

PHYSICS 2101
Physics for Science and Engineering- I
Fall Semester 2010 – Section- 092

**YOU ARE RESPONSIBLE FOR THE INFORMATION ON THESE SHEETS.
PLEASE READ THEM CAREFULLY AND KEEP THEM FOR REFERENCE.**

Dr. Awad Gerges Email: agerges@uncc.edu Phone: (704) 687-7559 Office: Grigg Hall 277 Office Hours: MW 6:15 -7:00PM in Burson 135A.	Meets : Burson 121 , M-W 05:00 – 06:15 PM Midterm Exams: Friday, Oct. 1st and Nov 12th. Final Exam: Saturday, December 11th. Course material Website: http://moodle.uncc.edu Quizzes &Hw. Website: http://mcgrawhillconnect.com
--	---

Course Description

This is the first course of the calculus-based introductory physics sequence. The course covers concepts of linear and circular motions, force, impulse-momentum, work-energy, rotational motion and oscillatory motion. This course is required for most science and engineering majors.

Course Objectives

To develop students' problem solving skills in a systematic manner, while providing a balance of quantitative reasoning and conceptual understanding.

Text and Course Material

- **“University Physics”, W Bauer and G. D. Westfall.;** (Purchase Volume One from bookstore which includes your accesses to Connect Plus and the e-book).
- **Connect Plus;** for online pre-lecture quizzes and homework.
- **Moodle:** We will use “Moodle” to communicate class related news, instructions, grades and pre-lecture study materials. (Access the link to Moodle through your 49er express account). You should see this course under the “My Courses” section.

Connect Plus Registration

Go to the following website and click "Register Now"

http://connect.mcgraw-hill.com/class/a_gerges_fall_2010_sec92

If you have trouble with registration, Please contact Customer Support at <http://mpss.mhhe.com/>.

Grading

Pre-Lecture Quizzes (Connect Plus)	10%	(drop 2 lowest)
In-Class participation (Attendance, Sudden Quizzes, Discussions ...)	5%	
Homework (Connect Plus)	10%	(drop 2 lowest)
Midterm Exam I	25%	
Midterm Exam II	25%	
Final Exam	<u>25%</u>	(Final exam score can replace one mid-term score)
TOTAL	100%	

Extra Credit:

Some in-class-quizzes are assigned during the course. This may add till 5% of extra credit to midterm and final exam scores.

Grades are assigned using a 10-point grading scale: A = 90.0-100.0, B = 80.0-89.9, C = 70-79.9, D = 60-69.9, F <= 59.9. The course is not graded on a curve.

THERE ARE NO LATE OR MAKE-UP EXAMS, QUIZZES, OR HOMEWORK. NO EXCEPTIONS!!!

Pre-Class Activities

- Study the material of coming lecture and read the solved examples in your text book. (As instructed at pre-lecture material loaded in moodle).
- Answer the corresponding pre-lecture quiz (Connect Plus).

- **Pre-Lecture Quizzes**
 - [There is no Extension or makeup](#) for pre-lecture quizzes.
 - Pre-lecture quizzes are 10% of your final grade.
 - Pre-lecture quizzes are to be submitted in Connect Plus.
 - Pre-lecture quizzes are time-limited. Please study first before trying to answer the quiz.
 - The due date of each pre-lecture quiz is midnight before the date of the lecture.
 - The number of trials in each question is very limited (2 trials) to ensure high quality of pre-lecture study and discourage guesswork.

Items needed for Class meetings

- Pen/pencil and class notebook.
- Your book.
- Scientific Calculator.

Extra Information and Course Policies

- You are responsible for all material covered in class, in homework assignments, on quizzes, and in assigned reading.
- ALL CELL PHONES AND PAGERS MUST BE TURNED OFF DURING CLASS AND EXAMS
- LATE HOMEWORK WILL NOT BE ACCEPTED.
- You must completely do your own work on the quizzes and exams. Failure to do so will be a violation of academic integrity. There will be consequences. See Academic Integrity below.
- No wireless electronics devices or laptops are allowed during exams. Students using cell phones, or other wireless communication devices during an exam will have the exam taken up and receive no credit for the exam.
- Students will be required to show their university ID upon turning in exams.

Academic Integrity

Academic honesty and integrity are essential to the existence and growth of an academic community. Without maintenance of high standards of honesty, members of the instructional faculty are defrauded, students are unfairly treated, and society itself is poorly served. Maintaining the academic standards of honesty and integrity is ultimately the formal responsibility of the instructional faculty; and this responsibility is shared by all members of the academic community. UNC Charlotte strives to create an academic climate in which the dignity of all individuals is respected and maintained. Therefore, we

celebrate diversity that includes, but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.

Students have the responsibility to know and observe the requirements of The UNCC Code of Student Academic Integrity (Catalog p. 275). This code forbids cheating, fabrication or falsification of information, multiple submissions of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Any special requirements or permission regarding academic integrity in this course will be stated by the instructor, and are binding on the students. Academic evaluations in this course include a judgment that the student's work is free from academic dishonesty of any type; and grades in this course therefore should be and will be adversely affected for academic dishonesty. Students who violate the code can be expelled from UNCC. The normal penalty for first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases the course grade is reduced to F. Students are expected to report cases of academic dishonesty to the course instructor.

