

**Syllabus (3/28/18): Physics 2100 – Spring 2018**

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|------------------|---|----------------------|---|
| Instructor:      | Prof. Kai Shum  | Phone:               | 718-951-5000 Ext. 1227                        |
| Lec. Room:       | Ingersoll 3143 N (Lec. Rec.)  | Time:                | Mon/Wed: 9:30 to 10:45 am                     |
| Text Book:       | OpenStax College (Rice University)<br>Each chapter can be downloaded from:<br><a href="http://userhome.brooklyn.cuny.edu/kshum/Physics2100.html">http://userhome.brooklyn.cuny.edu/kshum/Physics2100.html</a> | Office Hrs:          | Mon/Tu., 2:30 to 3:30 pm<br>Or by appointment |
| Department:      | Physics   | Office location:     | 2156f N                                       |
| Lab. Assignment: | <a href="http://depthome.brooklyn.cuny.edu/physics/phylabs_new.html">http://depthome.brooklyn.cuny.edu/physics/phylabs_new.html</a>   | Instructor's e-mail: | kshum@brooklyn.cuny.edu                       |

**Planned work:**

| Week of    | Topics   | Lab (Wed.)           | Problems & Exercises                |
|------------|--|----------------------|-------------------------------------|
| 1/31       | Ch31 Radioactivity, Ch18 Electric force/field  | Radioactivity        | Ch18, either even or old numbers    |
| 2/7        | Ch19 Electric potential/energy, Electric-flux/conductors/insulators/capacitors   | Coulomb's law        | Ch19, either even or old numbers    |
| 2/14       | Ch20 Electric current, resistivity/resistors, Ohm's law  | Equi. potential      | Ch20, either even or old numbers    |
| 2/21       | Ch20 Electric power/energy(kW.h)<br>Ch21 simple dc circuits: Resistors in parallel/in series, Battery(emf, r)/Load, Battery in parallel/in series, | Ohm's law            | Ch20/21, either even or old numbers |
| 2/28       | <b>Review and Exam-1 on 2/28 (16%)</b>   | dc circuit           |                                     |
| 3/7        | Ch21 Kirchhoff's rules/complex dc circuits<br>RC circuit (charging/dis-charging)   | RC circuits          | Ch21, either even or old numbers    |
| 3/14       | Ch22.3 to 22.10 Magnetic field/force/Ampere's Law  | Faraday's law        | Ch22, either even or old numbers    |
| 3/21       | Ch23.1, 23.2, 23.3, 23.5 Magnetic flux/Faraday's law/Inductance(Inductor)/RL transient circuits  | Hidden RCL           | Ch23, either even or old numbers    |
| 3/28       | Ch23.9, 23.10 ac source generation/R C L ac responses (Reactance X)/Impedance/ac RCL series circuit/Resonant frequency                             | RCL ac response      | Ch23, either even or old numbers    |
| 4/4 – 4/11 | <b>Spring recess (3/30 – 4/8; 4/11-classes follow Friday)</b>  |                      |                                     |
| 4/9        | Ch25.1, 25.2, Geometric optics (Laws of reflection and refraction, imaging by mirrors.)  |                      | Ch25, either even or old numbers    |
| 4/18       | <b>Review and Exam-2 on 4/18 (15%)</b>   | Image formation      |                                     |
| 4/25       | Ch25.7, 25.4, 25.6, imaging by thin-lenses)  | Refraction           | Ch25, either even or old numbers    |
| 5/2        | Ch27 Wave optics (Diffraction/Interference)  | Lenses               | Ch27, either even or old numbers    |
| 5/9        | Ch24 Electromagnetic waves (generation /polarization/energy)   | Interference/Diffra. | Ch24, either even or old numbers    |
| 5/16       | <b>Review and Exam-3 on 5/14 (15%)</b>   | Spectrometer         |                                     |
| 5/17       | <b>Final exam (8:00 – 10:00 am, room 3143N)</b>  |                      |                                     |
|            | <b>Grades: Lec.-exams 46%, lab 14%, and final 40%</b>  |                      |                                     |

Please check other important events/dates on the physics department website.  
2/20 (Tu.) follows Mon. schedule