Physics II /**Phyc152 Syllabus** Spring 2018 Clifton Murray, UNM-Valencia

Class meets T Th 3-4:15p

Prerequisites: Physics I (151) with grade of C or better, or instructor permission.

Recommended (but not required) concurrent course: Physics II Lab (152L) Tuesdays, Noon-2:45p

Instructor's office & hours—A126A, Hours MW 3:15-4:15p; T 4:15-5:30p; Th 11:45a-12:30p, 1:15-2:45p, 4:15-5:45p.
wcmurray@unm.edu 505-925-8727

Text: College Physics 7th ed., Wilson, Buffa, & Lou
A calculator having trig and powers-of-ten functions will is required.

Student Learning Goals & Objectives: To be able to explain or/and solve problems involving: electric fields, forces, and potential (voltage); d.c. and a.c. circuits, and therefore voltage, current, resistance, capacitance, inductance, and impedance; magnetism, including electromagnets as well as permanent magnets and transformers.; electromagnetic induction; electromagnetic waves; concepts of quantum, atomic, and nuclear physics, recent hypotheses and observations of elementary particles and the Universe; selected results from Einstein's relativity theory.

Policies and Notices:
**After four accumulated absences, the student may be dropped by the instructor without further notice.*

*"*Makeup" tests will be given only at the instructor's discretion*—in other words, the instructor is free to **not** give a makeup. If a makeup is given, expect a *maximum score of 85%,* because of (i) the unfair advantage of a makeup over students who took the test on time, and (ii) the additional time and effort required of the instructor in preparing, scheduling, administering, and grading the makeup.

**Late homework.* Credit will be reduced by 50% if one day late; minus 100% if two or more days late. Homework due dates are indicated on the schedule accompanying this syllabus.

**Persistent disruptive behavior,* such as loud talking, ridiculing or intimidating the instructor or other students, or other forms of distraction, will result in the offender being dismissed and dropped from the class.

**Cell phones* Off, please, during class. No text messaging in class. No calls in or out of room during tests. If you must exit the room, either leave your phone with the instructor or explain the situation to him.

**Reporting Sexual Misconduct:* Any report of sexual misconduct or gender discrimination made to a UNM faculty member, TA, or GA must be reported to the Office of Equal Opportunity and the Title IX Coordinator. For more information on UNM policy re sexual misconduct see https://policy.unm.edu/university-policies/2000/2740.html

*If you have a *documented physical disability* which could interfere with learning in a standard classroom environment, please inform the instructor so we can make appropriate accommodations.

**Children* are not permitted in class, regrettably; this is due to liability concerns.

Homework Format: Homework problems should be clearly separated, either by whitespace (that means more space between main problems than within the problem), or by a separation line between main probs (not between subprobs a, b, c…). Turn homework in by *day*—not by section. That is, if sec 3.1 and 3.2 are presented on the same day, 3.1 and 3.2 should be grouped together—stapled—not separate.

Also, please either put the **main** prob #--5, 11, 21, …etc (**not** a,b,c…).—to the left of all other work, **or** make it extra BIG. This is to help make the separation between main problems really obvious, so the instructor can find and check the main problems fast. Finally, nearly all homework problems in physics pertain to a physical situation. For such problems, a simple **sketch** is required (It is not a pure math course; it is Physics.)

Homework is due on test days, at the 1st of class. Turn in homework stapled by chapter, do not split chapters. Only one grading will be done on each homework—on whatever is turned in 1st. Once part of a chapter is turned in, no further credit will be given. Again, 1 class day late reduces the possible max score to 50%, two or more days late receives zero credit.

Final Exam Minimum Grade* is **65% in order to receive above a "D", regardless of other test or homework scores.

Grading:	Maximum points
Homework	100
4 tests	400
Drop lowest one of tests or homework:	-100
Final exam (not dropped)	150 **(min 97.5 (65%) to receive higher than a "D".)**
	550 Max poss course total

("x" = student's total accumulated points)

$536 \leq x \leq 550$	A+	(unless a test is missed, or homework score is less than 50%).
$509 \leq x < 536$	A	(unless a test is missed, or homework score is less than 50%)
$495 \leq x < 509$	A-	
$481 \leq x < 495$	B+	
$454 \leq x < 481$	B	
$440 \leq x < 454$	B-	
$426 \leq x < 440$	C+	
$399 \leq x < 426$	C	
$385 \leq x < 399$	C-	
$330 \leq x < 385$	D	
$x < 330$	F	

PHYSICS II/152

3:00-4:15P

TURN HMWK IN BY CHAPTER, STAPLED, AT START OF TEST CLASS. DO NOT SPLIT CHAPTERS.

