PHYS 1112: Introductory Physics — Optics, Electricity & Magnetism

Section: 25674; TH 8:00 A.M. - 9:15 A.M.
Lectures will be given F2F at regular class times. No recordings!
Attendance will not be monitored!

Instructor: Professor Henning H. Meyer
Office hours: T, H 11:00A.M. -12:00 Noon
Q&A Zoom Session: Day before exam 5:00 P.M. - 6:00 P.M.
Office: Room 217, 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, 5th edition (2017). (3rd or 4th editions are fine, but **you will be responsible** for knowing about any changes in content.) The bookstore usually describes the text as: Physics & VP AC MOD MST.
- Make sure you get a copy that says: w**/MasteringPhysics.**
- Mastering Physics: To register look for Course Name:
- PHYS1112-Fall2021-MeyerPeriod1 with Course ID: **meyer03756** – 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) in-class 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, each exam is worth 15%.
- Depending on the development of the pandemic, exams might be moved online requiring the Lockdown Browser.
- **No makeups or re-scheduling is permitted.**

VII. FINAL EXAM (20% TOTAL)

- **Final Exam is mass exam, date and time: Tuesday, Dec. 9; 7:00 - 10:00 P.M.**
- **Comprehensive final exam (20% of overall grade): All chapters covered in class.**
- **No makeups or re-scheduling unless required by University rules.**

- **Rules for the EXAMS (Exams might be online given 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 **Monday, October 25th**.

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: Fall 2021 Master Schedule (**ATTENTION:** This schedule is preliminary. It is subject to modification, possibly including exam dates.)

Week	Date	Reading	Topics	Day
1	Aug 19	–	Intro to this course; Principles of GO	H
2	Aug 24 Aug 26	26.1-4 26.5-7	GO: Reflection; Plane mirrors; Spherical mirrors GO: Refraction; Total internal reflection; Ray tracing for lenses; thin lens equation	T H
3	Aug 31 Sep 2	27.1-2 27.3-5	OI: Human eye, camera; Corrective optics OI: Magnifying glass; Microscope; Telescope	T H
4	Sep 7 Sep 9**(E1)**		Review; Problem Solving **EXAM 1 (Chap26,27)**	T H
5	Sep 14 Sep 16	28.1-2 28.4-6	WO: Superposition & interference, two-slit experiment WO: Single-slit diffraction; Diffraction gratings	T H
6	Sep 21 Sep 23	19.1-3 19.4-5	EF: Electric charge EF: Insulators & conductors; Coulomb's Law EF: Electric field; field lines; capacitor	T H
7	Sep 28 Sep 30	19.6-7	EF: Shield. & charge by induction, Electric flux & Gauss' Law Review; Problem Solving	T H
8	Oct 5 **(E2)** Oct 7	 20.1-2	**EXAM 2 (Chap28,19)** REVISITING: Energy, WE-Theorem & Law-CE; EP: Electric potential & energy; Energy conservation	T H
9	Oct 12 Oct 14	20.3-4 20.5-6	EP: Electric potential of point charges; Equipot. surfaces & E-field EP: Capacitors & dielectrics; Electric energy storage	T H
10	Oct 19 Oct 21	21.1-4 21.5-7	DC: El. current; Ohm's Law; Energy & pow in El.Circ. DC: Resistors in series & parallel; Kirchhoff's Rule, RC-circ.	T H
11	Oct 25 Oct 26 Oct 28 **(E3)**		Withdrawal Deadline Review; Problem Solving **EXAM 3 (Chap20,21)**	T H
12	Nov 2 Nov 4	22.1-4 22.4-5	MF: Magnetic field; Magn. force on moving charges MF: Magnetic force on current-carrying wire MF: Magnetic force on current loops & magn. torque	T H
13	Nov 9 Nov 11	22.6-8 23.1-4	MF: Ampere's Law; loops & solenoids; Magnetism in matter EMI: Ind. EMF; Magnetic flux; Faraday's Law; Lenz's Rule	T H
14	Nov 16 Nov 19	23.5-6	EMI: Work & E. Energy; Generators Review; Problem Solving	T H
15	Nov 23 **(E4)**		**EXAM 4 (Chap22,23)**	T
16	Nov 30 Dec 2	23.5-10	EMI: Inductance; RL circuits; Energy in a B-field Review; Problem Solving	T H
	Dec 9		**FINAL EXAM (Chap19-23,26-28) Time: 7-10pm**	