

PHYS 211-003 Physics I with Calculus (Spring 2017)

LOCATION AND TIME: MPCB 101, MWF 3:00 pm-4:15 pm

Please do not be late for class. Tardiness is disruptive and inconsiderate to others.

PREREQUISITES: MATH 144; **COREQUISITES:** MATH 170, PHYS 211L

Important reminder: Any student who intends to take PHYS 212 must pass MATH 170 with a C- or better

INSTRUCTOR: Jim Brennan, MPCB 312, jbrennan@boisestate.edu, 208-426-2678

OFFICE HOURS: MWF 1:30-2:30, TuTh 10:30-11:30, or by appointment

PHYSICS DEPARTMENT PHONE: 208-426-3775

Week	Monday Date	Topics	Labs and Exams
1	9-Jan	Motion Orientation; Chapter 1	No Lab
2	16-Jan	Kinematics Chapter 2 (skip 2.7 Instantaneous Acceleration)	Monday Holiday Lab 1: Linear Motion
3	23-Jan	Vectors/2D Kinematics Chapters 3 - 4 (skip 4.3 Relative Motion)	Lab 2: Motion & g
4	30-Jan	2D Kinematics/Force Chapters 4 - 5	Lab 3: Particle Equilibrium
5	6-Feb	Force/Linear Dynamics Chapter 6	Exam 1 Chapters 1-4 Wed-Fri Lab 4: Unbalanced Forces
6	13-Feb	Linear Dynamics/Newton's 3rd Law Chapter 7	Lab 5: Newton's 2 nd
7	20-Feb	Newton's 3rd/Work and Kinetic Energy Chapter 8	Monday Holiday Lab 6: Centripetal Force
8	27-Feb	Kinetic/Potential Energy Chapter 9	Lab 7: Work-Energy
9	6-Mar	Energy/Impulse and Momentum Chapter 10	Exam 2 Chapters 5-8 Wed-Fri Lab 8: Conservation of Energy
10	13-Mar	Rigid Body Rotations Chapter 11 (skip 11.6 Rocket Propulsion)	Lab 9: Impulse-Momentum
	20-Mar	Spring Break	
11	27-Mar	Rigid Body Rotations/Gravity Chapter 12	Lab 10: Angular Acceleration
12	3-Apr	Gravity/Fluids Chapter 14 (skip 14.6 Elasticity)	Lab 11: Archimedes' Principle

13	10-Apr	Oscillations/Waves Chapters 15 - 16 (skip 15.7, 15.8 Damped and Driven)	Exam 3 Chapters 9-12 Wed-Fri Lab 12: SHM
14	17-Apr	Traveling Waves/Superposition Chapters 16 - 17	Lab 13: Speed of Sound
15	24-Apr	Superposition Chapter 17	Lab 14: Resonance in Air Columns
16	1-May	Finals Week	Exam 4 Chapters 13-17 + cumulative Saturday week 15 to Friday week 16

TEXT: [Knight, Physics for Scientists and Engineers 4e, 2016 Pearson](#), ISBN-13: 978-0133942651
ISBN-10: 0133942651, or you can get the online e-text version (see below).

ONLINE HOMEWORK: You will need an account with Mastering Physics. If you bought the textbook bundle from the BSU bookstore then it included an access code. Otherwise you can pay by credit card when you first access Mastering Physics. Mastering Physics for this course is only accessible through our course Blackboard site. **DO NOT SIGN UP AT MASTERINGPHYSICS.COM.** You can also pay for the e-text version of the textbook, if you prefer, when you register with Mastering Physics.

20% of your grade is based on homework. The online Mastering Physics Homework is accessed through the Blackboard site for this course. Click on the Mastering Physics link on the left side of the Blackboard page. The homework is correlated with the sections scheduled above and must be completed as scheduled on the website in order to facilitate classroom discussion. Some exam questions will be problems from the homework. Pay attention to the homework due dates because you only get full credit for homework problems submitted before the deadline. Homework due dates will not be extended for individual students.

PARTICIPATION SYSTEM: We will be using REEF Education for polling questions during lecture, and you will need to establish a REEF account. You can purchase an i>clicker device from the bookstore, or you can use the *REEF Polling by i>clicker app* available from either Google Play or the iTunes App Store (the app is better). A 6-month subscription costs \$14.99. You must register your REEF account in Blackboard to get the points. To do this click the 'Assignments' link on the course Blackboard page, and then click the 'REEF Polling' link. This will take you to a new page and just follow its instructions to complete your registration.

