

COURSE SYLLABUS  
PHYS 5306: "Classical Dynamics"  
Fall 2020

**Instructor:** Joseph D. Romano

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**Lectures:** PHYS 5306: TTh 12:30 PM - 1:50 PM, (online)

**Office hours:** TTh 2:00 PM - 3:30 PM, and by appointment (online)

**Recommended textbooks:**

"Mechanics" (3rd edition) by L.D. Landau and E.M. Lifshitz

"Classical Mechanics" by M.J. Benacquist and J.D. Romano

**Course Description:** Lagrangian dynamics and variational principles. Kinematics and dynamics of two-body scattering. Rigid body dynamics. Hamiltonian dynamics, canonical transformations, and Hamilton-Jacobi theory of discrete and continuous systems. M.S. and Ph.D. core course.

**Learning Outcomes:** Students should be able to thoroughly understand the concepts and methods of classical mechanics. Students are expected to be able to apply key physics principles to explain and solve problems, at the graduate level, in this area of physics.

**Outcome assessment:** The expected course outcomes will be assessed through problem solving in class and on exams.

**Course website:** Blackboard <https://ttu.blackboard.com/>.

**Class participation:** Solving problems is probably the most important part of this course. Although you won't have graded homework assignments, you will work on suggested problems throughout the semester. There will be unannounced "pop" quizzes in class from time to time to make sure that you are up-to-date with the material.

**Exams:** There will be two written midterm exams and a comprehensive oral final (see 'Course Calendar' for dates). No make-up examinations will be given. In the case of a serious emergency, please see me to discuss how the final grade will be determined.

**Grading:**

Class participation: 20%

Midterm x 2: 60%

Final (oral): 20%

Total: 100%

Number grades will be converted to letter grades as follows:

A: 100-80; B: 79-60; XX: 59-50; C: 49-30; F: 29-0

with the XX borderline case determined primarily by class participation.

**REQUIRED SYLLABUS LANGUAGE:**

**Required Use of Masks/Facial Coverings by Students in Class:** The Texas Tech University System has implemented a mandatory Facial Covering Policy to ensure a safe and healthy classroom experience. Current research on the COVID-19 virus suggests that there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Because of the potential for transmission of the virus, and to be consistent with the University's requirement, students in this class are to wear a mask/facial covering before, during, and after class. Observing safe distancing practices within the classroom

by spacing out and wearing a mask/facial covering will greatly improve our odds of having a safe and healthy in-person class experience. Any student choosing not to wear a mask/facial covering during class will be directed to leave the class and will be responsible to make up any missed class content or work.

**COVID-19 related items:**

- a. If Texas Tech University campus operations are required to change because of health concerns related to the COVID-19 pandemic, it is possible that this course will move to a fully online delivery format. Should that be necessary, students will need to have access to a webcam and microphone for remote delivery of the class.
- b. Policy on absences resulting from illness (see Attachment A.).
- c. Policy statement on positive test (to be available soon).
- d. Requesting accommodations as a result of personal health concerns (see Attachment B.).

**Academic Honesty (OP 34.12):** It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension.

“Scholastic dishonesty” includes, but it not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor) or the attempt to commit such an act.

The full policy is available at <http://www.depts.ttu.edu/opmanual/OP34.12.pdf>

**Special Accommodation for Students with Disabilities (OP 34.22):** Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.

The full policy is available at <http://www.depts.ttu.edu/opmanual/OP34.22.pdf>

**Student Absence for Observance of a Religious Holy Day (OP 34.19):**

1. “Religious holy day” means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code §11.20.
2. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.
3. A student who is excused under section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

The full policy is available at <http://www.depts.ttu.edu/opmanual/OP34.19.pdf>

**TTU Resources for Discrimination, Harassment, and Sexual Violence:** Texas Tech University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from gender and/or sex discrimination of any kind. Sexual assault, discrimination, harassment, and other Title IX violations are not tolerated by the University.

Report any incidents to the Office of Student Rights & Resolution, 806-742-SAFE (7233) or file a report online at <http://www.depts.ttu.edu/titleix/>.

Faculty and staff members at TTU are committed to connecting you to resources on campus. Some of these available resources are:

- **TTU Student Counseling Center**

Phone: 806-742-3674

Website: <https://www.depts.ttu.edu/scc/>

(Provides confidential support on campus.)

- **TTU 24-hour Crisis Helpline**

Phone: 806-742-5555

(Assists students who are experiencing a mental health or interpersonal violence crisis. If you call the helpline, you will speak with a mental health counselor.)

