Syllabus for General Physics 2 Laboratory
(PHY 204 – Section 204 – CRN 4377) - Spring 2024
Laboratory: Science Building, Room 103 – (W: 5-6:50 pm)

Course Description: This is a face-to-face, in person, 1-credit hour, algebra and trigonometry-based, laboratory style class, and is required to be completed in one semester. This course is designed to enhance your understanding of basic concepts discussed in your PHY 203 or PHY 213 lecture sections via hands-on experiments that cover several fundamental concepts in physics such as kinematics, dynamics, work and energy, periodic motion, and waves; these are all key aspects of science that form some of the fundamental foundations of the physical world that surrounds us every day. From the most recent course catalog available: PHY 204 is a "Laboratory to accompany PHY 203 or PHY 213, focusing on classical E&M, circuits, and optics." No extra credit will be available for this class and there will be no dropped grades, everything counts. It is expected that you have a high school level background in algebra and trigonometry and/or geometry. The Physics Program is currently housed in the Department of Mathematics and Physics within the College of Science.

Laboratory Manual: General Physics Laboratory Manual, PHY 202, Marshall University, Van-Griner
ISBN-13: 9781645653752 as listed by the MU Bookstore

Co-requisite Courses: PHY 203 – College Physics II or PHY 213 – University Physics II, you must have had, or be enrolled concurrently in one of these, unless exempt by special permission.

Prerequisite Courses: Those satisfied for enrollment in PHY203 or PHY213, see the current course catalog: https://catalog.marshall.edu/undergraduate/courses-az/phy/

Course Instructor Info: Dr. Sean P. McBride**,** Science Building 152/152A, (304)-696-2758/8852, mcbrides@marshall.edu
''HERD Hours'' and Office Hours: (**F** 9-10 am, 11-2 pm, and 3-5 pm)
- Additionally, I have an 'open-door' policy for office hours as well as an 'email me anytime with questions' policy.

Teaching Homepage: http://www.science.marshall.edu/mcbrides/teaching/
Research Homepage: http://science.marshall.edu/mcbrides/

Academic Calendar: For drop/add dates, last day to withdraw from classes, and other important semester dates, see the Marshall University Academic Calendar (http://www.marshall.edu/academic-calendar/).

Objectives: The purpose of this laboratory is to provide you with a hands-on, computer assisted experience, that links the concepts and demos discussed and observed in your corresponding physics lecture classes. Your goal for the successful completion of each lab will be to set-up and run the experiment as described in the laboratory manual, test and trouble shoot the set-up for each experiment to see if it is working properly (this includes any software/computer interfaces with equipment), collect trustworthy and possibly repeatable data, answer all questions in your lab manual.

Learning Outcomes: You will learn how to successfully function in a group learning atmosphere and learn how to think in logical quantitative ways to accomplish the given experiments. In the process of learning the fundamentals of physics as described above via this hands-on laboratory, **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 12 laboratory experiments taught weekly and your individual success in achieving this goal will be **assessed** by your individual performance on those 12 laboratories and 2 in class examinations focused on the concepts from each lab. Each student turns in an individual exam and an individual lab to be graded each week.

Pre-lab Lectures: At the start of each lab, I will provide a brief introduction to each lab reviewing the physics concepts and highlight any pitfalls with the equipment or misconceptions before we begin the lab. Sometimes experiments maybe conducted before you have gotten a chance to discuss them in your corresponding lecture course; thus, information presented in this 15–20-minute maximum brief introduction maybe the missing link between understanding and completing a lab on time versus being lost and struggling for the entire 2 hours. Remember, please be on time so you don't miss important information. An attempt will be made to post additional information in Blackboard about the labs around a minimum of 2 days before they occur; this information may contain tips and helpful hints about the set-up or common pitfalls or mistakes to avoid.

