

PHYS 1443 Section 001: Technical Physics I (Spring 2018)

Instructor: Dr. Barry Spurlock

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Office Telephone Number: None (Physics Office: 817-272-2266)

Faculty Profile: <https://www.uta.edu/mentis/public/#profile/profile/view/id/3505/category/1>

Office Number: SH 007A

Office Hours: Tues/Thurs, 4:00pm to 5:00pm

Meetings: Mon/Wed, 4:00pm to 5:20pm, SH 101

Description of Course Content: The first half of a one-year technical course. Required for many science and engineering majors, exceeds premedical requirement. The study of mechanics, elasticity, fluids, heat and waves is supplemented by laboratory experiments. Concurrent enrollment in MATH 1426 (per prerequisite) is not recommended if no prior background in calculus. Prerequisite: MATH 1426 or consent of instructor.

Student Learning Outcomes: Students will develop the critical thinking, empirical, and quantitative skills necessary to solve physics problems, which by their nature involve taking a real world situation and determining how physical laws may be applied. In the laboratory portion of the course, teamwork and communication skills will be emphasized.

Required Textbooks and Other Course Materials:

Textbook: "Physics for Scientists and Engineers" by Giancoli (4th ed.) **or equivalent**

If you wish you can go to openstax.org and download "University Physics" Vol. 1 for free.

Mastering Physics is NOT needed

Homework Service Enrollment: <http://goeta.link/USQ45TX-7C2A1E-1TJ>

Physics Lab Manual: Sold in bookstore

Descriptions of major assignments and examinations: There will be 3 tests (15% each) and a cumulative final (25%).

Other Requirements: Homework will be assigned weekly. The associated lab will require weekly lab reports (based on lab attendance/performance) and a final examination. Laboratory participation is a necessity.

Grading:

Homework 15%

Tests 45% (3 tests at 15% each)

Lab Grade 15%

Final Exam 25%

Bonus Homework 1% (Extra Credit)

Scale: A: 90.00-100%

B: 80.00-89.99%

C: 70.00-79.99%

D: 60.00-69.99%

- Any work not completed by its due date/time will be assigned a grade of zero.
- In some (not all) cases homework assignments may have their due dates extended for the whole class (if requested).
- Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels (also see "Student Support Services" below).
- The grade cut-offs may be lowered (never raised) to ensure the proper grade distribution.

Expectations for Out-of-Class Study: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend a minimum of an additional 10 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

Physics Lab: Labs associated with this class don't start until the week of January 22. The Lab Manual is mandatory, so please buy one from the bookstore before January 22. All the help files, lab-syllabus, lab-materials and lab-final prep questions can be downloaded from <http://www.uta.edu/physics/labs/>.

Physics Clinic: I highly recommend that students make good use of the physics clinic (SH007), which is conveniently located right outside my office. Inside the clinic you will find tables where you can sit and work on your assignments with tutors available to guide you.

Make-up Exams: Make-up examinations will be handled on a case by case basis. Do not expect a make-up examination will be granted unless you have valid excuse (as per university policy). Cases where no valid excuse is provided will still be considered, but allowing a make-up exam is not a foregone conclusion. Please make every effort to be present and prepared on the day of tests.

Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial **911**. Non-emergency number **817-272-3381**.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room through the nearest exit and then proceed to exit the building. For this room, you can exit via the front or back. As you pass through the doorway, turn right and the exit should be visible. Once exiting the building, please move to a safe distance. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals. I also encourage you to sign up on the MavAlert system. Anyone can subscribe at <https://mavalert.uta.edu/> or <https://mavalert.uta.edu/register.php>

Attendance: At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, while I strongly encourage you to attend class, attendance will not be counted nor used in the determination of your final grade. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao/>).

