Physics 1444 Section 001  
Spring 2020, Science Hall, Room 100  
Time: MWF 1:00 p.m. - 1:50 p.m.  
Textbook: Douglas C. Giancoli "PHYSICS FOR SCIENTISTS & ENGINEERS"  

**Instructor:** Joseph Ngai  
**Email:** jngai@uta.edu  
**Office:** Science Hall 120F  
**Phone:** 817-272-2032

**Office hours:** MW 2:00 pm to 3:00 pm, or by appointment.

**Faculty Profile:** [https://www.uta.edu/mentis/profile/?11464](https://www.uta.edu/mentis/profile/?11464)

**Description of Course Contents:** PHYS 1444 covers electricity, magnetism, and light (Chapters 21-31 of course textbook). A companion lab course is to be taken concurrently.

**Student Learning Outcomes:** Through the lectures and accompanying lab course, students will learn and understand fundamental principles regarding electricity and magnetism. Students will be able to better appreciate natural phenomena they encounter and apply their understanding to solve basic problems.

**Other Requirements & Course Prerequisites:** PHYS 1443 and Calculus.

**Grading:**

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Attendance</td>
<td>5%</td>
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<tr>
<td>Homework</td>
<td>10%</td>
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<tr>
<td>Lab</td>
<td>20%</td>
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<tr>
<td>Midterm 1</td>
<td>10%</td>
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<td>Midterm 2</td>
<td>10%</td>
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<tr>
<td>Midterm 3</td>
<td>10%</td>
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<tr>
<td>Final</td>
<td>35%</td>
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**Extra credit:** Students can earn an additional 4% on their final grade by attending the weekly physics colloquia, held Wednesdays from 4:00 pm to 5:00 pm. Each colloquium attended will contribute equally to the 4% credit (i.e. attend all the colloquia = 4% additional credit, attend half the colloquia = 2% additional credit, etc.)

**Homework:** Homework will be done through “Mastering Physics” ([www.masteringphysics.com](http://www.masteringphysics.com) Course ID: UTANGAI1444S20) Assignments must be finished and submitted on time to receive credit.

**Lab:** Lab attendance is required. If you have already taken a lab section, then you will require my signature to obtain credit.

**Description of Major Assignments and Examinations:** The three midterms and final exams will be comprised of short-answer questions and derivational type problems, similar in style to homework questions. (HINT: The best way to prepare for exams is to do the required homework). Exams are closed book, and aids such as calculators and other electronic devices (cell phones, tablets, laptops etc.) are not permitted unless told otherwise. A standard formula sheet will be given to each student at the beginning of each exam.
Midterm 1: Chapters 21-23
Midterm 2: Chapters 24-26
Midterm 3: Chapters 27-29
Final: Comprehensive, Chapters 21-31 (Friday May 15, 2020, 11:00 am – 1:30 pm)

**Policy on missed exams:** No make-up exams will be given except in the case of extreme medical emergencies, which will require a Doctor’s note.

**Attendance:** Attendance will be taken randomly 3 times during the semester. If found absent, 1.7 % will be taken off your final grade for each instance (i.e. total of 3 x 1.7% ~ 5 % off final grade if found absent all 3 times). You can avoid having marks deducted for absences simply by emailing me prior to or immediately after a missed lecture.

**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://wweb.uta.edu/aao/fao/](http://wweb.uta.edu/aao/fao/)). Last day to drop: April 3, 2020.

**Americans with Disabilities Act:** The University of Texas at 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).** 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 that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Academic Integrity:** Students enrolled in this course 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 as they see fit in their courses, including (but not limited to) 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.
**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 www.uta.edu/resources. (1) Physics Help Clinic Mon. to Fri. 11 am - 6 pm, SH007 (Basement).

**Lab Safety Training**: Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities. Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., through the following August) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned.

**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.

**Student Feedback Survey**: At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be 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 enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

**Final Review Week**: 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.

**Emergency Exit Procedures**: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. 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.
Course Schedule:

January 24, 27, 29: Chapter 21 Electric Charge and Electric Field
January 31 February 3, 5: Chapter 22 Gauss’ Law
February 7, 10, 12: Chapter 23 Electric Potential
February 14, 17, 19: Chapter 24 Capacitance, Dielectrics, Electric Energy Storage
February 21, 24, 28: Chapter 25 Electric Currents and Resistance

February 26: Midterm 1
March 2, 4, 6, 16: Chapter 26 DC Circuits
March 18, 20, 23: Chapter 27 Magnetism

March 25: Midterm 2
March 27, 30, April 1: Chapter 28 Sources of Magnetic Fields
April 3, 6, 8: Chapter 29 Electromagnetic Induction and Faraday’s Law
April 10, 13, 15, 17, 20, 24: Chapter 30 Inductance, Electromagnetic Oscillations and AC Circuits

April 22: Midterm 3
April 27, 29, May 1: Chapter 31 Maxwell’s Equations and Electromagnetic Waves
May 4, 6, 8: Review and exam preparation

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.