

Instructor: Prof. Uwe Thumm, CW 212, Tel: 532-1613, e-mail: thumm@phys.ksu.edu
Office hours: W F 2:30-3:30 and by appointment
Text: Conceptual Physics, 10th edition, Paul Hewitt (Addison Wesley 2006)

Classes meet M W F at 11:30 am in CW 103. To view all course information online, including syllabus, assignments, sample exams, and your grades, you will need K-State online access.

The goal of this course is to help you develop a greater capacity to notice, to think about, to analyze, and to understand the natural world. In this class, I intend to familiarize you with the development of scientific concepts and to provide you with an appreciation of the known laws of physics and their implications for science and technology in our daily lives. During this semester, you will learn about our current understanding of what the physical world is made of and how it works.

What I expect from you is to attend all classes and to take notes that you later review and revise. You are expected to carefully read the assigned chapters in the textbook, with a pencil and paper handy, and to routinely work out all “check yourself” questions in the text and all “review questions” at the end of each chapter. Your answers to these questions will not be graded, but I strongly encourage you to carefully write them down and to discuss them with class mates, bringing up every point that is not crystal clear to you. For all exams and assignments that are graded, please remember that it is your responsibility to communicate your written solutions in a well-organized and readable manner and not mine to decipher your answers. It is best if you adhered to this practice even for the “check yourself” and “review” questions that are not turned in.

Homework: I will assign homework problems in class and also post them on K-State online. Your answers will be collected on the due dates given in the course schedule at the beginning of the class and graded. There will be no make-up homework assignments. At the end of the semester your two lowest homework scores will be dropped, and you will receive a total of up to 200 points for your homework. As for the “check yourself” and “review” questions in the textbook, you need to carefully study your homework assignments. Even though you are encouraged to first discuss ideas and solutions with your classmates, I expect every student to then write down and hand in his/her own work. Please keep in mind that it is impossible to do well in the exams without sufficient practice.

Exams: There will be three in-class and a comprehensive final exam. You have to attend the final exam to pass this course. You will receive a maximum of 250 points for each in-class exam and 300 points for the final exam. Only your two best in-class exams count towards your final grade. There will be no make-up exams. Electronic communication tools, such as programmable calculators, laptops, and cell phones must not be used. All exams will be held in CW 103.

Grades: Your final grade for this course will be based on your exam and homework scores. The maximum total number of points is 1000. The cut-offs are: **A:** 900 points, **B:** 800, **C:** 650, **D:** 500, **F:** < 500. There will be no extra credit activities to improve your grade.

Disabilities: If you have any condition such as a physical or learning disability, which will make it difficult for you to carry out the work as I have outlined it or which will require academic accommodations, please notify me and contact the Disabled Students Office (Holton 202), in the first two weeks of the course.

Cheating: Plagiarism and cheating are serious offenses and may be punished by failure on the exam, paper or project; failure in the course; and/or expulsion from the University. Any form of electronic communication during exams, including text messaging, violates our Honor System. For more information refer to the “Academic Dishonesty” policy in K-State Undergraduate Catalog and the Undergraduate Honor System Policy on the Provost’s web page at <http://www.ksu.edu/honor/>.

Course outline

Lecture	Date		Week	Topic	HW # due	Chap.
1	Jan.	16	1	About physics		1
2		21	2	Linear motion. Inertia. Newton's first law		2
3		23		Forces and motion. Equilibrium.	1	2
4		26	3	Speed and velocity.		3
5		38		Change in velocity: acceleration		3
6		30		Forces and acceleration.	2	4
7	Feb.	2	4	Newton's second law.		4
8		4		Interactions. Vectors.		5
9		6		Newton's third law.	3	5
		9	5	Impulse and momentum.		1-5
10		11		EXAM 1		6
11		13		Momentum conservation.		6
12		16	6	Collisions.	4	6
13		18		Work. Energy. Power.		7
14		20		Kinds of energy. Energy conservation.		7
15		23	7	Rotation motion and inertia.	5	8
16		25		Torque. Angular momentum (conservation).		8
17		27		Gravity.		9
18	Mar.	2	8	Motion in gravitational fields.	6	10
19		4		Planetary motion. Kepler's laws.		10
20		6		Molecules. Atoms. Nuclei.		11
21		9	9	Solids.	7	12
		11		EXAM 2		6-12
22		13		Liquids. Gases.		13,14
				<i>SPRING BREAK</i>		
23		23	10	Temperature. Heat.		15,16
24		25		Phase changes: freezing and melting.	8	17
25		27		Thermodynamics.		18
26		30	11	Wave motion. Interference.		19
27	Apr.	1		Standing waves.	9	19
28		3		Sound. Resonances.		20
29		6	12	Physics and music.		21
30		8		Electric charges, forces, and fields.	10	22
31		10		Electric current. Ohm's law.		23
32		13	13	Magnetism.		24
33		15		Electromagnetic induction.	11	25
		17		EXAM 3		13-25
34		20	14	Motors. Generators. Appliances.		22-25
35		22		Electromagnetic radiation: light.	12	26,27
36		24		Reflection and refraction.		28
37		27	15	Propagation and interferences of light waves.		29
38		39		Propagation and interferences of light waves.	13	29
39	May	1		Light sources. Light quanta.		30,31
40		4	16	Quantum mechanics: atomic physics.		32
41		6		Nuclear physics and applications.	14	33,34
42		8		REVIEW		
	May	13		FINAL EXAM 11:50am – 1:40pm		1-34