available for you to obtain additional help. Resolve these difficulties quickly, before they snowball out of control. I will have six office hours per week (shown on page 1) or we can make an appointment if these office hours do not work for you. Or, you can simply drop by Science 152 at any time, and if I have additional time to help you, I will. Additionally, there may be free university tutors available for this class. Stop by the Communications Building, Room 211 or submit a "Request a Tutor" form (available at: <http://www.marshall.edu/uc/tutoring-services/>). If you have not heard from the tutoring office staff within one week of submitting your application, please call 304-696-6622 or email tutoring@marshall.edu. For the fastest resolutions with technical problems with MP, go to <https://support.pearson.com/getsupport/s/>. **Take advantage of all MP and textbook resources (i.e. pre-lecture videos, the 'study area' in MP, the e-text, video tutoring, etc.).**

Physics Is Not Easy: Physics is a subject where memorization techniques will not work; this is why it is often perceived as a difficult subject. To be successful, understand the individual concepts and how they relate to your favorite example; then be able to apply that concept to many other different problems and situations (the circumstances and required math for each problem may be different, but for each concept, the approach leading to the answer is the same). The homework is time consuming and challenging, but that is rightfully why it makes up 40% of your grade. To do well, you will have to spend 10-15 quality hours per week dedicated to this class. Your understanding is proven by your individual exam performance.

PhET Simulations: Remember, physics is some hard stuff when seeing it for the first time. I will try to introduce demos into the lecture to help assist in conveying the concepts. PhET Simulations are also another good tool to see concepts in action. PhET Simulations are interactive self-contained apps that highlight or demonstrate a physical concept. Outside of class, go online and play with the parameters in these simulations and see how that changes the results. Inside the front cover of your book there is a list of interactive simulations. To run the PhET Simulations suggested in your text, use the latest version of Mozilla Firefox as your browser (<https://www.mozilla.org/en-US/firefox/new/>) combined with the latest version of Java and Adobe Flash Player software found at <http://java.com/en/> and <https://get.adobe.com/flashplayer/>, respectively. Then select the simulations listed in the book directly from the web site, <https://phet.colorado.edu/en/simulations/index>. Visit <https://phet.colorado.edu/en/troubleshooting>, if you experience problems or cannot open/run the PhET simulations.

Attendance: A new MU policy requires keeping attendance records for freshmen; thus, freshman will be required to sign in for every class period. Otherwise, attendance will not be taken as everyone in the class is an adult; however, frequent absentees will be reported to the Dean of the College of Science and the Dean of Student Affairs. Students are responsible for all lecture and demo material that occurs in class. You are expected to be in class at all scheduled meeting times, but will not be docked points if you have an emergency and have to miss a normal class when homework is not due and there are no exams for that day. Simply get the missed lecture material from a willing classmate. Keep in mind there is a strong correlation between attendance and exam performance. All exams/(homework) are mandatory and must be taken in class /(turned in) on the provided dates. **If you know well in advance you will miss, notify me immediately** Also, notify me immediately when you realize a conflict exists so we can come up with an alternative plan.

Required Reading and Purpose of Lectures: It is required that you read the sections of your textbook that are outlined in the tentative course schedule. You should certainly read the corresponding sections prior to attempting the homework and exams. The lectures are geared toward the average student and primarily meant to (1) spark an interest in the subject, (2) highlight key and often difficult parts of the text, (3) show exciting demonstrations of the concepts discussed in the text where possible, and (4) work through some examples to give you the mathematical machinery to solve problems. It is recommended that before/after class you download any additional notes and review them before the next class. Study your book, your homework & given solutions, your lecture notes, your previous exams, and ask questions! :-)

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Homework: For your homework, always try it yourself first; however, you are encouraged (but not required) to discuss with your peers for help. Your peers (N~25) significantly outnumber the number of the professors for this course (N=1) and they may be more available than your professor to help you. I encourage students to discuss homework with each other if you arrive at different answers. If you think the answer you got is correct and you are confident in your solution, try and explain it to your fellow students, see what they think. Maybe they solved the problem a different way, arriving at a different answer, encouraging you to review and rethink how you solved the problem. Hopefully this encourages discussion of physics among you and your fellow students and builds your confidence in problem solving and improves your ability to explain your work to others. If you cannot get the required help from your peers, or simply have a question, come see me during office hours, drop by anytime, or make an appointment with me, and/or apply for a tutor.

