PHYS 3344: Classical Mechanics
Syllabus

Professor Allison Deiana
Fall 2022

Contents

1 Course Information

Where?	00G1 Hyer
When?	Tuesdays and Thursdays 8:00 – 9:20 AM
Instructor	Professor Allison Deiana Office: 45 Fondren Science Phone: (214)-768-1476 Email: adeiana@smu.edu
Office Hours	Where: 45 Fondren Science Building When: Mon. 1-2 PM and Wed. 2-3PM – for a class this size, please just let me k
Teaching Assistant **Office Hours**	TBD Where: TBD When: TBD
Course Prerequisites	PHYS 1303 or PHYS 1307, (pre or co) MATH 3302
Course Textbook	Classical Mechnics by John R. Taylor
Course Website	https://smu.instructure.com/courses/101284

2 Course Objectives

As described in the SMU Undergraduate Course Catalog, we will cover:

> *"The motion of a particle and of systems of particles, including oscillatory systems, accelerated coordinate systems, central-force motion, rigid body dynamics, gravitation, and Lagrangian mechanics."*

3 Mask Policy

Masks are not required in this course, but I expect everyone to be respectful of those who choose to wear a mask. This masking policy is subject to change during the semester, and any changes will be posted clearly in Canvas announcements.

4 Tests, Assignments and Grading

Your course grade will be based on homework (35%), midterm exams (15% each), and a cumulative final exam (20%). This is a 3-credit hour course, which means we have 3

contact hours during the week (class periods) and you are expected to work 6-9 hours outside of class. Questions concerning grading of returned assignments will be accepted by the instructor via email **only** within 7 days of the posting of grades.

The grading scale used in this course is standard and that recommended for courses at SMU. For the ranges, a "[" or "]" indicates the adjacent number is included in the range, while a "(" or ")" indicates the adjacent number is excluded from the range.

Grade	**Range**	**Interpretation**
A	[94,100]	Excellent Scholarship
A-	[90,94)	Excellent Scholarship
B+	[87,90)	Good Scholarship
B	[84,87)	Good Scholarship
B-	[80,84)	Good Scholarship
C+	[77,80)	Fair Scholarship
C	[74,77)	Fair Scholarship
C-	[70,74)	Fair Scholarship
D+	[67,70)	Poor Scholarship
D	[64,67)	Poor Scholarship
D-	[61,64)	Poor Scholarship
F	[0,61)	Fail

4.1 Assigned Reading

Reading and lecture videos will be assigned for each class period, as a resource to you for class preparation. They will be announced in class and linked on Canvas. This reading is to be completed before the relevant class period, but it is not a graded assignment.

4.2 Homework

- Homework will generally be assigned on Tuesday and will be due the following Tuesday. Homework assignments will not be due on exam weeks, but will instead be slightly longer for this period and due on the following Tuesday (i.e. you will have 2 weeks to complete them).
- Written solutions must be scanned and uploaded to Canvas before midnight on the due date.
- It is permitted to work in study groups for homework, provided that individual work is turned in.

- I advise getting started on the homework early, so that you can ask questions during office hours if needed.
- **Late homework will have the maximum possible grade reduced at a rate of absolute 10% per day. (i.e. 90% for one day late, 80% for two days late, and so on.**

4.3 Exams

There will be three exams (Exam 1: Tuesday, Sep 13th, Exam 2: Thursday, Oct 6th, Exam 3: Thursday, Nov 8th) and a final cumulative exam (Dec. 12 8-11 AM).

5 Homework and Other Written Materials Policy

This policy applies to homework, quizzes, or any other written material that you submit for grading. The following information must **always** be at the **top of the front page**.

- Your full **name**.
- The **name of the assignment** (e.g. Homework 1, Quiz 2)
- The **date** you have turned it in.

For full credit, your work must also satisfy the following criteria:

- Each question is **titled** (e.g. Problem 27-32).
- Writing/image quality must be **legible**.
- **Work done** in obtaining the solution must be included. It must be possible to follow the logic of your solution.
- Final answers must be **boxed** and have **correct units**.

6 University Honor Code

The student code of conduct can be found in the 2018 - 2019 Student Handbook which is available on the SMU website (http://smu.edu/catalogs/). All students will be expected to adhere to it. Any student found cheating or plagiarizing another's work will be given a zero for that assignment and a complaint will be filed through the Vice President for Student Affairs Office.

7 Disabilities Accomodation

Students needing academic accommodations for a disability must first register with Disability Accommodations & Success Strategies (DASS). Students can call 214-768-1470 or visit http://www.smu.edu/Provost/SASP/DASS to begin the process. Once approved and registered, students will submit a DASS Accommodation Letter to faculty through the electronic portal DASS Link and then communicate directly with each instructor to make appropriate arrangements. Please note that accommodations are not retroactive and require advance notice to implement.

8 Policies Regarding Planned Absences

8.1 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 of making up any work missed because of the absence (https://www.smu.edu/StudentAffairs/Chaplain/ReligiousHolidays).

8.2 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. (See 2018-2019 University Undergraduate Catalogue)

9 Course Schedule Overview

This is an expected schedule, there may be some shift if some topics take more or less time to cover than I have anticipated.

- **Week 1: Review of Newton's Laws**
- **Week 2: Air Resistance**
- **Week 3: Momentum and Angular Momentum**
- **Week 4: Test Week, Kinetic Energy and Work**
- **Week 5: Conservative Forces, Energy of 1D Systems**

- **Week 6: Central Forces, Simple Harmonic Oscillation**
- **Week 7: Oscillations, Test Week**
- **Week 8: Fall Break, Calculus of Variations**
- **Week 9: Lagrange's Equations**
- **Week 10: Central Forces with 2-Bodies**
- **Week 11: Orbits**
- **Week 12: Test Week, Non-Inertial Reference Frames**
- **Week 13: Rigid Body Systems, Coupled Oscillator**
- **Week 14: Double Pendulum Thanksgiving Holiday**
- **Week 15: Special Relativity**
- **Final Exam: December 12, 8-11 AM**

10 Some Important Dates

Please see this page (link in pdf) for the full academic calendar.