

KINGSBOROUGH COMMUNITY COLLEGE  
The City University of New York

CURRICULUM DATA TRANSMITTAL SHEET

DEPARTMENT: PHYSICAL SCIENCES DATE: MARCH 2017

Title of Course or Degree Change: PHY 1100 – GENERAL PHYSICS I(4 crs. 6 hrs.)

Change(s) Initiated: (Please Check)

- |   |   |
|---|---|
| <input type="checkbox"/> Closing of Degree        | <input type="checkbox"/> Change in Degree or Certificate Requirements         |
| <input type="checkbox"/> Closing of Certificate   | <input type="checkbox"/> Change in Degree Requirements (adding concentration) |
| <input type="checkbox"/> New Certificate Proposal | <input type="checkbox"/> Change in Pre/Co-Requisite                           |
| <input type="checkbox"/> New Degree Proposal      | <input type="checkbox"/> Change in Course Designation                         |
| <input type="checkbox"/> New Course               | <input type="checkbox"/> Change in Course Description                         |
| <input type="checkbox"/> New 82 Course            | <input type="checkbox"/> Change in Course Title, Numbers Credit and/or Hour   |
| <input type="checkbox"/> Deletion of Course       | <input type="checkbox"/> Change in Academic Policy                            |
- Pathways Submission:  
 Life and Physical Science  
 Math and Quantitative Reasoning  
 A. World Cultures and Global Issues  
 B. U.S. Experience in its Diversity  
 C. Creative Expression  
 D. Individual and Society  
 E. Scientific World

X Other (please describe):

CUNY Common Core Course Submission: I. Required Core C. Life and Physical Sciences  
CUNY Common Core Course Submission: II. Flexible Core E. Scientific World

Note: Existing STEM waived course that does not need to be approved by the CUNY Common Core Course Review Committee (See CUNY Common Core Course Review Form). No modification to course.

PLEASE ATTACH PERTINENT MATERIAL TO ILLUSTRATE AND EXPLAIN ALL CHANGES

I. DEPARTMENTAL ACTION

Action by Department &/or Departmental Curriculum Committee, if required:

Date approved: 3/22/17

Signature, Committee Chairperson:

Signature, Department Chair:

Date: 3/22/17

College	Kingsborough Community College
Course Prefix and Number (e.g., ANTH 101, if number not assigned, enter XXX)	PHY 1100
Course Title	GENERAL PHYSICS I
Department(s)	Physical Sciences Department
Discipline	Physics
Credits	4 credits
Contact Hours	6 contact hours
Pre-requisites (if none, enter N/A)	Pre-requisite: MAT 1400
Co-requisites (if none, enter N/A)	
Catalogue Description	PHY 1100 – GENERAL PHYSICS I (4 crs. 6 hrs.) First term of a non-calculus two-semester lecture and laboratory course in a classical and modern physics. Includes study of mechanics, heat, hydrostatics and hydrodynamics, harmonic motion and waves. Physical principles are demonstrated and students receive hands-on laboratory experience. Course includes a laboratory component. Recommended for students in liberal arts, pre-medical, pre-dental, pre-pharmacy, pre-optometry and allied health. Pre-requisite: MAT 1400
Special Features (e.g., linked courses)	
Sample Syllabus	Syllabus must be included with submission, 5 pages max recommended

Indicate the status of this course being nominated:

X current course    revision of current course    a new course being proposed

**CUNY COMMON CORE Location**

Please check below the area of the Common Core for which the course is being submitted. (Select only one.)

<p>Required</p> <p><input type="checkbox"/> English Composition</p> <p><input type="checkbox"/> Mathematical and Quantitative Reasoning</p> <p>X Life and Physical Sciences</p>	<p>Flexible</p> <p><input type="checkbox"/> World Cultures and Global Issues</p> <p><input type="checkbox"/> US Experience in its Diversity</p> <p><input type="checkbox"/> Creative Expression</p>	<p><input type="checkbox"/> Individual and Society</p> <p>X Scientific World</p>
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Note: Existing STEM waived course that does not need to be approved by the CUNY Common Core Course Review Committee (See CUNY Common Core Course Review Form -- below). No modification to course.

