

**Instructor: Dr. S. Ganapathy**

Office: 132 Fronczak Hall; Phone: (716) 645-2906

Email: [sg82@buffalo.edu](mailto:sg82@buffalo.edu) (use PHY107 as the Subject of the email)**TA: S. Muralidharan** (Email: [sm393@buffalo.edu](mailto:sm393@buffalo.edu), use PHY107 as the Subject of the email)**IMPORTANT: Course materials will become available around Christmas. You are encouraged to start early, effectively extending the length of the winter session.****Course Format**

Online lectures, homework, recitation and office hours, and proctored exams (not necessarily at UB, see below for details). The course does not require you to be on campus.

**Textbook**

*Fundamentals of Physics* by Halliday, Resnick, and Walker, 10<sup>th</sup> edition, Volume 1 (with WileyPlus for online homework). The book is available at UB bookstore.

**Communication**

All emails should have PHY107 as the Subject. Otherwise they will not be answered.

UBlearns website (<https://ublearns.buffalo.edu/>) will serve as the main source for all course related contents. Because this is an online course, paying attention to on-line announcements, at UBlearns and/or by email, is critical.

Homework problems will not be discussed via email, because it is not effective and both your questions and our answers can be confusing in a text form. Use office hours instead.

**Lectures**

Lectures will be in the form of video-taped lectures, which you can view at your own time. Instruction for viewing the lectures will be given to you before class starts.

**Recitation**

There will be online recitation every week and the schedule will be posted in UBlearns.

You will be given instructions concerning how to login to the website for online recitations.

**Office Hours**

Office Hours will also be conducted online and the schedule will be posted in UBlearns.

**Laboratory**

Laboratory is a separate course, PHY 158, which you can take it in another semester if you are in Buffalo. You do not have to take it for the purpose of this course, but it may be required by your program. If you attend another university, you can take it at your university. If your university does not offer the lab as a separate course, find a university/college near you that does.

**Homework**

The homework in PHY 107 is computer based and uses the WileyPLUS system. This system is based on problems at the end of each chapter in the textbook. The students can purchase the WileyPLUS package with the textbook or separately if you already have the textbook. The WileyPLUS package contains the **access code** for each student as well as instructions on how to enroll.

Instruction for purchasing the code and registration can be found at <http://catalog.wileyplus.com/resources-and-support/students/register.html>. The login link will be provided in UBlearns. You will be allowed three attempts on each problem. The system will let you know whether you got the correct answer or not. If you have difficulty with a particular problem you are strongly encouraged to attend the office hours and get help so that you can attempt to submit your solution again. Each assignment has a due time and date. **No time extension will be given.** To avoid unexpected emergencies, please use the week before the due time to submit it.

### Examinations

Exams will be offered at UB campus or you can also make arrangement with testing centers at a university/college campus near you to minimize driving. Most off-campus testing centers charge a fee for taking the exam there. Instructions for picking a location can be found at the end of this syllabus. If you intend to take the exams at a location other than UB, you will be responsible for making arrangements with the center to take the exam at the same time it is offered at UB. Please inform the TA by Jan 7<sup>th</sup> for approval, because not all testing centers are considered acceptable. Also it takes time for us to coordinate with the testing centers, including sending them the exams. Because of the number of campuses involved, **there will be no makeup exams**. Make sure to give yourself sufficient time to arrive on time, especially if you have not been there before, so that you will have the full scheduled times for the exams. A scouting trip ahead of time is recommended.

Mid-term Exam	Friday, Jan 12 <sup>th</sup> , 1:00 pm—3:00 pm (EST)
Final Exam	Wednesday, Jan 24 <sup>th</sup> , 1:00 pm—3:00 pm (EST)

Exams will consist of multiple choice questions. All exams are strictly closed-book. You can, however, bring **ONE** formula sheet (**two-sided, 8.5x11 inches**) with you. Other than calculators, no electronic devices are allowed. Cell-phones have to be switched off. In order for the exam to be accepted you must present a **valid Student ID Card (Driver's License if you are not a UB student)** at the time of the exam.

<b>Grading</b>	The final grade will be computed as follows:
	Midterm Exam 35%
	Final Exam 45%
	Homework (WileyPlus) 20%

An Incomplete grade can only be requested by students who are at *passing level before the final exam* and are unable to finish the course with legitimate reasons. No request will be accepted after the final exam.

