This is a sample syllabus for PHY2048C. Students should reference the section syllabus provided at the beginning of the semester for specifics regarding assignments and grade assignments.

# PHY2048C – GENERAL PHYSICS A

Instructor: Office:
Email: Office Hours:

Teaching Assistant:
Email:



## COURSE DESCRIPTION

General Physics A with Lab is designed to provide you with an understanding of how and why things move, so we will cover kinematics, forces, energy, momentum, oscillations, and a touch of thermodynamics. It is intended for physical science majors and engineers and to be taken as a sequence with General Physics B (PHY 2049C) and Intermediate Modern Physics (PHY 3101). Completing Modern Physics entitles you to a minor in physics. Calculus is used in this course.

### PREREQUISITES

- MAC2311: Calculus I

## COURSE OBJECTIVES

By the end of the course, students will demonstrate the ability to:

- solve one- and two-dimensional kinematics problems
- use Newton's Laws to describe simple physical situations
- apply the principles of conservation of energy and momentum
- solve problems involving circular motion, springs, and gravity
- apply the First Law of Thermodynamics to simple systems

According to the Liberal Studies for the 21st Century, students will demonstrate the ability to:

- think critically and cogently about causal relationships with scientific reasoning.
- assess previous experimentation and published scientific results.
- critically examine and evaluate scientific observation, hypothesis or model construction.
- articulate a variety of issues created by the complex interactions among science, technology, and society.
- use scientific perspectives to evaluate contemporary problems facing society.
- explain the process of scientific reasoning and apply scientific principles inside and outside of the laboratory or field setting.
- systematically evaluate evidence for accuracy, limitations, and relevance, and identify alternative interpretations of evidence.

- design and conduct experiments to make observations and test hypotheses, as well as to analyze and interpret data using quantitative and appropriate technological tools.

## COURSE MATERIALS

### TEXTBOOK
*Physics for Scientists and Engineers*, Volumes 1 and 2, by Randall D. Knight

### WEBSITE
Additional resources are available at the class Blackboard site. The homework will be online using ExpertTA: http://www.theexpertta.com/ (the Student Class Code is **3701BC-CY**).

## COURSE STRATEGY

### PREPARATION
You are expected to read the book prior to class. It would be foolish to think that one can fully grasp physics by reading the material alone, so class time will be spent clarifying and applying the material. Previous students have found that spending one to two hours per week reading and outlining the material saved four to eight hours per week on homework. Your priority should be to complete your reading assignment first, then the homework problems.

### STUDENT RESPONSIBILITIES
You are responsible for doing the homework and turning it in on time, taking the weekly mini-exams, attending class, asking for help when you need it, participating in group work and class discussions, and not playing with a computer or your cell phone during class.

## COURSE ASSIGNMENTS AND EVALUATION

### EXAMS
There will be a mini-exam most Fridays, as well as a mid-term exam and a final exam. The final exam will include material from the whole term, with a slight emphasis on material after the mid-term exam.

On mini-exams, the mid-term exam, and the final exam, the use of any electronic device other than a calculator is cheating. Accessing stored formulas or problem solutions on any device (including a piece of paper, your neighbor's exam, or a calculator) is cheating.

Make-up midterm and final exams will be given only in extreme circumstances. Notification of an unavoidable exam absence must be made prior to the exam (voice mail and email are acceptable). Excused-absence exams will result in adjusting the weighting

of the other grade components or administration of a make-up exam at the sole discretion of the instructor. No make-up mini-exams will be given. The lowest mini-exam grade will be dropped. If you miss a mini-exam, even for a valid reason, that will be considered your lowest mini-exam grade.

## HOMEWORK

There will be graded weekly homework assignments using the ExpertTA online system. You are encouraged to discuss the problems among yourselves; however, each of you is responsible for submitting your own answers. Homework assignments will be due ___. Late homework will be accepted at the discretion of the instructor.

