

**Overview:** General Physics I is an algebra and trigonometry based introductory physics course covering mechanics (kinematics, accelerated motion, forces, momentum, energy, rotation, equilibrium, gravity, fluids, oscillations) and thermodynamics (temperature, heat, energy exchange).

**Objectives:** Successful students will obtain a broad idea of how to analyze the processes of nature, what goes on in the world, and how some technology works, including the basic concepts and their applications in everyday life. Learning effective problem solving and finding numerical answers is an important goal of the course.

**Requirements:** Knowledge of algebra, trigonometry, and geometry is required for best understanding (MATH 150).

**Approach:** The course has lectures with demos and problem solving explanations, recitations where you do problem solving, online homework, labs with writeups, and quizzes. You must be enrolled in all four parts: LEC, QZ, REC and LAB sections. Any material from the lectures, recitations, homework or labs may appear on the Quizzes.

**Text:** The free OpenStax *College Physics*, at <https://openstax.org/details/books/college-physics> (Chs. 1–17).

**Lecturer:** Prof. Gary Wysin, Cardwell 106, [wysin@ksu.edu](mailto:wysin@ksu.edu), <http://www.phys.ksu.edu/personal/wysin/>, Office Hours: TWU 2:30-4:20, or by appointment.

#### Course websites:

See <http://www.phys.ksu.edu/personal/wysin/GPI/> for lecture summaries.

See <http://theexpertta.com> for information about online homework system TheExpertTA.

See <http://k-state.instructure.com> for current information, scheduled activities, grades, and announcements.

Make sure you allow course notifications in Canvas so you receive important announcements about the course.

**Grading:** On a 1000 point scale, this is the grading system:

Points Allocation:		Grade Assignment:	
Homework (15 weeks)	180	1000 – 901	A
Labs (best 12/13)	180	900 – 801	B
Recitation (best 14/15)	140	800 – 701	C
Quizzes (best 3/4)	300	700 – 601	D
Final Exam	200	600 – 0	F
Total points	1000		

**Lectures:** Lectures (TU 9:30 or 10:30) are important. They contain an overview of the topics, some demos and some problem solving. They let me know whether you are understanding things. You may not be able to do the homework or recitations/labs if you don't get the basic information from lectures. Summaries of the ideas are available at the website <http://www.phys.ksu.edu/personal/wysin/GPI/>.

**Recitations:** Recitation (W various times) includes an extended problem that you work on with a group, on paper (10 points each, lowest 1 dropped). You can also get help with the online homework. Your group-work problem must show the details of how you solved it: Include necessary **diagrams**, identify the **concepts** or **physics principles** you are using, show the **equations** you apply, how to solve them, and show how the numbers with units are inserted after that, and finally, a numerical answer with the correct units. Your solution should be clear enough for another student to understand it. Clear solutions will also be an advantage on the Quizzes.

**Homework:** There are weekly online homework assignments in ExpertTA where you practice what you have learned. Access them through the homework assignment links inside Canvas, so that your grades will be synchronized correctly.

**Do Not** login directly to the Expert TA website. When you access the first homework assignment through Canvas, you will be taken to an Expert TA registration page.

**Quizzes:** Your best 3 out of 4 **Chapter Quizzes** (some Thursdays in CW 101 at 5:30) will contribute to your grade. You must take the comprehensive **Final Exam** (Tuesday, May 9, 6:20–8:10 p.m.) to pass the course. **No makeup quizzes will be given.** If you have an official University event, or a personal emergency, such as participation in a KSU sports team, debate team, death in the family, etc., you might be able to take that quiz early. Ask. On Quizzes, make sure you give a clear presentation of your work. Make sure numerical answers have the correct units! If you feel something has been graded unfairly, you can request regrades of your **quizzes** by your recitation instructor within 5 school days of receiving the graded quizzes. Your recitation instructor has the option either to regrade part or all of your quiz. Please be reasonable and avoid making frivolous requests.

## Suggestions & Getting Help:

- Ask questions in your lecturer's and recitation instructor's office hours, we are there to help.
- Grad students answer questions in a help room in the Physics Department (see schedule in Canvas).
- Try not to get behind. Get to the homework quickly after lectures.
- There are old exams and quizzes with solutions on the lecturer's web site.

We hope you will find this a stimulating and challenging course. When in doubt about something (procedures or physics questions!) please make the most of all of your KSU resources; ask your lecturer, recitation, or lab instructor questions, after all, this is what you are paying for.