### Statement on Academic Integrity

Academic integrity is a core value underlying all scholarly activity at UB. You should familiarize yourself with the Undergraduate School's academic integrity policy (see <http://undergrad-catalog.buffalo.edu/0203/undergraduateeducation/strights.shtml>). In particular,

please note that giving or receiving aid on an exam or any act of academic dishonesty is cause for an F for the course and dismissal from the University.

### Students with Disabilities

If you have a disability of any kind that would require special accommodations, please contact the Office of the Accessibility Resources at 25 Capen Hall.

### Suggestions

The goal of this course is to understand and apply the laws of physics to solve practical problems. Here are some suggestions that may help you attain this goal:

- Be on time with everything—the single most important item for doing well in this course.
- Solve the homework problems independently, without help or the book, at least once, even if it is after you discussed the problems with instructors or other students.
- If you have a problem with any aspect of the course, seek help from the instructors/TA no later than the first exam. The earlier, the better. There are usually no good options when it gets close to the time of the final exam.

### Course Schedule:

<b>Homework 1 - CH1 and CH3</b>	Jan 8 <sup>th</sup> , 11:00 PM EST
<b>Homework 2 – CH2, CH4, CH5</b>	Jan 11 <sup>th</sup> , 11:00 PM EST
Jan 12 <sup>th</sup> – Exam 1: Chapters 1-5	
<b>Homework 3 – CH6 and CH7</b>	Jan 15 <sup>th</sup> , 11:00 PM EST
<b>Homework 4 – CH8 and CH9</b>	Jan 18 <sup>th</sup> , 11:00 PM EST
<b>Homework 5 – CH10, CH11</b>	Jan 22 <sup>nd</sup> , 11:00 PM EST
<b>Homework 6 – CH12, Ch13, CH 15</b>	Jan 25 <sup>th</sup> , 11:00 PM EST
Jan 24 <sup>th</sup> – Final Exam: Chapters 1 – 15 (6-15 emphasized, 14 not included)	

### Exam Locations

Many universities and colleges have testing centers which allow you to take tests with a moderate fee. Listed here are instructions for what you should do in picking exam locations. **Schools are listed only as a reference, with some information when available, which may not be up to date.**

City/Location	Name of Institution	Department contact	Contact phone number	Fee
Buffalo	UB	Location will be announced at UBlearns		0
Anywhere in the US, outside NY (You will be fully responsible for the arrangement)	Any testing facility in a university in the US that YOU can arrange and have us approve it before the deadline for dropping the class. <u>Make sure they are open at the times of our scheduled exams listed in this syllabus</u>	You need to provide us with the contact info (the person who agreed to the arrangement and email address)	You need to provide to us for approval	Per your arrangement
Albany, NY	SUNY/Albany	Carolyn Malloch	(518) 442-5490	\$75 to Disabled
Corning, NY	Corning Community College	<a href="#">Michele York</a>	607-962-9457 607-937-6881	\$25

<b>New York City</b>	Long Island University - Brooklyn Campus	<a href="#">Nicole Sanchez</a>	(718)488-1392	\$30
	Nassau Community College		(516) 572-9604	<a href="#">\$20.00 per Hour</a>
	Brooklyn College - CUNY	<a href="#">A. Renee Beasley</a>	(718) 951-5916	\$25.00 per 2 Hours
	Alliance Computing Solutions	<a href="#">Yun Feng</a>	(718) 661-9771	<a href="#">\$30.00 per 3 Hour Block</a>
	Monroe College Testing Center	<a href="#">Jillian Scott</a>	646-393-8266	
<b>Rochester</b>	Onondaga Community College	<a href="#">Michael Heise</a>	(315) 498-2803	<a href="#">\$25 as per website</a>
<b>Middletown, NY</b>	SUNY Orange	<a href="#">Daniel Stockton</a>	(845) 341-4890	<a href="#">\$40.00 per 3 Hour</a>

More sites recently used.

