

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

City University of New York

Department of Science

**Title of Course UNIVERSITY PHYSICS I
PHY 215
SPRING 2019
Credits 4**

**Class hours 4
Lab hours 2
Instructor Information
Name:
Office Tel:
Room:
Email:**

Course Description

This is the first part of a two-semester sequence in calculus-based physics. Topics include: motion, mechanics, fluids, simple harmonic motion, mechanical waves and heat and thermodynamics.

Prerequisites/Co-requisites

Prerequisite MAT 301

Co requisite: MAT 302

Required Text & Readings

“Physics for Scientists and Engineers with modern Physics Volume -Technology Update” 10th Edition

Authors: R.A. Serway and J.W. Jewitt

Publisher: CENGAGE Learning

ISBN-13: 978-1-337-55343-8

ISBN-10: 1-337-55343-3

Student Copy ISBN:

978-1-337-55327-8

Laboratory Manual

Jerry D. Wilson, Cecilia A. Hernandez: Physics. Laboratory Experiments, Custom Edition:

Publisher: CENGAGE Learning

ISBN-13: 978-1-337-03666-5

ISBN-10: 1-337-03666-8

Evaluation and Requirements of Students

Examinations	70%
Home assignments	5%
Laboratory Reports	25%

Other Resources

Use of Technology (if applicable):

A scientific calculator is useful for class.

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Course Student Learning Outcomes (Students will be able to...)	Measurements (means of assessment for student learning outcomes listed in first column)	
1. Students will be able to gain knowledge of a broad, rigorous introduction to physics at the beginning college level for students who are currently learning elementary calculus.	1. Graded laboratory reports and examination problems	
2. Students will be able to develop problem-solving skills.	2. Graded homework problems and examination problems	
3. Improvements in physical intuition will permit students to apply the principles of physics to real world situations.	3. Performance in laboratory experiments as determined by graded laboratory reports with physical insights as important criteria.	
	General Education Learning Outcomes	Measurements (means of assessment for general education goals listed in first column)
<input checked="" type="checkbox"/>	Communication Skills- Students will be able to write, read, listen and speak critically and effectively.	Laboratory write-ups with emphasis on discussions and conclusions
<input checked="" type="checkbox"/>	Quantitative Reasoning- Students will be able to use quantitative skills and the concepts and methods of mathematics to solve problems.	Examination and homework problems
<input checked="" type="checkbox"/>	Scientific Reasoning- Students will be able to apply the concepts and methods of the natural sciences.	Graded laboratory reports with scientific validity of discussions an important criterion.
<input type="checkbox"/>	Social and Behavioral Sciences- Students will be able to apply the concepts and methods of the social sciences.	
<input type="checkbox"/>	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.	
<input type="checkbox"/>	Information & Technology Literacy- Students will be able to collect, evaluate and interpret information and effectively use information technologies.	
<input type="checkbox"/>	Values- Students will be able to make informed choices based on an understanding of personal values, human diversity, multicultural awareness and social responsibility.	

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PHY 215 LECTURE TOPICS

	<u>LECTURE TOPICS</u>	<u>CHAPTERS</u>
1	Measurements	1
	One Dimensional Motion	2
2	One Dimensional Motion	2
	Vectors	3
3	Vectors	3
	Two Dimensional Motion	4
4	Newton's Laws of Motion	5
5	Circular Motion and Applications Of Newton's Laws	6
<hr style="border: 1px solid black;"/>		
6	Static Equilibrium	12
7	Energy	7
8	Conservation of energy	8
9	Linear Momentum and Collisions	9
10	Rotation of a Rigid Body	10
	Angular Momentum	11
11	Oscillatory Motion and Mechanical waves.	15,16,17,18
	Sound waves	
12	Universal Gravitation	13
	Fluid Mechanics	14
13	Temperature	19
	Heat	20
14	Heat Engines, Entropy and the Second Law of Thermodynamics	22
15	Review for Final	

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PHY 215 LABORATORY TOPICS

WEEK	EXPERIMENT	Page
1	Introduction to Error Analysis Mass, Volume, and Density	13-18; 33-43
2	The Simple Pendulum	49-56
3	Uniformly Accelerated Motion: Free Fall	61-62 (section TI), 65,67 (section TI)
4	Vector Addition: The Force Table	77-84
5	Newton's 2 nd Law: The Atwood Machine	89-97
6	Centripetal Force	145-154
7	Torques and Equilibrium	199-208
8	The Ballistic Pendulum	133-142 (Sections: A, B)
9	Hooke's Law and Simple Harmonic Motion	229-236
10	Standing Waves in a String	247-253
11	Archimedes' Principle	305-313
12	Thermal Co-efficient of Expansion	263-269
13	Specific Heat of a Metal	273-279
14	Heat of Fusion, Heat of Vaporization	281-294

In the laboratory, students will perform experiments to illustrate the applications of the laws of physics. Written reports will be collected and graded.

College Attendance Policy

At BMCC, the maximum number of absences is limited to one more hour than the number of hours a class meets in one week. For example, you may be enrolled in a three-hour class. In that class, you would be allowed 4 hours of absence (not 4 days). In the case of excessive absences, the instructor has the option to lower the grade or assign an F or WU grade.

Academic Adjustments for Students with Disabilities

Students with disabilities who require reasonable accommodations or academic adjustments for this course must contact the Office of Services for Students with Disabilities. BMCC is committed to providing equal access to all programs and curricula to all students.

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 side, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).