

Syllabus for University Physics I (PHY 211 – Section 201 – CRN 4820) - Spring 2017

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

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 provides “an introduction to physics for students of physical science or engineering, using calculus and vectors by components” ~ Spring 2017 undergraduate course catalog.

Textbook: “University Physics with Modern Physics” by Young and Freedman, 14th Ed. ISBN-13: 978-0-134-22501-2

The above ISBN is for the textbook and Modified MasteringPhysics (MMP) bundled together. This is your best and safest option if buying new from the Marshall University Bookstore. The access code for MMP should be included inside your book front cover. If you are not buying new from the campus bookstore, it is your responsible for getting the correct textbook (e-text or print) & the correct MMP that links with your MU Online account. **ISBN-13: 978-0-13-397937-4** is for the MMP only & **ISBN-13: 978-0-321-97361-0** is for the hardcover textbook only & **ISBN-13: 978-0-13-397938-1** is for the MMP access and e-text version of the book.

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

Course Instructor Info: Dr. Sean P. McBride, Science Building 152, (304)-696-2758, mcbrides@marshall.edu
Office Hours: (M 11-1pm, S152), & (F 1-5pm S152/S179) or by appointment

Objectives: All material covered in this course is geared toward students pursuing a degree in physical science or engineering. For the engineers, this course is aimed at showing you the basics of physical phenomena that you will later study in greater detail in your engineering courses. For example, studying systems that don't move (statics), moving objects (dynamics), fluids, and thermodynamics are each limited to several chapters in this class; you will however spend entire semester long courses devoted to studying these individual topics in greater detail during your engineering career. 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. This is a fast paced course, ~ 17 chapters in 15 weeks; don't fall behind, if you do, seek help immediately).

Learning Outcomes: In the process of learning the fundamentals of physics in this course as described above, **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 **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 weekly in class quizzes (11 of them), 4 in class examinations, and 1 in class comprehensive final.

Lectures: Ideally, lectures will contain exciting demonstrations where possible that will illustrate the physical concepts being taught and they will also provide you with the background to solve real world problems (mathematical machinery will be given through examples). Ideally, all the aforementioned topics will be covered. 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 with exam and quiz dates. 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.

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 available, and (4) work through some examples to give you the mathematical machinery to solve problems. It is recommended that before or after class you download any additional notes from MU Online and review them before the next class. Study your book, your homework, provided solutions, your lecture notes, your previous exams/quizzes, and ask questions! :-)

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** (2 hours devoted to 1-on-1 individual help and 4 hours devoted to 1-on-1 individual/group help, see below) 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.
- You are all encouraged and welcome to come to what I call **'Herd Hours'**, where students can come individually, or especially in groups, to **Science 179 from 1-5pm on Fridays** to come and work on homework together in a non-classroom and/or non-typical-professor-office-hour setting. Here, I will be around to help you at any time if you get stuck (my office is right across the hall, S152), but what I really want to see is students helping fellow students, leading each other through peer instruction. Struggling, discussing, conquering the problems, and celebrating with your friends and peers is better than being frustrated by yourself and not making progress on the homework. I encourage you to work together. When working in groups there are more people around the table with different skill sets and different approaches and ideas to attack the problems. Working together in groups often results in getting the homework done faster with a better understanding and is overall a more memorable experience than spending long frustrated isolated hours struggling on your own. Attendance will be taken during **'Herd Hours'** for recording keeping purposes only, not for extra credit.
- Additionally, there are **free university tutors** available for this class. In fall 2016, there were 3 students supplying a total of 40 hours per week of tutoring services for PHY 211. See current tutoring schedule available at: <http://www.marshall.edu/uc/tutoring-services/>. If you seek an individual tutor, stop by the Communications Building, Room 211 and 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 form, please call 304-696-6622 or email tutoring@marshall.edu.
- **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; however, 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 they 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.
- Lastly, take advantage of all MMP and textbook resources (i.e. pre-lecture videos, the 'study area' in MMP, the e-text, video tutoring, etc.).

<u>Grading:</u>	End of the semester assessment test	2%
	Online Modified MasteringPhysics Homework:	10%
	Written Homework:	10%
	In Class Final Exam	18%
	In Class Weekly ~ 20 minute Quizzes:	20%
	In Class Exams (4 total, 10% each)	40%

<u>Determination of Final Grade*:</u>	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 above the average grade of the class to ensure an above average 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 time and exam/quiz time; if out during an exam or quiz, you earn a zero for the exam or quiz.