Also, keep in mind that acing the homework with a 100%, though homework is a significant portion of your grade (40% of the total grade, including both online and written) this will not be enough to allow you to pass the class if you do poorly on exams; thus, it is not beneficial to copy the homework each week from your peers without understanding it. Independent of whether you work in groups on your homework outside of class or work individually and never collaborate with your fellow classmates, **your performance and your performance alone is the determining factor that will allow you to pass the individual in-class exams (exams total 60% of the overall class grade).** I expect everyone to put the time and effort in on the homework and to do very well on it (this is your grade padding), what will separate out the A, B, C, and D students will be individual exam performance. It is ill advised to continually ask your peers for help on the homework and then simply copy what they say without understanding the concepts or the detailed math behind the problem; you might get some partial credit on the written homework, and might be able to fool MasteringPhysics by figuring out the algorithm with the given numbers, but this is a surefire way to fail the exams if you do not understand the concepts and math. Continually ask questions until you understand the concepts and the math, this is how to pass the exams.

- **Online Homework:** 20-30 problems of varying difficulty per week on MasteringPhysics (MP). Due each week at 11:59pm on Sunday. New problems will be posted 12:01am on Monday. More points will be awarded for more difficult problems, total points per assignment may vary, and each assignment will have the same weight. I want you to do very well on the online homework; thus you will be given 5 attempts per problem and as many hints as possible to assist you when working out the problems leading to the correct answer and a solid understanding of the concept being used. NO penalties exist for using hints (or wrong attempts up to 5, except for on multiple choice). It is recommended, but not required, that you keep a bound homework notebook for writing out all the detailed steps when solving the online homework problems (you have to clearly show all your work for exams, this is a good place to practice writing solutions). The purpose of this notebook is so that you can use it to study for the exams. This notebook, showing how you have attempted the online problems, is also helpful when addressing questions during office hours. This notebook will **NOT** be graded, only the submitted online final answers will be graded by MP for 30% of your final grade. All answers to online homework must be submitted online by 11:59pm on Sunday each week.
- **Written Homework:** 3-10 problems per week. Problems due at the beginning of class on Monday each week (if the university is closed on Monday due to a holiday or weather, it will be due on Wednesday of that week). These written problems are still due on exam days. New problems will be given in return. More points will be awarded for more difficult problems, total points per assignment may vary, and each assignment will have the same weight. Turn in on stapled paper, put in a binder later. The purpose of these written problems is to make sure you can clearly write out your thought process for someone to follow, showing all the details of your work and how you arrived at your final answer (you need to do this for exams, so written homework is the place to practice and get critiqued). In general, the best way to receive the most points on your written solution is to explain in words what quantity/variable you are solving for, in words explain how and what principles you are applying to solve for it, and show **ALL** the algebraic steps and logic leading to a final equation that just contains symbols at first, no numbers. Only plug numbers into the final expression. Keep the correct units with all numbers and use appropriate significant figures and box your final answer. See also the document "**How to write-up my physics solutions on homework and exams?**" on MU Online to get the most points on your written homework and exams (significant figures and rounding are important, especially for the online homework, some leeway is given in the MasteringPhysics, but not much). Solutions to homework will be posted shortly after they are due (if not posted, email me).
- **Homework Extensions:** Homework, both in class and online, will be due every week at the same time, plan accordingly. **If you have to miss class on Monday, plan to turn the written homework in earlier (scan and email), not later; online homework will always be due at 11:59pm on Sundays. Late homework is not accepted.** Homework extensions are only given in very rare circumstances, requiring documentation and must be a qualifying event (see Emergencies Section regarding excused absences).

