

PHYS 2311 "Physics I" - Spring 2023

CRN: 32415 Credits: 3.0

Program: [Physics and Astronomy](#)

Class Home page: <https://jpastro.net/PHYS2311/syll-phys2311.html> (this page!)

Class time and place: MWF, 12:00-12:50 pm, Meyer 113 (Section 5)

Instructor: **Dr. Jason Pinkney**

[Office hours](#) in 111 Science Annex on Tues at 10 am and 1-3 pm, and on Thur at 9-11 am.

Email j-pinkney@onu.edu or call 419-772-2740.

Instructor's Home page: <https://jpastro.net>

Course Description:

This course is a calculus-based introduction to physics. Topics include motion in 1, 2, and 3 dimensions, forces, Newton's laws, energy, momentum, rotational motion, oscillations, and thermodynamics. A tentative calendar of topics is outlined [below](#).

Course Objectives

At the end of the course, students will be able to:

- Analyze the motion of particles in space and time, according to Newtonian mechanics.
- Apply the concepts of force, work, and energy to solving mechanics problems.
- Analyze the rotational motion of the rigid solid.
- Analyze the oscillatory motion of basic systems.
- Explore thermodynamic systems at the macroscopic and microscopic level using the laws of thermodynamics.

Lab:

The lab for this class is Physics 2341. You should be signed up for one of the many sections of PHYS 2341, although it can be taken in a future semester. The lab is graded independently of the lecture class. The labs are held on Tuesdays and Thursdays. Please attend this week because you will have a short, informational meeting with your instructor. Please bring \$15 (exact change) to your first lab meeting for the lab manual and notebook. All lab sections are held in Meyer 121.

Textbook:

[Physics for Scientists and Engineers](#), 5th Edition. By Giancoli.

(Print ISBN-13: 9780134378060, eText ISBN-13: 9780137488179) You need chapters at the beginning and end of this textbook, so don't just get the "volume 1" or "volume 2" versions.

NEW STUFF (Watch this spot for outlines and extras.)

[Advice on homeworks](#)

[Week 1 Powerpoint](#) -Units and Measurements (PDF) (updated 1/30/23)

[Practice quiz - Units, significant figures, etc.](#)

[Practice quiz - 1D kinematics \(velocity, acceleration, etc\)](#)

Grading:

In-class	Homework, attendance	25%
Quizzes	Quizzes (drop lowest score)	25%
Exams	There will be two exams and a final.	50%
Total		100%

Your final letter grade is calculated roughly as follows:

< 55	55-70	70-80	80-90	90-100
F	D	C	B	A

I will not grade any "harder" than the above. However, if the class mean drops below 75, I will grade more leniently.

Schedule (tentative):

Week of	Topic	Chapter(s)	Tests
1/23,25,27	Syllabus, Units & Measurements (3)	1	
1/30,2/1,3	Motion in one dimension (3)	2	quiz 1
2/6,8,10	Vectors (1), Motion in 2D and 3D (2)	3	quiz 2
2/13,15,17	Newton's Laws of Motion (3)	4	
2/20,22,24	Friction, Circular Motion (3)	5	quiz 3
2/27,3/1,3	Work and Energy (2)	7	Exam I
3/6,8,10	Energy (1), Conservation of Energy and Power (2)	7, 8	
3/13-17	SPRING BREAK		
3/20,22,24	Linear Momentum and Collisions (3)	9	quiz 4
3/27,29,31	Rotation of Rigid Objects (3)	10	quiz 5
4/3,5	Angular Momentum (2)	11	
4/7	Easter Break		
4/10,12,14	Static Equil (1), Oscillatory Motion (1)	12,14	Exam II
4/17,19,21	Temperature and Heat (3)	17	
4/24,26,28	Kinetic Theory (2), First law (1)	18, 19	quiz 6
5/1,3,5	First Law of Thermodynamics (3)	19	quiz 7
5/8,10,12	Second Law of Thermo (3)	20	
5/18, Thu 4:15 - 6:15 pm	Comprehensive Final Exam. (Place TBD)	—	Final exam.
Last Add = 1/31; Last Drop = 2/10; Last W = 4/14; Honors Day 4/18.			

