

PHYS 1444 Section 003: Technical Physics II (Fall 2018)

Instructor: Dr. Barry Spurlock

Email: barrys@uta.edu

Meetings: Tues/Thurs, 5:30pm to 6:50pm, SH 101

Office Number: SH 007A

Office Hours: Mon & Tuesday, 4:00pm to 5:00pm

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

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

Description of Course Content: This is the second half of a one-year technical course. It will include the study of physical phenomena including electricity, magnetism, circuit theory, light, and optics. Prerequisite: PHYS 1443 and MATH 2325 or 2425 or concurrent enrollment.

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: Openstax University Physics Vol. 2 and 3 (Free Downloads)

<https://openstax.org/details/books/university-physics-volume-2>

<https://openstax.org/details/books/university-physics-volume-3>

Homework Service Enrollment: <http://goeta.link/USQ45TX-1AA51D-1XJ>

Homework Service: <https://login.theexpertta.com/Login.aspx>

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: There will be homework assignments on a weekly basis. The associated lab will require weekly lab reports (based on lab attendance/performance) and a final examination. Laboratory participation is a necessity. If you cannot make a lab, please discuss this with your lab instructor as soon as possible.

Grading:	Homework 15%	Scale:	A: 90.00-100%
	Tests 45% (3 tests at 15% each)		B: 80.00-89.99%
	Lab Grade 15%		C: 70.00-79.99%
	Final Exam 25%		D: 60.00-69.99%
	Bonus Homework 1% (Extra Credit)		

- 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 at the end of the semester (never raised) to ensure the proper grade distribution.

Physics Lab: Labs associated with this class don't start until the week of September 10. The Lab Manual is mandatory, so please buy one from the bookstore before September 10. All the help files, lab-syllabus, lab-materials and lab-final prep questions can be downloaded from <http://www.uta.edu/physics/labs/>.

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.

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.

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.

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**.

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](#). If you are not able to access the site, please request access to eTutoring by submitting a [request form](#). All tutors receive extensive training. Find out more at www.uta.edu/etutoring

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>.

University Tutorial & Supplemental Instruction (Ransom Hall 205): UTSI offers a variety of academic support services for undergraduate students, including: 60 minute one-on-one tutoring sessions, Start Strong Freshman tutoring program, and Supplemental Instruction. Office hours are Monday-Friday 8:00am-5:00pm. For more information, visit www.uta.edu/utsi or call 817-272-2617.

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>

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.

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/>).

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>.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should leave the room and move toward the nearest exit. Students in the back of the room should exit through the back doors, turn left, walk down the stairs, and exit the building. Students in the front of the room should exit through the front door, turn left, and exit the building. 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 individuals with disabilities. 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>

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/>

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.

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.

Academic Integrity: Faculty are encouraged to discuss the Honor Code and the consequences of cheating, including plagiarism with their students.

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/>. Students are encouraged to review these guides on plagiarism <http://libguides.uta.edu/copyright/plagiarism>

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 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>.

Tentative Course Schedule

As instructor I reserve the right to adjust this schedule.

<u>Thursday, August 23:</u>	Introduction to Course
<u>Tuesday, August 28:</u>	Lecture 1: Electric Forces, Electric Charges, and Coulomb's Law
<u>Thursday, August 30:</u>	Lecture 2: Electric Fields and Continuous Charge Distributions
<u>Monday, September 3:</u>	Labor Day
<u>Tuesday, September 4:</u>	Lecture 3: Gauss's Law, and Electric Potential
<u>Thursday, September 6:</u>	Lecture 4: Electric Potential/Voltage (Cont.) and Capacitors
<u>Friday, September 7:</u>	Census Date
<u>Tuesday, September 11:</u>	Lecture 5: Capacitors (Cont.), Circuits, Current, and Resistance
<u>Thursday, September 13:</u>	Make Up Day (<i>in case of inclement weather</i>) or Day Off
<u>Tuesday, September 18:</u>	Test 1 (Lectures 1-5)
<u>Thursday, September 20:</u>	Lecture 6: Circuits (Cont.), Kirchoff's Laws, and Nodal Analysis
<u>Tuesday, September 25:</u>	Lecture 7: Meters, RC Circuits, and AC Circuit Basics
<u>Thursday, September 27:</u>	Lecture 8: Magnetic Forces and Fields
<u>Tuesday, October 2:</u>	Lecture 9: Application of Magnetic Forces and Fields
<u>Thursday, October 4:</u>	Lecture 10: Faraday's Law, Lenz's Law, Generators, and Motors
<u>Tuesday, October 9:</u>	Lecture 11: Inductance, RL Circuits, and AC Circuits
<u>Thursday, October 11:</u>	Make Up Day (<i>in case of inclement weather</i>) or Day Off
<u>Tuesday, October 16:</u>	Test 2 (Lectures 6-10)
<u>Thursday, October 18:</u>	Lecture 12: AC Circuits (Continued)
<u>Tuesday, October 23:</u>	Lecture 13: AC Circuits (Continued), Maxwell's Equations, EM Waves
<u>Thursday, October 25:</u>	Lecture 14: Reflection, Plane Mirrors, Spherical Mirrors (Concave & Convex)
<u>Tuesday, October 30:</u>	Lecture 15: Magnification, Refraction, Dispersion, and Lenses
<u>Thursday, November 1:</u>	Lecture 16: Lenses in Combination and Interference
<u>Friday, November 2:</u>	Drop Date (4pm)
<u>Tuesday, November 6:</u>	Lecture 17: Interference (Cont.) and Special Relativity
<u>Thursday, November 8:</u>	Lecture 18: Special Relativity (Cont.)
<u>Tuesday, November 13:</u>	Lecture 19: Quantum Mechanics
<u>Thursday, November 15:</u>	Lecture 20: Quantum Mechanics (Cont.)
<u>Tuesday, November 20:</u>	Make Up Day (<i>in case of inclement weather</i>) or Day Off
<u>Thursday, November 22:</u>	Thanksgiving Holiday
<u>Friday, November 23:</u>	Thanksgiving Holiday
<u>Tuesday, November 27:</u>	Test 3 (Lectures 11-20)
<u>Thursday, November 29:</u>	Optional Class (Q&A Day)
<u>Tuesday, December 4:</u>	Last Day of Class - Day off (No Class)

Final Exam Week: Thursday, December 6 through Wednesday, December 12

Final Examination (Comprehensive) Thursday, December 6, 5:30pm to 8:00pm