Exams: All graded materials require the name that matches your course enrollment, no nicknames. There are 3 in-class exams during the semester, plus an in-class midterm & in-class final exam (all mandatory). Any exam conflicts needs to be brought to my attention at least 2 weeks before each exam (check the tentative schedule at the end of this document for all exam dates now, if you have known conflicts report them early). The final and midterm exam will **NOT** be 'cumulative' in the traditional sense; instead **all material in this class is cumulative** in the sense that new material can use concepts from the previous material (for example on the midterm exam, which focuses on Chapters 4-7, you most certainly will need to remember concepts from exam 1, which covers Chapters 1-3, likewise for the Final Exam, which focuses on Chapters 11-13 & 17, you may need to remember concepts from all previous Exams). I want you to do well on the exams, thus I will volunteer myself on the Sunday before each exam and the final exam for a non-required review session (7-9pm, Rm. 113, Smith Hall, this is your time to ask questions, not for me to re-lecture; if no one has questions, reviews will be most likely be very short). Exams will typically contain a mix of longer written problems (3-5) similar (but not identical) to homework problems, lecture material, and/or lecture demos and there will also be some conceptual problems (10-15). The conceptual questions will be a mix of multiple-choice, true & false format, and/or require a small amount of written work, The (3-5) longer written problems, where indicated, will require you to show ALL your work for full and partial credit.

- Remember, physics is some tough stuff. Exam averages can vary from 50-70%. Don't let this discourage you. Regardless of the number that represents the course average, or your own current average grade in the course, you always want to stay on top of the grade distribution relative to your peers to ensure a good grade in the class. If you're getting 75% of the homework correct and getting 50% on the exams you are only pulling a 60% for the course (seek immediate help). However, keep in mind, maybe the average for the course is a 60%, which means you are doing average relative to your peers, but still seek help to get ahead of the class. See also the document "**How to write-up my physics solutions on homework and exams?**" on MU Online to get the most points on the written questions on the exams. Independent of the number that represents an average, always try and remain on top of the overall grade distribution to ensure a good grade in the class. Class averages/medians and possibly grade distributions will be presented after each exam to let you know how you are doing relative to the rest of the class.
- The exams are closed-book, closed-note, and no equation sheets will be provided; however, you can make your own 'equation sheet' on a 5"x 8" index card (You supply your own 5"x8" card for the exams). **No scanned/printed items or scanned versions of previously handwritten index cards are allowed on your index card.** You may hand write out equations, tables, examples, and graphs if you wish, just nothing scanned/printed. Your index card can only contain **handwritten** equations, **handwritten** diagrams, and **handwritten** figures....everything must be originally **handwritten!!**
- **For each exam, you are only allowed ONE front and back of a 5"x 8" handwritten index card.** For example, important information you think you might need from Exam 1, must be copied over to a new index card for the midterm. Buy and make your index cards early. Know where everything is on them; don't waste time searching for stuff during an exam.
- **Use of sizes over 5"x 8" will result in a zero for the exam (measure them!!).** This must be a standard **5"x 8"** index card, NOT just a 1/2 sheet of paper or anything else. Only index cards are allowed.
- When turning in your exam, you will be required to staple your index card to the last page of your exam for inspection. **Failure to turn in your index card for inspection will result in a zero for the exam.** If you chose to not use an index card, you must still staple a blank 5"x 8" index card to your exam or you will receive a zero. **You must make your cards clearly visible during the exam.** If your card violates any of these rules, your exam grade is a zero and I must report the incident to the Academic Affairs Office.

Calculators: No programmable/graphing calculators are allowed during exams (No TI-83 through TI-92 for example). Get a simple TI-30 or TI-35 for example (model numbers and brands may vary). My best advice is to learn how to use your simple calculator early and stick with the same one for the exams and homework. Don't do all the homework with a TI-89 and then try to switch to a TI-35 for the exam, this will not go well for you. **Cell Phones are NOT allowed to be out and must be turned off or put in silent mode during exams, therefore, calculator cell phone apps are NOT allowed.**

The 1-Week Rule: Any grading dispute or mistake needs to be brought to my attention within one week of when the assignment where distributed or made available to the entire class. After 1-week from this date, regardless if you did not attend class to receive your graded assignment, grades are permanent. Any attempt to alter a previously graded assignment in any way such as adding information to it, removing information from it, or simply altering the previously presented work for a better grade is considered academic dishonesty and will be treated as such.

