Physics 111   2011
Mr. Joseph L. Powlette powlette@cs.moravian.edu, phone 1438, CHS 110
Text: Physics 2000 (Part 1 , Part 2), Calculus 2000 by E.R. Huggins
Text: Physics for Science and Engineering Students by Nolan (on disk)

Date	Topic	Readings	Exercises	Lab
Aug 29	Intro & Relativity	1.1-1.5	1,2	Graphical Analysis
31		1.6-1.23	3,4	
Sept 2	Length Contraction	1.24-1.31	33.12,6,7	

7	Simultaneity	1.32-1/39	33.17,33.35	No Lab
9	Vectors	2.1-2.10, 3.1-3.9	1 to 4, 3.46	

12	Motion	3.1-3.16,	1 to 4	Relativity Experiment
14	Motion	3.17-3.33, 2.1-2.8	5 to 7	
16	Calculus of Motion	4.1-4.13, 4.1-4.2	A-1,A-3,4.7	

19	Mass	6.1-6.15	2 to 4,7	Motion Plotter and Ch. 5 computer problems
21	Cons. Of Momentum	7.1-7.8, 8.1-8.4	2 to 5, 8.28	
23	Cons. Of Angular Momentum	7.9-7.18	8,9	

26	Newton 1	8.1-8.16, 10.1-10.4	2,3,4,8	Newton's Second Law
28	Kepler's Laws	8.16-8.28,10.6-10.8	9,13,15	
30	Newton 2	8.29-8.37,5.1-5.4	18,20	

Oct 3	Exam 1	Ch. 1-7		Centripetal Force
5	Applications to Second law	9.1-9.14, 5.5	2,3,5.38	
7	Cont. above	9.14-9.19, 6.1-6.2	5.39	

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Date	Topic	Readings	Exercises	Lab
12	Energy	10.1-10.8, 7.1-7.6	1,2,3, 7.14	No lab
14	Energy	10.8-10.17,7.7	4, 9,10	

17	Energy	10.18-10.31,7.8	12,15, 7.48	Ballistic Pendulum
19	System of Particles	11.1-11.12,8.5	2,5, 8.20	
21	System of Particles	11.12-11.22, 8.6	11,12, 8.51	

24	Equilibrium	13.1-13.8,11.1-11.3	2,3,5	Collision in 2D
26	Equilibrium	13.9-13.12,11.4	9,10	
28	Oscillations	14.1-14.12,13.1-13.3	2,3,6,11	

31	Oscillations	14.13-14.34,13.4-13.6	22, 13.7	Forced Damped Harmonic Motion
Nov 2	1 D waves	15.1-15.11,14.1-14.5	1,2,4	
4	1 D waves	15.12-15.22,14.6-14.8	5,6,8,9,	

7	Exam 2	Ch.8-13 (omit 12)		Standing Waves on a String
9	Atomic Processes	17.1-17.11, 16.1-16.2	1,2,4,	
11	Atomic Processes	17.12-17.17, 17.1-17.7	5, 17.25	

14	Atomic Processes	17.18-17.25,17.9	6,7	Gas laws
16	Atomic Processes	17.26-17.34,15.1-15.3	8, 15.23	
18	Entropy	18.1-18.7,19.1-19.3	1,2	

21	Entropy	18.8-18.16,19.4-19.5	3,4,5,6	Gas Law Cycle

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28	Entropy	18.17-18.21,19.10-19.11	7,8,9,10	Viscosity
30	Entropy	18.22-18.29,19.7-19.9	19.37	
Dec 2	Exam 3	Ch. 14-18 (omit Ch 16)		

| 5 | Fluid Dynamics | 23.1-23.8,15.4-15.6 | | Fourier analysis w/ sound |
| 7 | Fluid Dynamics | 23.9-23.18,15.7-15.8 | 1,2,3 | |

Hour exams = 25 %   Quizzes and problem solutions=25%
Final exam=25%   Laboratory average=25%

Course Objectives

- Upon completion, students should understand the theoretical development of physical laws
- Be able to solve problems at the appropriate mathematical level.
- Understand and be able to apply modern laboratory and computer techniques.

Problem solutions are to be your own work and but cooperation with other students is permitted. Help with problems is available from the instructor, problem sessions and the evening help sessions (run by the Society of Physics Students). Office hours are posted but I am available at any time that I am not in class or working in a laboratory.

Attendance of lectures is important since new material, problem solutions, different approaches from that of the text and computer instructions will be presented during this time.

Please download spacetime 4.0 to your windows PC at http://www.spacetime.us/. **SpaceTime** for **Windows PCs** is the most powerful cross-platform mathematics software ever developed and is now **free** to download and register! It does symbolic calculations in calculus and has exceptional graphics.

"Students who wish to request accommodations in this class for a disability should contact Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510). Accommodations cannot be provided until authorization is received from the office of Learning Services."