PHYS 3305 90L and 91L - Classical Mechanics
SYLLABUS
Fall 2020

COURSE INFORMATION:
Meeting times: 3:30 - 4:45 PM Monday, Wednesday
Meeting location: Online
Course Modality: Online Synchronous Courses (OSYNC)

INSTRUCTOR INFORMATION:

Instructor Name: Andreas Hanke
Phone: (956) 882 - 6682
E-Mail: andreas.hanke@utrgv.edu
Office location: BINAB 2.119
Office hours (online via zoom): Monday, Wednesday 1:00 - 3:30 PM and by appointment

---

WELCOME & INTRODUCTION TO COURSE MODALITY STATEMENT

Online Synchronous Courses: These courses will be delivered fully online. There will be a designated class meeting time for real-time instructor/student interaction, which will be conducted remotely via online platforms from the safety of your home. This real-time interaction may be supplemented by the digital presentation of course content. Your instructors will provide you with feedback on assigned work, communicate with you electronically, and be available to meet with you as defined on this syllabus.

COURSE DESCRIPTION, PREREQUISITES & MODE OF LEARNING

This course is designed to provide a rigorous understanding of classical dynamics. Concepts covered include the motion of a particle to a system of particles in one, two, and three dimensions; detailed treatment of the conservation laws, rigid body motion, and rotating systems. It introduces students to Lagrange and Hamiltonian dynamics and non-inertial reference frames. Prerequisites: PHYS 2426 and MATH 2415.
Class sessions will be delivered online at the meeting times MW 3:30 - 4:45 PM by video-teleconferencing using Blackboard Collaborate Ultra. All class sessions will be recorded, and the recordings will be accessible on blackboard. All homework assignments and exams will be distributed and managed online via blackboard.

COVID-19 RESOURCES
Please visit the UTRGV COVID-19 Website via the following link for the most up-to-date information and resources (https://www.utrgv.edu/coronavirus/index.htm). This includes information on self-screening questions, links to forms for travel and contact, etc.

Boilerplate language on self-screening and reporting is currently being developed.

Face Covering Protocol
As part of the university's ongoing COVID-19 mitigation efforts to maintain a healthy environment for all members of our campus community, anyone entering a campus building must wear a face covering that covers the mouth and nose. The covering must be worn in all hallways, public spaces, research labs, teaching/computer labs, libraries, classrooms, automobiles with a passenger, stairwells, elevators, and common areas, as well as office spaces. In office spaces, when social distancing of 6 feet is possible and maintained, face coverings may be removed. Face coverings also are required in outdoor settings when safe social distancing and gathering practices are not possible.

LEARNING OBJECTIVES/OUTCOMES FOR THE COURSE

The objective of this course is to develop a working knowledge of classical mechanics at the undergraduate level and to use this knowledge to explore various applications.

LEARNING OBJECTIVES FOR CORE CURRICULUM REQUIREMENTS

This course addresses the following THECB core outcomes:

1) Critical Thinking Abilities – Students must be able to read and analyze a stated problem, determine the solution required, identify the needed data, select the appropriate physical theory, apply the proper mathematical calculations and ultimately reach the desired result. Students will be given the opportunity to demonstrate these skills on the course assignments and examinations.

2) Communication Skills – To be scientifically literate, students should be able to read and understand scientific material written for a popular audience as well as scientific resources designed for teachers. Students should be able to write clearly about scientific material and relate it to the contents of this course and society in general. Students will be required to review (1) an article from a popular scientific publication, (2) the creditability of a scientific resource website, and (3) a science lesson plan or science simulation website.

3) Computer Literacy Skills – Solving Problems and Acquiring Information. Students in this course should be able to use computers to solve simple mathematical problems. The students use computers in many of the laboratory activities to collect and analyze data. Successful completion of these lab activities indicate that students have gained this competency. Students should be able to locate material directly relevant to the course on the course's own website. Students should be able to find material on the World Wide Web by using a search engine.

TEXTBOOK, TECHNOLOGY, AND/OR RESOURCE MATERIAL

Title: Classical Mechanics
Author: John R. Taylor
Publisher: University Science Books (2005 book)
ISBN-13: 9781891389221
DIGITAL ISBN-13: 9781891389924
ISBN-10: 189138922X
Retail price (current quote on amazon.com): $92.00 Paperback

The textbook is not an open educational resource. An electronic version of the textbook will be provided online. However, it is highly recommended that you purchase or rent a paperback copy of the textbook. I made a textbook adoption at the campus bookstores where you can rent the textbook for the duration of the course. If you purchase or rent the book, please make sure to get the correct edition by checking the ISBN number.

All other materials for the course will be provided online.