Required Reading: The lab manual is a vital starting point and will guide you through each lab (I did not write the lab manual). It is required that you read the related sections of your lab manual prior to coming to lab; the topics are outlined in the tentative course schedule at the end of this syllabus. This prior reading will help you to understand the material being presented in lab and it will also help you ask the appropriate questions when something does not work or you do not understand. It will also give you an idea of how long or short the lab will be and if it has been covered in lecture or not. Remember, sometimes experiments maybe conducted before you have gotten a chance to discuss them in your corresponding lecture course; if this is the case, you must read ahead in your lecture textbook along with the laboratory manual, and come ask questions ahead of time, prior to the start of lab [Office Hours: (**F** 9-10 am, 11-2 pm, and 3-5 pm) or by appointment].

Before Leaving Lab for the day: At the end of each lab, you must turn in all pages from your lab manual completed and any required graphs or Excel Sheets must be printed and turned in. All documents can be sent to the printer in the room. All data must be collected during the assigned lab time, coming back to complete the lab at a later time is NOT permitted. Work efficiently. Also, using someone else's data is NOT permitted and will result in zero for that particular lab, for all group members.

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

***The above scale is very rigid; however, I reserve the right to adjust these values based on the overall class performance, thus stay above the average of the class with the aim to achieve an above average grade in the class.**

Grading‡:		
	Laboratory Report Average:	60%
	Laboratory Exams (2, 20% each)	40%

‡ You must pass one of the laboratory exams to pass the course independent of your laboratory report average. This is a program policy that has stood the test of time that all instructors must follow and is non-negotiable.

Attendance: If you know well in advance you will miss for an excused absence, 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 lab and exam times) so we can come up with an alternative plan. All students are responsible for all material that occurs in the laboratory course. 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.

- For an unexcused absence, you **cannot** come in at a different time during the week to collect the data due to the limited resources. Unfortunately, all unexcused absences will count as a zero; these laboratory exercises are hands-on, group-oriented experiences, which under typical circumstances cannot be made up. If you miss, you cannot use someone else's data, this results in a zero. All your data needs to be collected in the two-hour time frame, which you must be present for.

- For a university excused absence, it is the student's responsibility to see what arrangements, if any, can be made to attend a different lab section earlier or later in that week excused absence (students should email the other instructors if and only if I give you permission to attend a different section, you must make me aware of your absence first, before emailing other instructors). Simply showing up to a different lab section without permission from me first and the other instructor's permission second, is not acceptable; you will receive a zero for the lab. If you do not plan ahead you will get zeros for missed labs. Any missed lab has to be made up the same week it is missed.

- You are expected to be in the laboratory on time. If you are late, your lab report grade for that lab to be turned in will be reduced by an equivalent percentage of possible points equal to the minutes late, up until 20 minutes (20 minutes late = 20% reduction, 5 minutes late = 5% reduction, and so on). **If you are more than 20 minutes late you get a zero for that lab you are to turn in and a zero for the current lab** (you are welcome to stay and learn the material; however, you will receive a zero for the lab). Showing up late and missing the potentially vital introduction or having your lab partners start without you, is not fair to all group members. Show up on time and contribute equally to the group.

This is a group-oriented activity: You will normally work in groups of no more than two unless equipment is limited and forces larger groups. Each person is expected to contribute equally to the experiments (if you feel this is not the case in your group, please make me aware of this as soon as possible, students not pulling their own weight could potentially lose points for each lab). Groups will possibly be rearranged/reassigned at selected intervals during the semester. If you have strong computer skills and have had similar computerized lab experiences in other courses, try and teach the others in your group how to use the software early instead of always doing it all yourself (having more people in your group and the class that know how to use the software will be beneficial to you later when the labs get harder and more time consuming). In many instances, inside and outside of academia, you will find that you are required to work in a group and function as a team to complete projects; this course will also help you develop the required skills to work in such an environment.

How to Set-up a Successful Experiment Efficiently? Number one, always follow the lab manual and try it with the members of your own group first. Number two, always ask questions; if your group runs into difficulties, you are encouraged (but not required) to discuss with your peers in other groups 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, who might be helping another group at the same time when you need help. I encourage students to discuss their results with each other, especially if drastically different data sets are obtained between different groups (try to figure why they are different and which set is correct). If you think your data is correct and you are confident you have the experiment set-up correctly, try and explain it to your fellow students, see what they think. Maybe they did something different in the experiment, encouraging you to review and rethink how you set-up the experiment. This communication is a great way to discover mistakes. Hopefully this encourages discussion of physics among you and your fellow students, builds your confidence in experimentation, 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, raise your hand, or let me know you need help. Keep in mind, you may not use other groups data in your report, this is not acceptable behavior and will result in a zero. Actual values may vary slightly from table to table, so no worries there; the big thing is to make sure that you believe your data and that it is correct (and maybe even repeatable) before leaving the lab.