Computer Requirements: Access to MU Online, Modified MasteringPhysics (MMP), and a @marshall.edu email are all required. You are expected to check all three frequently. MMP is for weekly Online Homework (register MMP with your access code, follow the provided instructions). I use MU Online to distribute notes 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 email account (not gmail, yahoo, etc.). Check that your system meets the requirements for MMP:

<http://www.pearsonmylabandmastering.com/northamerica/students/mm-support/system-requirements/index.html>

Calculators: No programmable/graphing calculators are allowed during quizzes or exams (No TI-83 through TI-Nspire CX for example). Get a simple TI-30 or TI-35 for example (model numbers and brands may vary, but you get the idea). My best advice is to learn how to use your simple calculator early and stick with the same one for the quizzes, exams, and homework. Don't do all the homework with a TI-89 or a TI-Nspire CX and then try to switch to a TI-35 for the exam, this will not go well for you, guaranteed. **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.**

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 by many. To be successful in this class, 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, the concept and approach leading to the answer is the same). The homework is time consuming and challenging, but that is rightfully why it makes up 20% of your grade. To do well in this class, you will have to spend 10-15 quality hours per week dedicated to this class. Your understanding is proven by your individual quiz and exam performance. You must be able to demonstrate/understand the concepts from homework or else you will fail quizzes, exams, and thus the course. If you do any of the homework problems incorrectly, it is your responsibility to learn how to do them correctly, solutions will be posted on MU Online, and I am mostly always available if you need help.

Attendance: A new MU policy requires, or will require, keeping attendance records for freshmen; thus, to be fair, all students will be required to sign an attendance sheet for every class period. That being said, I view all university level students as adults who can do adult things such as drive a car, vote, pay taxes, and who can be sentenced to jail as an adult. Thus, as adults, I expect you to be responsible and in class at all scheduled meeting times; however, will not be docked points if you have an emergency and have to miss a normal class when homework is not due or there are no quizzes/exams for that day. Simply get the missed lecture material from a willing classmate or MU Online. Keep in mind there is a strong correlation between attendance and quiz/exam performance. All exams/quizzes/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 (check the tentative exam schedule at the end of this document for exam times) so we can come up with an alternative plan. All students are responsible for all lecture and demo material that occurs in class. Frequent absentees will be reported to the Dean of the College of Science and the Dean of Student Affairs.

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, or quiz in the email. A missed exam, with no prior email & no legitimate supporting documentation before or immediately after an exam, counts as a zero and cannot be made up (same goes for quizzes and homework). **Makeups 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/quizzes and unexpectedly not being able to turn in homework on the provided due date. Examples include: 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, quiz, 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.

Quizzes: These ~20 min. quizzes are every Wednesday on non-exam days and are closed-book, closed-note, and an equation sheet will be provided. They are designed to test your understanding of recent homework problems and concepts discussed in lecture. Any concepts or problems from previous homework/lectures is fair game. The quizzes will contain be a mix of multiple-choice, true & false, may require a small amount of written work/calculations, or to do a homework like problem.

Homework: For your homework (both online and written), always try it yourself first; however, you are all encouraged (but not required) to discuss it with your peers for help. A great place to do this is at **'Herd Hours'**, where students are encouraged to come to **\$179 from 1-5pm on Fridays** individually or especially in groups to come and work on homework together in a non-classroom and/or non-typical-professor-office-hour setting. Your peers ($N \sim 60$) 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.

Online Homework: First, register your Modified MasteringPhysics product using the provided instructions. 10-15 problems of varying difficulty per week on Modified MasteringPhysics (MMP). 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, but 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 will 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 quizzes, written homework, and exams, so this is also 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 or **'Herd Hours'**. This notebook will **NOT** be graded, only the submitted online final answers will be graded by MMP for 10% of your final grade. All answers to online homework must be submitted online by 11:59pm on Sunday each week. For the fastest resolutions with problems with MMP, go to <https://support.pearson.com/getsupport/s/> or <http://help.pearsoncmg.com/mylabmastering/bbi/student/en/index.html>.

Written Homework: 10-15 problems per week. Two to three randomly chosen problems out of the total number of problems will be graded for correctness and a small percentage of points will be given for completing all other problems (Note: I dislike the fact that you don't get all your homework graded, but it is impossible to grade ~ 600 -900 problems per week with little-to-no support staff). After solutions are posted make sure you did the other problems correctly. Written problems are 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 same week, or the next scheduled class day the university is open**). New problems will be given in return. More points will be awarded for more difficult problems, total points per assignment may vary, but each assignment will have the same weight. Turn in on perforated stapled paper. 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 quizzes and exams). 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 Modified MasteringPhysics, but not much). Solutions to homework will be posted shortly after they are due (if not posted promptly, email me immediately).

