"*The whole of science is nothing more than a refinement of everyday thinking*."
Albert Einstein, 1936

PHYSICS 1111 – Introductory Physics: Mechanics & Waves – Fall 2021

Professor Information:

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Office Hours: TuTh 2:00 – 3:00 or by appointment

Course Information:

Description: This mechanics course is the first of a two semester introductory course in physics. Some of the topics covered will be velocity, acceleration, forces, Newton's Laws of motion, conservation laws, rotational physics, gravity, oscillations, and waves. The course also includes a required laboratory, PHYS 1111L, that is worth 15% of your course grade. You have been assigned to a laboratory section that meets for two hours, once a week. The laboratory is required and no course grade will be assigned until the lab requirement is completed. Please see the lab syllabus for much more information.

One of the goals of this course is to have students understand better the role physics plays in everyday life. Another goal of the course is to help students develop their problem solving skills. Both of these goals will be achieved by doing many "real world" example problems in class and by solving many end-of-chapter problems for homework. (You are expected to have a working knowledge of algebra and trigonometry; calculus will not be used in this course.)

Textbook/MasteringPhysics: The textbook for the course is *Physics*, Volume I, 5th edition, by James S. Walker. You must also register for *MasteringPhysics*. (Course ID = caillault44831). In addition to the textbook and *MasteringPhysics*, you will need to buy the lab manual (see the lab syllabus for more info regarding the manual). And you should also have a simple scientific calculator that permits work with scientific notation, trig functions and square roots. Programmable calculators and cell phones will not be permitted during examinations.

Homework: You will be required to complete approximately 175 homework problems online (these are end-of-chapter problems from your textbook). All of them are available only through *MasteringPhysics*. You are strongly encouraged to try to solve all of the problems on your own. Since your exams will consist almost exclusively of problems like those found in the homework assignments, the importance of the homework problems cannot be emphasized strongly enough. Also, please note that no late homework will be accepted. The homework due dates are set well in advance, so make sure you plan accordingly. Your overall homework grade will constitute 15% of your course grade.

Exams: There will be three in-class exams, each of which will be worth 15% of your course grade. There will be a cumulative Final Exam that will be worth 25% of your course grade.

Make-Up Exams: There are no make-up exams; if you do not take an exam, you get a zero. However, the grade of your final exam may be used to replace your lowest in-class exam score (in which case the final exam would be worth 40% of your final course grade).

Grades: Your overall numerical grade will be calculated as described above (i.e., the lab is worth 15%, homework is worth 15%, each of the three in-class exams is worth 15%, and the final exam is worth 25%). Your final course *letter grade* will be determined according to the scale shown below. Please note that there is no extra credit available and there are no A's for effort.

$$
\begin{array}{ll}
93 \leq & \text{A} \\
90 \leq & \text{A}- < 93 \\
87 \leq & \text{B}+ < 90 \\
83 \leq & \text{B} \ \ < 87 \\
80 \leq & \text{B}- < 83 \\
77 \leq & \text{C}+ < 80 \\
73 \leq & \text{C} \ \ < 77 \\
70 \leq & \text{C}- < 73 \\
60 \leq & \text{D} \ \ < 70 \\
 & \text{F} \ \ < 60
\end{array}
$$

Academic Honesty: The University's Academic Honesty Policy (A Culture of Honesty) is strictly adhered to. Make sure you know and understand the policy.

Classroom Policies: We want a harmonious and cooperative learning atmosphere in the classroom, so please refrain from behavior that is disturbing to other students. In particular, cellphones, iPads, iPods, and laptops need to be turned off or silenced. Texting, checking email, Facebook, etc. can be distracting to you and those sitting behind you. Devices that use a stylus are permitted for note-taking purposes. (Standard laptops will not be useful for taking notes, since diagrams, equations, and graphs will constitute a large part of the lecture material.) Other examples of disruptive behaviors include arriving late to class or leaving early; packing up books before class is over; dozing in class; noisy eating or drinking; and conducting side conversations. All of these behaviors distract other students and make it difficult for them to maintain their concentration.

Tentative Class Schedule:

Date	**Chapter**	**Topic**	**Homework Problems**
8/19	n/a	PHYS1111	n/a
8/24	1	Introduction	4, 10, 13, 16, 18, 26, 32, 38, 54, 59, 60
8/26, 31	2	1-D Kinematics	2, 10, 16, 30, 36, 40, 46, 50, 60, 70, 80, 108, 109
9/2, 7	3	Vectors	6, 14, 20, 28, 36, 37, 44, 50, 56, 84, 86
9/9	4	2-D Kinematics	2, 8, 12, 24, 32, 40, 44, 52, 88, 90
EXAM 1	**Tuesday, September 14**		**Chapters 1-4**
9/16, 21	5	Newton's Laws	4, 12, 20, 28, 30, 36, 48, 49, 68, 76, 88, 90
9/23, 28	6	Applications	4, 8, 16, 22, 26, 32, 38, 42, 48, 52, 81, 82
9/30	7	Work & KE	6, 12, 18, 26, 32, 36, 42, 48, 80, 82
10/5, 7	8	PE & Conservation of Energy	4, 6, 10, 14, 24, 26, 36, 40, 46, 48, 59, 76, 78
EXAM 2	**Tuesday, October 12**		**Chapters 5-8**
10/14, 19	9	Momentum	2, 4, 14, 22, 24, 26, 30, 32, 36, 40, 42, 50, 90, 92
10/21, 26	10	Rotational kinematics	4, 8, 14, 22, 24, 34, 40, 44, 48, 54, 58, 60, 94, 96
10/28, 11/2, 4	11	Rotational dynamics	2, 6, 10, 14, 22, 28, 36, 38, 40, 46, 48, 52, 58, 62, 66, 92, 94
EXAM 3	**Tuesday, November 9**		**Chapters 9-11**
11/11	12	Gravity	2, 8, 16, 20, 26, 30, 36, 42, 46, 56, 92, 94
11/16, 18	13	Oscillations	4, 6, 10, 12, 22, 24, 36, 46, 48, 54, 58, 60, 94, 96
11/23, 30	14	Waves & Sound	4, 8, 12, 16, 28, 48, 52, 58, 64, 72, 94, 108, 110
12/2	1-14	Review for Final Exam	
FINAL	**Thursday, December 9 (7 – 10 pm)**		**Chapters 1-14**