Advice: Keep in mind that acing the lab reports with a 100% average, though lab reports are a significant portion of your grade (60% of the total grade) this will not be enough to allow you to pass the class with a decent grade if you do poorly on the exams; thus, it is not beneficial to 'copy' the lab reports each week from your peers (any copying will be considered academic dishonesty and treated as such). Independent of your laboratory report average, your performance and your performance alone is the determining factor that will allow you to pass the individual in-class exams (exams total 40% of the overall class grade). I expect everyone to put the time and effort in on the lab reports and to do very well on them (this is your grade padding), what will separate out the A, B, C, D, F, and W students will be individual exam performance. Thus, it is ill advised to continually ask your peers for help on the lab reports and then simply reiterate what they say without understanding the concepts or the detailed math/physics behind the experiment; you might get credit on the laboratory reports, but this is a surefire way to fail the exams if you do not understand the concepts, math, and physics behind each lab topic. Continually ask questions either in lab or during office hours until you understand the concepts, math, and physics. Attending exam reviews has been immensely helpful for students. Exam reviews will occur 2 days prior to an exam. Tentatively they are scheduled for 3-5 pm on Mondays in the Science Building room 179.

Lab Reports: Consist of all pages from your manual completed and includes and requested printed items for the specific lab. **All** the laboratory manual pages from your manual, calculations performed, questions answered, graphs drawn, etc. need to be turned in. Simply turn in all pages for that lab at the beginning of the next lab. Answer all questions and fill in all data tables. Not all questions and data tables will be graded, but a select portion of questions, calculations, or results could be graded or points. You will not know in advance what will be graded so complete every question asked in the manual.

Calculators: You may use a simple non-graphing calculator, nothing else; **no cell phone calculator apps (raise your hand if you need a real calculator before the exam starts, I might have a single spare one in case someone's batteries die, but it is your responsibility to bring one). Cell phones need to be off and stowed away out of sight and reach. If your cell phone is out during an exam, you will receive a zero, automatically, no questions asked. Make sure nothing is in the calculator cover. If any notes are found in your calculator cover, or anywhere else, you fail the exam (breaking either may result in academic dishonesty investigations/charges and/or failing the course. Questions about the formula sheet cannot be addressed during the exam.** Raise your hand if you have a question or need clarification on any exam question(s). 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 all the labs and exams. Don't do all the labs with a TI-89 or a TI-Nspire CX and then try to switch to a TI-35 for the exams, guaranteed this will not go well for you.

The 1-Week Rule: I am happy to fix any grading errors. Any grading disputes or grading mistakes 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. You must turn your assignment back in to be regraded. You must write a cover page or write on the top of the assignment on the first page what problem needs regraded and why. It is advisable to take a picture of your work before turning back in for a regrade. 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. Regrades will be returned any time before the end of the semester and are often very delayed in getting returned due to current grading taking precedence over regrades and there being limited time for grading.

Exams: 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 for all exam dates now, if you have known conflicts report them early). Exams will cover relevant conceptual questions and problems (basically any part of the experiments performed in the course or concept from the experimental set-up is fair game for testing on the exams). Exams may be a mix of multiple-choice, true & false, require a small amount of written work/calculations to match with multiple choice answers. Remember, physics is some tough stuff. If you're getting 75% of the lab report points and getting 50% on the exams, you are only pulling a 65% for the course (seek immediate help). Class averages/medians will be given on Blackboard and grade distributions will be presented after each exam to let you know exactly how you are doing relative to the rest of the class. You must pass one exam to pass the course! **The exams are closed-book, closed-note, and an equation sheet will be provided. More details about the exams will be provided as the semester progresses.**

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). To do well in this class, you will have to spend at least 3 quality in class hours per week dedicated to this class doing tasks such as reading the manual and understanding it before lab starts and finalizing your report each. Your understanding is proven by your individual lab report and individual exam performance. You must be able to do and understand the concepts from lab. If you do not understand a particular concept, and the class moves on to a new topic, it is your responsibility to learn how to do that concept correctly; I am mostly always available if you need help.

