This is a sample syllabus for PHY2053C. Students should reference the section syllabus provided at the beginning of the semester for specifics regarding assignments and grade assignments.
Statement on Class Recordings

In this class, consistent with state law and university policy, students are permitted to make recordings of class lectures for personal use only. As noted, sharing, posting, or publishing classroom recordings may subject you to honor code violations and legal penalties associated with theft of intellectual property and violations of other state law. Moreover, students and educators have expressed concern that recording classroom activities may negatively impact the learning experience for others, especially in classes that involve questions, discussion, or participation. To protect a learning environment in which everyone feels free to experiment with ideas, we ask you to refrain from recording in ways that could make others feel reluctant to ask questions, explore new ideas, or otherwise participate in class. Students must monitor their recording so that they do not include participation by other students without permission. Students with disabilities will continue to have appropriate accommodation for recordings as established by the Office of Accessibility Services.

Course Description & Objectives

Welcome to College Physics A, PHY5053. We are happy to have you with us this semester. Our goal this semester is to give you the opportunity to understand the basic concepts of physics
relating to laws of motion, forces, work, energy, angular motion, fluids and gases, as well as an introduction to concepts on thermodynamics and waves. We promise to explain physics in an interesting and stimulating way; physics can actually be fun!

This course emphasizes problem solving skills. As a result, we will make use of your previously acquired skills in algebra and trigonometry. Your course registration reflects a lecture, studio tutorial and a lab section. Prerequisites: MAC 1144 and 1140 (algebra and trigonometry).

The lectures will concentrate on critical issues, and you are expected to study the text to obtain a better understanding of the underlying physics concepts. The subject matter discussed in class will generally follow the text, with additional material presented from information not yet in the textbooks. We (your instructors) are hoping to share some of our enthusiasm with you this semester!

We will be replicating the way science is done - you will investigate phenomena, make conjectures, test conjectures, discuss, revise, test again, etc. With this approach, you have the opportunity to thoroughly understand the material.

Our course goals are for you to:

1. Develop autonomous learning skills.
2. Learn to think clearly and simply about the physical world.

**Course Strategy**

Central to the course is developing the ability to think for yourself. There is no simple way to gain this skill. It comes slowly over time and with practice. You must be actively involved in learning the material. The course is structured with this in mind.

**Preparation:** You will be expected to read the book prior to the lecture classes. It would be foolish to think that one can fully grasp physics by reading the material alone, so class time will be spent on clarifying and applying the material. Reading prior to class is a critical step in your learning. Past students have found that spending 1-2 hours per week reading and outlining the material saved 4-8 hours per week on work outside class.

**Classes:** Lectures, laboratory investigations followed by additional group exercises and discussions will form the basis of this course. Results will be summarized and presented to the class and discussed. Class attendance is therefore vital to success and is recorded and made part of your grade.

**Collaborative Work:** Scientists and engineers work in groups as well as alone. Social interactions are critical to their success. Most good ideas grow out of discussions with colleagues. This course encourages and incorporates collaborative teamwork, a skill that is valued by most employers of scientists, engineers, and technicians. As you work and study together, you and your partners will
clarify confusing topics by asking each other questions and critiquing your group assignments. Everyone benefits from cooperative learning. Expressing your ideas so that others can understand them helps clarify them for yourself.

**Socratic Method (Constructivist Approach):** Much of the class discourse will be through Socratic dialogue. In other words, questions will be used to encourage you to think about the underlying physics. Your questions will usually be answered with more questions, since simply answering your questions does not lead to you understanding the material. Having you link the ideas in your own mind to form the answer is much more useful. Questions will also be used to test your self-confidence, sometimes even when you have the correct answer. In the past, students have found this approach frustrating: a common complaint is that your professor "never teaches us anything but expects us to learn it all ourselves". Experience has shown that discovering concepts for yourself, rather than having them described to you by someone with a lot of knowledge, leads to permanent gains in your understanding.

The textbook can be accessed at [https://openstax.org/details/books/college-physics](https://openstax.org/details/books/college-physics)

There you can find options to read for free on the web, as pdf or through an app.

**Class Meetings**

Each student is registered for four class meetings every week:

- **Two lectures each week:** (days) in (location) from (times).
• **One recitation session:** (day) (see below)
• **One laboratory session:** One day per week for three hours, can be (days) depending on the section you are registered for. The lab room is (location).

