

Physics 1303

Introductory Mechanics

Fall 2012

Tuesdays and Thursdays 9:30am –10:50 am, 123 Fondren Science Building

Objective: Upon completion of this course the students will be able to demonstrate basic facility with the problem-solving methods related to mechanics including statics, dynamics, gravitation and relativity.

Student learning outcomes:

- 1) Students will be able to demonstrate basic facility with the methods and approaches of scientific inquiry and problem solving.
- 2) Students will be able to develop quantitative models appropriate to problems in Physics.
- 3) Students will be able to assess the strengths and limitations of quantitative models and methods used in Physics.
- 4) Students will be able to apply symbolic systems of representation.

Instructor: Professor Ryszard (Richard) Stroynowski
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Text: *"Fundamental of Physics - Extended"* by Halliday, Resnick and Walker, 9th Edition. If you purchase the WileyPLUS online, you will have access to the on-line text, study aids and homework assignments and can get the printed text for additional \$5-\$20. (See below). If you want to see the online system go to <https://www.wileyplus.com/>

Calculators: A scientific calculator is a must. Necessary functions are sin, cos, tan, exp, log, and roots, as well as the inverse operations. Email and TV reception capabilities are not required.

Prerequisites: We shall assume a working knowledge of algebra and trigonometry. A limited amount of calculus will be used. I will review the necessary calculus before I use it.

Quizzes and tests: There will be a closed book 15-minute quiz each week as marked (except when there is an exam scheduled). The material will be from the previous two lectures. There will be nine quizzes. Two quizzes with lowest scores will be dropped from grading. Note: this includes all missed quizzes, doctor's appointments, and other emergencies. **No make up quizzes** will be given. There are three 1 hour-long tests during the semester, each from the material as marked in the syllabus. All quizzes and tests are closed book. You can use one "cheat sheets" with formulas written on both sides and a calculator. Cell phones must be switched off.

Recitation Sessions:

157 Fondren Science Building: Monday 6-7pm, Tuesday 4-5 pm, Wednesday 4-5 pm, Thursday 7-8 pm.
Signup sheets will be given during the first class.

Grading:

Teaching Assistants will grade all quizzes and tests. The final course grade will be determined as follows: Quizzes 25%, Tests 15% each, Final 30%. Grade boundaries: A > 90% > A- > 85% > B+ > 80% > B > 75% > B- > 70% > C+ > 65% > C > 60% > D+ > 55% > D > 50% > F.

Homework:

Physics is not a spectator sport! Homework is assigned for each chapter. It should take you 2-3 hours each week read the textbook chapters and to solve all problems. The homework will not be collected nor graded.

Many of the quiz and exam problems are either variants or are taken directly from the homework. The online version of the textbook allows you to look up the solution. This is not a substitute for working out the problems on your own. You will find, that it is not sufficient to simply read through and by trial and error find the homework solution to understand the material. Information useful for problem solving and the mathematical formulas are listed in the Appendices at the end of the textbook.

Excused Absences for University Extracurricular Activities: Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work. (University Undergraduate Catalog.)

Disability Accommodations: Students needing academic accommodations for a disability must first contact Ms. Rebecca Marin, Coordinator of Services for Students with Disabilities (214-768-4557) to verify the disability and establish eligibility for accommodations. They should then schedule an appointment with the professor to make appropriate arrangements. (See University Policy No. 2.4.). **This applies to Tests only.**

Religious Observance: Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester, and should discuss with them, in advance, acceptable ways to make up any work missed because of their absence. (University Policy No. 1.9.)

For the PHYS1303 course I will use the extended version of the textbook Holliday, Resnick and Walker, Fundamentals of physics, 9th edition Extended. I am told that the online version allows you to print out the text and check the solutions to the homework problems and check additional material e.g., videos of example problems and students solution manual. The course has been registered with WileyPLUS so you can register for this course online. However, the online access is not obligatory, as I will not collect homework. Here are the options, as I understand them:

1. You can purchase WileyPLUS online only. This is the most economical option. You will have full access to the online version of the textbook. You will be able to print pages from the text in the case that you want to read the book, but do not have internet access. In addition, you will have access to all the study aids and homework assignments.
2. You can purchase the new printed text in the bookstore with a WileyPLUS access code. This costs an additional \$5 - \$20 and will give you access to the online text, study aids and homework assignments.
3. You can purchase a used version of the textbook from a vendor of your choosing. Be warned, you will still need to purchase WileyPLUS online. Unless you find a very inexpensive text, this will cost more than option 2.

Once you purchase WileyPLUS, you will have access to the tools for 365 days. If you take the second semester (electricity and magnetism) of the course this spring or summer, you will not need to repurchase WileyPLUS.

	Date	Tests	Chapter	Topic	Homework problems
UE	21-Aug		Chap 1	Physics and Measurement	P 1,4,9,21,28,41,47
HUR	23-Aug		Chap 2	Motion in One Dimension	P 1,5,10,18,23,33,64
UE	28-Aug		Chap 2		
HUR	30-Aug	Quiz 1	Chap 3	Vectors Motion in Two and Three Dimensions	Q 5 P 22,28,33,37,38
UE	4-Sep		Chap 4		Q 5,7 P 8,15,28,70
HUR	6-Sep	Quiz 2	Chap 4		
UE	11-Sep		Chap 5	Force and Motion I	P 2,5,15,25,31,81
HUR	13-Sep	Quiz 3	Chap 5		
UE	18-Sep			Review	
HUR	20-Sep	Test 1		Chapters 1+2+3+4+5	
UE	25-Sep		Chap 6	Force and Motion II	Q 10 P 1,5,11,29,45,70
HUR	27-Sep	Quiz 4	Chap 6		
UE	2-Oct		Chap 7	Kinetic Energy and Work	Q 1 P 1,5,9,18,31,66
HUR	4-Oct	Quiz 5	Chap 7		
UE	9-Oct		Chap 8	Potential Energy	Q1 P 1,3,15,56,60
HUR	11-Oct	Quiz 6	Chap 9	Linear momentum	
UE	16-Oct	Fall break			
HUR	18-Oct		Chap 9	Collisions	Q 2 P 5,13,26,50,65
UE	23-Oct		Chap 10	Rotation	P 1,5,12,35,45,63
HUR	25-Oct	Test 2		Chapters 6+7+8+9	
UE	30-Oct		Chap 11	Rolling and Angular Momentum	P 2,7,21,51,90
HUR	1-Nov	Quiz 7	Chap 12	Equilibrium and elasticity	P 3,20,43,52
UE	6-Nov		Chap 13	Gravitation	P 3,17,19,24,31,44
HUR	8-Nov	Quiz 8	Chap 13	Kepler's Laws	
UE	13-Nov		Chap 37	Relativity	Q 4 P 1,3,7,11,72
HUR	15-Nov	Test 3		Chapters 10+11+12+13	
UE	20-Nov			Relativity	
HUR	22-Nov	Thanksgiving			Q = question, P = problem
UE	27-Nov			General Relativity	
HUR	29-Nov			Structure of matter	
5AT	8-Dec	FINAL EXAM		8:00 am - 10:30 am	