Help for This Course: If you are starting to experience difficulties in this class, there exist many resources available for you to obtain additional help. *Resolve these difficulties quickly, before they snowball out of control (1 lab per week).*

- ***Six Office/'HERD Hours' per week*** (**F** 9-10 am, 11-2 pm, and 3-5 pm): Get help in a group with your friends or 1-on-1 individually, or we can make an appointment if these Office/'HERD Hours' times do not work for you. Or, you can simply drop by the Science Building to room 152 at any time, and if I have additional time to help you, I will. Feel free to email me questions at any time as well, I am usually quick to respond during the week and when it is within reasonable hours. It is very important that you ask questions as soon as you do not understand something. It is suggested to make friends with other students in the class and study for Exams together.

- ***PhET Simulations:*** Remember, physics is some hard stuff when seeing it for the first time. I will try to introduce demos into the mini lecture to help assist in conveying the concepts; however, PhET Simulations are another good tool to 'see' concepts in action. PhET Simulations (https://phet.colorado.edu/en/simulations/category/physics/index) are interactive apps that highlight or demonstrate a physical concept. Outside of class, go online and play with the parameters in these simulations and see how changing the variables changes the results. To run the PhET Simulations, 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 found at http://java.com/en/ (some still run on using Adobe Flash). Then select the simulations directly from the web site. Visit https://phet.colorado.edu/en/troubleshooting, if you experience problems or cannot open/run the PhET simulations.

Electronic Devices: All cell phones, headphones, air buds, laptops, I-pads, & other communication devices, etc., should be turned off/silenced and should **not be used at any time during class and exam time**; if out during an exam, **you earn a zero for the exam or quiz, no questions asked**. If your cell phone or other electronic device is out during lab time and is distracting/effecting others ability to learn, your cell phone or electronic device will be turned into the Dean's office and/or you will be asked to leave the classroom. Post class, your phone/electronic device can be recovered in S 270 or from your instructor.

Computer Requirements: Access to Blackboard and a @marshall.edu email are both required. You are expected to check both frequently. I use Blackboard to distributesupplementary 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 seldom send notices to your Marshall e-mail account and I frequently use 'Notifications' in Blackboard. It is highly advisable to set up your notifications in Blackboard to email you and or text you when a notification posts for the course. If you need help setting this up contact the Design Center team (https://www.marshall.edu/design-center/course-help/). All electronic course communication must be through your Marshall email account (not gmail, yahoo, etc.). My advice to all university students is to check your Marshall email at least twice a day. Many amazing opportunities for students and much information is lost in unchecked email inboxes.

Campus Services: There are many Campus Services & Resources that you or someone you know throughout your college career may find useful or desperately need at some point. The above link provides contact information for the Counseling Center (304-696-3111) and Health Services, Services for Students in Financial Need, Tutoring Services, and a wide variety of other services and resources (there are many services within each of these categories - check them out now so you know what is available to students). Chances are a version of this syllabus will always be posted on my Teaching Homepage if you ever need this information, even well after the class is over.

Statement Defining Expectations for Student Conduct: I will expect everyone in all portions of this class, including, but not limited to lecture time, exam times, quiz 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 for that day. Disruptive behavior is any behavior that interferes with the normal conduct of lecture/quizzes/exams/Herd Hours or behavior that inhibits a productive learning environment (this includes sleeping in lecture and using any non-approved electronic devices). If you are experiencing, disruptive, abusive, or offensive behavior directed towards you from others in the class (this includes when working together in 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.