Generally, we will use two lectures per week to outline the course material, for which the student is responsible, to present new concepts along with experimental demonstrations, to discuss some examples of problems, and to administer the three mini exams. Lecture highlights and the lecture notes (in pdf format) will be posted on Canvas. These highlights will indicate the topics covered during the lectures and which textbook sections they were drawn from. However, these highlights and the notes may not contain all the information and explanations which will be presented during the lectures.

**Studio) Recitations**

In Studio Physics Recitations, students work in assigned groups of three to solve homework-like problems. Each group is typically given different problems to solve, and each group writes out their solutions. Each member of the group has a specific role: the scribe, inspector, and presenter. The scribe is the student who writes and takes notes, the presenter is the student who may present the group's work to the classroom, and the inspector is the extra pair of eyes which double checks the work. Students are required to alternate group roles. A typical 75-minute class consists of a 10–15-minute instructor introduction, followed by a group problem session, and then possibly by the group presentations. During both the group problem sessions and group presentations there is a large amount of faculty-student interaction with much emphasis placed on clear problem-solving techniques.

Recitation accounts for **15%** of the student's PHY2054C grade. **Credit for recitation is based on homework preparation before the recitation class and in-class group participation. To earn weekly 5 pts credit, one must submit your neat and organized work on the selected problems from the weekly assignments (2 pts) as well as the group in-class problems (3 pts). Note that if one just attends class but does not come prepared & participate then one would not earn credit. Please contact your recitation instructor ahead of time if you are planning on missing a recitation.**

There are three recitation sections on Thursday mornings. Recitations serve as a way for students to develop a better understanding of physics concepts and to develop problem-solving skills.

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**Laboratory Experiments**

The purpose of the laboratory sessions is to gain hands-on experience with experimental devices, to develop skills in performing experiments, to learn methods for analyzing scientific data, and to relate the physics concepts covered in class to real experimental situations. The lab experiments count as **15%** of your overall grade. Each student must attend, complete, and turn in a lab report for each experiment, following the format prescribed by the lab instructor, before leaving at the end of the lab session.

Any missed lab should be made up by arranging to attend another lab section that same week! **Inform your own lab instructor about the situation as well as the instructor of the other lab section!** Lab manuals can be downloaded from Canvas. If you have any questions or problems with your lab section, or if you miss a lab and must make it up, please contact Dr. Cao. **Please note that you cannot pass the course if you miss a lab!** Laboratory classes will meet based on the schedule listed below:

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**Homework Assignments**

There will be graded homework assignments using the ExpertTA system for every topic we cover, due on (day) at 11:59 PM. Homework assignments account for **10%** of your grade. Hints and other feedback are provided by the online system. You are encouraged to discuss the approach to the problems among yourselves; however, each of you is responsible for understanding the solution and submitting your own individual answers. **Participating in a closed online group is considered unauthorized group work** and is a violation of FSU's Honor Code (see item 3). The name of the ExpertTA class is "[Spring 2023] PHY 2053". Registration for ExpertTA:

**PHY 2053 (Spring 2023) Student Registration Link:**
[http://goeta.link/USE11FL-EFBCBB-2YR](http://goeta.link/USE11FL-EFBCBB-2YR)
i>clickers: Audience Response System

You are required to purchase an i>clicker remote or the corresponding digital app for in-class (lecture) participation. i>clicker is a response system that allows you to respond to questions we pose during class, and you will be graded on that feedback and participation. Each clicker has a unique serial number on the back of the remote. Place a piece of scotch tape over that bar code and ID to preserve it. The i>clicker response system will be used every time in class, and you are responsible for bringing your remote (or your phone if you use the digital app).

During each lecture class, we will ask a few review questions based on the reading assignments, on the material of the previous lecture, or current lecture material. For every question, you will receive one point for participation and for review questions, a further point depending on whether you submit the correct answer. In-class participation accounts for 10% of your grade.

