PHYS 1112: Introductory Physics — Optics, Electricity & Magnetism

Section: 25674; TH 8:00 A.M. - 9:15 A.M.
Lectures will be given in Zoom sessions at regular class times. No recordings!
See ELC for Zoom links.

Instructor: Professor Henning H. Meyer
Office hours: H 3:00 P.M. - 4:30 P.M.
Problem Zoom Session: H 5:00 P.M. - 6:00 P.M. or day before exam.
Office: Room 217(old: 223B), Physics Building
Email: hmeyer@uga.edu, add 'PHYS1112 Period1' to subject line.
No individual communication via ELC!!
ELC: General announcements; Posting of lecture slides/comments, homework or exam solutions, practice exams.

I. GENERAL INFORMATION

• Primary method of communication: during office hours;
• Email through: hmeyer@uga.edu
• Text: James S. Walker, Physics, Volume 2 5th edition (2017). (3rd or 4th editions are fine, but **you will be responsible** for knowing about any changes in content.) The bookstore describes the text as: Physics Volume 2& VP AC MOD MST.
• Make sure you get a copy that says: w/ MasteringPhysics.
• Mastering Physics: To register look for Course Name: PHYS1112-Fall2020-MeyerPeriod1 with Course ID: meyer20627 – You will need to enter your UGA ID, i.e. your 81X number. **Enter 9 digits only – do not enter the last digit.**

II. ACADEMIC HONESTY

• The University of Georgia has a comprehensive policy on academic honesty, described in a document entitled “A Culture of Honesty.”
• The document is available online at https://honesty.uga.edu/_resources/documents/academic_honesty_policy_2017.pdf.
• The policy covers all academic work. As a UGA student, you are responsible for knowing and understanding this policy.
• If you have any question about the appropriateness of your actions or your work, you are obligated to ask me for clarification.

III. GRADING POLICY

• Overall grade will be determined as follows:
  • 20% LAB grade (completion mandatory; see Section V for details)
  • 15% HOMEWORK (no makeup; working in groups OK; must be submitted individually)
  • 45% EXAM 1 (no makeup; must be taken with the section you are registered for)
    • EXAM 2 (no makeup; must be taken with the section you are registered for)
    • EXAM 3 (no makeup; must be taken with the section you are registered for)
    • EXAM 4 (no makeup; must be taken with the section you are registered for)
  • **Worst of 4 exams dropped**
  • 20% Final EXAM (no makeup, unless required by University Rules)

100% TOTAL
• Letter grades will be assigned in accordance with the following cut-offs (for additional rules see below):
  F: [0, 55)  D: [55, 65)  C−: [65, 68)  C: [68, 72)  C+: [72, 75)
  B−: [75, 78)  B: [78, 82)  B+: [82, 85)  A−: [85, 90)  A: [90, 100]
• NOTE: There is no rounding; 64.99 = "D", etc.

IV. LABS (20%)

• All students are required to complete the LAB part of the class.
• Students who are not assigned a lab grade due to non-completion will automatically receive a failing grade ("F") for the course.
• PLEASE NOTE:
   Labs will start week of August 31.
   Lab syllabus: Use the link below from the Department’s web site, then scroll down to your particular lab section. https://www.physast.uga.edu/courses.

V. HOMEWORK (15%)

• There will be a number of HOMEWORK assignments posted online (on the Mastering Physics website).
• All assignments count towards your grade.
• All assignments must be submitted on time.
• No makeup, no late submission.
• Rules:
   You may work in groups.
   You submit your work individually.

VI. EXAMS (45% TOTAL)

• There will be a total of four (4) EXAMS on selected chapters.
• Worst of the four exam grades will be dropped (such as, e.g., a "0" due to non-completion), so, technically, \( \frac{1}{4} \) each exam is worth 15%.
• No makeups or re-scheduling is permitted.

VII. FINAL EXAM (20% TOTAL)

• Final Exam is mass exam, date and time: Tuesday, Dec. 15; 7:00 - 10:00 P.M.
• Comprehensive final exam: All chapters covered in class.
• No makeups or re-scheduling unless required by University rules.

• Rules for the EXAMS (All exams will be online through ELC):
   Recommendation: Prepare ONE (1) STANDARD SHEET of paper containing anything you want (e.g., physical constants, formulae, diagrams, problem solutions, etc.) ALL HANDWRITTEN. You may write on both sides.
   A simple (non-graphing, non-symbolic, non-programmable) scientific calculator.
   No other electronic device(s) permitted.
   Must work individually.
VIII. INCOMPLETES

• You may be assigned an “I” (incomplete) for the course in accordance with the UGA Regulations, provided all of the following applies:
  ▪ You received a non-failing grade in LABS (> 70)
  ▪ You received a non-failing grade (> 55%) on at least one EXAM,
  ▪ No violation of the Academic Honesty Policy took place during the course of the semester.

IX. ABSENCES

• You are responsible for obtaining any announcements/materials/information that were given out in a class that you missed.

X. WITHDRAWALS

• The Undergraduate Bulletin and the Registrar’s Office website describe the University policies regarding withdrawals and incompletes. The deadline for withdrawal is Tuesday, October 27th.

XI. TUTORS

• Tutors are available through the following:
  ▪ Department of Physics and Astronomy: https://www.physast.uga.edu/tutors/ 
  ▪ UGA Tutoring Program: http://tutor.uga.edu/arc/tutoring/ Please remember: the goal is to learn from your tutor, not for them to do your homework for you.