Setting up and/or participating in a Facebook (private or not) group for solutions is cheating. Providing or receiving answers to homework problems is cheating. Providing or receiving explanations on how to do homework problems is not cheating.

## IN-CLASS WORK

In-class work varies by instructor and style of teaching. It may include use of iClickers and/or problems worked during class that may be presented to the class.

## LAB REPORTS

Detailed information on the laboratory aspect of this course will be provided in your laboratory section. Labs will be written up and handed in for grading.

The Pendulum Lab will be used to assess the laboratory portion of the Liberal Studies Natural Science Competencies. If you do not complete the Pendulum Lab, your overall course grade will be reduced by one full letter grade.

## CURRENT EVENTS WRITING ASSIGNMENT:

This assignment is used to assess two of the Liberal Studies Natural Science Competencies. It is worth 3% of your course grade. If you do not complete the assignment, your overall course grade will be reduced by one full letter grade. Late assignments will be accepted at the sole discretion of the instructor.

Select a current news item related to one or more of your assigned week's topics in class (see the syllabus) and describe the relationship between the news item and physics. How does what you've learned in class help you interpret the news item? How does your general knowledge of scientific reasoning and principles help you interpret the news item? What additional information would you like to have about the news item to improve your understanding of it?

Provide a reference for the news item (such as a URL). Your response should be about 250 words in length and turned in via Blackboard. If your response is found to be plagiarized, you will receive no credit, fail the course, and be reported for an Honor Policy violation.

Due dates are based on the first letter of your last name. All responses are due by 11:59 p.m. on the Sunday night following your assigned week.

| | |
|---|---|
| Week 2 | A, B |
| Week 3 | C, D |
| Week 4 | E, F |
| Week 5 | G, H, I |
| Week 6 | J, K, L |
| Week 7 | Mid-term exam |
| Week 8 | M, N |
| Week 9 | O, P, Q |
| Week 10 | R, S |
| Week 11 | T, U, V |
| Week 12 | W, X, Y, Z |

The grading rubric is:

Selection and reference of an appropriate article.....2 points
Overall clarity of response.....2 points
Description of relationship.....2 points
Interpretation/scientific reasoning/additional information ....4 points

# GRADING

## GRADE CALCULATION

**Exams.....54%**
Mid-term exam.....18%
Final exam.....18%
Best 11 mini-exams.....18%
**Homework and in-class work .....18%**
**Lab reports .....25%**
**Current Events Writing Assignment .....3%**

## FINAL GRADES

To foster cooperation and collaboration, grades will be based on an absolute scale. This means that helping others will not jeopardize your grade, it will, most likely, improve your grade! (As long as you help them appropriately!) Recall that if you do not do the Current Events Writing Assignment, your overall grade will be reduced by one letter grade; if you do not do the Pendulum Lab, your overall grade will be reduced by one letter grade.

| | | | |
|---|---|---|---|
| A | 90 – 100 | C+ | 74 – 76 |
| A- | 87 – 89 | C | 70 – 73 |
| B+ | 84 – 86 | C- | 67 – 69 |
| B | 80 – 83 | D | 63 – 66 |
| B- | 77 – 79 | F | 0 – 59 |

# COURSE POLICIES

## ATTENDANCE

Active participation is critical to the class; however, absences may occur. In general, there are four acceptable excuses for missing class: illness or medical emergency, religious holiday, family emergency, and approved university activity. To receive an excused absence, you must provide a signed paper note explaining why you will be gone, what work you will miss, and what you will do to make it up. Documentation for absences should be stapled to the note. Advance notice is required for religious holidays and approved university activities. Notice for unanticipated emergencies should be given as soon as possible. As stated above, no make-up mini-exams will be given. At the sole discretion of the instructor, in the cases of religious holidays and approved university activities, a mini-exam may be taken early.