GRADING POLICIES

The student will practice the material by creating written solutions to weekly homework assignments. The homework solutions will be graded and contribute to the final grade. The student will demonstrate mastery of the learning objectives through a **Midterm Exam** and a **Final Exam**. Late homework and exams will not be accepted.

Homework – There will be **12 homework assignments** that will reinforce material covered in the lecture. The homework assignments will be distributed online via blackboard and due one week after distribution of the homework assignment.
30 pts each = total 360 pts

Midterm Exam – The midterm exam will be a take-home exam over 3 days. The midterm exam will be distributed online via blackboard (date TBA). **320 pts**

Final Exam – The final exam will be a take-home exam on **Wednesday, December 9**. The final exam will be distributed online via blackboard at 10 AM on December 9 and due by 12:00 PM midnight of the same day. **320 pts**

Total: 1000 pts

The letter grade for the course will be assigned as follows:

A 900 - 1000
B 770 - 899
C 650 - 769
D 500 - 649
F 0 - 499

BLACKBOARD SUPPORT

If you need assistance with course technology at any time, please contact the Center for Online Learning and Teaching Technology (COLTT).

Campus:	Brownsville	Edinburg
Location:	Casa Bella (BCASA) 613	Education Complex (EEDUC) 2.202
Phone:	956-882-6792	956-665-5327

Toll Free: 1-866-654-4555

Office Hours: Monday - Friday, 7:30 a.m. - 6:00 p.m.
Support Tickets Submit a Support Case via our Ask COLTT Portal

24/7 Blackboard Support

Need Blackboard assistance after hours? You can call our main office numbers, 956-882-6792 or 956-665-5327, to speak with a support representative.

ATTENDANCE

Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV's attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; have been provided such an accommodation by Student Accessibility Services (SAS); for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

ABSENCE/SICK POLICY

The use of recordings will enable you to have access to class lectures, group discussions, etc. in the event you have to miss a synchronous or face to face class meeting due to illness or other extenuating circumstance. Our use of such technology is governed by the Federal Educational Rights and Privacy Act (FERPA), UTRGV's acceptable-use policy, and UTRGV HOP Policy STU 02-100 Student Conduct and Discipline. A recording of class sessions will be kept and stored by UTRGV, in accordance with FERPA and UTRGV policies. Your instructor will not share the recordings of your class activities outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. ***You may not share recordings outside of this course.*** *Doing so may result in disciplinary action under UTRGV HOP Policy STU 02-100 Student Conduct and Discipline.*

ACADEMIC INTEGRITY

Members of the UTRGV community uphold the Vaquero Honor Code's shared values of honesty, integrity and mutual respect in our interactions and relationships. In this regard, academic integrity is fundamental in our actions, as any act of dishonesty conflicts as much with academic achievement as with the values of honesty and integrity. Violations of academic integrity include, but are not limited to: cheating, plagiarism (including self-plagiarism), and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an

examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts (Board of Regents Rules and Regulations, STU 02-100, and UTRGV Academic Integrity Guidelines). **All violations of Academic Integrity will be reported to Student Rights and Responsibilities through Vaqueros Report It.**

Other Course Information
Online course content can be accessed on Blackboard through MyUTRGV at https://my.utrgv.edu/home. It is important that you become familiar with Blackboard since essential parts of the course content, such as homework assignments, will be disseminated online.

UTRGV POLICY STATEMENTS

STUDENTS WITH DISABILITIES:

Students with a documented disability (physical, psychological, learning, or other disability which affects academic performance) who would like to receive reasonable academic accommodations should contact **Student Accessibility Services (SAS)** for additional information. In order for accommodation requests to be considered for approval, the student must apply using the *mySAS* portal located at www.utrgv.edu/mySAS and is responsible for providing sufficient documentation of the disability to SAS. Students are required to participate in an interactive discussion, or an intake appointment, with SAS staff. Accommodations may be requested at any time but are not retroactive, meaning they are valid once approved by SAS. Please contact SAS early in the semester/module for guidance. Students who experience a broken bone, severe injury, or undergo surgery may also be eligible for temporary accommodations.

Pregnancy, Pregnancy-related, and Parenting Accommodations

Title IX of the Education Amendments of 1972 prohibits sex discrimination, which includes discrimination based on pregnancy, marital status, or parental status. Students seeking accommodations related to pregnancy, pregnancy-related condition, or parenting (reasonably immediate postpartum period) are encouraged to apply to **Student Accessibility Services** using the following link: Pregnancy Accommodations Request Form https://www.utrgv.edu/pregnancy

Student Accessibility Services:

Brownsville Campus: Student Accessibility Services is located in 1.107 in the Music and Learning Center building (BMSLC) and can be contacted by phone at (956) 882-7374 or via email at ability@utrgv.edu.

