VILLANOVA UNIVERSITY
Physics Department

PHYSICS 2415–01 & 02 FALL 2013
UNIVERSITY PHYSICS LAB: WAVES, THERMODYNAMICS, LIGHT AND OPTICS DR. J. SIAH

Text: *Calculus-Based Introductory Physics Laboratory Handouts, Waves, Thermodynamics & Optics*. Laboratory procedures as well as announcements in regard to the course will be posted on the Blackboard (Bb) site of the course. **Bb Site:** *elearning.villanova.edu - PHY2415-01*

To enter your Blackboard course through the My Classrooms section of the Villanova Homepage:

1. log in to the Villanova Homepage using your

E-mail UserID and Password

2. click on the E-learning link

3. click on the course name

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REQUIREMENTS: completion of all the experiments are required for getting a grade in this lab. Which means if you miss more than one experiment you better drop the lab. See the part under attendance.

This sequence of laboratory experiments is intended to complement the corequisite lecture course Physics 2414. If a student drops Physics 2414, he or she is required to drop this laboratory course also.

Reports: The experimental procedure will be completed during the class time. Simple calculations leading to the calculation of the results of the experiment should be shown to the instructor before leaving the lab. The report on the experiment should be handed in at the beginning of the following session. The report should be type written on only one side of each sheet and in a clear plastic cover. Each report should contain 1) Title, 2) Purpose, 3) Theory, 4) Procedure, 5) Data, 6) Sample Calculations, 7) Results, 8) Sources of errors % errors, 9) Discussion.

The tables and graphs should be computer generated. The report should be able to convey the information about the experiment to another scientist. A significant part of the grade will be determined by neatness and organization. Although you perform the experiments in groups, the reports should be written individually.

Attendance at all laboratory sessions is mandatory under normal circumstances. An experiment missed due to an excused absence must be performed during a make-up period.

Grades will be determined based on your performance in the lab. and the write-ups. Neatness and organization of the lab. notebook is very important.

Laboratory Schedule

1.	Standing Waves on String	Sept. 9 - 13
2.	Speed of Sound in Air	Sept. 16 - 20
3.	Newton's Law of Cooling	Sept. 23 - 27
4.	Thermal Expansion	Sept. 30 - Oct. 4
5.	Specific Heat of Solids, Heat of Fusion	Oct. 7 - 11
6.	Boyle's Law	Oct. 21 - 25
7.	Joule's Equivalent of Heat	Oct. 28 - Nov. 1
8.	Geometric Optics by Laser Light	Nov. 4 - 8
9.	Converging Mirrors and Lenses	Nov. 11 - 15
10.	System of Mirrors and Lenses	Nov. 18 - 22
11.	Spectrometer: Diffraction Grating and Prism Dispersion	Nov. 25 -