Subject to Modification – Nov 28, 2022

PHYSICS 3210 –CLASSICAL MECHANICS I
Syllabus Fall 2022

Dr. David Shiner (shiner@unt.edu)
Office: Physics 324 Phone: 565-3874.
Office Hours: MF 1:50-2:50 pm or by appointment

Class time: MWF 1:00-1:50 pm
Class location: Physics Room 112
Recitation: W 2:00-2:50 pm

Textbooks

Required: *Classical Mechanics*, by John R. Taylor, University Science Books, Mills Valley, CA 2005, ISBN-13: 978-1891389221

Recommended: *Analytical Mechanics*, by Fowles and Cassiday (7th edition, Thomson Brooks/Cole, 2005), ISBN 0-534-49492-7.
Introduction to Classical Mechanics: With Problems and Solutions, by David Morin (1st edition, Cambridge University Press, 2008), ISBN-13: 978-0521876223.

Prerequisites: Physics 2220. Math required: 1720 (Calculus II).

Content: This course will cover the motion of a particle in one, two, and three dimensions, conservation laws, mechanical oscillations, Lagrange's equations, central forces, non-inertial reference frames, and rotation of rigid bodies.

Objective To gain appropriate proficiency in the mathematical tools and in the physical formulations necessary to address important problems that arise in classical mechanics.

Homework Assignments will be given each week. Please feel free to discuss and work together with others on these problems if you wish. What is important is that you make a good faith effort on each problem set and that you eventually understand how to do the problems and submit your own work. The problem sets will be collected each week and graded simply pass/not pass. Exams will be largely based on the homework problems assigned.

Office Hours My office is on the third floor of the physics building (room 324), phone number is 565-3874, email is shiner@unt.edu. Office hours are MW 9:50 - 10:50 am or by appointment.

Grading If you pass every homework assignment, your low exam score will be dropped. Scores for homework (1 = Pass, 0 = Not Pass), quizzes, and exams will be posted on Canvas. TA's: Khadijah Alnasser KhadijahAlnasser@my.unt.edu and Chris Thomas (for September) Christopher.Thomas3@my.unt.edu or pokerbrat2k7@gmail.com

Course Grade Exams: 60% (No makeup exams) Quizzes: 10% Final Exam: 30%

Final Thought: *We want to create a welcoming classroom for all. If you ever feel like this is not the case, please stop by my office and let's figure out how things could be improved.*

You are responsible for modifications to this syllabus and any other information presented in class.

Student absences (including tardiness) will be treated in accordance with UNT policy, Student Attendance and Authorized Absences

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time; however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website (http://www.unt.edu/oda). You may also contact ODA by phone at (940) 565-4323.

UNT's policy on Academic Dishonesty can be found at: http://www.vpaa.unt.edu/academic-integrity.htm
Drop information is available in the schedule of classes at: http://essc.unt.edu/registrar/schedule/scheduleclass.html

The Student Perceptions of Teaching (SPOT) is a requirement for all organized classes at UNT. This short survey will be made available to you on-line at the end of the semester and will provide you with an opportunity to provide feedback to your course instructor. SPOT is considered to be an important part of your participation in this class.

Date	Day	Subject (Chapter)	Assignment	Due
Aug. 29	M	Ch. 1: Newton's Laws of Motion	Ch. 1: 1, 4, 10, 19, 26, 29, 30, 38, 41, 46	
31	W	"		
Sept. 2	F	"		
5	M	Labor Day		
7	W	Ch. 2: Projectiles and	Ch. 2: 4, 5, 8, 19, 20 (qualitative only)	**Ch. 1 due.**
9	F	Charged Particles	26, 29, 41	
12	M	Ch. 3: Momentum and	Ch. 3: 3, 4, 7, 11, 15, 21, 25, 33, 36	**Ch. 2 due.**
14	W	Angular Momentum		
16	F	"		
19	M	Ch. 4: Energy	Ch. 4: 2, 7, 11, 12, 23, 26, 28, 36, 43	**Ch. 3 due.**
21	W	"	47, 49, 53	
23	F	"		
26	M	"		**Ch. 4 due.**
28	W	**EXAM 1: Chapters 1-4.**		
30	F	Ch. 5: Oscillations	Ch. 5: 2, 8, 14, 16, 22, 26, 44	
Oct 3	M	"	50 (no plots required), 51	
5	W	"		**Ch. 5 due.**
7	F	Ch. 6: Calculus of Variations	Ch. 6: 1, 7, 11, 16	
10	M	"		
12	W	"		**Ch. 6 due.**
14	F	Ch. 7: Lagrange's Equations	Ch. 7: 4, 8, 16, 20, 21, 23, 27, 29, 50	
17	M	"		
19	W	"		**Ch. 7 due.**
21	F	Ch. 8: Two-body	Ch. 8: 1, 2, 5, 7, 8, 12, 16, 28, 32	
24	M	Central-Force Problems		
26	W	"		
28	F	"		
31	M	"		**Ch. 8 due.**
Nov. 2	W	**EXAM 2: Chapters 5-8.**		
4	F	Ch. 9: Mechanics in	Ch. 9: 2, 4, 8, 13, 14, 17, 29	
7	M	Non-Inertial Frames		
9	W	"		
11	F	Ch. 10: Rotational Motion	Ch. 10: 4, 5, 9, 16, 35, 39, 40, 42	**Ch. 9 due.**
14	M	of Rigid Bodies		
16	W	"		
18	F	Ch. 11: Coupled Oscillators	Ch. 11: 1, 3, 19, 24, 33	
21	M	and Normal Modes		**Ch. 10 due.**
23	W	Thanksgiving		
25	F	Thanksgiving		
28	M	Ch. 16: Continuum Mechanics	Ch. 16: 2, 3, 20, 26, 31, Canvas P1,	**Ch. 11 due.**
30	W	"	Canvas P2	
Dec. 2	F	"		
5	M	"		**Ch. 12 due.**
Dec. 7	W	**EXAM 3: Chapters 9-11, 16.**		
9	F	Reading Day, No class		

Comprehensive Final Exam: Saturday, Dec. 10, 2022, 10:30 a.m. - 12:30 p.m.