Emergencies/Unexpectedly Missed attending or turning in a lab: Unexpected emergencies & accidents happen. That is part of life. Fill out the required form: https://www.marshall.edu/student-affairs/excused-absence-form/. Make email contact with me as soon as possible; you must give your reason for missing or, if the reason is too personal, indicate you are applying for a University Excused Absence (UEA) for missing tlab(s) in the email. If proper documentation is received, an exemption may be provided instead of the zero at the discretion of the professor. If a UEA is provided in advance, it is more likely you could do the lab in another section. Ultimately, the decision of allowing the student to make up the lab or exempting for a student with a UEA is completely up to the professor. All missed assignments must have a university excused absence and are counted as zeros until one is received. If you experience a traumatic event in the immediate moments before a lab or exam, this means the 10-15 minutes or so before the lab or exam (or some event occurs that alters your normal state of mind in any way for a Quiz or Exam), and you are fairly certain you can get a University Excused Absence (UEA), do not take the lab or exam; instead, file for the UEA (to take the lab/Exam before the next scheduled class or for an exemption). An example for this would be witnessing a homicide of any kind, a violent crime, or witnessing a horrifying accident/fatality on your way to class to take the lab/exam, something that could be confirmed, breaking up with a boyfriend or girlfriend etc. does not count). Any exam taken counts, independent of state of mind when exam was taken and if a UEA is received later.

As it is often hard to ensure the same level of difficulty for make-up exams as original exams, students are strongly encouraged to participate in the original scheduled exam to ensure an as fair as possible experience. Exam make-ups must be retaken before the next scheduled class after the missed exam. Failure to do so could result in a zero without proper documentation (a UEA) received before the next scheduled class. Only, in very rare circumstances is an exemption with a UEA on an exam allowed. Make-up exams will contain completely different problems and will not be returned, though they can be reviewed during office/Herd hours. Make up exams will be completed only after the rest of the class completes the exams, not before. If you are quarantined due to covid or some other illness, and the proper documentation is provided for a UEA, you will be allowed to take the exam in a quarantined environment virtually with very strict proctoring conditions imposed following the PHY 211 protocol form the fall 2020 semester, contact me immediately once you know you test positive and have documentation that can be verified. The protocol will be shared with students in need when the situation arises.

A missed exam, with no prior email/message & no legitimate supporting documentation before or immediately after counts as a zero and cannot be made up. Makeup exams, with different content, will be given only after the missed event and only in very rare circumstances, which require official legitimate documentation. The Provost, Sr. VP, and/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 or lab is missed, and one of the above is the reason, I will need immediate legitimate official documentation to verify the event in order to schedule a make-up exam/assignment, complete the following form: https://www.marshall.edu/student-affairs/excused-absence-form/.

University Policies: By having the privilege of being enrolled in higher education and thus 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 http://www.marshall.edu/academic-affairs/ and clicking on "Marshall University Policies" or, you can access the policies directly by going to http://www.marshall.edu/academic-affairs/policies/. The individual policies and codes are: Academic Dishonesty Policy, Academic Dismissal Policy, Academic Forgiveness Policy, Academic Probation and Suspension Policy, Affirmative Action Policy, Dead Week Policy, D/F Repeat Rule, Excused Absence Policy for Undergraduates, Inclement Weather Policy, Sexual Harassment Policy, Students with Disabilities (Policies and Procedures), University Computing Services Acceptable Use Policy, and the Code of Student Rights and Responsibilities - also referred to as the Student Code of Conduct (https://www.marshall.edu/student-affairs/files/Student-Rights-and-Resp-2020.pdf).

Statement Regarding Students Requiring Special Accommodations & Students with Disabilities: For University policies and the procedures for obtaining services, please go to MU Academic Affairs website (http://www.marshall.edu/academic-affairs/policies/) and see information under "Students with Disabilities". In order to receive any academic accommodations, you must meet with the coordinator of the Office of Disability Services (students are required to provide official documentation of the disability). For help with setting up accommodations, contact the Office of Disability Services (ODS) in Prichard Hall 117 (304-696-2467). For more information, access the website for the Office of Disabled Student Services: http://www.marshall.edu/disabled. If no official documentation from the Office of Disabilities Services is given to the instructor, no accommodations can be made by the instructor. Paperwork must come from the Office of Disabilities, not the student. Trying to get the process for accommodations started the week before an exam will likely not work out for you, more time is needed. Again, before any type of accommodations can be given by instructors, the instructor must receive official documentation from the Office of Disabilities Services or the required program; therefore, take care of this **the first week of classes** (this is true for the H.E.L.P Center and the WV Autism Training Center and the Office of Disability Services).