Course Policies:

Moodle will only be used sparingly for this class unless we have to go online. Read how I will use Moodle in the Introduction Section [here](#).

Attendance can affect your grade both directly and indirectly. Attendance is crucial on test days. Sometimes I will call on people from my class list to answer questions, or have everybody solve practice problems on a sheet of paper. If you miss such an in-class activity, there is no make-up. The attendance score can then be factored in to the "Homework, attendance" part of your grade. Absences can also indirectly lower your grade because the material presented in class reflects the material on quizzes and exams. Let me know in advance (e-mail is good) if you plan to miss for a valid reason (e.g. your team is on the road, you are sick, you have a family emergency). If you miss a quiz or exam because of an unforeseen emergency, let me know as soon as possible, and provide proof of the emergency. The name and phone number of a relevant authority figure (perhaps a parent) can be provided as proof. Do not book flights or make other plans that conflict with the final examination time.

Homework will consist of working problems from the textbook and from the instructor. Problem solving is a major part of physics; you must practice it to really know it. I hope to provide some practice questions from a test bank each week. These do not have to be turned in, but can be considered a homework "supplement". Homework turned in after the due date (usually Friday afternoon) will be given 50% credit.

In-class problems. These problems will count towards the homework portion of your grade, although they will be done in-class (hence the name). Grading will be lenient (basically an attendance check). Do not attempt to "make up" these problems if you

miss one, but you can ask me or a student for their notes.

Turning in Assignments. Baring a change to online teaching, I will be accepting only hardcopies of homework (as opposed to having you scan and upload/email them). These should be written out by hand on fringe-free paper. Do not email the assignments to me without my permission.

Quizzes will be given on most non-exam weeks. They will consist of 5 - 10 questions and problems (mixed format). They cover the assigned reading, homework and especially the material discussed in class. You can only make up a quiz that was missed because of a valid conflict or emergency. Also, you can only make up the quiz before the answers are revealed (usually the next period). Exception: quarantine due to COVID-19. For this reason, I will drop your lowest quiz score.

Exams. will be given roughly every 5 weeks. These will weigh most heavily towards your class grade. The final exam will be comprehensive, but will emphasize the last 5-6 weeks of material.

Disruptions interfere with the learning of students or with the presentation by the instructor. Avoid talking unless it is invited by the instructor. (Questions are always welcome.) Don't habitually walk in too late or leave too early. Do not use cell-phones and don't text in class. Do not use laptops to distract yourself from the class. If you really think you can take notes better on a laptop then in a notebook, then see me. If it distracts the class, I'll ask you to stop. In general, do not disrupt the class or you may be asked to leave.



Cheating will not be tolerated. During tests, do not use outside references like laptops, textbook, or notes UNLESS I explicitly allow them. Do not look at another person's quiz or exam while you are taking one. Do not make it easy for another person to see your answers - if anything shield your answers. Do not share calculators or use phones during an exam unless you check with me. Do not store equations in your calculators. The penalty for cheating is as severe as a zero score for the quiz or exam. More serious repercussions may occur at the college and university level (see "Academic Honesty" link below).

Calculators. I encourage you to use a simple calculator in this class. Cell phone apps can be only used for homework, not tests. Do not store functions in the memory of your calculator if you wish to use it for tests. If you do not submit your calculator to me for an inspection when asked you will be denied the right to use one.

Tutoring. is available from Physics, Engineering, and Math. (Physics tutors usually work on Thursdays from 7-9 PM in SA116.) Listen for a confirmation in class. Of course, you are also welcome to drop by during my office hours.

Common syllabus information.. Here is [common course information](#) which applies to all courses. This includes the covid Safety Plan, Grading Modes, Readmission, Repeat Policies, and more.

Other Mandatory Syllabus Information:

Disability services	Academic Honesty (Append. F, p. 100)	Title IX
 Hyperphysics 	Cool Dynamics Demos	The ONU Physics Homepage