**CUNY Common Core Course Submission Form** Instructions: All courses submitted for the Common Core must be liberal arts courses. Courses submitted to the Course Review Committee may be submitted for only one area of the Common Core and must be 3 credits. Colleges may submit courses to the Course Review Committee before or after they receive college approval. **STEM waiver courses do not need to be approved by the Course Review Committee. This form should not be used for STEM waiver courses. (emphasis added)**

**C. Life and Physical Sciences & E. Scientific World Learning Outcomes**

<p>Students will understand the basic principles of physics. Students will understand the basic principles of the metric system, one-dimensional motion, two-dimensional motion, Newton's Laws, circular motion, gravitation, Conservation of Energy, Conservation of Momentum., rigid body motion, fluid motion, and simple harmonic motion.</p>	<ul style="list-style-type: none"> <li>• Identify and apply the fundamental concepts and methods of a life or physical science.</li> <li>• Evaluate evidence and arguments critically or analytically.</li> <li>• Gather, interpret, and assess information from a variety of sources and points of view.</li> </ul>
<p>Students will apply the scientific method to explore physics. Students will be able to solve basic problems involving the metric system, one-dimensional motion, two-dimensional motion, Newton's Laws, circular motion, gravitation, Conservation of Energy, Conservation of Momentum., rigid body motion, fluid motion, and simple harmonic motion.</p>	<ul style="list-style-type: none"> <li>• Apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation.</li> <li>• Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the scientific world, including, but not limited to: computer science, history of science, life and physical sciences, linguistics, logic, mathematics, psychology, statistics, and technology-related studies.</li> </ul>
<p>Students will apply the basic techniques of the physical sciences individually and collaboratively in laboratory to further their understanding of physics. Students will conduct experiments in: Precision of Measurements, Acceleration due to Gravity, Time of Flight versus Initial Speed, Atwood's Machine, Acceleration of a Cart, Kinetic Friction, Centripetal Force on a Pendulum, Conservation of Mechanical Energy. Conservation of Linear Momentum, Equilibrium of a Rigid Body, Buoyant Force, Simple Harmonic Motion – Mass on a Spring</p>	<ul style="list-style-type: none"> <li>• Use the tools of a scientific discipline to carry out collaborative laboratory investigations.</li> <li>• Demonstrate how tools of science, mathematics, technology, or formal analysis can be used to analyze problems and develop solutions.</li> </ul>
<p>Students will gather, analyze, and interpret data from their laboratory experiments. Students will be able to present their findings and well- reasoned conclusions in laboratory reports for experiments: Precision of Measurements, Acceleration due to Gravity, Time of Flight versus Initial Speed, Atwood's Machine, Acceleration of a Cart, Kinetic Friction, Centripetal Force on a Pendulum, Conservation of Mechanical Energy. Conservation of Linear Momentum, Equilibrium of a Rigid Body, Buoyant Force, Simple Harmonic Motion – Mass on a Spring</p>	<ul style="list-style-type: none"> <li>• Gather, analyze, and interpret data and present it in an effective written laboratory or fieldwork report.</li> <li>• Articulate and evaluate the empirical evidence supporting a scientific or formal theory.</li> <li>• Produce well-reasoned written or oral arguments using evidence to support conclusions.</li> </ul>
<p>Students will accumulate information about basic physical phenomena. Many of the complex problems our society require an understanding of scientific, mathematical, and technical issues. Basic scientific and mathematical knowledge is critical to making balanced policy decisions on pressing issues such as climate change, energy policy, medical procedures, the nation's technical infrastructure, and science education standards. Students will be able to relate how the basic-physical phenomena relate to the interaction between objects on all scales and sizes for: one-dimensional motion (motion of an object along a straight line), two-dimensional motion (motion of an object in a plane), Newton's Laws (Forces between objects), circular motion (objects moving in a circle), gravitation (planetary and satellite motion), Conservation of Energy (Gravitation Potential Energy and Kinetic Energy of objects), Conservation of Momentum (Collision between objects), rigid body motion (Effect of shape on motion), fluid motion (motion of liquids and gases), and simple harmonic motion (motion of objects due to elastic forces).</p>	<ul style="list-style-type: none"> <li>• Identify and apply research ethics and unbiased assessment in gathering and reporting scientific data.</li> <li>• Understand the scientific principles underlying matters of policy or public concern in which science plays a role.</li> <li>• Articulate and evaluate the impact of technologies and scientific discoveries on the contemporary world, such as issues of personal privacy, security, or ethical responsibilities.</li> </ul>

Kingsborough Community College  
The City University of New York  
Department of Physical Sciences  
**PHY 1100- General Physics I**  
Syllabus

PHY 1100 – GENERAL PHYSICS I (4 crs. 6 hrs.)