20% of your grade is based on class participation. This may include:

- Attendance. Attendance will be taken during the first few minutes of class. You will not get the attendance points if you come in late. If people leave early I can also take attendance at the end of class.
- Lecture questions. During the class some questions will be posed for you to consider, and the responses tallied using REEF software.
- Interactive lecture demonstrations and/or group exercises. Some demos in class will be done allowing students to predict the outcome, discuss with peers, then the demo/experiment will be performed. Again the correct answer is not important, just the attempt.
- Activities or assignments based on reading the text.
- Practice quizzes, worksheets and other in-class activities that the instructor chooses. Graded assignments will be returned to you in lab. **It is your responsibility to retain all assignments.** It is your proof of completion.

GRADING: A+ = 97-100, A = 94-96, A- = 90-93, B+ = 87-89, B = 83-86, B- = 79-82, C+ = 75-78, C = 71-74, C- = 66-70, D+ = 62-65, D = 58-61, D- = 54-57, F = < 54

The formula used for calculating your grade will be as follows:

Four exams worth 20% each, online homework 20%, participation 20%. This adds up to 120%, but the lowest one of those six items will be dropped (except for Exam 4, which cannot be dropped).

Please note that your grade will be calculated using the above formula, and your current scores can always be checked on Blackboard at any time. **The grade calculated by this formula is the grade you will get. Please do not ask me to give you a higher grade.** The final grade will be rounded to the nearest whole number in order for a letter grade to be assigned from the above scale.

EXTRA CREDIT: Up to 3% of the final grade may be extra credit assignments, at the instructor's discretion.

PLEASE check the Blackboard grade book, Mastering Physics, and your REEF account periodically and make sure your grades are correct. It is your responsibility to keep track of your class standing. You have one week from the day points are posted for a participation activity, assignment, or extra credit opportunity to inform me of missing or incorrect points. After that the posted score can no longer be changed and will stand as posted. There is no possibility to make up work at the end of the semester (dead and finals week) because you are suddenly aware of a low class percentage. Do not wait until finals week to determine that you are not passing the course, because it is too late. If you notice you have a missing score during finals week, it is too late!

EXAMS: Exams are based on the textbook readings, the examples in the text, the homework, and the class lectures. There will be four exams (worth 20% each, including the final exam, which is just Exam 4).

All four course exams will take place in the Simplot Micron Academic Success Hub Room 213 (2nd Floor). **You must schedule your exam time in advance.** Do this soon—if you wait until the last minute all the convenient times will be taken.

Schedule your exam at <https://testing.boisestate.edu>

Once your exam is scheduled, you must be on time. If you are late for your appointment you may not be allowed to take your exam. It is the student's responsibility to understand the policies and procedures of the Testing Center, which shall be enforced in full.

Some highlights of the testing center policies:

- Schedule your appointments early. If you procrastinate you might find that you must schedule your exam during an inconvenient time or that the appointment spots might fill up.
- The Testing Center requires a valid BSU student ID.
- Allowed materials consist of an instructor-provided formula sheet (no external formula sheets or note sheets allowed) to be handed out by the proctor at the Testing Center, and a paper-only language dictionary (no electronic dictionaries). One sheet of scratch paper at a time will be provided by the Testing Center. The formula sheet and scratch paper will be collected at checkout. Be prepared to have the proctors collect this material when you leave.
- Calculators will be provided by the Testing Center. The model of calculator will be a TI 30-X IIS. This is a standard scientific calculator, however you may want to familiarize yourself with the standard

functions on this calculator before you take your exam. The exams will not require anything more complex than the use of basic algebraic functions (square roots, trig functions, etc.)

- You will be provided a pencil at the test center and cannot use other writing instruments.
- No cell phones are allowed in the Testing Center.
- Any example of academic dishonesty (including but not limited to using non-sanctioned test aids, crib-sheets during the exam, using cell phones, observing the work of others in the testing center, etc.) will be reported and taken seriously by the department and the university. Repercussions can include a zero on the exam, an F in the course, or expulsion from the university, at the prerogative of the instructor/department and the Dean of Students.

MISSED EXAMS: If you have a compelling reason to miss an exam you must make arrangements with the instructor PRIOR to the exam. If no arrangements are made prior to the exam a grade of zero will be given for the exam.