Mini-Exams

Three mini exams will be given during the semester. They account for 30% of your total grade (10% each). The examination problems will be based on the subjects covered in the ExpertTA, the textbook problem sets, lectures, labs, and recitation material. Remember to try the "Blank Paper Test" when you prepare for the examination: try to solve the problems yourself first without looking at the solutions. If you need to use the solutions for help (which many times you might), go back and try the same problem again later to see if you have learned how to do it on your own. Memorizing a sequence of steps will not help you since the goal of this course is to teach you the physics concepts and how to apply them in different situations. The problem-solving strategies will be discussed during each Thursday’s recitation session. Below are a few rules and common questions about the exams and their grading:

- The mini exams will be given on the designated Monday or Wednesday lecture times, and each will take the full 50 minutes of the lecture time in UPL 101.
- The material covered in each exam will be specified in the syllabus (see the course schedule) and based closely on concepts related to the recent ExpertTA assignments, lecture, lab, recitation material, and recommended textbook questions and problems. You should note, however, that you are responsible for all the material covered in the lectures.
- You cannot miss a mini-exam in this course! If you do so for a valid reason, you must arrange a make-up exam with your instructor within a week of the actual mini-exam. There will be no exceptions!
- Students arriving late will be required to submit their exams by the same deadline as the rest of the class.
- Each student is responsible for bringing a working calculator to each exam; no sharing is allowed. You will also not be allowed to use your cell phone as a calculator, because your cell phone is not allowed to be with you turned on in the test room.
- Do not program formulae into your calculator - this is cheating and will be treated as such.
• **Don't cheat!** The first instance of cheating on an exam result in a grade of zero points for that exam, the second results in an "F" for the course. Remember you are responsible for following the FSU Honor Code.

• **Any questions you have about the grading of the exams must be resolved within 2 weeks of making the grades available on Canvas.**

The use of any electronic device other than a calculator on a quiz or exam is a violation of the Honor Code. A formula sheet will be provided for the mini-exams and the Final.

**Final Exam**

The Final Exam will be held on (date) from (times). The final exam is cumulative, it accounts for **20% of your final grade** and **you must take the exam to pass the course. There will be no exceptions!**

**Class Canvas Site**

Please look to the class Canvas site for additional resources. The site contains links to this syllabus, the course calendar with problem assignments, each day’s activities and deadlines, and other resources. If you have any suggestions for improvements, do not hesitate to let me know.

**Learning Environment**

The goal of the course is for you to learn physics. There are many resources to help you learn, including your book, your classmates, your instructor and teaching assistants, and the class web page. You should take advantage of as many of these as you need to learn the material. If, at any point during the course, you feel your performance is slipping, **immediately seek assistance.** Please do not wait until the day before a mini-exam or the Final to ask for help. We are available to help during class, office hours, and other hours by appointment. Please send an e-mail or call our offices to make sure we are available during non-office hours.

This is a college course, and we expect an appropriate learning environment. If you use your cell phone for a call, texting, or web browsing you will be asked to leave the classroom, and you will not get credit for being present that day. Using a cell phone for any purpose during a quiz or exam is considered a violation of the academic honor policy (see below).

**University Attendance Policy**

Excused absences include documented illness, deaths in the family and other documented crises, calls to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.
Academic Honor Policy

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to "... be honest and truthful and ... [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/Academics/Academic-Honor-Policy)

Americans With Disabilities Act

Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodations for all persons with disabilities in a manner that is consistent with academic standards of the course while empowering the student to meet integral requirements of the course.

To receive academic accommodations, a student: (1) must register with and provide documentation to the Office of Accessibility Services (OAS); (2) must provide a letter from OAS to the instructor indicating the need for accommodation and what type; and, (3) should communicate with the instructor, as needed, to discuss recommended accommodations. A request for a meeting may be initiated by the student or the instructor.

Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services has been provided.

For more information about services available to FSU students with disabilities, contact the Office of Accessibility Services, 874 Traditions Way, 108 Student Services Building, Florida State University, Tallahassee, FL 32306-4167, (850) 644-9566 (voice), (850) 644-8504 (TDD), oas@fsu.edu, or online at https://dsst.fsu.edu/oas.

