This syllabus is provided as a general informational guide. Some of the information may vary depending on the specific course section and instructor. Different sections of the same course may require different textbooks. Verify the section specific textbook information in the CUNY's Academic Course Schedule Web Page. Modifications of the grading system presented here will be communicated by the instructors of the sections when they meet the class.

BOROUGH OF MANHATTAN COMMUNITY COLLEGE
The City University of New York
Department of Science

Title of Course: GENERAL PHYSICS EXPERIMENTS **Lecture hours 1**

PHY 109 - Section: **Lab hours 2**

Credits 3

Instructor Information (Phone#, Office#, email):

Course Description:
This course serves as an experimental introduction to general physics, especially for students who are not science oriented. A selected number of basic topics in physics are carefully examined and subjected to experimental verification. The relevance of the scientist and his/her work to the lives of non-scientists is continually examined.

Prerequisites: MAT 12, MAT 14, MAT 41 or MAT 051, ENG 088, ESL 062, ACR 094

Co-requisite: PHY 108

Required Text & Readings

Physics of Everyday Phenomena; 9th Edition;

Author: Griffith & Brosing

McGraw-Hill, ISBN 978-1-30-7229233

Other Resources:
General Physics Laboratory Manual (Prepared and handed by the Science Department)

Use of Technology:
General Physics Laboratory Manual (Prepeared and handed by the Science Department)
Calculator (not the one in your cell phone)

Evaluation & Requirements of Students	
Exams/quizzes	30%
Laboratory reports	70%
TOTAL	100%

Course Student Learning Outcomes (Students will be able to…)	Measurements (means of assessment for student learning outcomes listed in first column)
1. Identify and apply the fundamental concepts and methods of the physical science.	1. Graded homework and exam problems and questions on mechanics, electromagnetism, optics, and others will measure how students identify and apply the fundamental concepts and methods of the physical science.
2. Apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation.	2. Laboratory experiments will require the statement of a hypothesis, gathering of experimental data followed by analysis and presentation of this data.
3. Use the tools of a scientific discipline to carry out collaborative laboratory investigations.	3. Laboratory experiments will require the students to work in groups and carry out collaborative laboratory investigations and reporting the findings.
4. Gather, analyze, and interpret data and present it in an effective written laboratory or fieldwork report.	4. Graded laboratory reports, where students will report, analyze and present scientific data collected in the experiments performed.
5. Identify and apply research ethics and unbiased assessment in gathering and reporting scientific data.	5. Graded lab reports with emphasis on the truthful collection, recording and reporting of data independent of previous expectations.

	General Education Learning Outcomes	Measurements (means of assessment for general education goals listed in first column)
	Communication Skills- Students will be able to write, read, listen and speak critically and	
	Quantitative Reasoning- Students will be able to use quantitative skills and the concepts and methods of mathematics to solve problems.	
X	**Scientific Reasoning-** Students will be able to apply the concepts and methods of the natural sciences.	1. Graded problems involving calculations, exam questions. 2. Graded lab reports involving the collection, tabulating and plotting of physical data.
	Social and Behavioral Sciences- Students will be able to apply the concepts and methods of the social sciences.	
	Arts & Humanities- Students will be able to develop knowledge and understanding of the arts and literature through critiques of works of art, music, theatre or literature.	
	Information & Technology Literacy- Students will be able to collect, evaluate and interpret information and effectively use information	

Outline of Topics

LECTURE

WEEK	TOPICS	SECTION
1	The Scientific Method. Measurements and Physical Quantities	1.2, 1.4
2	Graphing physical measurements	2.4
3	Falling objects due to gravity	3.1, 3.2
4	Newton's second law of mechanics	4.2
5	Single Harmonic Motion	6.5
6	Torque and balance	8.2
7	Archimedes Principle	9.3
8	Heat and Specific Heat Capacity	10.2
9	Ohm's Law and Resistance	13.2
10	Series and Parallel Circuits	13.3
11	Sound waves	15.4
12	Light Reflection and Refraction	17.1, 17.2
13	Lenses and telescopes	17.3, 17.5
14	Atomic spectra	18.4
15	Review and Final Exam	

LABORATORY

WEEK	EXPERIMENT / ACTIVITY
1	Measurements and Unit Conversions
2	Reading and Drawing Simple Graphs
3	Acceleration Due to Gravity: Free Fall Apparatus
4	Newton's 2nd Law – Atwood's Machine
5	Simple Harmonic Motion: The Vibrating Spring
6	Rotational Equilibrium
7	Archimedes Principle
8	Specific Heat of a Solid
9	Ohm's Law
10	Series and Parallel Connections of Resistors
11	Air Column Resonance: The Velocity of Sound
12	Light Reflection and Refraction
13	Focal Length of Converging Lens: Simple Telescope
14	Spectra
15	Final exam

Class Participation
Participation in the academic activity of each course is a significant component of the learning process and plays a major role in determining overall student academic achievement. Academic activities may include, but are not limited to, attending class, submitting assignments, engaging in in-class or online activities, taking exams, and/or participating in group work. Each instructor has the right to establish their own class participation policy, and it is each student's responsibility to be familiar with and follow the participation policies for each course.

BMCC is committed to the health and well-being of all students. It is common for everyone to seek assistance at some point in their life, and there are free and confidential services on campus that can help.

Single Stop www.bmcc.cuny.edu/singlestop, room S230, 212-220-8195. If you are having problems with food or housing insecurity, finances, health insurance or anything else that might get in the way of your studies at BMCC, come by the Single Stop Office for advice and assistance. Assistance is also available through the Office of Student Affairs, S350, 212-220- 8130.

Counseling Center www.bmcc.cuny.edu/counseling, room S343, 212-220-8140. Counselors assist students in addressing psychological and adjustment issues (i.e., depression, anxiety, and relationships) and can help with stress, time management and more. Counselors are available for walk-in visits.

Office of Compliance and Diversity www.bmcc cuny.edu/aac, room S701, 212-220-1236. BMCC is committed to promoting a diverse and inclusive learning environment free of unlawful discrimination/harassment, including sexual harassment, where all students are treated fairly. For information about BMCC's policies and resources, or to request additional assistance in this area, please visit or call the office, or email olevy@bmcc.cuny.edu, or twade@bmcc.cuny.edu. If you need immediate assistance, please contact BMCC Public safety at 212-220-8080.

Office of Accessibility www.bmcc.cuny.edu/accessibility, room N360 (accessible entrance: 77 Harrison Street), 212-220-8180. This office collaborates with students who have documented disabilities, to coordinate support services, reasonable accommodations, and programs that enable equal access to education and college life. To request an accommodation due to a documented disability, please visit or call the office.

BMCC Policy on Plagiarism and Academic Integrity Statement
Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC's Web site, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).