

Syllabus: Physics 2010 – Technical Physics I
Sections I-V
The University of Toledo
Department of Physics & Astronomy
Spring 2011

Instructor: Jim Palmer, Professor Physics and Astronomy
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OFFICE HOURS: McMaster on M 1-4:00 p.m. & W 7:15-9:15 p.m.
Classroom for Lecture: Palmer Hall 3020
Days & Time: T&TR 11:00-12:15 p.m.

TEXTBOOK: College Physics by Wilson & Buffa (7th edition, latest)
Laboratory Manual: Technical Physics I by Palmer

MAJOR TOPICS:

- 1: Measurement and Problem Solving
- 2: Kinematics: Description of Motion
- 3: Motion in Two Dimensions
- 4: Force and Motion
- 5: Work and Energy
- 6: Linear Momentum and Collisions
- 7: Circular Motion and Gravitation
- 8: Rotational Motion and Equilibrium
- 9: Solids and Fluids

Grading Scale: 90%, 80%, 70%, 60% with averages within 3% of grade-break being reserved for plus and minus letter grades; i.e., 88% = B+, 86.5 = B, 92.6 = A-.

Learning Physics: This core curriculum course places great emphasis on problem solving skills. You can work alone or by yourself on the problems but there is no substitute for work. The application of concepts and principles in word problems in a quantitative fashion is difficult for most students. But you must understand the principles first. You need to go to the internet and look up terms and ideas in Physics almost daily if you want to increase your learning efficiency. You should use all the PHYSLETS that go with the first 9 chapters of the text. You need to be proactive, not passive in your acquisition of knowledge and in development of skill in solving problems. Students that are successful in Physics take good notes, prepare for every class, participate in class, read the textbook, work all the assigned problems, and spend 10-12 hours outside the classroom each week on doing the homework and reading and studying the text.

Grading Basis:

LABORATORY: 20%. The laboratory must be passed at the 70% level (minimum) in order to receive a passing grade for the course, regardless of the final course percent. If you missed lab or are going to miss lab you need to immediately contact you lab instructor, not the lecturer. Missed labs probably will not be able to be made up but that is up to your lab instructor and not the lecturer. If you finish (data, analysis, required lab questions, etc.) lab “early” and if you really understand what you did, then I suggest working in lab on either physics homework problems or by studying physics with your lab partners. Your TA (teaching assistant) will be available during the lab period to help you with any

questions on physics. This should be your most productive experience and your best opportunity to get "tutoring".

Lecture: 80%

1. (15%) Unannounced quizzes (maximum 5-6, with highest 3-4 quizzes used in course grade), special assignments, and collected homework. There is no makeup or coming-into-class late testing or leaving-class-early testing on these. There are time limits on the quizzes so you need to know the material to be able to complete the quiz in the allotted time.
2. Major Quiz (ANNOUNDED) (5%): Math Review, including vectors, scalars, trigonometric functions, units (base & composite), systems, precision & accuracy, dimension analyses, basic quantities & one-dimensional motion and selected material. This will be given on Tuesday of week #3 (Jan 25th)
3. Exam #1 (15%) Focus on two-dimensional motion and selected material. Chapters 1-3 plus in class material. This will be given on February 15th (week #6), a Tuesday.
4. Exam #2 (15%) Focus on Newton's Laws, Gravitation, Statics, Equilibrium, & Center of Mass. Chapters 1-4 and part of Chapter #8. This will be given March 22nd (week #10), a Tuesday.
5. Exam #3 (15%) Focus on Work, Power, Energy, Linear Momentum & Impulse, and Rotational motion. Chapters 1-8. This will be given April 12th (week #13), a Tuesday.
6. Exam #4 (15%) FINAL EXAM: comprehensive, including rotational motion and solids and liquids.

Chapters 1-9. THURSDAY MAY 5th 10:15-12:15

Final Exam: Date: See Online University Exam Schedule Time Limit: 100 minutes THURSDAY MAY 5th 10:15-12:15

Syllabus may be changed to fit the circumstances; for example, snow, emergency, instructor illness, etc. It may also be changed to fit the pace of the class; that is, subject matter maybe partitioned differently as that listed so that exams occur more evenly paced, for example, every 3-4 weeks.

Laboratory Topics

- Laboratory Orientation
- Experiment 1: Measurement/Density
- Experiment 2: Specific Gravity
- Experiment 3: Vector Addition
- Experiment 4: Density of Air
- Experiment 5: Acceleration Due to Gravity
- Experiment 6: Newton's Second Law
- Experiment 7: Friction
- Experiment 8: Torques
- Experiment 9: Simple Machines
- Experiment 10: Young's Modulus
- Experiment 11: Momentum/Ballistic Pendulum
- Experiment 12: Uniform Circular Motion