Also, keep in mind that acing the homework with a 100%, though homework is a significant portion of your grade (20% 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 quizzes and 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 course (exams total 58% of the overall class grade and quizzes total 20% 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, D, F, and W 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 Modified MasteringPhysics by figuring out the algorithm with the given numbers, but this is a surefire way to fail the quizzes and exams. If you do not understand the concepts and math, continually ask questions to me or your peers until you understand the concepts and the math, this is how to pass the course.

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, not later (scan and email, if you cannot find a scanner, any pictures of your homework must be large enough to be legible to be graded, don't risk it, find a scanner is the best option); online homework will always be due at 11:59pm on Sundays. Late homework, either online MMP or written, 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: The exams are closed-book, closed-note, and an equation sheet will be provided. All graded materials require the name that matches your course enrollment, no nicknames. There are 4 in-class exams during the semester, plus an in-class final exam (all mandatory). Any exam conflicts need to be brought to my attention at least 2 weeks before each exam (check the tentative schedule at the end of this document now for all exam dates, if you have known conflicts report them early). The final exam will be 'cumulative'. That being said, a lot of the discussed topics in the class will rely on the previous learned material, thus it is best to treat **all material in this class as cumulative** in the sense that new material on exams can use concepts from the previous material (for example on the second exam, which focuses on Chapters 5-8, you most certainly will need to remember concepts from exam 1, which covers Chapters 1-4). I want you to do well on the exams, thus I will volunteer myself on the Tuesday before each regular exam and the Sunday before the final exam for a non-required review session (6-8pm, Rm. 530, 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, come with specific or general questions). Exams will typically contain a mix of longer written problems (3-6) similar (but not identical) to homework problems, lecture material, and/or lecture demos and there will also be some conceptual problems (15-20). The conceptual questions could be a mix of multiple-choice, true & false format, and/or require a small amount of written work/calculations, the (3-6) longer written problems, where indicated, will require you to show ALL your work for full and partial credit. Written problems will make up 60% of the exam score and the conceptual section will make up 40% of the exam score.

Remember, physics is some tough stuff. Exam averages can be extremely low. 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 above the average course grade relative to your peers to ensure an above average grade in the class. If you're getting 90% of all the homework correct and getting 50% on the in class exams and quizzes, 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 average to ensure an above average grade. 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 solutions. Class averages, medians, and possibly grade distributions will be presented after each exam to let you know exactly how you are doing relative to the rest of the class.

The Final Exam: Your final **IS** comprehensive, mandatory, and makes up 18% of your final grade in the course. This is equivalent to nearly two in class exams. If a final exam conflict exists with the scheduled final exam time, follow the steps outlined on the Marshall University Spring 2017 Exam Schedule available at: <http://www.marshall.edu/registrar/files/Spring-2017-Final-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, May 5, at 6:00 p.m. Depending on the semester, the 1-week rule may 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 end of final exam week).

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 during **'Herd Hours'**, 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, 78% of your final grade is based on how you, and only you, can answer questions on the individual exams (Exams, 58% and quizzes, 20%). 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 caught using such websites, or similar ones, for this class in any way as indicated in the following University copyright statement (which I personally wrote for the university), and your usage is traced to you via the IP address on your personal phone, laptop, a device on campus, or a device at a current addresses the university has on file for you, you will receive an F in the course and your actions will be considered as acts of academic dishonesty and treated as such. If you are in doubt of what is an approved source, just ask me.

Statement for Copyright Notification: Copyright (2017) - Dr. Sean P. McBride, as to this syllabus and all lecture material. During this course, students are prohibited from selling notes to or being paid for taking notes by any person or commercial firm without the express written permission of the professor teaching this course. *"All materials used in this class (in any form, electronic, printed, or verbal), including, but not limited to, exams, quizzes, handouts, lectures, homework assignments, and all material on the university's learning management system (currently Blackboard) and its peripherals, are copyright protected works under US Code Title 17. (1) Unauthorized copying, distribution, recording, selling, or posting of any portion of class materials, in any form, in any way, is a violation of federal law; this specifically includes posting any portion of the class materials to the World Wide Web through the Internet, and/or via any other means of electronic communication. (2) Unauthorized sharing of class materials in any form, specifically including, but not limited to, uploading class materials to websites for the purpose of seeking/providing solutions or sharing those materials with current or future students is a violation of the Academic Dishonesty Policy set forth in Marshall University's Student Code of Conduct. 'Unauthorized' means without explicit permission from the instructor. Violation of (1) or (2) will result in all necessary disciplinary actions taken against the student."* ~ Marshall University Copyright Statement, updated fall 2016.