Edinburg Campus: Student Accessibility Services is located in 108 University Center (EUCTR) and can be contacted by phone at (956) 665-7005 or via email at ability@utrgv.edu.

MANDATORY COURSE EVALUATION PERIOD:
Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. Students who complete their evaluations will have priority access to their grades. Online evaluations will be available on or about:

Module 1	October 7-13, 2020
Module 2	December 2-8, 2020
Full Fall Semester	November 13 – December 2, 2020

SEXUAL MISCONDUCT and MANDATORY REPORTING:
In accordance with UT System regulations, your instructor is a "Responsible Employee" for reporting purposes under Title IX regulations and so must report to the Office of Institutional Equity & Diversity (OIED@utrgv.edu) any instance, occurring during a student's time in college, of sexual misconduct, which includes sexual assault, stalking, dating violence, domestic violence, and sexual harassment, about which she/he becomes aware during this course through writing, discussion, or

personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect that is free from sexual misconduct, discrimination, and all forms of violence. If students, faculty, or staff would like confidential assistance, or have questions, they can contact OVAVP (Office for Victim Advocacy & Violence Prevention) at (956) 665-8287, (956) 882-8282, or OVAVP@utrgv.edu.

COURSE DROPS:
According to UTRGV policy, students may drop any class without penalty earning a grade of DR (drop) until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the "3-peat rule" and the "6-drop" rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.

STUDENT SERVICES:
Students who demonstrate financial need have a variety of options when it comes to paying for college costs, such as scholarships, grants, loans, and work-study. Students should visit the Student Services Center (U Central) for additional information. U Central is located in BMAIN 1.100 (Brownsville) or ESSBL 1.145 (Edinburg) or can be reached by email (ucentral@utrgv.edu) or telephone: (888) 882-4026. In addition to financial aid, U Central can assist students with registration and admissions.

Students seeking academic help in their studies can use university resources in addition to an instructor's office hours. University Resources include the Advising Center, Career Center, Counseling Center, Learning Center, and Writing Center. The centers provide services such as tutoring, writing help, counseling services, critical thinking, study skills, degree planning, and student employment. In addition, services such as the Food Pantry are also provided. Locations are listed below.

Center Name	Brownsville Campus	Edinburg Campus
Advising Center AcademicAdvising@utrgv.edu	BMAIN 1.400 (956) 665-7120	ESWKH 101A (956) 665-7120
Career Center CareerCenter@utrgv.edu	BINAB 1.105 (956) 882-5627	ESSBL 2.101 (956) 665-2243
Counseling Center Counseling@utrgv.edu Counseling and Related Services List	BSTUN 2.10 (956) 882-3897	EUCTR 109 (956) 665-2574
Food Pantry FoodPantry@utrgv.edu	BCAVL 101 & 102 (956) 882-7126	EUCTR 114 (956) 665-3663
Learning Center LearningCenter@utrgv.edu	BMSLC 2.118 (956) 882-8208	ELCTR 100 (956) 665-2585
Writing Center WC@utrgv.edu	BUBLB 3.206 (956) 882-7065	ESTAC 3.119 (956) 665-2538

CALENDAR OF ACTIVITIES

All topics will closely follow the textbook by John R. Taylor; in the table below, corresponding chapter numbers in the textbook are given in brackets. It will be essential that you prepare for the class by doing the reading assignments. We will not cover everything in the textbook explicitly in class, but focus on selected topics and examples; however, it will be assumed that you become familiar with the entire material covered by the reading assignments.

Week	Topics
Week 1 - 2	Newton's Laws of Motion (1)
Week 3	Projectiles and Charged Particles (2)
Week 4	Momentum and Angular Momentum (3)
	Midterm Exam
Week 5 - 6	Energy (4)
Week 7	Oscillations (5)
Week 8	Calculus of Variations (6)
Week 9 - 10	Lagrangian Mechanics (7)
Week 11	Two-Body Central-Force Problems (8)
Week 12	Mechanics in Non-inertial Frames (9)
Week 13 - 14	Rotational Motion of Rigid Bodies (10)
Week 15	Coupled Oscillators and Normal Modes (11)
	Final Exam

The UTRGV academic calendar can be found at https://my.utrgv.edu/home at the bottom of the screen, *prior to login*. Some important dates for Fall 2020 include:

Aug. 24	First day of classes
Aug. 27	Last day to add a class or register for Fall 2020 classes
Sept. 7	Labor Day – NO classes
Nov. 11	Last day to drop a class or withdraw
Nov. 26- 27	Thanksgiving Holiday – NO classes
Dec. 3	Study Day – NO classes
Dec. 4-10	Final Exams
Dec. 14	Grades Due at 3 p.m.