

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 II
SPRING 2019
PHY 225 Section _____**

Class hours 4

Lab hours 2

Name:

Office hours:

Credits 4

Room:

Email:

Course Description

This is the second half of a two-semester sequence in calculus-based physics. Topics include electricity and magnetism, electromagnetic waves, optics, atomic and nuclear physics.

Prerequisites/Co-requisites

Prerequisites: PHY 215, MAT 301

Co requisites: MAT 302 or Departmental Approval

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

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

Publisher: CENGAGE Learning

Student Copy ISBN:

978-1-285-73856-7

ISBN-13: 978-1-28573863-5

ISBN-10: 1-285-73863-2

Alternative:

DEPARTMENT OF SCIENCE

Supplement to Lab Manual

Physics 220 & Physics 225

Other Resources

Use of Technology (if applicable)

A scientific calculator is useful for class

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Evaluation & Requirements of Students

Examinations	70%
Home assignments	5%
Laboratory Reports	25%

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 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.
	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 technologies.	
	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 225 LECTURE TOPICS

<u>WEEK</u>	<u>LECTURE TOPICS</u>	<u>CHAPTERS</u>
1	Coulomb's Law and Electric Fields	23
2	Gauss's Law	24
3	Electric Potential	25
4	Capacitance and Dielectrics	26
5	Current, Resistance, Ohm's Law	27
6	Direct -Current Circuits	28
7	Magnetic Fields and Magnetic Forces	29
8	Sources of the Magnetic Field	30
9	Electromagnetic Induction-Faraday's Law	31
	Inductance	32
10	Alternating- Current Circuits	33
11	Electromagnetic Waves. Nature and Propagation of Light. Geometric Optics	34, 35, 36
12	Interference. Diffraction and Polarization	37, 38
13	Introduction to Quantum Physics. Atomic Physics	40, 42
14.	Nuclear Physics	44

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PHY 225 LABORATORY TOPICS

<u>WEEK</u>	<u>EXPERIMENT</u>	
1	Electrostatics and Coulomb's Law	Handout
2	Fields and Equipotentials	(Handout)
3	Ohm's Law	(Handout)
4	Resistances in Series and Parallel	(Handout)
5	The Measurement of Resistance: Ammeter-Voltmeter Methods and Wheatstone Bridge Method	(Handout)
6	Multiloop Circuits: Kirchhoff's Rules	Handout
7	The RC Time Constant	Handout
8	Force on a Current-Carrying Wire in an External Magnetic Field Experiment	Handout
9	A.C. Circuits and Resonance	Handout
10	Reflection and Refraction	Handout
11	Spherical Mirrors and Lenses	Handout
12	Polarization of light. Malus' Law	Handout
13	The Transmission Diffraction Grating: Measuring the Wavelengths of Light	Handout
14	Line Spectra and the Rydberg Constant	Handout

In the laboratory, students will perform experiments to illustrate the applications of the laws of physics. Written reports will be collected and graded. The laboratory reports will constitute 25% of the student's final grade.

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.

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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).