COURSE SYLLABUS

Phy135.03 – Classical Physics and Thermodynamics

Credit Hours: 3

Spring, 2008

Farrington Building, Room 101
9:30 a.m. - 10:50 a.m.

Instructor: **Dr. Gan Liang**
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Office Location: **Farrington Building, Room 204F**

Office Hours: Tuesday and Thursday, 12:30 p.m. – 2:30 p.m.

Other times are available by appointment only.

These office hours are subject to change during the semester for any university-related functions or instructor illness. Notification will be made by posting an announcement on the "Blackboard" area for this course.

Course Description: **Classical Physics and Thermodynamics**: The description of this course in the University Catalogue is: *This is an elementary course covering the fundamentals of motion and heat. credit 3.* This course is for liberal arts students. It is not open to students majoring in programs offered by Chemistry, Physics, Biological Sciences, Geology, or Mathematics. The only prerequisite for this course is the high-school courses in elementary algebra (Algebra I) and geometry. Concepts and principles are stressed. Students are encouraged to ask questions during class about any physics concepts and physical phenomena observed in daily life. The course consists of the following parts: attendance, lectures, homework, quizzes, and exams. All exams will be in the form of multiple choice questions. Content of the course: Chapter 1-8 and 10 of the textbook.

Course Objectives: To successfully complete this course, the students are required to achieve the following main objectives:

- Understand what physics is and where it fits in the broader scheme of the sciences. Know and understand the scientific method. Know the relationship between physics and technology.

- Know the definitions of the terms used in physics to describe motion, such as time, displacement, speed, velocity, and acceleration. Understand the relationships among these quantities and know how to use them to solve problems for motion with constant acceleration, such as the motions under the influence of gravity: Freely falling motion and projectile motion.

- Understand Newton's three laws of motion and develop skills of applying these laws to solve different kind of problems related to motion and forces.

- Understand the basic features of circular motion. Know what are the centripetal acceleration and centripetal force. Know how to use Newton's law of universal gravitation to explain the motion of planets and calculate the gravitational forces.

- Understand the concepts of work, kinetic and potential energy, impulse, and momentum. Understand the energy and momentum conservation laws. Apply these conservation laws to solve various mechanical problems including collision problems.

- Know what concepts and physical quantities are needed to describe rotational motion. Know the definitions of the following quantities: rotational velocity, rotational acceleration, rotational inertia, torque. Understand under what condition the angular momentum is conserved.

- Understand the meaning of temperature defined in physics. Know what is specific heat. Study different temperature scales, first and second law of thermodynamics. Apply the first law of thermodynamics to analyze energy transformation in a variety of everyday situations.

Required Textbook: W. T. Griffith**,** *the physics of everyday phenomena: A Conceptual Introduction to Physics,* 5th ed. (McGrow-Hill, Boston, 2007).

Required Supplies: The following supplies are required for this course:

(1) Pen,
(2) #2 pencils
(3) Notebook or ring binder
(4) 8.5×11 paper

(5) Eraser
(6) Scientific calculator with the following functions: sine, cosine, square root, exponentiation, scientific notation
(7) Textbook
(8) Scantron Form No. 882-E

Optional Textbook: None

Attendance Policy: Attendance at lectures is required. The instructor will take rolls at least eight times for the session. There will be no penalty if you miss three or less of the classes for which the rolls are taken. If you miss four or more times, then your points for attendance will be prorated according to the number of rolls you do not miss. The rolls could be taken at any time during class. Attendance points will be used to calculate your final grade for this course (see below). If there is a good excuse for an absence, this must be submitted in writing to the instructor. For example, for illness, a valid medical excuse must be a doctor's note signed by a licensed physician. Attendance at exams is mandatory.

Assignments: For some chapters of the textbook, homework will be assigned. The homework assignments are optional and will not be collected and graded. You are encouraged to work, on your own initiative, as many questions and problems as possible for all the assigned homework.

Quizzes: There will be 3 in-class quizzes. Each quiz will have 5 quiz questions. The quizzes will be given after finishing the lectures of Chapter 1, 4, and 6. No make-up quizzes will be given.

Exams: Exam One: Chapters 1-3.
Exam Two: Chapters 4-6.
Final exam: Chapters 6-8 and 10.

Exam content, schedule, and number of exams are subject to change.

Make-up exams will not be given without a valid medical excuse signed by a licensed physician or the student is in compliance with the School's Religious Holiday policy. Student is responsible for knowing the final exam schedule.

Unless advised differently by instructor all exams will be closed book and closed notes. Each exam will be in the form of multiple choice questions.

Grading Plan:

90 up A
80 - <90 B
70 - <80 C
60 - <70 D
<60 F

Attendance ……..10%

Quizzes: .....…….…….15%

Exam One …… 20%

Exam Two …… 20%

Final exam:..... 35%

Academic Dishonesty:

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials. For a complete listing of the university policy, see: http://www.shsu.edu/administrative/faculty/sectionb.html#dishonesty

Classroom Rules of Conduct:

Students are expected to conduct themselves in an orderly, cooperative, and respectful manner. Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular telephones and pagers must be turned off before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also

may be reported to the Dear of Students for disciplinary action in accordance with university policy.

Visitors in the Classroom:

Unannounced visitors to class must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. if the visitor is not a registered student, it Is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom.

Religious Holidays: Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuses a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Section 51.911 (a) (2) defines a religious holy day as: "a holy day observed by a religion whose places of worship are exempt from property taxation under Section 11.20…." A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed. For a complete listing of the university policy, see:
http://www.shsu.edu/~vaf_www/aps/documents/861001.pdf

Students with Disabilities Policy

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance are expected to visit with the Office of Services for Students with Disabilities located in the Counseling Center . They should then make arrangements with their individual instructors so that

appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Counseling Center and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Counseling Center . For a complete listing of the university policy, see: http://www.shsu.edu/~vaf_www/aps/811006.html

Dropping Course: The instructor will not automatically drop a student. It is the student's responsibility to be aware of the final drop date and to drop if he or she deems it is necessary. Should you encounter any course difficulties during the term and need help, do not hesitate to ask and do not wait too late.

Grievances: Students should express grievances outside of class to your instructor first then to others in the following order, Department Head, and Dean.

Textbook topics to be Covered:

CHAPTER 1 Physics, the Fundamental Science
CHAPTER 2 Describing Motion
CHAPTER 3 Falling Objects and Projectile Motion
CHAPTER 4 Newton's Laws: Explaining Motion
CHAPTER 5 Circular Motion, the Planets, and Gravity
CHAPTER 6 Energy and Oscillations
CHAPTER 7 Momentum and Impulse
CHAPTER 8 Rotational Motion of Solid Objects
CHAPTER 10 Temperature and Heat

For some chapters, only selected sections will be covered.