



COURSE: PHYS 411 Classical Mechanics

COURSE SYLLABUS: Fall 2024

Classes: Tuesday, Thursday, 12:30p-1:45p, 8/26/2024 through 12/13/2024, Science bldg., Room: 107

Instructor: Prof. Dr. Carlos Bertulani

Office Location: Science 140

Office Hours: by email appointment

Office Phone: 903-886-5882

University Email Address: carlos.bertulani@tamuc.edu

Communication response time: 48 hours

COURSE INFORMATION

TEXTBOOK: Classical Mechanics, 3rd edition, **John R. Taylor**, University Science Books (January 1, 2005), ISBN-13: 978-1891389221.

Course Description:

Three semester hours. A course designed to introduce students to classical mechanics. An introduction to modern classical mechanics as applied to the particles and solid bodies. If you do not learn classical mechanics, then you will not understand the major developments of science. We will cover the first 7 chapters of the book (dates are tentative).

1. Newton's Laws of motion
2. Projectiles and charged particles
3. Momentum and angular momentum
4. Energy
5. Oscillations
6. Calculus of variations
7. Lagrange's equations
8. Two-body central-force problems

Student Learning Outcomes

1. Students will understand the discipline-specific knowledge in classical mechanics, covering the subjects:
 1. Basic concepts of classical mechanics
 2. Newton's laws and applications
 3. Planetary motion
 4. Oscillations

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5. Lagrange's equations
2. Students will know the concepts of classical mechanics and demonstrate a proficiency in the fundamental concepts in this area of science.
3. Students will be able to solve problems using their knowledge and skills in modern physics. They will use critical thinking skills to formulate and solve quantitative problems in applied physics.

COURSE REQUIREMENTS

Activities Assessments

Grades will be based on two components.

Exams: 70%

Class work: 30%

Exams: There will be **two midterm exams** (20% each of the final grade) and a **final exam** (30%).

See tentative exam dates below. Make-up exams will only be allowed for medical and emergency excused absences. See course policies below for details on excused absences.

The exams will be used mainly to assess your competency on physics concepts, units and vectors and problem-solving strategies.

There will be **individual class works** at least once a week (30% of the final grade). They are intended to keep the student in pace with the course material. No makeups either, only for medical and emergency excused absences.

EXAM DATES (tentative)

1st test: October 3

2nd test: November 21

Final: to be announced by school

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or below

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TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Zoom Video Conferencing Tool

https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

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<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement

The instructor will respond within 24 hours by email. Each graded assignment and test will be returned within a week.

You are invited to email, and schedule an appointment. If you have a quick question, you are always welcome to stop by the office and if I am available, I'm happy to help.

If you know that you have an event that is going to require missing a class, please send this to me through email so that I can get it on my schedule.

The best method to reach the instructor is through email. Please include the course number in the subject line. If you do not receive a response within 48 hours, send a reminder email.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

Course Specific Procedures/Policies

1. The instructor must be notified by email about any excused missed exam no later than 24 hours after the missed exam. Even if you choose to notify the instructor in person, you must still follow up with email within 24 hours of the missed exam. If you do not follow this policy, you will not be able to make up missed exams or turn in late work.
2. You are responsible for obtaining notes from the lecture.
3. Cell phones cannot be used during the class unless it is used for class activities.
4. Laptops during the class can only be used for class activities.
5. You are expected to check your university email at least once a day.
6. Excessive absences may result in being dropped from the course.
7. Eating food is not allowed in the class.
8. Do not plagiarize. Do not copy solutions from other sources or your classmates' works. Do your best to learn the materials and engage in problem solving activities on your own for the assignments and exams. I will monitor your solutions on a regular basis. It is your duty to hold "high standards of integrity and honesty" in all of your works.

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9. If you find yourself struggling, please be honest with me and let me know when you need help. You can always ask me for help. Students are expected to be professional and take responsibility for their learning.

10. When emailing the instructor, include the course number in the subject line.

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook

http://www.tamuc.edu/student_guidebook/Student_Guidebook.pdf

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

TAMUC Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedures 13.99.99.R0.01](#)

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)
[Undergraduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf>

[Graduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

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<http://www.albion.com/netiquette/corerules.html>

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Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce - Gee Library- Room 132

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: StudentDisabilityServices@tamuc.edu

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry statement: Campus Concealed Carry - Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed

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handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M- Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

A&M-Commerce Supports Students' Mental Health

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel

AI use policy [Draft 2, May 25, 2023]

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty

13.99.99.R0.10 Graduate Student Academic Dishonesty

COURSE OUTLINE / CALENDAR

Week 1-2: Chapter 2 of textbook

Week 3-4: Chapter 2 of textbook

Week 5-6: Chapter 3 of textbook

Week 7-8: Chapter 4 of textbook

Week 9-10: Chapter 5 of textbook

Week 10-11: Chapter 6 of textbook

Week 12-13: Chapter 7 of textbook

Week 14-15: Chapter 8 of textbook

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