Binghamton, NY	SUNY Binghamton	Birgit Nicolaisen	<a href="mailto:birgit@binghamton.edu">birgit@binghamton.edu</a>	607-777-4814
Middletown, NY	SUNY Orange	Daniel Stockton	<a href="mailto:danielstockton@sunyorange.edu">danielstockton@sunyorange.edu</a>	845-341-4890
Potsdam, NY	SUNY Potsdam' office of extended education	Katie Logan	<a href="mailto:logankm@potsdam.edu">logankm@potsdam.edu</a>	315-267-2166
San Francisco, CA	San Francisco State University	Cybele Lyle	<a href="mailto:testing@sfsu.edu">testing@sfsu.edu</a>	415-338-2271
Danbury, CT	Western Connecticut State University	Oni Figueroa	<a href="mailto:FigueroaO@wcsu.edu">FigueroaO@wcsu.edu</a>	203-837-8415
St. Petersburg, FL	St. Petersburg College	Moises Venouziou	<a href="mailto:venouziou.Mo@spcollege.edu">venouziou.Mo@spcollege.edu</a>	727-686-3565
Salem, OR	Chemeketa Community College	Linda Abundis	<a href="mailto:testing@chemeketa.edu">testing@chemeketa.edu</a>	503-399-6556
Poughkeepsie, NY	Dutchess Community College		<a href="mailto:dccproctor@sunydutchess.edu">dccproctor@sunydutchess.edu</a>	(845) 431-8090
Auburn, NY	Cayuga Community College	Vicki Hamberger	<a href="mailto:hambergerv@cayuga-cc.edu">hambergerv@cayuga-cc.edu</a>	315-594-8593
Pleasantville, NY	Pace University (Westchester)	Ann Henning	<a href="mailto:ahenning@mkmg.com">ahenning@mkmg.com</a>	
Viola, NY	SUNY Rockland, RCC Testing Center	Sheila Paris	<a href="mailto:sparis@sunyrockland.edu">sparis@sunyrockland.edu</a>	(845) 574-4504
Phoenix, Arizona	Phoenix College Testing Services	Johanna Montgomery		602-285-7844
Winston-Salem, NC	CapEd Educational Group	Robert Capizzi	<a href="mailto:cap-ed@cap-ed.com">cap-ed@cap-ed.com</a>	(336) 721-4275

### **Topic Units, Learning Outcomes and Assessment**

TOPIC UNITS	LEARNING OUTCOMES The students are expected to master the following:	OUTCOME ASSESSMENT Learning on topics is assessed as follows:
Measurement (Ch.1)	Measurement of physical quantities, International System of Units, changing units [1,2]	Home work, exams

Motion along a straight line (Ch.2)	Position, displacement, average velocity, instantaneous velocity, acceleration, motion with constant acceleration, free fall [1,2]	Home work, exams
Vectors (Ch.3)	Vector addition and subtraction, vector components, unit vectors, multiplication of vectors, scalar product, vector product [1,2]	Home work, exams
Motion in two and three dimensions (Ch.4)	Position vector, displacement vector, velocity vector, acceleration vector. Projectile motion, uniform circular motion. Relative motion [1,2]	Home work, exams
Force and motion (Ch.5)	Newton's three laws of motion [1,2]	Home work, exams
Frictional forces (Ch.6)	Static and kinetic friction. Drag force, terminal velocity. Uniform circular motion [1,2]	Home work, exams
Kinetic energy and work (Ch.7)	The work-kinetic energy theorem. Power [1,2]	Home work, exams
Conservation of energy (Ch.8)	Potential energy, conservative forces. Potential energy curve. Conservation of energy [1,2]	Home work, exams
Linear Momentum (Ch.9)	System of particles, Center of mass, linear momentum. Collisions, impulse, conservation of linear momentum [1,2]	Home work, exams
Rotational motion (Ch.10)	Angular velocity, angular acceleration, rotation with constant angular acceleration. Kinetic energy of rotation, rotational inertia, torque [1,2]	Home work, exams
Angular Momentum (Ch. 11)	Rolling, angular momentum. Conservation of angular momentum [1,2]	Home work, exams
Equilibrium (Ch.12)	The conditions for equilibrium. Elastic deformation. Stress, strain. Young's modulus, shear modulus, bulk modulus [1,2]	Home work, exams
Gravitation (Ch.13)	Gravitational force. Gravitational potential energy. Escape speed. Kepler's laws of planetary motion [1,2]	Home work, exams
Oscillations (Ch.15)	Simple harmonic motion, simple pendulum, physical pendulum. Damped harmonic motion. Forced oscillations, resonance. [1,2]	Home work, exams

Note: 1. Basic laws of physics, 2. Critical thinking and problem solving