Please read the Academic Integrity Code: <http://www.legal.uncc.edu/policies/ps-105.html>

PHYS 2101
Fall 2010 Course Schedule
Dr. Awad Gerges

Text Book: "University Physics", W Bauer and G. D. Westfall.

Lecture	Date	Topics Covered
1	Mon. Aug. 23	<i>(Chapter 1)</i> - Overview a. Working with numbers. b. SI Unit System. c. Problem solving strategy. d. Cartesian coordinate system. e. Vectors.
2	Wed. Aug. 25	<i>(Chapter 1)</i> - Vectors. <i>(Chapter 2)</i> – Motion in a straight line a. Introduction to Kinematics. b. Position vector, Displacement vector and distance c. Velocity vector, average velocity and speed.
3	Mon. Aug. 30	d. Acceleration vector. e. Finding displacement and velocity from acceleration
4	Wed. Sep. 1	f. Motion with constant acceleration. g. Reducing motion in more than one dimension to one dimension.
5	Wed. Sep. 8	<i>(Chapter 3)</i> – Motion in two and three dimensions a. Three dim. Coordinate systems. b. Velocity and acceleration in a plane. c. Ideal projectile motion.
6	Mon. Sep. 13	d. Max. height and range of a projectile. e. Realistic projectile motion. f. Relative motion.

7	Wed. Sep.15	<i>(Chapter 4)</i> – Force a. Types of forces. b. Gravitational force vector, weight and mass. c. Net force.
8	Mon. Sep. 20	d. Newton’s laws. e. Ropes and pulleys. f. Applying Newton’s laws.
9	Wed. Sep. 22	g. Friction force. h. Applications of the friction force.
10	Mon. Sep. 27	<i>(Chapter 5)</i> – Kinetic energy, work and power a. Energy in our daily life. b. Kinetic energy. c. Work.
11	Wed. Sep. 29	<i>(Revision For test # 1)</i>
Friday, Oct. 1		<i>(Test # 1) – Chapters (1-4)</i>
12	Mon. Oct. 4	<i>(Chapter 5)</i> – Kinetic energy, work and power. d. Work done by a constant force. e. Work done by a variable force. f. Spring force. g. Power.
13	Wed. Oct. 6	<i>(Chapter 6)</i> – Potential energy and energy conservation. a. Potential energy. b. Conservative and non conservative forces. c. Work and potential energy. d. Potential energy and force.
14	Wed. Oct. 13	e. Conservation of mechanical energy.

		<ul style="list-style-type: none"> f. Work and energy for the spring force. g. Non conservative forces and the work energy theorem. h. Potential energy and stability.
15	<p>Mon. Oct. 18</p>	<p><i>(Chapter 7)</i> – Momentum and collision.</p> <ul style="list-style-type: none"> a. Linear momentum. b. Impulse. c. Conservation of linear momentum.
16	<p>Wed. Oct. 20</p>	<ul style="list-style-type: none"> d. Elastic collision in one dimension. e. Elastic collision in two or three dimensions.
17	<p>Mon. Oct. 25</p>	<ul style="list-style-type: none"> f. Totally inelastic collision. g. Partially inelastic collision. h. Billiards and chaos.
18	<p>Wed. Oct. 27</p>	<p><i>(Chapter 8)</i> – System of particles and extended objects.</p> <ul style="list-style-type: none"> a. Center of mass and center of gravity. b. Center of mass momentum.
19	<p>Mon. Nov. 1</p>	<ul style="list-style-type: none"> c. Rocket motion. d. Calculating the center of mass.
20	<p>Wed. Nov. 3</p>	<p><i>(Chapter 9)</i> – Circular motion.</p> <ul style="list-style-type: none"> a. Polar coordinates. b. Angular coordinates and angular displacement. c. Angular velocity, angular frequency and period. d. Angular and centripetal acceleration.
21	<p>Mon. Nov. 8</p>	<ul style="list-style-type: none"> e. Centripetal force. f. Circular and linear motion. g. More examples for circular motion.
11	<p>Wed. Nov. 10</p>	<p><i>(Revision For test # 2)</i></p>
Friday, Nov. 12		<p><i>(Test # 2) – Chapters (5-9)</i></p>

23	Mon. Nov. 15	<i>(Chapter 10)</i> – Rotation. a. Kinetic energy of rotation. b. Calculation of moment of inertia. c. Rolling without slipping.
24	Wed. Nov. 17	d. Torque. e. Newton’s second law for rotation. f. Work done by a torque.
25	Mon. Nov. 22	g. Angular momentum. h. Precession. i. Quantized angular momentum.
26	Mon. Nov. 19	<i>(Chapter 11)</i> – Static equilibrium. a. Equilibrium conditions. b. Examples involving static equilibrium.
27	Wed. Dec. 1	<i>(Chapter 11)</i> – Static equilibrium. c. Stability of structures. <i>(Chapter 14)</i> – Oscillations. a. Simple harmonic motion..
28	Mon. Dec. 6	<i>(Chapter 14)</i> – Oscillations. b. Pendulum motion. c. Work and energy in harmonic oscillations.
29	Wed. Dec. 8	d. Damped harmonic motion. e. Forced harmonic motion and resonance.
Dec. 9		Reading Day.
Dec. 11		Final test (Comprehensive)

Good Luck