Physics 111: Introductory Physics I Syllabus
Fall 2015

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Office Hours: Monday 10-12
Tuesday 9-10
Wednesday 10-11
Thursday 10-11

Course Description

An introduction to the fundamentals of physics, specifically heat and thermodynamics, waves and oscillations, and mechanics in one and two dimensions, including kinematics, dynamics, rotational motion, energy and conservation laws and statics.

Course Goals

The main goal of this course is for students to gain a comprehensive understanding of basic concepts and laws of physics. Students will develop a mathematical ability to describe these laws using formulas and equations that allows the student to perform calculations and solve problems relating to the course. The lab element of the course will provide a hands-on methodology of testing and analyzing these principles through laboratory work.

Text

Physics for Scientists & Engineers Online book and homework system. A hard copy of the text book can be purchased, however a pdf copy is available through the online purchase.
DO THE ASSIGNED READINGS PRIOR TO CLASS- this will allow you to become familiar with the terms and topics and have questions about the material prepared before lecture

All other course materials will be made available on blackboard. These materials include this syllabus, laboratory procedures, practice problem sets, practice exams, and any solutions I may provide.

Grading

Your letter grade is determined by a minimum weighted average which is as follows: A/93, A-/90, B+/87, B/83, B-/80, C+/77, C/73, C-/70, D+/67, D/63, D-/60, F/0. The breakdown of the grading will be as follows:

Homework	15%
Reading Checkpoints	5%
Attendance	5%
Quizzes	10%
Labs	20%
Exam 1	10%
Exam 2	10%
Exam 3	10%
Final	15%

Homework

Homework assignments will be given weekly and will be due at the beginning of class on the day specified in the syllabus. You can receive full credit up until 7:50 AM the day the assignment is due. You will still be able to work on assignments after the due date, but some credit will be lost. After 7:50 AM on the due date you will lose 2% for each hour after this deadline. For any submissions over 24 hours after the deadline, you may still earn up to 50% of the credit for the question until the last day of class. You will be allowed to attempt homework questions up to 10 times. After this you will receive no credit for the question. If you do not understand or are having trouble with the questions, save some of your attempts for after you have been to class or gotten help, some points is better than no points. You are encouraged to work with other students on the assignments, but each student must complete and submit their own work. Time will be available for questions about homework during the problem solving sessions if you are having trouble with the homework questions. Homework is very important. There is a strong correlation between completing the homework assignments and doing well on quizzes and exams.

Reading Checkpoints

For each class meeting, you are required to complete the reading assignment and associated checkpoint assignment. This will allow you to become familiar with the terms and topics and have questions about the material prepared before lecture.

Attendance

Attendance is mandatory and counts towards your final grade. I will be taking attendance using the plicker app and the plicker cards distributed the first day of class. You are responsible for bringing this card to class and getting a replacement if it is lost or damaged. If you cannot attend class for any reason, it is your responsibility to contact me with the reason for your absence and to obtain any material you missed. An absence will be considered excused and not count against your attendance grade if it is due to reasons such as illness, death in the family, etc. Missed quizzes and exams will only be excused in the event of excused absences, in which case another time can be scheduled to take the exam. This does not count as the one make-up discussed under the exams and quizzes section.

Exams and Quizzes

There will be three exams during the semester. Each will be 50 minutes long. There will also be a final exam which will be cumulative. The exams will include problem solving questions, but there will also be conceptually based questions to be answered with words. **The final exam will be held on Monday, December 14, 8:30 AM and will be cumulative.**

Ten minute quizzes will be given on a regular basis. They will be based on exam questions and will be given under the same conditions as exams. You will be allowed **ONE** make-up quiz per semester if you miss class or if you arrive late to class after the quiz has started. **The make-up quiz must be taken the same day** that the original quiz is administered.

The class will develop an equation sheet collaboratively. Each week you will need to bring equations, along with statements in words about what the equation means, definitions of each variable and examples of when the equation can be used to solve a problem to problem session. If you participate in development of the equation sheet, it will be provided for your use during exams and quizzes. You will not be allowed to use any outside materials (notes, books or cell phones) during exams.

Lab Schedule

Date	**Topic**
8/31-9/1	Log onto homework and Math review
9/7-9/8	Graphing Using Graphical Analysis and Error Analysis Exercise
9/14-9/15	Picket Fence Free Fall
9/21-9/22	Newton's Second Law of Motion
9/28-9/29	Kepler's 3rd Law: Determining the Mass of Jupiter
10/5-10/6	Conservation of Energy of the Simple Pendulum
10/12-10/13	FALL BREAK
10/19-10/20	Conservation of Momentum in Two Dimensions
10/26-10/27	Rotational Motion and Moment of Inertia
11/3-11/3	Torsion
11/9-11/10	Liquid Viscosity
11/16-11/17	Simple Harmonic Motion
11/23-11/24	Thanksgiving Break
11/30-12/1	Standing Waves on a String
12/7-12/8	Speed of Sound from Resonance Tube

Important Notes

Education is all about open communication. My responsibility is to communicate information and problem solving techniques to you. However, communication works both ways. You must also communicate to me if are having trouble with or questions about any material. Your questions are always welcome. I do not know what you do not know. The explanations and examples I give make perfect sense to me, but you may need further clarification. To that end, please feel free to email me or attend my office hours with any questions you may have. If you cannot attend any of the available office hours, please email me and we can schedule another time to meet.

The equation sheet will only help you if you know the meaning of all the variables and the proper context in which a specific equation can be used. E does NOT always mean energy and velocity may be determined using different equations in different situations. It is very important that you review and become familiar with the equation sheet before any quiz or exam.

