PORTLAND STATE UNIVERSITY
DEPARTMENT OF PHYSICS

PH 321 CURRENT ELECTRICITY, FALL TERM 2010
MW 2-4 Neuberger Hall 386

INSTRUCTOR: Andy Martwick
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Hours: MW 11-12 and by arrangement

TEXTBOOK (required): Fundamentals of Electric Circuits, Alexander, 4th ed
Recommended: www.mhhe.com/alexander register with section code `944-36-8EF`
`"Electric Circuits", Schaum's Outlines, 2 hr reserve in lib`

GRADING: 40% Homework
30% Midterm
30% Final

Grades are posted on blackboard. Extra credit will be assigned as midterm and final review. Calculator is required.

Course Objectives
You will learn how to analyze networks of resistors, capacitors, inductors and op-amps by solving first and second order linear differential equations with constant coefficients using direct integration, complex analysis and Laplace transform (algebraic) methods. As we solve simple systems, we will explore the important role of the inner product in physics and engineering. This important mathematical method is used throughout physics to decompose complicated functions into solvable systems. The inner product with the complex basis e^{st} will provide deeper understanding of complex numbers, Fourier and Laplace transforms, frequency response, and system transfer functions.

Tentative outline covering Ch1-10, 14-16

Week	Mon	Wed	HW Due (thur)
1	Intro Ch1	Ch 2 Problems	
2	Ch3 Ch 3-4	Ch 4 Problems	Ch 1,2
3	Ch 5 Ch 5/6	Ch 6 Problems	Ch 3, 4
4	Ch 7 Ch7	Ch7/8 Problems	Ch 5, 6
5	Ch8 Ch8	Ch 8 Problems	Ch 7
6	Ch 9	Midterm ch 1-7	Midterm Extra Credit
7	Ch 9 Ch 10	Ch 10 Problems	Ch 8
8	Ch 14	Ch 15	Ch 9
9	Ch 16 Ch16	Ch 16	
10	Transmission lines	Ch 16 HW Review (HW can be picked up on Fri) Final Review	Ch 15 / 16