

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

Section: 27-144; TH 8:00 A.M. - 9:15 A.M.

Office hours: T 11:00 A.M. - 12:00 P.M. Problem Session: H 5:00 P.M. - 6:00 P.M.

Instructor: Professor Henning H. Meyer

Office: Room 223B, Physics Building

Email: [phys1112hbm@physast.uga.edu](mailto:phys1112hbm@physast.uga.edu) ( no individual communication via ELC!!!)

ELC: General announcements, posting of homework or exam solutions, etc.

### I. GENERAL INFORMATION

- Primary method of communication: during office hours;
- Email through: [phys1112hbm@physast.uga.edu](mailto:phys1112hbm@physast.uga.edu)
- Text: James S. Walker, Physics, Volume II 5th edition (2010). (3rd or 4<sup>th</sup> 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/MasteringPhysicstext VP Acc).
- Make sure you get a copy that says: w/**MasteringPhysics**.
- Mastering Physics: To register use Course Code: **MPMEYER2019PRD1** – You will need to enter 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 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

- **No laptops, pagers, cell phones, iPads, iPods, or any other electronic/communication devices are permitted in the classroom.**
- Students must attend the sections they are assigned to. No attendance 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)

**Worst of 4 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 be meeting next week—January 14-18
  - 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>

#### 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 four (4) EXAMS on selected chapters.
- Worst of the four exam grades will be dropped (such as, e.g., a "0" due to non-attendance), so, technically, each exam is worth 20%.
- **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.

### IX. ABSENCES

- **Class attendance is mandatory and will be monitored regularly. 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 **Monday, March 21th**.

### 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 I:** Spring 2019 Master Schedule

**ATTENTION:** This schedule is preliminary. It is subject to modification, possibly including exam dates.

Week	Date	Reading	Topics	Day
1	Jan 10	–	Intro to this course; Principles of GO	H
2	Jan 15	26.1-4	GO: Reflection; Plane mirrors; Spherical mirrors	T
	Jan 17	26.5-7	GO: Refraction; Total internal reflection; Ray tracing for lenses; thin lens equation	H
3	Jan 22	27.1-2	OI: Human eye, camera; Corrective optics	T
	Jan 24	27.3-5	OI: Magnifying glass; Microscope; Telescope	H
4	Jan 29	28.1-2	WO: Superposition & interference, two-slit experiment	T
	Jan 31	28.4-6	WO: Single-slit diffraction; Diffraction gratings	H
5	Feb 5		Review; Problem Solving	T
	Feb 7(E1)		<b>EXAM 1 (Chap26-28)</b>	H
6	Feb 12	19.1-3	EF: Electric charge	T
	Feb 14	19.4-5	EF: Insulators & conductors; Coulomb's Law EF: Electric field; field lines; capacitor	H
7	Feb 19	19.6-7	EF: Shield. & charge. by induction, Electric flux & Gauss' Law	T
	Feb 21	20.1-2	REVISITING: Energy, WE-Theorem & Law-CE; EP: Electric potential & energy; Energy conservation	H
8	Feb 26	20.3-4	EP: Electric potential of point charges; Equipot. surfaces & E-field	T
	Feb 28	20.5-6	EP: Capacitors & dielectrics; Electric energy storage	H
9	Feb 5		Review; Problem Solving	T
	Mar 7 (E2)		<b>EXAM 2 (Chap19-20)</b>	H
10	Mar 11 – 15		Spring Break	T
	Mar 21		Withdrawal Deadline	H
11	Mar 19	21.1-4	DC: El. current; Ohm's Law; Energy & pow in El.Circ.	
	Mar 21	21.5	DC: Resistors in series & parallel; Kirchhoff's Rule	M
11	Mar 26	22.1-2	MF: Magnetic field; Magn. force on moving charges	T
	Mar 28	22.3-4	MF: Motion of charged particles in magnetic field; Magnetic force on current-carrying wire	H
12	Apr 2	22.5	MF: Magnetic force on current loops & magn. torque	T
	Apr 4	22.6-8	MF: Ampere's Law; loops & solenoids; Magnetism in matter	H
13	Apr 9		Review; Problem Solving	T
	Apr 11 (E3)		<b>EXAM 3 (Chap21-22)</b>	H
14	Apr 16	23.1-4	EMI: Induced EMF; Magnetic flux; Faraday's Law; Lenz's Rule	T
	Apr 18	23.5-6	EMI: Work & E. Energy; Generators	H
15	Apr 23	23.5-10	EMI: Inductance; RL circuits; Energy in a B-field;	T
	Apr 25	25.1-2	EMW: EM waves; spectrum EMW: Doppler effect; EMW: Energy & momentum	H
16	Apr 30		Review; Problem Solving	T
	May 2(E4)	–	<b>EXAM 4 (8:00 A.M. - 11:00 A.M.) (Chap22-23,25)</b>	T