## GP1 Spring 2023 Semester Schedule (Chapter numbers in OpenStax College Physics)

Date	Lec #, Chapter, Topic	Lab Dates & Experiments
1/17 T	1 Ch1 Science, units, measurements	
1/19 U	2 Ch2 1D kinematics, velocity, acceleration	1/20, 1/23, No Labs
1/24 T	3 Ch2 Motion with onstant acceleration, free fall	
1/26 U	4 Ch3 Vectors: addition, subtraction, components	1/27, 1/30, Introduction to video analysis
1/31 T	5 Ch3 2D motion, projectiles	
2/02 U	6 Ch4 Newton's laws of motion	2/03, 2/06, Projectiles
2/07 T	7 Ch4 Newton's laws & gravity & inclines	
2/09 U	8 Ch5 Problmes with friction & inclines	2/10, 2/13, Newton's laws
2/09 U	Quiz 1 on Chs 1,2,3,4, CW101, 5:30 p.m.	
2/14 T	9 Ch6 Circular motion & centripetal acceleration	
2/16 U	10 Ch6 Newton's law of gravitation & orbits	2/17, 2/20, Centripetal acceleration
2/21 T	11 Ch7 Work, kinetic & potential energy	
2/23 U	12 Ch7 Conservation of mechanical energy	2/24, 2/27, Work and energy
2/28 T	13 Ch8 Linear momentum and 1D collisions	
3/02 U	14 Ch8 More on Collisions; center of mass	3/03, 3/06, Momentum & collisions
3/02 U	Quiz 2 on Chs 5,6,7, CW101, 5:30 p.m.	
3/07 T	15 Ch9 Torque & static equilibrium of objects	
3/09 U	16 Ch10 Rotational kinematics, torque	3/10, 3/20, Static equilibrium
3/14 T	Spring Break!	
3/16 U	Spring Break!	
3/21 T	17 Ch10 Rotational dynamics, inertia, angular momentum	
3/23 U	18 Ch11 Static fluids: density & pressure	3/24, 3/27, Rotational motion
3/28 T	19 Ch11 Static fluids: Archimedes' principle of buoyancy	
3/30 U	20 Ch12 Fluid dynamics, Bernouli equation & moving fluids	3/31, 4/03, Archimedes' principle of buoyancy
3/30 U	Quiz 3 on Chs 8,9,10,11, CW101, 5:30 p.m.	
4/04 T	21 Ch16 Vibrations & simple harmonic motion	
4/06 U	22 Ch16 Waves: frequency, wavelength, speed	4/07, 4/10, Oscillations
4/11 T	23 Ch17 Sound: sources, interference, intensity and level	
4/13 U	24 Ch13 Atomic theory, temperature, ideal gas laws	4/14, 4/17, Introduction to waves
4/18 T	25 Ch13 Ideal gases & kinetic theory	
4/20 U	26 Ch14 Heat: temperature changes, latent heat	4/21, 4/24, Gas laws
4/20 U	Quiz 4 on Chs 12,13,16,17, CW101, 5:30 p.m.	
4/25 T	27 Ch14 Heat: Conduction, convection, radiation	
4/27 U	28 Ch15 1st law of thermodynamics: energy conservation	4/28, 5/01, Calorimetry
5/02 T	29 Ch15 2nd law of thermodynamics: engines & cooling	
5/04 U	30 Ch15 2nd law of thermodynamics: entropy & disorder	5/05, 5/08, No Labs
5/09 T	Comprehensive Final Exam, Chs. 1–17, 6:20–8:10 p.m.	

See summaries of lecture notes labeled by lecture number at <http://www.phys.ksu.edu/personal/wysin/GPI/>.

## Required University Statements about behavior in class

KSU requires various statements on course syllabi. Please inform yourself on the full statements at <https://www.k-state.edu/provost/resources/teaching/course.html>. Here they are in highly condensed form:

**Academic Honesty:** Do your course work honestly and without unauthorized aid. If you cheat it can have serious negative consequences for your academic career and beyond.

**Disabilities:** If you need classroom accommodations for a wide range of disabilities please contact your instructors and the Student Access Center at [accesscenter@k-state.edu](mailto:accesscenter@k-state.edu), 785-532-6441.

**Classroom Conduct:** Don't disrupt the class.

**Mutual Respect & Inclusion:** Students (and instructors) all come from different backgrounds but we all want to be treated equally, fairly and with respect. Be open to receiving and giving diverse points of view and ideas.

**Face Coverings:** The KSU policy on face coverings keeps changing. Currently, Kansas State University strongly encourages, but does not require, that everyone wear masks while indoors on university property, including while attending in-person classes.

**Discrimination and Harassment:** Kansas State University is committed to maintaining academic, housing, and work environments that are free of discrimination, harassment, and sexual harassment. Instructors support the University's commitment. If you experience any of these, make a confidential report to the KSU Office for Institutional Equity (OIE) using the online reporting form.

## Other Statements about behavior in class

**More on Academic Honesty:** Use of any kind of **solution manual**, online websites, online apps, online sites where problems are solved for you by others, or copying or posting of solutions to/from online sites, for doing homework, labs, recitations, quizzes, or exams is an **unauthorized aid**. These are serious violations of the honor code and the damage to your career for such violations is much greater than any possible advantage you might get from using them. Digital data has a lot of tracking. These websites also have an honor code and they share data with KSU, so you can be caught. You are training to be a professional and your personal integrity is at stake. Don't jeopardize your future for a few points, it is not worth it in the long run. It is better to be honest, and do your own work. Someone has to know something, and be the expert, why not you?

**Academic Freedom:** Discussion of new, controversial, or non-mainstream ideas is a way to find new knowledge and is embraced in a University environment.

**Mental Health:** Many events or stresses in university life may lead to mental health issues that interfere with a productive life. If you are struggling, please seek assistance, such as at Kansas State University Counseling Services (<https://k-state.edu/counseling/>) and other services.

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