**PHYS 1112: Introductory Physics — Optics, Electricity & Magnetism**

**Section:** 25674; **TH 9:30 A.M. - 10:45 A.M.**

Lecture Location: Science Learning Center (SLC), Room 085
Office hours: T 1:30 P.M. - 2:30 P.M. and H 2:30 P.M. - 3:30 P.M. in Room 230, Physics Building
Instructor: Professor William M. Dennis
Office: Room 305, Physics Building
Email: phys1112wmd@physast.uga.edu

**I. GENERAL INFORMATION**

- Primary method of communication: during office hours; email through: phys1112wmd@physast.uga.edu
- Text: James S. Walker, Physics, Volume II 5th edition. Earlier editions are fine, but **you will be responsible** for knowing about any changes in content.
  
  The bookstore describes the text as: **Physics (Vol 2)(w/MasteringPhysicsetext VP Acc)**
  Make sure you get a copy that says: **w/MasteringPhysics**.
- Mastering Physics: To register use Course Code: **MPDENNIS35956** – You will need to enter your 81X number. **Enter 9 digits only – do not enter the last digit.**
- You will **NOT** need a clicker for this course.

**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 through the Office of the Vice President for Instruction or online at https://ovpi.uga.edu/academic-honesty.
- 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. IN-CLASS RULES**

- Attend all classes.
- No laptops, pagers, cellphones, iPads, iPods, or any other electronic/communication devices are permitted in the classroom.
- Students must attend the sections they are assigned to. No test credit will be given if you attend a “wrong” section.
IV. GRADING POLICY

• Overall grade will be determined as follows:

  20% LAB grade (attendance mandatory; see Section V for details)
  20% HOMEWORK (no makeup; working in groups OK; must be submitted individually)
  60% 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)
    EXAM 5 (no makeup; must be taken with the section you are registered for)

    **Worst of 5 exams dropped**

  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.

V. LABS (20%)

• All students are required to attend LABS.
• Students who are not assigned a lab grade due to non-attendance will automatically receive a failing grade (“F”) for the course.
• PLEASE NOTE:
  ▪ Labs will begin meeting the week of **Monday, August 20th**
  ▪ The lab syllabus can be found at. Use the link below from the Department’s website, then scroll down to your particular lab section.
    https://www.physast.uga.edu/courses

VI. HOMEWORK (20%)

• 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.
VII. EXAMS (60% TOTAL)

- There will be a total of five (5) EXAMS on selected chapters.
- Worst of the five exam grades will be dropped (such as, e.g., a “0” due to non-attendance), so, technically, each exam is worth 15%.
- No makeups or re-scheduling is permitted.

Rules for the EXAMS:
- 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.

XI. WITHDRAWALS

- The Undergraduate Bulletin and the Registrar's Office website describe the University policies regarding withdrawals and incompletes. The deadline for withdrawal is Wednesday, October 17th.

XII. LETTERS OF RECOMMENDATION

- If your final grade is in the top 5% of the class, you will qualify for a letter of recommendation. All requests for letters of recommendation including resume, personal statement and signed release form must be submitted before Wednesday, May 1, 2019.

XIII. 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.
XIV. 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.
• 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 I: Fall 2018 Master Schedule**

