PHYS 111-01 CLASSICAL PHYSICS – FALL 2010

INSTRUCTOR:

Dr. Gerry Ruch
Office OWS 160E
651-962-5207
email: gtruch@stthomas.edu

OFFICE HOURS:

Tuesday and Thursday 2:00pm to 3pm or by appointment.

WEBSITE:

http://ida.phys.stthomas.edu/Phys111/Section01

TEXT:

Essential University Physics 1st Ed. by Richard Wolfson
Pearson Addison Wesley Publishers

COURSE PHILOSOPHY:

Many students think that Physics is difficult. They are correct. Physics 111 and 112 are difficult, not so much because the material is difficult, but because of a combination of things. The goal of Physics is to discover fundamental relationships that quantitatively describe physical phenomena. In Physics 111-112, we learn to apply those relationships to problems that we haven't seen before. This is an inherently difficult thing to do. Additionally, physics is a broad topic. Even the subset of physics that we cover in 111 and 112 covers a lot of ground. We have to cover all of this ground to prepare our students for future courses in a variety fields. Therefore, we have to move through the material quite rapidly leaving little time to ruminate. The single most important factor in success with this course is to ***keep up with the material.*** We typically cover a chapter every two or three days – this may not sound like much, but it is quite intense. Plan to study **3 hours for each class session**. Don't get discouraged – it may sometimes seem overwhelming, but the confidence and problem solving skills that you acquire will be extremely valuable to you in the future.

TESTS & QUIZZES (86%):

There are six tests throughout the semester and three quizzes. Your lowest test score is worth 7% and all other tests are worth 14% of your total grade. Quizzes are worth 3% each. Tests and quizzes must be taken at the scheduled time. Missed tests and quizzes can only by made-up at my discretion. The "final exam" is the sixth unit test

HOMEWORK & LAB (14%):

During the semester we will conduct a variety of laboratory exercises and group problems in class. In addition to the in class work, homework problems are assigned on a daily basis. As an incentive to keep up with homework, tests will include one problem taken directly from the homework or in-class group exercises. Homework will be collected and solutions to the homework and group problems will be posted on the class website.

HONOR CODE:

In the process of conducting scientific work it is essential that an attitude of trust and honesty is common to all participants. In the Physics Department we have an honor code. We expect you to behave honorably in all aspects of your life. This means that we trust you. For example, you are free to leave the room during test, even without asking me. Because we take this trust seriously, a breach of the trust has severe consequences. Cheating in any form is grounds for dismissal from the course with a grade of F. When working on homework I expect you to communicate with each other – but all tests are to be conducted entirely on your own.

Much of what you learn in this course will be forgotten over time but the character you forge will be with you forever.

PHYS 111-01 CLASSICAL PHYSICS – FALL 2010

DISABILITIES

Classroom accommodations will be provided for qualified students with documented disabilities. Students are invited to contact the Enhancement Program – Disability Services about accommodations for this course within the first two weeks of the term. Telephone appointments are available to students as needed. Appointments can be made by calling 651-962-6315 or 800-328-6819, extension 6315. You may also make an appointment in person in O'Shaughnessy Educational Center, room 119. For further information, you can locate the Enhancement Program on the web at: http://www.stthomas.edu/enhancementprog/

IRB Consent

IRB proposal #A10-131-01

We are conducting a study about student misconceptions and outcomes in Physics courses, which will help us improve this course. You were selected as a possible participant because you are enrolled in this course. Please read this statement and ask any questions you may have before agreeing to be in the study. This study is being conducted by faculty in the Physics Department. The purpose of this study is to identify common misconceptions students have coming into the different Physics courses, and to measure the outcomes of the courses in students' problem solving skills and conceptual understanding of the material. There is no benefit for participating in this study. If you have questions, you may contact the Physics department chair, at 651 962-5214. You may also contact the University of St. Thomas Institutional Review Board at 651 962-5341 with any questions or concerns. Your consent to participate in this study is implied when you complete any assessment, survey or exam in this course, unless you notify the Physics department chair of your desire to be excluded from this research study.

PHYS 111-01 CLASSICAL PHYSICS – FALL 2010

GRADING SCALE

A	92% ≤ X	C+	78% ≤ X < 80%
A-	90% ≤ X < 92%	C	68% ≤ X < 78%
		C-	66% ≤ X < 68%
B+	88% ≤ X < 90%		
B	82% ≤ X < 88%	D+	64% ≤ X < 66%
B-	80% ≤ X < 82%	D	58% ≤ X < 64%
		D-	56% ≤ X < 58%
		F	X < 56%

TENTATIVE SCHEDULE

Day	Date	Topic
Wednesday	Sep 8	FCI, Vectors, Vector algebra
Friday	Sep 10	Rates (derivatives), Velocity
Monday	Sep 13	Rates, Acceleration and Velocity together at last
Wednesday	Sep 15	Kinematics, “Kinematics equations”, Trajectories
Friday	Sep 17	Review
Monday	**Sep 20**	**Exam 1 – Chapters 1,2,3: Kinematics**
Wednesday	Sep 22	Newton's Laws 1, Forces on a single object
Friday	Sep 24	Newton's Laws 2, Multiple Objects and reaction forces
Monday	**Sep 27**	**Quiz 1,** and Newton's Laws 3, Other forces: Springs and Friction
Wednesday	Sep 29	Uniform Circular Motion
Friday	Oct 1	Review
Monday	**Oct 4**	**Exam 2 – Chapters 4,5: Dynamics**
Wednesday	Oct 6	A new idea: Work, The Dot Product, Path Integrals
Friday	Oct 8	The Work Energy Theorem, Kinetic Energy
Monday	Oct 11	Conservative Forces, Path Independence, Potential Energy
Wednesday	**Oct 13**	**QUIZ 2**, and Conservation of Energy, Spring Potential
Friday	Oct 15	Conservation of Energy
Monday	Oct 18	Lab – Plug the Bug
Wednesday	Oct 20	Review
Friday	**Oct 22**	**Exam 3 – Chapters 6,7: Work/Energy**
Monday	Oct 25	Center of Mass
Wednesday	Oct 27	Newtons Second Law for Systems
Friday	**Oct 29**	**Midterm Break**
Monday	Nov 1	Collisions and Impulse
Wednesday	Nov 3	Lab -
Friday	Nov 5	Review
Monday	**Nov 8**	**Exam 4 – Chapter 9: Systems of Particles**
Wednesday	Nov 10	
Friday	Nov 12	

PHYS 111-01 CLASSICAL PHYSICS – FALL 2010

Tentative Schedule - Continued

Day	Date	Topic
Monday	Nov 15	
Wednesday	Nov 17	
Friday	**Nov 19**	**Quiz 3**
Monday	Nov 22	
Wednesday	Nov 24	Lab – Barney's Beneficial Bearing Boutique
Friday	**Nov 26**	**Thanksgiving**
Monday	Nov 29	review
Wednesday	**Dec 1**	**Exam 5 – Chapters 10,11,12: Rotation/Statics**
Friday	Dec 3	
Monday	Dec 6	
Wednesday	Dec 8	
Friday	Dec 10	
Tuesday	**Dec 14**	**Exam 6 – Chapter 13: Oscillations (8:00am to 10:00am)**