The 1-Week Rule: Any grading dispute or mistake needs to be brought to my attention within one week of when the assignment was 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.

Statement Defining Expectations for Student Conduct: I will expect everyone in all portions of this class, including, but not limited to lecture, exam times, **'Herd Hours'**, and office hours 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/quizzes/exams or behavior that inhibits a productive learning environment (this includes sleeping in class and using any electronic device). 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 outside of class 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>).

Quiz #	Date	PHY 211 - Subjects
1	January, 11	Quiz: On the details of the syllabus (anything on the syllabus is fair game)
2	January, 18	Quiz: Up to Written and Online Homework 1 and up to L3
3	January, 25	Quiz: Up to Written and Online Homework 2 and up to L6
4	February, 1	Quiz: Up to Written and Online Homework 3 and up to L9
5	February, 15	Quiz: Up to Written and Online Homework 5 and up to L14
6	February, 22	Quiz: Up to Written and Online Homework 6 and up to L17
7	March, 8	Quiz: Up to Written and Online Homework 8 and up to L22
8	March, 15	Quiz: Up to Written and Online Homework 9 and up to L25
9	April, 5th	Quiz: Up to Written and Online Homework 11 and up to L30
10	April, 12th	Quiz: Up to Written and Online Homework 12 and up to L33
11	April, 26th	Quiz: Up to Written and Online Homework 14 and up to L38

