

Physics 207 Syllabus — Spring 1994

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Text

The main text is Fishbane, Gasiorowitz and Thornton, *Physics for Scientists and Engineers*. Other texts are available in the Physics Library, and you are urged to use them for a different perspective or different problems. The orange departmental lab manual (\$5.00) will be used. Old exams will be placed on reserve in the Physics Library.

Exams

There will be three non-cumulative one-hour exams in class on Fridays, plus non-cumulative and cumulative halves of the scheduled final exam:

Friday 3/4 Chapters 1-5
Friday 3/25 Chapters 6-10
Friday 4/29 Chapters 11-16
Sunday 5/15 Chapters 17-21 (part 1), Cumulative (part 2)

Bring only a calculator and pen or pencil to the exams. Formulas and constants will be provided on the exam crib sheet, which will be handed out on the Friday before an exam for your use while studying.

Homework

The homework 'problems' (not 'questions') are due on Monday in discussion section. They are meant mainly to urge you to test your understanding and practice solving problems; not all problems from the assigned set will be graded by the TAs. Solutions to the homework will be placed in the reserve shelf in the Physics Library after it is due.

Labs

Labs are a very important component of 207; you will fail if you miss more than one lab. The labs often lead the lecture material, so please read ahead! You must make up a missed lab in the same week in a different section; arrange it ahead of time with the TAs. You should use a bound quadrilled lab book, which will be looked over by the TA before you leave the lab. Lab books will be kept in the labs without exception. Lab books will be graded with extra credit awarded for creative work — you are encouraged to deviate from the orange book if you think of something interesting to pursue. The goal of the labs is not to get the "right number" but to approximate experimental physics, in which there are no orange books. You must have a different lab partner each week.

Grading

The student's final grade will be determined as follows:

30% labs
10% homework
36% 3 Friday exams (12% each)
24% non-cumulative and cumulative half of final exam (12% each)

Office Hours

Teaching assistants will have office hours in 2312 Sterling on a schedule announced in class. You are welcome to stop by my office anytime or arrange a meeting with me after class; I have a flexible schedule.

Honors Students and Friday Lectures

Honors students are required to attend the Friday special lectures, which all students are encouraged to attend. Feel free to suggest topics for the Friday lectures. Honors students will be assigned a few special problem sets and a short term paper. Honors students are not required to attend the Friday review sessions.

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Week	Day	Date	Ch	Subject	Lab/Topic	Homework
1	T	1/25	1	Intro, Units	M0	7,13,20,30,
	R	1/27	1	Vectors	reaction	43,61,66,70
	F	1/28		<i>Estimation</i>	time	
2	T	2/1	2	Kinematics:	M4	2,3,15,20,
	R	2/3	2	1-D Motion	acceleration	29,33,44,60
	F	2/4		<i>Ray Tracing</i>	in free fall	
3	T	2/8	3	Kinematics:	M5	4,17,20,28,
	R	2/10	3	2-D Motion	projectile	35,49,51,58
	F	2/11		<i>Ballistics</i>	motion	
4	T	2/15	4	Dynamics:	M3	6,12,19,23,
	R	2/17	4	Newton's Laws	static forces	32,40,45,50
	F	2/18		<i>Chaos</i>	and moments	
5	T	2/22	5	Applications	M6	13,23,38,52,68
	R	2/24	6	Work, Kinetic Energy	uniform	12,19,32,50,64
	F	2/25		<i>CH 1-5 Review</i>	circular motion	
6	T	3/1	7	Potential Energy and	M10	5,17,22,29,
	R	3/3	7	Energy Conservation	power and	39,55,61,65
	F	3/4	⇒	EXAM 1 CH 1-5	friction	
7	T	3/8	8	Linear Momentum	M14	7,14,37,43,
	R	3/10	8	and Collisions	collisions on	53,59,65,70
	F	3/11		<i>Fictitious Forces</i>	the air track	
8	T	3/15	9	Rigid Rotation	M9	8,16,22,37,39
	R	3/17	10	Rotational Dynamics	flywheel	12,31,43,46,50
	F	3/18		<i>CH 6-10 Review</i>		
9	T	3/22	11	Static Equilibrium	M13	7,10,19,30,38
	R	3/24	12	Gravitation	gyroscope	2,20,29,53,55
	F	3/25	⇒	EXAM 2 CH 6-10		
3/26-4/4 Spring Break!						
10	T	4/5	13	Simple Harmonic Motion	M7	13,24,32,42,
	R	4/7	13		simple	47,60,77,79
	F	4/8		<i>Gyroscopes</i>	pendulum	
11	T	4/12	14	Waves and	M11	6,10,17,24,
	R	4/14	14	Sound	torsion	31,44,52,54
	F	4/15		<i>Spectrum Analysis</i>	pendulum	
12	T	4/19	15	Wave Interaction	S3	9,15,21,34,42
	R	4/21	16	Fluids	velocity of	6,10,21,37,49
	F	4/22		<i>CH 11-16 Review</i>	sound in a gas	
13	T	4/26	17	Temperature, Ideal Gas	S1	12,30,39,48,57
	R	4/28	18	Heat and 1st Law	waves	8,16,29,57,64
	F	4/29	⇒	EXAM 3 CH 11-16	on a string	
14	T	5/3	19	Kinetic Theory	H2	8,12,29,51,58
	R	5/5	20	Entropy and 2nd Law	gas	7,19,26,33
	F	5/6		<i>CH 1-16 Review</i>	thermometer	
15	T	5/10	20	Entropy and 2nd Law	H3	35,51,55
	R	5/12	21	Properties of Solids	latent heat	7,19,23,31
	F	5/13		<i>CH 17-21 Review</i>	of fusion	
	Su	5/15	⇒	FINAL EXAM 7:45 AM Part 1 CH 17-21, Part 2 Cumulative.		