First term of non-calculus two-semester lecture and laboratory course in classical and modern physics. Includes study of mechanics, heat, hydrostatics and hydrodynamics, harmonic motion and waves. Physical principles are demonstrated and students receive hands-on laboratory experience. Recommended for students in liberal arts, pre-medical, pre-dental, pre-pharmacy, pre-optometry and allied health.

Prerequisite: MAT 1400.

Section: SECTION NUMBER

Time: LECTURE AND LABORATORY SCHEDULE FOR SECTION

Room: ROOM (S) FOR SECTION

Instructor: INSTRUCTOR FOR SECTION

Email: EMAIL ADDRESS FOR INSTRUCTOR FOR SECTION

Office Hours: OFFICE HOURS FOR INSTRUCTOR FOR SECTION

**Source materials:** The textbook is *Physics: Principles with Applications* by D. Giancoli, 6th edition Vol. 1 with *Mastering Physics* web tool. Scientific calculator – You may not use a cell phone as a calculator on an exam!

**Student Learning Outcomes** Students will:

- Understand and be able to solve problems involving the metric system.
- Understand and be able to solve problems involving one-dimensional motion.
- Understand and be able to solve problems involving two-dimensional motion.
- Understand and be able to solve problems involving Newton's Laws.
- Understand and be able to solve problems involving circular motion.
- Understand and be able to solve problems involving gravitation.
- Understand and be able to solve problems involving Conservation of Energy.
- Understand and be able to solve problems involving Conservation of Momentum.
- Understand and be able to solve problems involving rigid body motion.
- Understand and be able to solve problems involving fluid motion.
- Understand and be able to solve problems involving simple harmonic motion.

Student will:

- Identify and apply the fundamental concepts and methods of a physical science.
- Apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation.
- Use the tools of a scientific discipline to carry out collaborative laboratory investigations.
- Gather, analyze, and interpret data and present it in an effective written laboratory report.
- Identify and apply research ethics and unbiased assessment in gathering and reporting scientific data.
- Evaluate evidence and arguments critically or analytically.
- Produce well-reasoned written arguments using evidence to support conclusions.
- Identify and apply the fundamental concepts and methods of physics.
- Demonstrate how tools of science, technology, and formal analysis can be used to analyze problems and develop solutions.
- Articulate and evaluate the empirical evidence supporting a scientific or formal theory.
- Articulate and evaluate the impact of technologies and scientific discoveries on the contemporary world.
- Understand the scientific principles underlying matters of policy or public concern in which science plays a role.

## Grades:

Grades are calculated from a weighted average of exams, lab scores, and the final exam. 3 Lecture Exams - 35% , Laboratory performance - 15% , Web Assignments & Homework 25%, Cumulative Final Exam - 25%  
Grades will be awarded as follows: 93% or above=**A**; 90-92.99%=**A-**; 87-89.99%=**B+**; 83-86.99%=**B**; 80-82.99%=**B-**; 77-79.9%=**C+**; 73-76.99%=**C**; 70-72.99%=**C-**; 67-69.99%=**D+**; 63-66.99%=**D**; 60-62.99%=**D-**; <60%=**F**

**Topical Outline Lecture:** (Approximate and subject to change upon notification)

Week	Topics	Book Chapter
1	Measurement	1
2	Kinematics in One Dimension	2
3	Kinematics in Two Dimensions & Vectors	3
4-5	Dynamics: Newton's Laws of Motion	4
5-6	Circular Motion & Gravitation	5
7	Work and Energy	6
8	Linear Momentum	7
9	Rotational Motion & Angular Momentum	8
10	Static Equilibrium	9
11	Fluids	10
12	Oscillations	11
13	Final Exam	