W #	Day	L #	Date	PHY 211 - Subjects	Chapter - (Sections) Required Reading	PHY202 Lab for the week
1	M	1	January, 9	Assessment Test and Introduction to PHY 211	-	Lab 1: Intro. to Motion
	W	2	January, 11	Chapter 1 - Units and Physical Quantities Chapter 1 - Vectors, Integration, and Differentiation	Ch.1 - (1-5) Ch.1 - (6-10)	
	F	3	January, 13	Chapter 2 - Displacement, Time, and Average & Instantaneous Velocity	Ch.2 - (1-2)	
2	M	-	January, 16	Martin Luther King, Jr. Day (University Closed - No Classes)		Lab 2: Accelerated Motion
	W	4	January, 18	Chapter 2 - Average & Instantaneous Acceleration and Motion with Constant Acceleration Chapter 2 - Falling Bodies and Position and Velocity by Integration	Ch.2 - (3-4) Ch.2 - (5-6)	
	F	5	January, 20	Chapter 3 - Position & Velocity Vectors and The Acceleration Vector	Ch.3 - (1-2)	
3	M	6	January, 23	Chapter 3 - Projectile Motion	Ch.3 - (3)	Lab 3: Mathematical Description of Motion
	W	7	January, 25	Chapter 3 - Circular Motion and Relative Velocity Chapter 4 - Forces and Interactions & Newton's First Law	Ch.3 - (4-5) Ch.4 - (1-2)	
	F	8	January, 27	Chapter 4 - Newton's Second Law, Mass, and Weight	Ch.4 - (3-4)	
4	M	9	January, 30	Chapter 4 - Newton's Third Law and Free Body Diagrams	Ch.4 - (5-6)	Lab 4: Projectile Motion
	W	10	February, 1	Chapter 5 - Using Newton's First and Second Law Chapter 5 - Friction Forces	Ch. 5 - (1-2) Ch.5 - (3)	
	F	11	February, 3	Chapter 5 - Dynamics of Circular Motion and the Fundamental Forces of Nature	Ch.5 - (4-5)	
5	M	12	February, 6	Chapter 6 - Work and Power	Ch.6 - (1, 4)	Lab 5: Force and Motion
	W	Wed, Feb 8			Exam 1- 9:00-10:50am Chapters (1-4)	
	F	13	February, 10	Chapter 6 - Kinetic Energy and the work Energy Theorem	Ch.6 - (2)	
6	M	14	February, 13	Chapter 6 - Work and Energy with Varying Forces	Ch.6 - (3)	Lab 6: Circular Motion
	W	15	February, 15	Chapter 7 - Gravitational Potential Energy Chapter 7 - Elastic Potential Energy and Conservative & Non-conservative Forces	Ch.7 - (1) Ch.7 - (2-3)	
	F	16	February, 17	Chapter 7 - Force and Potential Energy and Energy Diagrams	Ch.7 - (4-5)	
7	M	17	February, 20	Chapter 8 - Momentum, Impulse, and Conservation of Momentum	Ch.8 - (1-2)	Lab 7: Work and Energy
	W	18	February, 22	Chapter 8 - Momentum Conservation and Collisions Chapter 8 - Center of Mass and Rocket Propulsion	Ch.8 - (3-4) Ch.8 - (5-6)	
	F	19	February, 24	Chapter 9 - Angular Velocity and Acceleration & Rotation w/ Constant Acceleration	Ch.9 - (1-2)	
8	M	20	February, 27	Chapter 9 - Angular Kinematics and Rotational Motion (Fresh./Soph. Midterm Grades Due)	Ch.9 - (3-4)	
	W	Wed, Mar 1			Exam 2- 9:00-10:50am Chapters (5-8)	
	F	21	March, 3	Chapter 9 - Parallel Axis Theorem and Moment of Inertia Calculations	Ch.9 - (5-6)	
9	M	22	March, 6	Chapter 10 - Torque and Angular Acceleration for a Rigid Body	Ch.10 - (1-2)	Lab Exam 1 Covers Labs (1-7)
	W	23	March, 8	Chapter 10 - Rigid Body Rotation About a Moving Axis and Corresponding Work and Power Chapter 10 - Angular Momentum and Conservation of Angular Momentum	Ch.10 - (3-4) Ch.10 - (5-6)	
	F	24	March, 10	Chapter 14 - Oscillations & the Simple Harmonic Oscillator (SHO)	Ch.14 - (1-2)	
10	M	25	March, 13	Chapter 14 - Energy in Simple Harmonic Motion and SHO Applications	Ch.14 - (3-4)	Lab 8: Collisions
	W	26	March, 15	Chapter 14 - Simple & Physical Pendulums, Types of Oscillations, Resonance Chapter 15 - Mechanical & Periodic Waves, Wave Speed, and the Wave Equation	Ch.14 - (5-8) Ch.15 - (1-4)	
	F	27	March, 17	Chapter 15 - Wave Energy, Interference, and Superposition (Last day to Drop, March 17)	Ch.15 - (5-6)	
	M		March, 20	Spring Break (University Closed - No Classes)		
	W		March, 22			
	F		March, 24			
11	M	28	March, 27	Chapter 16 - Sound Waves, Speed, Intensity, and Standing Waves and Normal Modes	Ch.16 - (1-4)	Lab 9: Simple Harmonic Motion
	W	Wed, Mar 29			Exam 3- 9:00-10:50am Chapters (9, 10, 14, 15)	
	F	29	March, 31	Chapter 16 - Resonance, Interference, and Beats	Ch.16 - (5-7)	
12	M	30	April, 3	Chapter 16 - The Doppler Effect and Shock Waves	Ch.16 - (8-9)	Lab 10: Periodic Motion of a Pendulum
	W	31	April, 5	Chapter 17 - Temperature and Thermal Equilibrium, Thermometer Types, and Scales Chapter 17 - Thermal Expansion and the Quantity of Heat	Ch.17 - (1-3) Ch.17 - (4-5)	
	F	32	April, 7	Chapter 17 - Calorimetry, Phase Changes, Mechanisms of Heat Transfer, Entropy	Ch.17 - (6-7)	
13	M	33	April, 10	Chapter 11 - Conditions for equilibrium and Center of Gravity	Ch.11 - (1-2)	Lab 11: Longitudinal Waves and Sound
	W	34	April, 12	Chapter 11 - Solving Rigid Body Equilibrium Problems Chapter 11 - Stress, Strain, Elastic Moduli, and Elasticity & Plasticity	Ch.11 - (3) Ch.11 - (4-5)	
	F	35	April, 14	Chapter 12 - Gases, Liquids, and Density & Pressure in a Fluid	Ch.12 - (1-2)	
14	M	36	April, 17	Chapter 12 - Pascal's Laws, Buoyancy, and Fluid Flow	Ch.12 - (3-4)	Lab 12: Temperature and Heat
	W	Wed, Apr 19			Exam 4- 9:00-10:50am Chapters (11, 16, 17)	
	F	37	April, 21	Chapter 12 - Bernoulli's Equation	Ch.12 - (5-6)	
15	M	38	April, 24	Chapter 13 - Law of Gravitation, Weight, Gravitational PE, Kepler's Laws, Motion of Satellites	Ch.13 - (1-5)	Lab Exam 2 Labs (8-12)
	W	39	April, 26	Assessment Test/Final Review/Last Quiz	-	
	F	40	April, 28	Final Review	-	
F Monday May 1					PHY211 Final Exam 10:15-12:15pm Chapters (1 - 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).