The Final Exam: **Not** comprehensive in the traditional sense (See Exams Section, page 4, for more details), mandatory, and makes up 12% of your final grade in the course. This is equivalent to an in class exam focusing on Chapters 11-13 & 17, but may rely on previous material, just like previous exams did. If a final exam conflict exists with the scheduled final exam time, follow the steps outlined on the Marshall University Fall 2016 Exam Schedule available at: www.marshall.edu/registrar/files/Fall-2016-Exam-Schedule.pdf. If the two-hour time allowance results in a conflict in exam times, it is the student's responsibility to notify the professor of the later course and to reschedule the later exam. Rescheduled exams must be concluded by Friday, December 16, at 6:00 p.m. All the same rules for your final/midterm exam index cards will be the same as for the regular exams. The 1-week rule will not apply for the final exam simply due to lack of time between when you take the final exam and when final grades are due (so if there are questions on final exam grading, ask them during or before the final exam).

Emergencies/Unexpectedly Missed an Exam or Unable to Turn in Homework: Unexpected emergencies & accidents happen. Make email contact with me as soon as possible; you must give your reason for missing the exam/assignment in the email. A missed exam/assignment, with no prior email & no legitimate supporting documentation before or immediately after an exam/homework is due, counts as a zero and cannot be made up. Makeup exams/assignments will be given only in very rare circumstances, which require legitimate documentation and may need approval from the Provost or Sr. VP or Dean of Student Affairs and/or the Dean of the College of Science. The Provost, Sr. VP, or Dean of Student Affairs determines what is defined as an "excused absence"- a qualified event for missing exams and unexpectedly not being able to turn in homework on the provided due date. Examples: extreme personal emergencies (house fires, serious crimes, and grave emergencies), university-sponsored activities, medical circumstances, death or critical illness of an immediate family member, short-term military obligations, jury duty, subpoenas for court appearance, etc. If an exam or homework is missed, and one of the above is the reason, I will need immediate legitimate documentation to verify the event in order to schedule a make-up exam/assignment.

Authorized vs Unauthorized Aid In Academic Work: In this course, you are permitted to talk with other students about your online/written homework problems and even encouraged to work together in groups on the homework, but you may not copy solutions verbatim from each other or answers verbatim from any other source. You must work the problems out for yourself and understand them. Remember, 60% of your final grade is based on how you, and only you, can answer questions on the individual exams (Exams, 60%). Copying something and not understanding it does you no good now or later. If you have any questions about what constitutes authorized vs. unauthorized aid, contact me immediately. It is fairly easy to see when the same incorrect solutions are copied directly from the web year after year from unauthorized sources like chegg.com and cramster.com. If you are in doubt of what is an approved source, just ask me. **KEEP IN MIND, THOUGH ALLOWED TO WORK TOGETHER, DIRECT COPYING OF HOMEWORK FROM OTHERS IN THE CLASS OR FROM UN-APPROVED RESOURCES WILL NOT BE TOLERATED; BOTH ARE CONSIDERED ACADEMIC DISHONESTY.**

Statement Defining Expectations for Student Conduct: I will expect everyone in all portions of this class, including but not limited to lecture and exam times, to act in a professional and courteous manner. Students are expected to conduct themselves in a manner that creates a productive learning environment for all members of the class. To this end, disruptive, abusive, or offensive behavior directed at anyone involved in the class will not be tolerated, and offenders may be asked to leave the classroom and forfeit any associated grades. Disruptive behavior is any behavior that interferes with the normal conduct of lecture/Exams or behavior that inhibits a productive learning environment (this includes sleeping in class). If you are experiencing, disruptive, abusive, or offensive behavior directed towards you from others in the class (this includes when working together in homework groups if desired), please make me aware of the problem as soon as possible. In addition to acting professional and courteous in class, I only respond to emails that are written with professionalism and courtesy.

Statement Regarding Students Requiring Special Accommodations & Students with Disabilities: If you have any condition (physical, learning, or psychological) which will require any sort of special accommodations of any kind, such as testing accommodations, as soon as possible, please notify me immediately and contact the Office of Disability Services Program (www.marshall.edu/disability) or call 304-696-2467 to register and complete required documentation. Unfortunately, before accommodations can be given, I must receive official documentation; therefore take care of this the first week of classes.

University Policies: By having the privilege of being enrolled in higher education and this course, you agree to all the University Policies and codes listed below. It is the student's responsibility to read the full text of each policy and code by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies" or, you can access the policies directly by going to www.marshall.edu/academic-affairs/policies/. The individual policies and codes are: Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Dismal/Academic Forgiveness/Academic Probation and Suspension/Affirmative Action/Sexual Harassment/Code of Student Rights and Responsibilities - also referred to as the Student Code of Conduct (<http://www.marshall.edu/student-affairs/files/15-16-Code-of-Conduct.pdf>).