Prohibited Use – Generative AI is fully prohibited in the course:

Students are prohibited from using generative AI in any way on any assignment in this course. The use of generative AI in this course will be considered a violation of both Marshall's Academic Dishonesty Policy (URL: https://www.marshall.edu/academic-affairs/policies/#academicdishonesty) and the Student Code of Conduct (URL: https://www.marshall.edu/student-conduct/files/Studnet-Code-of-Conduct-2022.pdf). Any assignment deemed as coming from artificial intelligence, at a minimum, will be given zero points with possible additional sanctions imposed.

Authorized vs Unauthorized Aid in Academic Work: In this course, you are permitted to talk with other students about your labs as you all work through them together, but you may not copy solutions verbatim from each other or answers verbatim from any other source. You must answer the question in the lab manual for yourself and understand them. 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. If you copied all your lab reports and understood nothing, but get zeros on the Exams you have a 60% as your total grade.

Technical Skill Requirements: For computer and browser requirements for Blackboard, see IT: Recommended Hardware (http://www.marshall.edu/it/recommendations/).

- To check your browsers, use the Blackboard Browser Checker and ensure that you set permissions properly and have all the necessary plug-ins:
- https://help.blackboard.com/Learn/Administrator/Hosting/Release_Notes/Browser_Support/Browser_Checker
- Students must be able to use Marshall email and check it regularly, as well as the basic tools in Blackboard, including the Notification option. Links to Blackboard Help and tutorials are available on the Start Here page and on the Tech Support tab in Blackboard. Blackboard recommends Google Chrome browser or Mozilla Firefox browser.
- The Microsoft Office suite (Office 365) is available is available at no extra charge to students enrolled at MU. For information visit Marshall IT: Office 365 (http://www.marshall.edu/it/office365/).
- See the Tech Support tab in Blackboard for additional information on browsers, technology, and apps.

Technology Assistance: If you have technical problems, please contact one or more of the following:

- Blackboard Student Guide (https://www.marshall.edu/design-center/files/2020/03/Student-Guide-Bb-at-Marshall.pdf)
- Marshall Information Technology (IT) Service Desk (Help Desk) (http://www.marshall.edu/it/departments/it-service-desk/)
    - Huntington: (304) 696-3200
    - Email the IT Service Desk (itservicedesk@marshall.edu) or start a chat with a staff member in the browser. The chat will be saved and emailed to you for your records.

COVID-19 – Previous, new, or developing information is assumed to posted here: https://www.marshall.edu/coronavirus/

1 Credit Hr. # Physics 204 Laboratory Spring 2024

Date:	Experiment:
Jan. 8 – 12	Lab 1: Electric Charges & Electric Force
Jan. 16 – 19	Lab 2: Electric Fields and Electric Potentials
Jan. 22 – 26	Lab 3: Electric Charge on Capacitor Plates
Jan. 29 – Feb. 2	Lab 4: Ohm's Law
Feb. 5 – 9	Lab 5: The Magnetic Field & Force
Feb. 12 – 16	Lab 6: Faraday's Law
Feb. 19 – 23	Lab 7: The LRC Resonant Circuit
Feb. 26 – Mar. 1	Lab 8: Reflection & Refraction
Mar. 4 – 8	**First Lab Exam: Labs 1 – 6**
Mar. 11 – 15	Lab 9: Thin Lenses
Mar. 18 – 22	*Spring Break*
Mar. 25 – 29	Lab 10: The Telescope & the Microscope
Apr. 1 – 5	Lab 11: Diffraction & Interference
Apr. 8 – 12	Lab 12: The Hydrogen Balmer Series & Rydberg Constant
Apr. 15 – 19	**Second Lab Exam: Labs 7 – 12**
Apr. 22 – 26	*Finals Week*