Academic Success

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "... be honest and truthful and ... [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/Academics/Academic-Honor-Policy)
Confidential Campus Resources

Various centers and programs are available to assist students with navigating stressors that might impact academic success. These include the following:

Victim Advocate Program
University Center A, Rm. 4100
(850) 644-7161
Available 24/7/365
Office Hours: M-F 8-5
https://dsst.fsu.edu/vap

Counseling and Psychological Services
Askew Student Life Center, 2nd floor
942 Learning Way
(850) 644-8255
https://counseling.fsu.edu/

University Health Services
Health and Wellness Center
(850) 644-6230
https://uhs.fsu.edu/

Grades
You can only complete the course and receive a grade better than "F" if you attempt all mini-exams and the final exam. You also must attend all laboratory sessions and submit satisfactory lab reports to the lab instructor for each session.

Your point total for the course will be determined by a combination of the laboratories (15%), class mini-exams (30%), the final exam (20%), in-class questions based on a personal response system (10%), recitations (15%), and homework assignments (10%). If you do miss an exam for a valid reason, you must make it up! It is your responsibility to arrange the make-up exam with your instructor. You may earn a maximum of 100 points in the course. All individual grades (for
homework assignments, mini-exams, etc.) will be posted regularly to your Canvas grade book. Please check your grade book frequently and report any mistakes you may find as soon as possible!

Your total course average will be converted into a letter grade. The table below gives you an estimate of the breakpoints for the grades this semester. These breakpoints may change, but only in your favor!

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<th>Breakpoints (Spring 2023)</th>
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<td>A/A-</td>
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<tr>
<td>90.00</td>
<td>A-/B+</td>
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<td>-</td>
<td>B+/B</td>
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<td>B-/C+</td>
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<td>-</td>
<td>C+/C</td>
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<td>-</td>
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<tr>
<td>70.00</td>
<td>C-/D+</td>
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<td>-</td>
<td>D+/D</td>
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<tr>
<td>-</td>
<td>D/D-</td>
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<tr>
<td>60.00</td>
<td>D-/F</td>
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Resources for Students

We want you all to do well in this course. Several resources are available to help you:

1. **Textbook:** An excellent source of information. Read it and work the problems at the end of each chapter!
2. **Classes:** Attend lectures and recitations! Ask questions and get involved in the discussions.
3. **Office Hours:** Make use of the scheduled office hours for help with homework problems and other matters that arise during the course.
4. **Physics Department Consultation Sessions:** A graduate student is available to assist you with homework problems and exam preparations. As of this writing, we do not know the times for these sessions. Please ask us if you are interested!

Free Tutoring from FSU
For tutoring and writing help in many courses at Florida State University, visit the Academic Center for Excellence (ACE) Tutoring Services’ comprehensive list of tutoring options - see http://ace.fsu.edu/tutoring or contact tutor@fsu.edu for more information. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

Some Sensible Advice

It will be great if everyone passes this course. Unfortunately, some people find doing physics rather difficult. Below are a few tips to help make your adventures in physics fun.

- This course is no pushover. Physics is based on understanding, not remembering. We will do all we can to help you, but only you know whether you really understand something or not! Test yourself on additional problems. If, after reading additional problems, you have no idea how to solve them, then you have not understood the concepts. **Do not just memorize the answers to selected problems!**
- To gain confidence on physics concepts, practice the easier problems first.
- When you work on a problem, always ask yourself if the answer or the solution is reasonable. **Remember to use units!**
- When you prepare for the exams, make sure you understand and can do all the homework problems. You are strongly encouraged to do extra problems. Again, do not just memorize the solutions.
- **Attend all classes and the recitation sessions!** There happens to be a strong correlation between lecture attendance and student performance.
- **Use the textbook!** You paid good money for it! Try to find the time to look over a chapter before it is covered in class. You may not understand the material after the first reading, but it will be clear after a while. *Learning is a repetitive process.*
- Find a study partner. **We strongly encourage students to study and learn together.**
- Finally, don’t give up or sit for hours trying to understand the homework! Come and discuss your solution with me. Often you will be much closer than you think to being able to solve a problem.

Liberal Studies Program:

The Liberal Studies Program at Florida State University has been designed to provide a perspective on the qualities, accomplishments, and aspirations of human beings, the past and present civilizations we have created, and the natural and technological world we inhabit. This course has been approved as meeting the requirements for Liberal Studies Natural Science, and in combination with your other Liberal Studies courses, provides an important foundation for your lifelong quest for knowledge.
Syllabus Change:

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.

This syllabus and other class materials are available in alternative format upon request.

Good luck and we hope you enjoy the course!