**ATTENTION:** This schedule is preliminary and is subject to modification. **Especially Reading Assignments, which will be assigned at the end of each class.**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Reading</th>
<th>Topics</th>
<th>Day</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug 14</td>
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<td>Intro to this course; Principles of GO</td>
<td>T</td>
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<tr>
<td></td>
<td>Aug 16</td>
<td>26.1-2</td>
<td>GO: Reflection; Plane mirrors; Spherical mirrors</td>
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<tr>
<td>2</td>
<td>Aug 21</td>
<td>26.3-4</td>
<td>GO: Refraction; Total internal reflection; Ray tracing for lenses; thin lens equation</td>
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<td></td>
<td>Aug 23</td>
<td>26.5-7</td>
<td></td>
<td>H</td>
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<tr>
<td>3</td>
<td>Aug 28</td>
<td>27.1-2</td>
<td>OI: Human eye, camera; Corrective optics</td>
<td>T</td>
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<tr>
<td></td>
<td>Aug 30</td>
<td>27.3-5</td>
<td>OI: Magnifying glass; Microscope; Telescope</td>
<td>H</td>
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<tr>
<td>4</td>
<td>Sep 4 Sep 6 (E1)</td>
<td>28.1-2</td>
<td>WO: Superposition &amp; interference, Two-slit explt.</td>
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<td></td>
<td>EXAM 1</td>
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<tr>
<td>5</td>
<td>Sep 11 Sep 13</td>
<td>28.4,6; 19.1</td>
<td>WO: Single-slit diffraction; Diffraction gratings</td>
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<tr>
<td></td>
<td></td>
<td>19.2,3</td>
<td>WO: Spectrometers; EF: Electric charge</td>
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<tr>
<td>6</td>
<td>Sep 18 Sep 20</td>
<td>19.4-5</td>
<td>EF: Electric field; field lines; capacitor</td>
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<td></td>
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<td>19.6-7</td>
<td>EF: Shield. &amp; charge. by induction, Electric flux &amp; Gauss’ Law</td>
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<tr>
<td>7</td>
<td>Sep 25 Sep 27 (E2)</td>
<td>20.1-2</td>
<td>REVISITING: Energy, WET &amp; LCE; EP: Electric potential &amp; energy; Energy conservation</td>
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<td>EXAM 2</td>
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<tr>
<td>8</td>
<td>Oct 2 Oct 4</td>
<td>20.3-4</td>
<td>EP: Electric potential of pt. charges; Equipot. surfaces &amp; E-field</td>
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<tr>
<td></td>
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<td>20.5-6</td>
<td>EP: Capacitors &amp; dielectrics; Electric energy storage</td>
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<td>DC: Electric current; Ohm’s Law; Energy &amp; power in EC</td>
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<tr>
<td>10</td>
<td>Oct 16 Oct 18 (E3)</td>
<td>21.5</td>
<td>DC: Resistors in series &amp; parallel; Kirchhoff’s Rule</td>
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<td>EXAM 3</td>
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<tr>
<td>11</td>
<td>Oct 23 Oct 25</td>
<td>22.1-2</td>
<td>MF: Magnetic field; Magnetic force on moving charges</td>
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<td>22.3-4</td>
<td>MF: Motion of charged particles in magnetic field; Magnetic force on c-carrying wire</td>
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<tr>
<td>12</td>
<td>Oct 30 Nov 1</td>
<td>22.5</td>
<td>MF: Magnetic force on c-carrying loops &amp; magn. torque MF: Ampere’s Law; loops &amp; solenoids; Magnetism in matter</td>
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<td>22.6-8</td>
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<td>13</td>
<td>Nov 6 Nov 8 (E4)</td>
<td>23.1-4</td>
<td>EMI: Induced EMF; Magnetic flux; Faraday’s Law; Lenz’s Rule</td>
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<td>23.5-6</td>
<td>EXAM 4</td>
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<tr>
<td>14</td>
<td>Nov 13 Nov 15</td>
<td>23.5-10</td>
<td>EMI: Work &amp; E. Energy; Generators; Inductance; RL circuits; Energy in a B-field; transformers; AC1: RMS values; EMW: Doppler effect;</td>
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<td></td>
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<td>24-1; 25.1-2</td>
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<td>15</td>
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<td></td>
<td>THANKSGIVING BREAK</td>
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<tr>
<td>16</td>
<td>Nov 27 Nov 29</td>
<td>25.3-5</td>
<td>EMW: Energy &amp; momentum; Polarization; Review</td>
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<tr>
<td>17</td>
<td>Dec 6 (E5)</td>
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<td>EXAM 5 (8:00 AM – 9:15 AM)</td>
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