

**LAGUARDIA COMMUNITY COLLEGE  
CITY UNIVERSITY OF NEW YORK  
NATURAL AND APPLIED SCIENCES DEPARTMENT**

**SCP202.6445 – FUNDAMENTALS OF PHYSICS II  
SPRING I, 2014**

**LECTURES:           TUESDAY,                           5:45 – 9:05 pm                   Room: E216**

**LABORATORY:   THURSDAY,                   5:45 – 6:45 pm                   Room:  
   6:55 – 9:05 pm                   Room: E348**

**INSTRUCTOR: Professor J. Nieman**  
[niemanja@lagcc.cuny.edu](mailto:niemanja@lagcc.cuny.edu)

**Tel. #: (718) 482-5754**

**TEXT: TEXT: Douglas C. Giancoli, Physics (Prentice Hall) 7<sup>th</sup> Edition, 2013.  
ISBN: 0321929012**

**The ISBN above is a loose-leaf version that includes access to Mastering Physics which is a useful, although optional, ancillary product.**

**Laboratory Handouts will be provided for all the experiments and therefore no laboratory manual is required.**

**GENERAL DESCRIPTION: This is the second course of a 2-term non-calculus based Physics sequence. The general subject matter includes electrostatics, circuit theory, electromagnetism, wave theory, light and optics. Other subjects covered are quantum theory, atomic physics and, as time permits, relativity, nuclear and elementary particle physics. The aim of the course, together with SCP201, is to provide the student with a firm grounding of the basic laws and principles that govern the behavior of matter.**

**GRADING SYSTEM:**

<b>3 Lecture Exams (200 points each)</b>	<b>600 points</b>
<b>Quizzes (2 to 4)</b>	<b>200 points</b>
<b>Laboratory Experiments</b>	<b>200 points</b>
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<b>TOTAL</b>	<b>1000 points</b>

**Exams will not be comprehensive, although certain principles and techniques are applied throughout the semester. The quizzes will typically cover one or two chapters. Further details will be provided at the first lecture meeting.**

**ACADEMIC INTEGRITY**

**Students are expected to behave honestly; violations will not be tolerated. Refer to the “CUNY Policy on Academic Integrity”, which can be accessed at**  
<http://web.cuny.edu/academics/info-central/policies/academic-integrity.pdf>

**OFFICE HOURS:** These will be provided.

**DAYS AND TIMES:** \_\_\_\_\_  
\_\_\_\_\_

Students are encouraged to come to the office hours. If the times are not convenient, students should consult with the instructor to set up individual appointments.

**STRUCTURE:**

**TEXTBOOK READING ASSIGNMENTS**

They should be completed, whenever possible, before the material is covered in class. These, together with the lecture notes, are the foundation of the course.

**HOMEWORK ASSIGNMENTS**

Homework assignments will be given in class. To master the material, problem-solving is essential. Much lecture time will be devoted to recitation – where problems will be solved and discussed in detail. Students are encouraged to participate in class discussions and, when appropriate, volunteer to solve homework problems for the class. Note that class participation can favorably influence your final grade.

**ATTENDANCE**

Attendance at lectures is required and, as mentioned, class-work counts in your final grade. In addition, it is very difficult to obtain all the necessary knowledge solely from the textbook.

Attendance at the **EXAMS** and **QUIZZES**, at the assigned times, is mandatory. Absences must be cleared with the instructor, preferably prior to the tests. Make-up examinations, although very rare, may be given at the discretion of the instructor. However, please note that the taking of an exam or quiz, at a time other than the assigned time, may negatively affect a student's final grade.

Attendance at the **LABORATORY** is mandatory. No make-ups are possible and students should make every effort not to miss any experiments. Lateness or absences in the laboratory will adversely affect a student's grade.

**INCOMPLETES**

The grade of Incomplete (IN) will be given to students who are otherwise passing the course and, because of a bona fide reason in the estimation of the instructor, are missing one item, such as a test, at the end of the semester. Please note that an IN grade is merely an extension of time to complete an item that has not been completed; it is not a way of repeating the course. Moreover, the instructor can take into account the fact that the student had additional time, relative to that allowed to the rest of the class, to complete the assignment.

**SCHEDULE OF LECTURES AND EXAMS**

<b>DATE</b>	<b>Subject</b>	<b>Reading Assignment</b>
3/4	Introduction to the course; Mathematical Review including Vectors, Trigonometry, etc. Begin Electrostatics	Review Ch.1, Sections 3.1 – 3.4, App. A Begin Ch. 16
3/6, 3/11	Electrostatics – Electric charge, Coulomb’s Law, Electric Fields and Field Lines	Ch. 16
3/13, 3/18	Electric Potential – Potential Energy, Potential Difference, Capacitance, Dielectrics	Ch. 17
3/20, 3/25 3/27	Current – Resistance, Ohm’s Law, Power, Series and Parallel Circuits, Kirchhoff’s Rules	Ch. 18 Ch. 19
4/1	Waves – Wave Motion, Reflection and Transmission	Ch. 11 (selected Topics)
4/3	Light – Electromagnetic Waves,	Ch. 22, Ch. 24.1
4/8	EXAM #1	Chs. 16, 17, 18 and 19
4/10, 4/24	Light (continues) – Huygens’ Principle, Reflection and Refraction, Optical Fibers	Chs. 24.1, 24.2 Begin Ch. 23
4/29 5/1	Geometric Optics – Lenses and Mirrors, Lens Equation, Magnification	Ch. 23
5/6 5/8	Physical Optics – Interference, Young’s Experiment Diffraction Gratings, Thin films, Some applications	Ch. 24 Ch. 25 (selected Topics)

<b>DATE</b>	<b>Subject</b>	<b>Reading Assignment</b>
<b>5/13, 5/15</b>	<b>Quantum Physics – Particles of Light – Experimental evidence, Wave Particle Duality, Bohr’s Theory</b>	<b>Ch. 27</b>
<b>5/20</b>	<b>EXAM #2</b>	<b>Chs. 11, 22, 23, 24 and 25 (as appropriate)</b>
<b>5/20, 5/22</b>	<b>Quantum Mechanics (continues) – Modern Atomic Theory, The Uncertainty Principle, The Periodic Table</b>	<b>Ch. 28</b>
<b>5/27, 5/29</b>	<b>Special Relativity – The Principle of Relativity, Einstein’s Principle, Consequences of Special Relativity</b>	<b>Ch. 26</b>
<b>6/5</b>	<b>Magnetism (as time permits) – Magnetic Field, Properties of Matter, Forces and Currents, Torque on a Loop</b>	<b>Ch. 20, Review Ch. 8.4</b>
<b>6/12</b>	<b>EXAM #3</b>	<b>Chs. 27, 28, 26 and 20 (as appropriate)</b>