PHYSICS 207 SPRING 2020

Instructor: Dr. Jeremy Holt

Class location: MPHY 204
Class hours: Tue & Thu 12:45-2:00pm

Recitation location: MPHY 337
Recitation hours:

Sec 507:	Mon	9:30am - 10:50am
Sec 508:	Tue	9:30am - 10:50am
Sec 509:	Tue	3:30pm - 4:50pm
Sec 510:	Wed	11:00am - 12:20pm
Sec 511:	Wed	2:00pm - 3:20pm

Office location: CYCL 333 (Restricted-access building, please check in at the front desk first.)
Office hours: Wed & Thu 9:00-10:00am or by appointment

E-mail: holt@physics.tamu.edu
Phone: 979-845-1411
Course website: www.quantumnovae.com/teaching-207

Exam	**Date**	**Time**	**Location**
Exam 1:	Wed 02/12/20	7:30pm - 8:30pm	TBD
Exam 2:	Wed 03/18/20	7:30pm - 8:30pm	TBD
Exam 3:	Wed 04/15/20	7:30pm - 8:30pm	TBD
Final:	Tue 05/05/20	8:00am - 10:00am	MPHY 204

Prerequisites
Grade of C or better in PHYS 218 or PHYS 206; grade of C or better in MATH 152 or MATH 172 or equivalent

Required materials
1) Textbook: *Don't Panic: Volume II Electricity and Magnetism*, by William H. Bassichis, 5th ed.
2) Clickers are required for the course and will be used for various kinds of assessment: quizzes (graded and ungraded), in class discussion, etc.

Goal
Master the fundamentals of physics to open the way to understanding subsequent courses in physical sciences and engineering. Learn the basic laws of electricity and magnetism, their application to electronic circuits and the basis of our understanding of light.

Schedule

Week	Topic	Learning Outcomes
Jan. 13	Mechanics review. Coulomb's Law.	Polar coordinates and potential functions. Forces between charged particles

Jan. 20	Electric forces. Electric fields.	Systems of particles. Concept of a vector field.
Jan. 27	Electric potentials.	Potential energy of charged particle configurations. Concept of electric potential and voltage.
Feb. 3	Gauss's Law.	Concept of electric flux. Equivalency of Gauss's Law and Coulomb's Law.
Feb. 10	**Exam 1 (2/12/20)**. Applications of Gauss's Law. Capacitors.	Computing electric field and electric potential for symmetric charge distributions.
Feb. 17	Current. Ohm's Law.	Definition of electric current. Microscopic and macroscopic form of Ohm's Law.
Feb. 24	Simple circuits.	Solution of time independent circuits with resistors, batteries and capacitors.
Mar. 2	Magnetic forces.	Calculate forces on moving charges in magnetic fields.
Mar. 9	**Spring break**.	
Mar. 16	**Exam 2 (03/18/20)**. Magnetic fields.	Sources of magnetic fields. Ampere's principle.
Mar. 23	Ampere's Law.	Derive and apply Ampere's Law.
Mar. 30	Induced EMF. Inductance.	Define and compute induced EMF. Apply Faraday's Law.
Apr. 6	Time-dependent circuits.	Application of Faraday's Law to time-dependent circuits.
Apr. 13	**Exam 3 (04/15/20)**. Maxwell's equations & electromagnetic waves	Obtain electromagnetic wave equation from Maxwell's Laws. Derive speed of light in a vacuum.
Apr. 20	Review.	Review for final exam.
May 5	**Final Exam**.	Comprehensive final exam.

Course Policies

1) It is your responsibility to know the dates/times/locations for all exams and to come prepared
2) No calculators or notes are permitted on exams
3) Makeup exams are only for university-excused absences
4) Teamwork is encouraged outside of class but not on exams
5) You should expect a clicker quiz each class

Grading Policies

Grade Weighting: Exams 50%, Recitation 5%, Quizzes 10%, Final Exam 35%

Grading Scale: The student's final letter grade in the course will be no less than that shown below for a given achieved percentile:

A = 90–100%
B = 80–89%
C = 60–79%
D = 45–59%
F = 0–44%.

If your grade on the Final Exam is higher than your lowest grade on one of the three exams during the semester, the grade on the Final will replace that one lowest exam grade in computing the course grade (it will only replace one grade in case of two exams having the same lowest grade). The Final Exam grade cannot be used to replace an exam that has been missed without a University excused absence. The missed exam will count as a zero when computing your final grade. Students are expected to be familiar with the Texas A&M University Student Rules at http://student-rules.tamu.edu.

Americans with Disabilities Act (ADA)
Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit http://disability.tamu.edu. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Title IX and Statement on Limits to Confidentiality
Texas A&M University and the College of Science are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees — including instructors — cannot maintain confidentiality when it conflicts with their responsibility to report certain issues that jeopardize the health and safety of our community. As the instructor, I must report (per Texas A&M System Regulation 08.01.01) the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared:

• Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff, or third parties visiting campus.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the Student Counseling Service (https://scs.tamu.edu/).

Students and faculty can report non-emergency behavior that causes them to be concerned at http://tellsomebody.tamu.edu.

Academic Integrity
For additional information refer to the Honor Council Rules and Procedures on the web at:
http://aggiehonor.tamu.edu

Aggie Honor Code: *"An Aggie does not lie, cheat, or steal, or tolerate those who do."*