What to Do if You Have Questions or Need Help

- Ask me before or after class
- Visit my office hours
- Email me at malendar@moravian.edu
- Ask another student
- Work in a group
- Attend the Society of Physics Students tutoring
- Get at tutor (I can help you get in contact with a tutor)

Disabilities and Medical Conditions

Moravian College adheres to the principles and mandates of the Americans with Disabilities Act of 1990 and the Rehabilitation Act of 1973. Students who wish to request accommodations in this class for a disability should contact the Academic & Disability Support Center, located on the first floor of Monocacy Hall (extension 1401). Accommodations cannot be provided until authorization is received from the Academic & Disability Support office. Special classroom set-ups, alternate testing, physical plant (campus) alterations, and other accommodations for students with documented disabilities are available on a case-by-case basis. It is the responsibility of students with disabilities to self-identify and request accommodation through the appropriate office. It is the responsibility of the student to request accommodation well in advance of the need in order to give the College a reasonable amount of time to evaluate the documentation and implement the request. Classroom accommodation requiring notification to faculty must be requested for each semester for which it is needed. Please see Disability Support Services in the Campus Offices and Services section elsewhere in the Moravian College Student Handbook for further information, and check the College's website for periodic updates concerning services for students with disabilities.

Academic Honesty Statement

Academic integrity is the foundation on which learning at Moravian College, Moravian Theological Seminary, and the Comenius Center is built. Students are expected to perform their academic work honestly and fairly. In addition, students should neither hinder nor unfairly assist the efforts of other students to complete their work successfully. In an academic community, students are encouraged to help one another learn. Because no two students learn in exactly the same way or absorb exactly the same things from a lecture, students are encouraged to study together. The boundaries on what is or is not acceptable work may not always be clear; thus, if at any point in academic work at Moravian, students are uncertain about their responsibility as scholars or about the propriety of a particular action, please see Academic Honesty in the Academic Life section elsewhere in the Moravian College Student Handbook for further information, and check the College's website for periodic updates.

Class Schedule

Date	Topic	Slides before class	Due
8/31	Kinematics in 1-D: Displacement, Speed, Velocity		
9/2	Kinematics in 1-D: Acceleration and Free Fall	2.0-2.25	
9/4	Vector Review	2.26-2.35 & 3.0-3.19	
9/7	Vector Review	4.0-4.7	HW 1
9/9	Kinematics in 2-D: Vectors and Projectile Motion	4.8-4.27	Quiz 1
9/11	Dynamics: Newton's 1st and 2nd Laws	5.0-5.9	
9/14	Dynamics: Newton's 3rd Law and Free-Body Diagrams	5.10-5.17	HW 2
9/16	Using Newton's Laws: Friction	5.18-5.34	Quiz 2
9/18	Using Newton's Laws: Circular Motion	9.0-9.16	
9/21	Gravitation: Newton's Law of Universal Gravitation	13.0-13.17	HW 3
9/23	Gravitation: Kepler's Laws	13.18-13.35	Quiz 3
9/25	Work and Energy	7.0-7.15	
9/28	**EXAM 1**	**CH 2, 3, 4, 5, & 9**	
9/30	Conservation of Energy: Potential and Mechanical Energy	7.16-7.28	HW 4
10/2	Conservation of Energy: Dissipative Forces	7.29-7.35	
10/5	Linear Momentum: Conservation of Momentum	8.0-8.10	HW 5
10/7	Linear Momentum: Collisions	8.11-8.21	Quiz 4
10/9	Linear Momentum: Center of Mass	8.22-8.31	
10/12	**FALL BREAK**		
10/14	Rotational Motion: Kinematics	10.0-10.21	HW 6
10/16	Rotational Motion: Torque and Dynamics	11.0-11.17	
10/19	Catch up/ Review		
10/21	**EXAM 2**	**CH 13, 7, & 8**	
10/23	Rotational Motion: Moment of Inertia and Energy	11.18-11.25	
10/26	Angular Momentum: Rotating Objects	11.26-11.30	HW 7
10/28	Angular Momentum: Torque	11.31-11.37	Quiz 5
10/30	Static Equilibrium: Conditions of Equilibrium	12.0-12.18	
11/2	Fluids: Phases and Pressure	14.0-14.8	HW 8
11/4	Fluids: Buoyancy	14.9-14.19	Quiz 6
11/6	Fluids: Bernoulli's Principle	14.20-14.28	
11/9	Oscillations: Simple Harmonic Motion	15.0-15.19	HW 9
11/11	Oscillations: Pendulum	15.20-15.31	Quiz 7
11/13	Oscillations: Damped Harmonic Motion	15.32-15.38	
11/16	**EXAM 3**	**CH 10, 11, 12, &14**	
11/18	Wave Motion: Wave Speed and Energy	16.0-16.12	
11/20	Wave Motion: Wave Equation and Standing Waves	16.13-16.23 & 18.0-18.5	
11/23	Wave Motion: Standing Waves and Superposition	18.6-18.24	HW 10
11/25	**THANKSGIVING BREAK**		
11/27	**THANKSGIVING BREAK**		
11/30	Wave Motion: Standing Waves and Superposition		HW 11
12/2	Sound: Waves. Speed, Intensity	17.0-17.7	Quiz 8
12/4	Sound: Vibrating Strings, Air Columns and Beats	17.8-17.13	
12/7	Sound: Doppler Effect	17.14-17.23	
12/9	Sound: Sonar		HW 12
12/11	Review/Catchup		Quiz 9