- **Voice of Hope Lubbock Rape Crisis Center**

Phone: 806-742-7273

Website: <http://voiceofhopelubbock.org>

(24-hour hotline that provides support for survivors of sexual violence.)

- **The Risk, Intervention, Safety and Education (RISE) Office**

Phone: 806-742-2110

Website: <http://www.depts.ttu.edu/rise/>

(Provides a range of resources and support options focused on prevention, education, and student wellness.)

- **Texas Tech Police Department**

Phone: 806-742-3931

Website: <http://www.depts.ttu.edu/tttd/>

(To report criminal activity that occurs on or near Texas Tech campus.)

- **LGBTQIA:** Within the Center for Campus Life, the Office of LGBTQIA serves the Texas Tech community through facilitation and leadership of programming and advocacy efforts. This work is aimed at strengthening the lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA) community and sustaining an inclusive campus that welcomes people of all sexual orientations, gender identities, and gender expressions.

### **Attachment A: Illness-Based Absence Policy**

If at any time during this semester you feel ill, in the interest of your own health and safety as well as the health and safety of your instructors and classmates, you are encouraged *not* to attend face-to-face class meetings or events. Please review the steps outlined below that you should follow to ensure your absence for illness will be excused. These steps also apply to not participating in synchronous online class meetings if you feel too ill to do so and missing specified assignment due dates in asynchronous online classes because of illness.

1. If you are ill and think the symptoms might be COVID-19-related:
  - a. Call Student Health Services at 806.743.2848 or your health care provider. After hours and on weekends contact TTU COVID-19 Helpline at [TBA].
  - b. Self-report as soon as possible using the [Dean of Students COVID-19 webpage](#). This website has specific directions about how to upload documentation from a medical provider and what will happen if your illness renders you unable to participate in classes for more than one week.
  - c. If your illness is determined to be COVID-19-related, all remaining documentation and communication will be handled through the Office of the Dean of Students, including notification of your instructors of the period of time you may be absent from and may return to classes.
  - d. If your illness is determined not to be COVID-19-related, please follow steps 2.a-d below.
2. If you are ill and can attribute your symptoms to something other than COVID-19:
  - a. If your illness renders you unable to attend face-to-face classes, participate in synchronous online classes, or miss specified assignment due dates in asynchronous online classes, you are encouraged to visit with either Student Health Services at 806.743.2848 or your health care provider. Note that Student Health Services and your own and other health care providers may arrange virtual visits.
  - b. During the health provider visit, request a “return to school” note;
  - c. E-mail the instructor a picture of that note;
  - d. Return to class by the next class period after the date indicated on your note.

Following the steps outlined above helps to keep your instructors informed about your absences and ensures your absence or missing an assignment due date because of illness will be marked excused. You will still be responsible to complete within a week of returning to class any assignments, quizzes, or exams you miss because of illness.

## **Attachment B: Addressing Accommodation Requests from High-Risk Students Returning to Campus**

Texas Tech University is taking considerable measures to provide effective social distancing and sanitation protocols as we prepare to return to campus in the Fall. We need to be mindful that, because of underlying health conditions, some students will be at higher risk for COVID-19. Other students, although healthy themselves, might live with someone who has compromising health conditions. Students in one or both of these two categories might request accommodations or alternatives to fulfill course requirements to avoid potential exposure to the virus.

The Office of the Provost authorizes instructors of record (IoRs), in coordination with their department chairs, academic advisors, and academic associate deans, with the flexibility necessary to make instructional accommodations for students to avoid exposure to COVID-19. Accommodations might include, as examples, alternatives to face-to-face group assignments, remote learning such as online instruction or off-site activities, changing to an online section of the same course or to an independent study with the same learning objectives as the original course, or approval of a substitute course that is offered online and can fulfill the same degree requirements of the original course.

Keep in mind the following criteria when considering making an accommodation for a student: (1) whether the requested accommodation would make a substantive alteration of the course material or objectives; (2) whether the accommodation provides an equally effective alternative to the original objectives or activities of the class; and (3) whether the accommodation can be uniformly applied should more than one student request it. If the IoR can satisfactorily address these three requirements for accommodation, and is comfortable providing it, then it is appropriate to do so. If the IOR feels unable to provide accommodation that satisfies these three criteria or is unsure how the requested accommodation can be provided, the IoR is encouraged to contact their academic associate dean's office for guidance. Students should also be advised to follow the steps for reporting illness-related absences outlined on the [Dean of Students COVID-19 webpage](#).

If a high-risk student asks for a substantial alteration to the essential elements of the class, then the IoR, advisor, or associate dean should suggest that the student work with SDS to provide a Letter of Accommodation (LOA).