## MAKE-UP EXAMS

No make-up mini-exams will be given. Make-up midterm and final exams will be given only in extreme circumstances. Notification of an unavoidable exam absence must be made prior to the exam (voice mail and email are acceptable). Excused-absence exams will result in adjusting the weighting of the other grade components or administration of a make-up exam at the sole discretion of the instructor.

## MINI-EXAM GRADES

The lowest mini-exam grade will be dropped. If you miss a mini-exam, even for a valid reason, it will be considered one of your lowest mini-exam grades.

## QUESTIONS

You are strongly encouraged to ask questions during, before or after class, during office hours, or via email (I will not give detailed problem assistance via email). DO NOT HESITATE TO ASK QUESTIONS! If you don't understand something, it is very likely someone else doesn't understand, too. Interacting with students is the best part of my job, and I am more than happy to talk with you!



# COURSE SCHEDULE

| *Date* | *Week* | *Chapter: Sections, Topic* | *Exam* |
|---|---|---|---|
| | 1 | 1: 1 – 8, Concepts of motion<br>2: 1 – 4, Velocity and acceleration | |
| | 2 | 2: 1 – 7, Kinematics in one dimension<br>3: 1 – 4, Vectors and coordinate systems | Mini-exam 1 |
| | 3 | 4: 1 – 7, Kinematics in two dimensions | Mini-exam 2 |
| | 4 | 5: 1 – 7, Forces and motion<br>6: 1 – 6, Dynamics I: motion along a line | Mini-exam 3 |
| | 5 | 7: 1 – 5, Newton's third law | Mini-exam 4 |
| | 6 | 8: 1 – 7, Dynamics II | Mini-exam 5 |
| | 7 | 9: 1 – 6, Impulse and momentum | **Mid-term exam** |

| *Date* | *Week* | *Chapter: Sections, Topic* | *Exam* |
|---|---|---|---|
| | 8 | 10: 1 – 7, Energy | Mini-exam 6 |
| | 9 | 11: 1 – 9, Work | Mini-exam 7 |
| | | Spring Break | |
| | 10 | 12: 1 – 8, Rotations of a rigid body | Mini-exam 8 |
| | 11 | 12: 9 – 11, Rolling motion and angular momentum | Mini-exam 9 |
| | 12 | 13: 1 – 6, Newton's theory of gravity | Mini-exam 10 |
| | 13 | 14: 1- 7, Simple harmonic motion and oscillations | Mini-exam 11 |
| | 14 | 16, 17: First law of thermodynamics | Mini-exam 12 |
| | 15 | 18, 19: Second law of thermodynamics Wrap-up and review | |
| | | Final Exam, 7:30 – 9:30 a.m., 308 HCB | **Final exam** |



# UNIVERSITY POLICIES

## UNIVERSITY ATTENDANCE POLICY

Excused absences include documented illness, deaths in the family and other documented crises, call 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 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.)

## AMERICANS WITH DISABILITIES ACT

Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Student Disability Resource Center; and (2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class. This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the: Student Disability Resource Center 874 Traditions Way 108 Student Services Building Florida State University Tallahassee, FL 32306-4167 (850) 644-9566 (voice) (850) 644-8504 (TDD) sdrc@admin.fsu.edu http://www.disabilitycenter.fsu.edu/

## FREE TUTORING FROM FSU

On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of on-campus tutoring options at http://ace.fsu.edu/tutoring or tutor@fsu.edu. 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.

## LIBERAL STUDIES FOR THE 21ST CENTURY

The *Liberal Studies for the 21st Century* Program at Florida State University builds an educational foundation that will enable FSU graduates to thrive both intellectually and materially and to support themselves, their families, and their communities through a broad and critical engagement with the world in which they live and work. Liberal Studies thus offers a transformative experience. This course has been approved as meeting the **Liberal Studies** requirements for **Natural Sciences** and thus is designed to help you become a critical appraiser of the theories of the natural sciences and the facts that support them.

## SYLLABUS CHANGE POLICY

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.