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a **letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

eTutoring/University Tutorial and Supplemental Instruction (UTSI) All students enrolled in qualifying courses can receive FREE eTutoring for this course and other selected subjects for this semester. To access this service visit [UT Arlington's eTutoring site](http://www.uta.edu/etutoring). If you are not able to access the site, please request access to eTutoring by submitting a [request form](http://www.uta.edu/etutoring). All tutors receive extensive training. Find out more at www.uta.edu/etutoring

Non-Discrimination Policy: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.*

Title IX Policy: The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: for semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](#), [major-based learning centers](#), developmental education, [advising and mentoring](#), personal counseling, and [federally funded programs](#). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

The IDEAS Center (2nd Floor of Central Library) offers **free** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817) 272-6593.

The Library's 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation. <http://library.uta.edu/academic-plaza>

Tentative Course Schedule

As instructor I reserve the right to adjust this schedule as needed.

Monday, January 15:	MLK Day (No Class)
Wednesday, January 17:	Introduction to course
Monday, January 22:	Lecture 1 – Physical Quantities, Uncertainty, Unit Conversion
Wednesday, January 24:	Lecture 2 – One-Dimensional Kinematics, Position, Velocity, Acceleration
Monday, January 29:	Lecture 3 – More on One-Dimensional Kinematics
Wednesday, January 31:	Lecture 4 – Graphical Analysis, Vector Introduction
Wednesday, January 31:	Census Date
Monday, February 5:	Lecture 5 – Vectors Continued and Two-Dimensional Kinematics
Wednesday, February 7:	Make-Up Day (if class lost to inclement weather)
Monday, February 12:	Test 1 (Lectures 1-5)
Wednesday, February 14:	Lecture 6 – Dynamics: Newton's Laws, Weight, Normal Forces,
Monday, February 19:	Lecture 7 – Friction, Tension, and Dynamic Problem Solving
Wednesday, February 21:	Lecture 8 – Uniform Circular Motion, Centripetal Forces, Newton's Gravity
Monday, February 26:	Lecture 9 – Satellites, Artificial Gravity, Work, Kinetic Energy, Potential Energy
Wednesday, February 28:	Lecture 10 – Conservation of Energy, Non-Conservative Forces, Power
Monday, March 5:	Make-Up Day (if class lost to inclement weather)
Wednesday, March 7:	Test 2 (Lectures 6-10)
Monday, March 12:	Spring Break: No Class
Wednesday, March 14:	Spring Break: No Class
Monday, March 19:	Lecture 11 – Impulse, Momentum, 1D Collisions, Conservation of Momentum,
Wednesday, March 21:	Lecture 12 – Collisions in 2D, Center of Mass, Momentum Problem Solving
Monday, March 26:	Lecture 13 – Rotational Kinematics, Rotational Dynamics, Torque
Wednesday, March 28:	Lecture 14 – Rotational Conservation Laws
Friday, March 30:	Drop Date (4pm)
Monday, April 2:	Lecture 15 – Static Equilibrium, Elasticity
Wednesday, April 4:	Lecture 16 – Fluids, Pressure, Pressure with Depth, Pascal's Principle,
Monday, April 9:	Lecture 17 – Bournoulli's Equation, Simple Harmonic Motion, Pendulum
Wednesday, April 11:	Lecture 18 – Wave Motion, Resonance, Sound, Doppler Effect,
Monday, April 16:	Lecture 19 – Temperature, Thermal Expansion, Heat, Specific Heat Capacity,
Wednesday, April 18:	Lecture 20 – Heat Transfer, Ideal Gas Law, Kinetic Theory of Gases,
Monday, April 23:	Make-Up Day (if class lost to inclement weather)
Wednesday, April 25:	Test 3 (Lectures 11 through 20)
Monday, April 20:	Q&A Day (Class is Optional)
Wednesday, May 2:	Make-Up Day (if class lost to inclement weather)
Friday, May 4:	Last Day Of Class (No Class)

Final Exam Week: Monday, May 7 through Friday, May 11

FINAL EXAM: Friday, May 11, 2:00 to 4:30pm