XII. HOW TO DO WELL IN THIS CLASS

• Read each chapter before it is discussed in class.
• Attend every lecture.
• Participate actively in discussions.
• Re-read chapter carefully after class. Rework the notes taken during lecture.
• Do assigned homework.
• Solve as many end-of-chapter problems as possible.
• Concepts first. Do NOT plug-and-chug.
• Use a buddy system: find a friend with whom to discuss physics.
• Think about physics on a regular basis.
• If everything fails, consider dropping the class before the deadline and retaking it at a later time.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Reading</th>
<th>Topics</th>
<th>Day</th>
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<tbody>
<tr>
<td>1</td>
<td>Aug 20</td>
<td>–</td>
<td>Intro to this course; Principles of GO</td>
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<tr>
<td>2</td>
<td>Aug 25</td>
<td>26.1-4</td>
<td>GO: Reflection; Plane mirrors; Spherical mirrors</td>
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<tr>
<td></td>
<td>Aug 27</td>
<td>26.5-7</td>
<td>GO: Refraction; Total internal reflection; Ray tracing for lenses; thin lens equation</td>
<td>H</td>
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<tr>
<td>3</td>
<td>Sep 1</td>
<td>27.1-2</td>
<td>OI: Human eye, camera; Corrective optics</td>
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<tr>
<td></td>
<td>Sep 3</td>
<td>27.3-5</td>
<td>OI: Magnifying glass; Microscope; Telescope</td>
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<tr>
<td>4</td>
<td>Sep 8</td>
<td>–</td>
<td>Review; Problem Solving</td>
<td>T</td>
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<tr>
<td></td>
<td>Sep 10(E1)</td>
<td></td>
<td>EXAM 1 (Chap26,27)</td>
<td>H</td>
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<tr>
<td>5</td>
<td>Sep 15</td>
<td>28.1-2</td>
<td>WO: Superposition &amp; interference, two-slit experiment</td>
<td>T</td>
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<td></td>
<td>Sep 17</td>
<td>28.4-6</td>
<td>WO: Single-slit diffraction; Diffraction gratings</td>
<td>H</td>
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<tr>
<td>6</td>
<td>Sep 22</td>
<td>19.1-3</td>
<td>EF: Electric charge</td>
<td>T</td>
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<td></td>
<td>Sep 24</td>
<td>19.4-5</td>
<td>EF: Insulators &amp; conductors; Coulomb’s Law</td>
<td>H</td>
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<tr>
<td>7</td>
<td>Sep 29</td>
<td>19.6-7</td>
<td>EF: Shield. &amp; charge by induction, Electric flux &amp; Gauss’ Law</td>
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<tr>
<td></td>
<td>Oct 1</td>
<td></td>
<td>Review; Problem Solving</td>
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<tr>
<td>8</td>
<td>Oct 6 (E2)</td>
<td></td>
<td>EXAM 2 (Chap28,19)</td>
<td>T</td>
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<tr>
<td></td>
<td>Oct 8</td>
<td>20.1-2</td>
<td>REVISITING: Energy, WE-Theorem &amp; Law-CE; Electric potential &amp; energy; Energy conservation</td>
<td>H</td>
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<tr>
<td>9</td>
<td>Oct 13</td>
<td>20.3-4</td>
<td>EP: Electric potential of point charges; Equipot. surfaces &amp; E-field</td>
<td>T</td>
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<tr>
<td></td>
<td>Oct 15</td>
<td>20.5-6</td>
<td>EP: Capacitors &amp; dielectrics; Electric energy storage</td>
<td>H</td>
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<tr>
<td>10</td>
<td>Oct 20</td>
<td>21.1-4</td>
<td>DC: El. current; Ohm’s Law; Energy &amp; pow in El.Circ.</td>
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<tr>
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<td>Oct 22</td>
<td>21.5</td>
<td>DC: Resistors in series &amp; parallel; Kirchhoff’s Rule</td>
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<td>11</td>
<td>Oct 27 (E3)</td>
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<td>EXAM 3 (Chap20,21)</td>
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<td>Oct 29</td>
<td>22.1-2</td>
<td>Withdrawal Deadline</td>
<td>H</td>
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<tr>
<td>12</td>
<td>Nov 3</td>
<td>22.3-4</td>
<td>MF: Magnetic field; Magn. force on moving charges</td>
<td>T</td>
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<td></td>
<td>Nov 5</td>
<td>22.5</td>
<td>MF: Motion of charged particles in magnetic field; Magnetic force on current-carrying wire</td>
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<tr>
<td>13</td>
<td>Nov 10</td>
<td>22.6-8</td>
<td>MF: Ampere’s Law; loops &amp; solenoids; Magnetism in matter</td>
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<td>Nov 12</td>
<td>23.1-4</td>
<td>EMI: Induced EMF; Magnetic flux; Faraday’s Law; Lenz’s Rule</td>
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<tr>
<td>14</td>
<td>Nov 17</td>
<td>23.5-6</td>
<td>EMI: Work &amp; E. Energy; Generators</td>
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<td>Nov 19</td>
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<td>Review; Problem Solving</td>
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<td>15</td>
<td>Nov 24 (E4)</td>
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<td>EXAM 4 (Chap22,23)</td>
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<tr>
<td>16</td>
<td>Dec 1</td>
<td>23.5-10</td>
<td>EMI: Inductance; RL circuits; Energy in a B-field Review</td>
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<td></td>
<td>Dec 3</td>
<td></td>
<td>Problem Solving</td>
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<td>Dec 15</td>
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<td>FINAL EXAM 4 (Chap19-23,26-28) Time: 7-10pm</td>
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