

PHYSICS 218 SPRING 2018

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Office hours: MW 2:00 p.m.- 4:00 p.m. or by appointment

Meeting times and location:

Lecture MWF 9:10 – 10:00 a.m. MPHY 204

Section 200 Recitation M 11:00 am -12:20 pm in MPHY 334; lab M 12:30-1:50 pm in MPHY 220

Section 403 Recitation T 9:30-10:50 am in MPHY 334; lab T 11:00 am-12:20 pm in MPHY 220

Section 404 Recitation T 2:00-3:20 pm in MPHY 334; lab T 3:30-4:50 pm in MPHY 220

Section 405 Recitation W 2:00-3:20 pm in MPHY 334; lab W 3:30-4:50 pm in MPHY 220

Section 406 Recitation R 12:30-1:50 pm in MPHY 334; lab R 2:00-3:20 pm in MPHY 220

Textbook: “Don’t Panic: Volume I”, by William H. Bassichis, 7th Edition

We will use clickers for various kinds of assessment: pop quizzes, homework quizzes, in class discussion, etc.

WebAssign is required for the labs.

Prerequisites: MATH 151 or MATH 171 or registration therein.

Goal: Master the fundamentals of physics to open the way to understanding subsequent courses in physical science and engineering.

Tentative Schedule

Week	Topic	Learning Objectives
Jan. 15	Calculus, One Dimensional (1D) Motion	Find derivatives and integrals of simple functions. Obtain algebraic equations for kinematic variable by integration
Jan.22	1D problems, Vectors, 2D Motion	Solve 1D problems. Become expert in unit vectors and components. 2D equations of motion. 2D problems.
Jan.29	Newton's Laws	Learn Newton's three laws. Become familiar with certain forces. Analyze simple systems,
Feb. 5	Friction, Second Law problems. Gravitational force.	Study the friction force. Consider systems with friction. More complex systems.
Feb. 12	Work. The Work Energy Theorem.	Master the precise definition of work. Prove and apply the Work Energy Theorem.
Feb. 19	Exam I. Potential Energy Functions	Ability to determine whether or not a force is conservative.
Feb. 26	Conservation of Energy	Applications of Conservation of Energy.
Mar. 5	Center of Mass, Conservation of Momentum, Collisions	Calculate Center of Mass, Apply Second Law to system of particles. Analyze elastic and inelastic collisions
Mar. 19	EXAM II <u>Polar coordinates</u>	Derive the components of velocity in terms of unit vectors in polar coordinates
Mar. 26	Polar coordinates, Newton's Law in polar coordinates, circular motion	Derive the components of acceleration in terms of the unit vectors in polar coordinates. Apply Newton's Law in polar coordinates
Apr. 2	Torque and Angular Momentum	Learn definition of torque and angular momentum. Use polar coordinates to obtain useful expressions for these quantities
Apr. 9	Conservation of Angular Momentum, Applications	Derive the law of Conservation of Angular Momentum. Solve problems using the law.

Apr. 16	Harmonic Motion, Simple, Damped and Forced. Resonance	Apply Newton's Law with restoring force. Solve resulting differential equation. Analyze sinusoidal motion
Apr. 23	EXAM III Frames of Reference	Be able to transform kinematic variables from one coordinate system to another. Inertial systems.
Apr. 30	Review	
May 3-8	FINAL EXAM (TBA)	

COURSE POLICIES

- 1) It is your responsibility to determine what material is being covered in each class. The dates of the hour exams are Feb. 19, Mar. 19 and Apr. 23. The two hour final exam is held during exam week May 3 -8. Dates of the third exam and the final are subject to change.
- 2) Team work is encouraged outside of class but not on exams
- 3) You should expect a quiz each class
- 4) No calculators or notes are permitted on exams
- 5) Makeup exams are only for University excused absences (<http://student-rules.tamu.edu>)
- 6) You should come to lecture having read about the topic and tried problems
- 7) You should come to recitation with questions on problems

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Grading: Exams 50%, Lab 5%, Quizzes 5%, Final 40%

Scale: 90-100 A, 80-89 B, 60-79 C, 45-59 D, <45 F. Grades may be curved upward.

You must pass both the lecture (3 midterm exams, final exam, homework) and laboratory parts of the course separately in order to pass the course. 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.

Statement: I understand that my grade in this course will be determined by my performance. I will read the material before the lecture, try the problems before seeking help. If I do not understand the material I will get help before the next class, since I understand that each topic requires the understanding of all previous material. I am prepared to Q drop this course if I have not demonstrated that I have the time, desire and ability to pass this course.

Signature..... Date.....

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit <http://disability.tamu.edu>.

Aggie Honor Code

“An Aggie does not lie, cheat, or steal or tolerate those who do.” (See the Honor Council Rules and Procedures on the web at <http://www.tamu.edu/aggiehonor>.)