SPRING 2018

CLIFTON MURRAY
UNM-VALENCIA

TUESDAY	THURSDAY
16 JAN CH 15: ELECTRIC CHARGE, q. FIELD, $\vec{E}$. ELECTROSTATIC FORCE $F = k\frac{q_1 q_2}{r^2}$ | HMWK #1, 2, 3, 11a, 13, 23, 25, 30, 34a, 43	18 JAN CH 16 ELECT. POTENTIAL DIFFERENCE $V = \Delta V$. $\Delta V = \frac{\Delta U}{q} = Ed$ HMWK QUES #1, EXER #1, 3, 20, 26...
23 JAN CH 16 CONTIN. CAPACITANCE $C = \frac{Q}{V}$ EXER #7a, 8, 10, 35, 37, 49* *STAPLE ALL CH 16 TOGETHER, AS A SINGLE PACK*	25 JAN RVW
30 JAN TEST #1 CH 15 & 16 HMWK DUE, BEFORE TEST	1 FEB CH 17 VOLTAGE V, RESISTANCE R, CURRENT I. SIMPLE CIRCUITS. ELECTRIC POWER. #1, 2, 6, 10, 12a, 21, 25, 35, 38, 44, 47.
6 FEB FINISH CH 17. CH 18: RESISTORS IN COMBO. START CH 18 HMWK: #1, 3, 5, 6, 11...	8 FEB CONTIN CH 18:... #30, 31, 34, 48, 50 RC CIRCUITS. emf, $\mathcal{E}$.
13 FEB RVW	15 FEB TEST #2 CH 17 & 18 HMWK DUE B4 TEST
20 FEB CH 19 MAGNETIC FIELD $\vec{B}$. VARIOUS B-FORMULAS. CURLY RIGHT-HAND RULE. #4, 5, 13a, 15, 20, 21, 26, 30, 35, 36	22 FEB FINISH CH 19. CH 20. MAGNETIC FLUX Φ_B. $\mathcal{E}$ INDUCED. VOLTAGE TRANSFORMERS. #1, 2, 9a, 12a, 25, 27, 33, 39, 41.
27 FEB FINISH CH 20. CH 21 a.c. electricity. COIL self Inductance, Inductive & Capacitive Reactance. IMPEDANCE. CH 21 #1, 3, 16, 19, 22a, 23, 31, 32...	1 MAR CH 21 a.c. CONTIN: a.c. POWER, electromagnetic waves, LIGHT. a.c. OSCILLATORS, RESONANCE. ... #34, 38, 39
6 MAR RVW	8 MAR TEST #3 CH 19, 20, 21 HMWK DUE B4 TEST
13 MAR SPRING	15 MAR BREAK
20 MAR CH 22 LIGHT: RAY OPTICS $\theta_i = \theta_r$ $n = c/v$ $n_1 \sin\theta_1 = n_2 \sin\theta_2$ #1, 2, 10, 11, 13, 16, 21, 31	22 MAR CH 23 LENS-MIRROR EQUATION, $\frac{1}{f} = \frac{1}{o} + \frac{1}{i}$ MAGNIFICATION. #3, 12, 13, 41, 47, 59, 60, 67, 68
27 MAR FINISH CH 23. CH 24 WAVE OPTICS, DIFFRACTION. POLARIZATION. HMWK CH 24 #30, 31, 34, 35, 43	29 MAR CH 25 The HUMAN EYE. RESOLVING "POWER". #1, 2, 50, 51, 52, 53
3 APR RVW	5 APR TEST #4 CH 22, 23, 24, 25 HMWK DUE AT START
10 APR CH 26 RELATIVITY: SPACE, TIME #9, 11, 13, 14, 25, 37	12 APR FINISH CH 26. CH 27 START OF QUANTUM PHYSICS. H-ATOM. #11, 13, 14, 15, 37, 42, 44
17 APR CH 28 More QUANTUM: de Broglie MATTER WAVES. Heisenberg uncertainty. #1, 2, 3, 4, 12, 28, 30	19 APR CH 29 INTRO NUCLEAR PHYSICS: NUCLEAR EQUATIONS. RADIOACTIVITY. #1, 5, 10, 12, 15, 24, 27, 31, 49, 50, 53
24 APR CH 30 NUCLEAR FISSION, FUSION. NUCLEAR REACTORS. #1, 3, 8, 10, 17, 34	26 APR FINI CH 30 ELEMENTARY PARTICLES. BRIEF SURVEY OF COSMOLOGY. (NO ADDITIONAL HMWK)
1 MAY HMWK DUE AT START: CH 26, 27, 28, 29, 30 RVW FOR FINAL	3 MAY REVIEW FOR FINAL
8 MAY	10 MAY FINAL EXAM 3:00-5:00P