

PHYSICS 326 Syllabus, Fall 2011

- **Instructor:** Milton From
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- **Office hours:**

General Information:

- **Lecture times and location:** 9am, Mondays and Tuesdays, in CF316
- **Lab times and location:** 3 lab sections. Choose *one* from Wednesday, Thursday, or Friday in CF312, 9am
- **Texts:** Error Analysis by John Taylor, Schaum's Outline Mathematica by Eugene Don, Hands-On Intro to LabVIEW by John Essick

There are two main goals for the course.

1. Gain a basic understanding of Error Analysis for Physical Measurements.
2. Gain a basic understanding of four computer programs that are useful for data collection/analysis and/or for solving mathematical problems in physics. The programs are,

LabView

Excel

Kaleidagraph

Mathematica

The course webpage is <http://www.physics.wvu.edu/from/326.11f/main.html> . You will need to consult this page regularly. It will contain information such as links to assignment questions and solutions, quiz and test solutions, lists of material you will be responsible for on tests, photographs/videos of some of the classroom demonstrations, etc.

Approximate Schedule: (as of November 2011)

LV=LabVIEW, M=Mathematica, K=Kaleidagraph, E=Excel

Week	Date	Error analysis chapters	Assignment	Lab topics	Lecture test
1	Sep 21-23	Introductions			
2	Sep 26-30	1-3	A1	LV1, M1	
3	Oct 3-7	3	A2	Magnetic torque, K, E	
4	Oct 10-14	4	A3	LV2, M2	
5	Oct 17-21	5	A4	LV3, M3, Nuclear statistics, K,E	Monday Oct 17
6	Oct 24-28	5	A5	LV5, M4	
7	Oct 31-Nov 4	6-7	A6	LV6, M5	
8	Nov 7-10 (no class on F)	8	A7	LV7, M6	Monday Nov 7
9	Nov 14-18	8	A8	LV8&9, M7	
10	Nov 21-22 (no class on WRF)	9, 12	A9		
11	Nov 28-Dec 2	12		LabVIEW test	
	Monday, Dec 5				final exam, 8:00- 10:00am

Homework:

I will assign a few homework problems per week. These will be a mix of error analysis problems, data analysis from labs done in class, LabVIEW tasks, and Mathematica calculations. The idea is for you to get a start on these problems in the weekly lab sessions and then finish them on your own time. It is therefore *essential* that you work through the LabVIEW and Mathematica texts *ahead of* the lab sessions so you can focus on the weekly assignment during the labs.

The weekly assignment is handed out via the above course webpage. Please hand in assignments (**paper hardcopies**) by the start of the Monday class after they are assigned. (e.g. A1 is due on October 3th.) Late assignments will not be accepted. Grading of the assignments will be primarily by spot checks. Please make sure that the start and end of each assignment question is clearly marked!

Experiments:

We will collect and analyze data from two Junior Lab experiments in class: Magnetic Torque, and Nuclear Statistics. The experiments will be run as demonstrations at the front of the class during a lecture slot. Data will then be analyzed in a lab session.

Tests and Final Exam:

There will be two tests on lecture material and one on LabVIEW programming. The lecture material tests will include questions related to material covered in the Taylor text as well as specifics relating to the Magnetic torque and nuclear statistics experiments. You will be allowed to use the Taylor and LabVIEW texts for the tests and final exam, but not computers, past assignments or tests.

The final exam will be cumulative.

Grades:

Weekly assignments 5%
LabVIEW test 20%
2 lecture tests 25% each
Final Exam 25%

LETTER GRADE SCALE

Percentage	90-100	85-89	80-84	77-79	73-76	70-72	67-69	63-66	60-62	57-59	53-56
Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-