W #	Day	L #	Date	Subjects	Chapter - (Sections) Required Reading	PHY202 Lab for the week
1	M	1	August, 22	Chapter 1 - Units, Physical Quantities, and Vectors (Math Review)	Ch.1 - (1-10)	Lab 1: Intro. to Motion
	W	2	August, 24	Chapter 2 - Displacement, Time, and Average & Instantaneous Velocity	Ch.2 - (1-2)	
	F	3	August, 26	Chapter 2 - Average & Instantaneous Acceleration and Motion with Constant Acceleration	Ch.2 - (3-4)	
2	M	4	August, 29	Chapter 2 - Falling Bodies and position and velocity by integration Chapter 3 - Position & Velocity Vectors and The Acceleration Vector	Ch.2 - (5-6) Ch.3 - (1-2)	Lab 2: Accelerated Motion
	W	5	August, 31	Chapter 3 - Projectile Motion	Ch.3 - (3)	
	F	6	September, 2	Chapter 3 - Circular Motion and Relative Velocity	Ch.3 - (4-5)	
3	M	-	September, 5	<i>University Holiday - Labor Day</i>		Lab 3: Mathematical Description of Motion
	W	7	September, 7	Chapter 4 - Forces and Interactions & Newton's First Law	Ch.4 - (1-2)	
	F	8	September, 9	Chapter 4 - Newton's Second Law, Mass, and Weight	Ch.4 - (3-4)	
4	M	Monday, Sept. 12		Exam 1 - 9:00-10:50am	Chapters (1, 2, & 3)	Lab 4: Projectile Motion
	W	9	September, 14	Chapter 4 - Newton's Third Law and Free Body Diagrams	Ch.4 - (5-6)	
	F	10	September, 16	Chapter 5 - Using Newton's First and Second Law	Ch. 5 - (1-2)	
5	M	11	September, 19	Chapter 5 - Friction Forces Chapter 5 - Dynamics of Circular Motion and the Fundamental Forces of Nature	Ch.5 - (3) Ch.5 - (4-5)	Lab 5: Force and Motion
	W	12	September, 21	Chapter 6 - Work and Power	Ch.6 - (1, 4)	
	F	13	September, 23	Chapter 6 - Kinetic Energy and the work Energy Theorem	Ch.6 - (2)	
6	M	14	September, 26	Chapter 6 - Work and Energy with Varying Forces Chapter 7 - Gravitational Potential Energy	Ch.6 - (3) Ch.7 - (1)	Lab 6: Circular Motion
	W	15	September, 28	Chapter 7 - Elastic Potential Energy and Conservative & Nonconservative Forces	Ch.7 - (2-3)	
	F	16	September, 30	Chapter 7 - Force and Potential Energy and Energy Diagrams	Ch.7 - (4-5)	
7	M	Monday, Oct. 3		Midterm Exam - 9:00-10:50am	Chapters (4, 5, 6, & 7)	Lab 7: Work and Energy
	W	17	October, 5	Chapter 8 - Momentum, Impulse, and Conservation of Momentum	Ch.8 - (1-2)	
	F	18	October, 7	Chapter 8 - Momentum Conservation and Collisions	Ch.8 - (3-4)	
8	M	19	October, 10	Chapter 8 - Center of Mass and Rocket Propulsion (Fresh./Soph. Midterm Grades Due) Chapter 9 - Angular Velocity and Acceleration & Rotation w/Constant Acceleration	Ch.8 - (5-6) Ch.9 - (1-2)	Lab 8: Collisions
	W	20	October, 12	Chapter 9 - Relating Linear and Angular Kinematics and Energy in Rotational Motion	Ch.9 - (3-4)	
	F	21	October, 14	Chapter 9 - Parallel Axis Theorem and Moment of Inertia Calculations	Ch.9 - (5-6)	
9	M	22	October, 17	Chapter 10 - Torque and Angular Acceleration for a Rigid Body Chapter 10 - Rigid Body Rotation About a Moving Axis and corresponding Work and Power	Ch.10 - (1-2) Ch.10 - (3-4)	Lab Exam 1 Covers Labs (1-6)
	W	23	October, 19	Chapter 10 - Angular Momentum and Conservation of Angular Momentum	Ch.10 - (5-6)	
	F	24	October, 21	Chapter 14 - Oscillations & the Simple Harmonic Oscillator (SHO) (Last day to Drop, Oct. 28)	Ch.14 - (1-2)	