BRONCOCARD: All students taking Boise State classes are charged a fee of \$25 for a Boise State picture ID card, called a BroncoCard, at the time of registration. A currently valid BroncoCard is required for this class, and must be presented in order to take course exams. For information on how to get a BroncoCard, please visit <https://broncocard.boisestate.edu/how-to-get-a-broncocard/>

LECTURES & ASSIGNED READINGS: Class lectures relate closely to the assigned readings in the text. Students are expected to attend all lectures and participate actively in class. Consult the syllabus and read the assigned pages **before** the material is covered in class. As you read, write down any questions you have about the reading and the numbered examples, and ask questions in class.

LEARNING ASSISTANT: There is a Learning Assistant (LA) matched with this course to facilitate group study sessions on a weekly basis that will help you be successful in this class. These study groups are open to anyone enrolled in this course who would like to stay current with the course material and understand the material better. Attendance at these sessions is voluntary, but extremely beneficial... I strongly encourage you to attend. Times and locations for study sessions can be found here: <http://aae.boisestate.edu/tutoring> and on the blackboard site for this course.

Students who attend these interactive sessions will find themselves working with peers as they compare notes, demonstrate and discuss pertinent problems and concepts, and share study and test-taking strategies. Students are asked to arrive with their book, lecture notes, and questions to these informal, peer-led study sessions. Past statistics show that students that attend regularly score at least a half-letter grade better than students that do not.

SAFE ASSIGN: The instructor may require that assignments be submitted via Safe Assign in Blackboard in order to check for plagiarism. The lab section will also require the use of Safe Assign for lab reports.

ACADEMIC DISHONESTY: Plagiarism occurs when a person passes in another person's work as his or her own or borrows directly from another's work without documentation. It doesn't matter if the work is that of a published author, an unpublished co-worker, or another student. Plagiarism also occurs when a person passes off another person's ideas as his or her own; merely casting another writer's ideas in different words doesn't free one from the obligation to document one's source. Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment, activity, or exam may fail the assignment, activity, or exam in question or fail this course dependent on a hearing with the course instructor. Academic Dishonesty is defined in the Student Code of Conduct (Article 2, Section 18). It is strongly suggested that you read and understand these definitions: <http://deanofstudents.boisestate.edu/student-code-of-conduct>.

A student who engages in academic dishonesty will be referred to the Office of Student Rights and Responsibilities for disciplinary action. Other penalties may include academic probation, suspension, or expulsion from school.

Examples of academic dishonesty include (but are not limited to):

- Using non-sanctioned test aids (crib-sheets) during the exam
- Using cell phones in the testing center
- Observing the work of others in the testing center
- Copying test questions to take out of the testing center
- Possessing copies of tests, test questions, or test banks without instructor permission
- Submitting REEF responses for another student or for a class you are not attending

FOUNDATIONAL STUDIES STATEMENT: Boise State's Foundations Program provides undergraduates with a broad-based education that spans the entire university experience. *PHYS 211: Physics I with Calculus* satisfies four units of the Foundation Program's Disciplinary Lens-Natural, Physical and Applied Sciences (DL-N) requirement. It supports the following University Learning Outcome, along with a variety of other course-specific goals.

8. Apply knowledge and the methods characteristic of scientific inquiry to think critically about and solve theoretical and practical problems about physical structures and processes.

PHYS 211: Physics I with Calculus is designed to help students understand the ways in which the established laws of nature allow us to understand and predict future behavior of physical systems, as well as using scientific reasoning to acquire and analyze data. This course helps to achieve the goals of the Foundations program by focusing on the following course learning outcomes. After successful completion of this course, you will be able to:

- *Solve problems using Newton's Laws and Conservation Principles to predict future behaviors in motion from a set of initial conditions.*
- *Apply Laws of Force and Energy to solve common real world problems.*
- *Assess experimental data to verify or disprove a particular hypothesis.*
- *Represent physical problems using mathematical notation.*
- *Understand how the laws of physics have shaped technology and the environment.*
- *Effectively communicate experimental procedure as well as the underlying theory.*

SYLLABUS: The syllabus describes the intended progression of the course. The syllabus and homework assignments will be revised as needed. I reserve the right to modify the syllabus and schedule at any time. Revisions will be documented in an announcement on the Blackboard course site.

DISABILITY SERVICES: Students with disabilities needing accommodations to fully participate in this class should contact the Educational Access Center (EAC). All accommodations must be approved through the EAC prior to being implemented. To learn more about the accommodation process, visit the EAC's website at <https://eac.boisestate.edu>.