## Missed Exam/Laboratory/Assignment Policy

If you miss an opportunity to demonstrate your knowledge of the subject matter by missing a duly scheduled exam, laboratory or other assignment, the grading scheme does not apply. Your grade will be determined at the discretion of the instructor. By missing a duly scheduled exam, laboratory or other assignment, you accept and recognize that the instructor must determine your grade within the context of determining the grade of students who did not miss a duly scheduled exam, laboratory or other assignment. Instructor Make-up Policy: SUGGESTED: NO MAKE-UP EXAMS, NO MAKE-UP LABORATORIES OR NO MAKE-UP OTHER ASSIGNMENTS. FINAL EXAM REWEIGHTED FOR MISSED WORK

**Lecture attendance:** Attending all classes is mandatory. The textbook is a guide for the course additional material will be covered during lecture meetings. If you miss class, you will miss out on taking notes and this *will* affect your ability to study for tests and quizzes. Except in extreme cases there can be no makeup exams and missing one is grounds for failure of the course. At all times, if you have any questions or need help, please ask your instructor. If you are having difficulties with the course, or if your life is affecting your performance in class, or your ability to attend, let me know as soon as problems arise.

**Recommended Chapter Reading & Problems:** (Approximate and subject to change upon notification)

Chapter	Omit sections	Homework problems
1	None	TBA
2	None	TBA
3	None	TBA
4	None	TBA
5	None	TBA
6	None	TBA
7	None	TBA
8	None	TBA
9	None	TBA
10	None	TBA
11	None	TBA

**Homework:** will be assigned using *Mastering Physics* web tool. Each homework assignment has due date. Late submissions are not graded. Average homework score will be used in the course grade.

### Laboratory

Date	Topic	Requirements
Meeting 1	Precision of Measurements	Hand in
Meeting 2	Acceleration due to Gravity	Hand in
Meeting 3	Time of Flight versus Initial Speed	Hand in
Meeting 4	Atwood's Machine	Hand in
Meeting 5	Acceleration of a Cart	Hand in
Meeting 6	Kinetic Friction	Hand in
Meeting 7	Centripetal Force on a Pendulum	Hand in
Meeting 8	Conservation of Mechanical Energy	Hand in
Meeting 9	Conservation of Linear Momentum	Hand in
Meeting 10	Equilibrium of a Rigid Body	Hand in
Meeting 11	Buoyant Force	Hand in
Meeting 12	Simple Harmonic Motion – Mass on a Spring	Hand in

**Laboratory Manual:** All labs are posted on the physical science department webpage. Labs need to be downloaded and read before coming to lab. You will not be permitted in the laboratory if you do not have a copy of the experiment.

**Note on laboratory component:** The laboratory component counts for 15% of your overall result. Failure to pass the laboratory component of the course will result in a grade of F in the course. It is important to note that the laboratory component of the course serves a dual purpose. It offers the opportunity for students to deepen their understanding of a specific experimental science. The laboratory also offers the instructor an opportunity to assess each student's competence in the subject area. The laboratory grade is based on the quality of your work in the laboratory and the quality of your laboratory assignments. Laboratory instructors may assess your competence in the subject through the use of pre-lab assignments, reports, quizzes or practical examinations. All laboratory meetings are mandatory. Performing an experiment at an alternate time will be considered only under exceptional cases. If you miss more than one laboratory meeting you may fail the laboratory portion of the course and, hence, the entire course. All laboratory assignments must be completed and handed in within the time limits set by your laboratory instructor. Laboratory meetings are subject to the regulations of the New York City Fire Department and the laws of the State of New York. If your instructor is concerned that you are unprepared or unable to safely complete a given experiment you may be asked to leave the laboratory and will not receive credit for the meeting. Examples of reasons for an instructor's duty of action include a student arriving late to the meeting, improper attire, failure to study the laboratory experimental protocol, or a general lack of laboratory competence.

**Conduct:** Students are required to follow *The Student Code of Conduct* as stated in the *Student Handbook*.

**Accessibility:** Access-Ability Services (AAS) serves as a liaison and resource to the KCC community regarding disability issues, promotes equal access to all KCC programs and activities, and makes every reasonable effort to provide appropriate accommodations and assistance to students with disabilities. You must contact Access-Ability Services if you require such accommodations and assistance. Your instructor will make the accommodations you need, but you must have documentation from the Access-Ability office for any accommodations.