

Instructor: Dr. S. Ganapathy

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Email: sg82@buffalo.edu (use PHY108 as the Subject of the email)**TA: Abhishek Goswami** (Email: goswami3@buffalo.edu, use PHY108 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, 10th edition, Volume 2 (with WileyPlus for online homework). The book is available at UB bookstore.

Communication

All emails should have PHY108 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 on-line 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 108 is computer based and uses the WileyPLUS system. This system is based on problems at the end of each chapter. 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 the arrangement. Please inform the TA by Jan 7th 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	Wednesday, Jan 13 th , 1:00 pm—3:00 pm (EST)
Final Exam	Friday, Jan 22 nd , 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.

Grading	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

Homework 1 – CH21 and CH22	Jan 7 th , 11:00 PM EST
Homework 2 – CH23 and CH24	Jan 10 th , 11:00 PM EST
Jan 13 th – Exam 1: Chapters 21-25	
Homework 3 – CH25 and CH26	Jan 14 th , 11:00 PM EST
Homework 4 – CH27 and CH28	Jan 17 th , 11:00 PM EST
Homework 5 – CH29, CH30	Jan 21 st , 11:00 PM EST
Homework 6 – CH31, CH32	Jan 24 th , 11:00 PM EST
Jan 22 nd – Final Exam: Chapters 21 – 32 (26-32 emphasized)	

Topic Units/Learning Outcomes/Outcome assessment

TOPIC UNITS	LEARNING OUTCOMES	OUTCOME ASSESSMENT
	The students are expected to master the following:	Learning on topics is assessed as follows:
Coulomb's law	Coulomb's law. Electric force between point charges; electric force exerted by a charge distribution on a point charge. Conservation of charge. [1,2]	Homework, exams
Electric field	Electric field created by: i) a point charge, and ii) a charge distribution. Electric field lines. Electric dipoles. [1,2]	Homework, exams
Gauss' law for the electric field	Electric field flux. Gauss' law. Use of Gauss' law to calculate the electric field in various geometries. [1,2]	Homework, exams
Electric potential	Electric potential generated by: i) a point charge and ii) a charge distribution. Electric potential energy of a charge distribution. Equipotential surfaces. [1,2]	Homework, exams
Capacitors and dielectrics	Capacitance between two conductors. Capacitors in series and in parallel, equivalent capacitance. Behavior of a dielectric in an electric field.	Homework, exams

	Energy stored in the electric field. [1,2]	
Electric current and resistance	Electric current, electric current density. Ohm's law. Ohmic and non-Ohmic conductors. Heat dissipation by a resistor. [1,2]	Homework, exams
DC Circuits	Kirchhoff's rules. Analysis of simple DC circuits. Equivalent resistance. Ammeters and voltmeters. RC circuits. [1,2]	Homework, exams
Magnetic fields	Magnetic force on a moving charge. Magnetic force on a wire. Magnetic field lines. Cyclotron motion. Hall effect. Magnetic dipole. [1,2]	Homework, exams
Relation between magnetic field and electric current.	Ampere's law, law of Biot-Savart. Magnetic field generated by a straight wire, a solenoid and a toroid coil. [1,2]	Homework, exams
Induction	Faraday's law of induction, Lenz's rule. Energy stored in a magnetic field. Inductance. RL circuits. [1,2]	Homework, exams
Electromagnetic oscillations and AC currents	Electromagnetic oscillations in an LC circuit. AC circuits. Resonance in an RCL circuit. Transformers, AC power transmission. [1,2]	Homework, exams
Maxwell's equations, magnetism	Gauss' law for the magnetic field. Complete Ampere's law. Magnetic materials. [1,2]	Homework, exams

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

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	Michele York	607-962-9457 607-937-6881	\$25
New York City	Long Island University - Brooklyn Campus	Nicole Sanchez	(718)488-1392	\$30
	Nassau Community College		(516) 572-9604	\$20.00 per Hour

	Brooklyn College - CUNY	A. Renee Beasley	(718) 951-5916	\$25.00 per 2 Hours
	Alliance Computing Solutions	Yun Feng	(718) 661-9771	\$30.00 per 3 Hour Block
	Monroe College Testing Center	Jillian Scott	646-393-8266	
Rochester	Onondaga Community College	Michael Heise	(315) 498-2803	\$25 as per website
Middletown, NY	SUNY Orange	Daniel Stockton	(845) 341-4890	\$40.00 per 3 Hour

More sites recently used.

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