10	M	Monday, Oct. 24		Exam 2 - 9:00-10:50am	Chapters (8, 9, & 10)	Lab 9: Simple Harmonic Motion
	W	25	October, 26	Chapter 14 - Energy in Simple Harmonic Motion and SHO Applications	Ch.14 - (3-4)	
	F	26	October, 28	Chapter 14 - Simple & Physical Pendulums, Damped & Forced Oscillations, Resonance	Ch.14 - (5-8)	
11	M	27	October, 31	Chapter 15 - Mechanical & Periodic Waves, Wave Speed, and the Wave Equation Chapter 15 - Wave Energy, Interference, Boundary Conditions, and Superposition	Ch.15 - (1-4) Ch.15 - (5-6)	Lab 10: Periodic Motion of a Pendulum
	W	28	November, 2	Chapter 15 - Standing Waves on a String and Normal Modes of a String	Ch.15 - (7-8)	
	F	29	November, 4	Chapter 16 - Sound Waves, Speed, Intensity, and Standing Waves and Normal Modes	Ch.16 - (1-4)	
12	M	30	November, 7	Chapter 16 - Resonance, Interference, and Beats Chapter 16 - The Doppler Effect and Shock Waves	Ch.16 - (5-7) Ch.16 - (8-9)	Lab 11: Longitudinal Waves and Sound
	W	31	November, 9	Chapter 17 - Temperature and Thermal Equilibrium, Thermometer Types, and Scales	Ch.17 - (1-3)	
	F	32	November, 11	Chapter 17 - Thermal Expansion and the Quantity of Heat	Ch.17 - (4-5)	
13	M	Monday, Nov. 14		Exam 3 - 9:00-10:50am	Chapters (14, 15, & 16)	Lab 12: Temperature and Heat
	W	33	November, 16	Chapter 17 - Calorimetry, Phase Changes, and Mechanisms of Heat Transfer	Ch.17 - (6-7)	
	F	34	November, 18	Chapter 11 - Conditions for equilibrium and Center of Gravity	Ch.11 - (1-2)	
	M	Nov. 21-25		<i>University Holiday - Thanksgiving Break</i>		
14	M	35	November, 28	Chapter 11 - Solving Rigid Body Equilibrium Problems Chapter 11 - Stress, Strain, Elastic Moduli, and Elasticity & Plasticity	Ch.11 - (3) Ch.11 - (4-5)	
	W	36	November, 30	Chapter 12 - Gases, Liquids, and Density & Pressure in a Fluid	Ch.12 - (1-2)	
	F	37	December, 2	Chapter 12 - Buoyancy and Fluid Flow	Ch.12 - (3-4)	
15	M	38	December, 5	Chapter 12 - Bernoulli's Equation, Viscosity, and Turbulence Chapter 13 - Newton's Law of Gravitation and Weight	Ch.12 - (5-6) Ch.13 - (1-2)	Lab Exam 2 Labs (7-12)
	W	39	December, 7	Chapter 13 - Gravitational Potential Energy and Motion of Satellites	Ch.13 - (3-4)	
	F	40	December, 9	Chapter 13 - Kepler's Laws and Motion of the Planets & Spherical Mass Distributions	Ch.13 - (5-6)	
	F	Friday Dec. 16		PHY211 Final Exam 8:00-10:00am	Chapters (11, 12, 13, & 17)	

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This is a tentative schedule and syllabus; guidelines, rules, policies, and due dates can be subject to change at any time throughout the semester. We will try to stick as close to the policies and schedule presented here. The most up to date schedule with up to date policies and topics can be found on MU Online. Lab Exam 2 times will vary, some instructors may give Lab Exam 2 during dead week at the normal schedule lab times or some instructors may give Lab Exam 2 during finals week (check with your PHY202 instructor for all information & specific times related to your specific section of PHY202, the above is only meant as a guide for the labs relating to lecture).