

# PHY 2170/2175 Course Information Winter 2009

**Lecture Time/Room:** MTWF 11:45-12:40 2009 Science Hall

**Lecturer:** Professor Sergei A. Voloshin  
345 Physics, ph: 313-577-1630, E-mail: [voloshin@wayne.edu](mailto:voloshin@wayne.edu)

**Office Hours:** MW 2:00-3:00 pm

**Required Text:** *Physics for Scientists and Engineers*, Serway and Jewett, 7<sup>th</sup> Edition

**Grade Determination:** Three (out of four) one hour exams – 17% each, Quizzes -15%, Final exam - 35%.  
Extra bonuses: Reading quizzes - 4%, and Attendance 2%.

**Grading Scale:** A 85-100%; A- 80-85%; B+ 75-80%; B 70-75%; B- 65-70%;  
C+ 60-65%; C 55-60%; C- 50-55%; D+ 45-50%; D 40-45%; D- 35-40%; F 0%-35%.

**Exams.** There will be four in-class one hour exams in addition to the cumulative final exam at the end of the semester. All exams are closed book.

**Wednesday Lectures** will be used mostly for solving additional sample problems to clarify the concepts covered in the MTF lectures, and to provide additional demonstrations.

**Quiz Sections and Homework Quizzes.** Quiz sections meet once a week and give you the opportunity to discuss the solutions to homework problems and revisit concepts from the lectures. Homework problems will not be graded, but *solving problems is one of the most important methods of learning physics*. You are encouraged to work together with your classmates to solve the homework problems. There will be about 6-7 quizzes given during your quiz sections.

**Reading Quizzes.** In order to prepare for class, it is important to do the appropriate reading assignment before the lecture. In order to encourage this advance reading, there will be very short reading quizzes covering this assigned reading during lectures. These quizzes will give you the opportunity to earn *bonus points* towards your final grade. In order to participate in these reading quizzes you will need to bring an *eInstruction* RF response unit.

**eInstruction RF Response Units.** In order to provide interactive instruction, we will be using a classroom response system in the PHY2170/2175 lectures this semester. You will need to purchase the RF *response unit* and an *enrollment code* for the response unit at the WSU Bookstore. Registration instructions will be available on Blackboard. The class key for this course, which is needed to register your response unit, will be provided.

**In-Class Policies.** Out of consideration for the other students in the lecture please abide by the following rules of conduct: (1) Turn off all cell phones while in the lecture hall, (2) Please arrive on time for lecture and do not leave early, (3) Please be mindful of your classmates.

**Academic Dishonesty.** All of the graded assignments are designed to measure your individual understanding of the material. No forms of cheating on these graded assignments will be tolerated. Anyone found cheating on any graded activity will receive a grade of zero for that part of their grade, and may receive a failing grade for the course. NB: Homework is not graded, and students are encouraged to collaborate on homework assignments (but not the homework quizzes!).

**Students with disabilities.** If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.

## Approximate lecture schedule

Date	Lecture Topics	Reading Assignment
1/12	Introduction, SI units, dimensional analysis	1.1-1.6
	1D motion	2.1-2.8
	Scalars and vectors	3.1-3.4
1/19	2D motion, projectile motion	4.1-4.3
	Circular motion, relative motion	4.4-4.6
	Force, Newton's 1 <sup>st</sup> and 2 <sup>nd</sup> laws	5.1-5.4
1/26	Intro to gravity, Newton's 3 <sup>rd</sup> law	5.5-5.6
	Friction	5.7-5.8
	<b>MIDTERM 1</b>	
2/2	Uniform and non-uniform circular motion	6.1-6.2
	Accelerated frames, resistive forces	6.3-6.4
	Work, kinetic energy	7.1-7.5
2/9	Potential energy, non-conservative forces	7.6-7.7
	Equilibrium	7.8-7.9
	Conservation of energy	8.1-8.3
2/16	Power	8.4-8.5
	Impulse and momentum	9.1-9.2
	Center of mass	9.3-9.5
2/23	Systems of particles, rocket propulsion	9.6-9.8
	<b>MIDTERM 2</b>	
	Rotational motion	10.1-10.3
3/2	Rotational kinetic energy, moment of inertia	10.4-10.5
	Torque, rolling motion	10.6-10.9
	Angular momentum	11.1-11.2
3/9	Conservation of angular momentum	11.3-11.4
	Precession	11.5
	Equilibrium	12.1-12.3
3/16	<b>Spring break</b>	
3/23	Elastic properties, Universal gravitation	12.4, 13.1-13.6
	<b>MIDTERM 3</b>	
	Simple harmonic motion, pendulum	15.1-15.5
3/30	Oscillations	15.6-15.7
	Waves, reflection and transmission	16.1-16.5
	Wave equation, sound waves	16.6, 17.1-17.3
4/6	Doppler shifts, digital recording	17.4-17.6
	Superposition, resonance	18.1-18.7
	Temperature, thermal expansion	19.1-19.4
4/13	Ideal gas, specific heat, latent heat	19.5, 20.1-20.3
	<b>MIDTERM 4</b>	
	Work, thermodynamic processes	20.4-20.7
4/20	Kinetic theory of gases	21.1-21.5
	Entropy, heat engines	22.1-22.8
	Fluids	14.1-14.7
4/27	Review and catch-up	
<b>4/30</b>	<b>10:30 AM to 1:10 PM FINAL EXAM (COMPREHENSIVE)</b>	