

Physics 1100 - Section 04

Introduction to Mechanics Spring Semester 2022

- Room/Time:* **First two weeks:** Online Zoom Lectures – MW 4:20 - 5:50pm (synchronous - recorded). All Zoom meetings at: <https://lmu.zoom.us/my/gvarieschi.spring2022>
Following weeks: MW 4:20 - 5:50pm, Seaver 101 (in person, tentatively).
Lab Sections (starting **third week**): in person T 3:00 – 4:30pm, Seaver 114-117, or online (asynchronous – independent work) if needed.
- Instructor:* Dr. Gabriele Varieschi
Office: Seaver Hall - 110
Phone: (310) 338-7632 (can leave a message)
E-mail: gvarieschi@lmu.edu (I will reply by the next day)
Office hours: TR 5:00 - 6:00pm, (Zoom office hours – <https://lmu.zoom.us/my/gvarieschi.spring2022>)
Other times available by appointment.
- Course Webpage:* <https://brightspace.lmu.edu/d2l/home/169582> (for all course materials)
Personal Webpage: <http://gvarieschi.lmu.build>
- COVID-19 info:** According to the CDC and LA County Dept. of Public Health guidelines, **masks are to be worn in this class/lab at all times**. A **seating chart** will be used, for contact tracing purpose. Please visit: <https://www.lmu.edu/together/resources/matrix/> for additional information regarding LMU policies.
- Textbook:* Ling, Moebs, and Sanny – University Physics, Vol 1 – Openstax
Free textbook available for download at:
<https://openstax.org/details/books/university-physics-volume-1>
- Objectives and Topics:* From Chapter 1 to Chapter 13 (tentatively). Physics, measurement and units. Motion in one dimension: velocity and acceleration. Vectors and components. Projectile motion and circular motion. Newton’s laws and applications. Free body diagrams. Kinetic and potential energy: conservation of energy. Linear momentum and collisions. Rotational motion and angular variables. Static equilibrium. Newton’s law of universal gravitation. Laboratory experiments pertaining to mechanics. Calculus based course for engineers and scientists.
- Prerequisite or concurrent enrollment:* *Math 131 – Calculus I.*
- Learning Outcomes:* Understand the phenomenology of mechanics. Understand the concepts of kinematics: position, velocity, acceleration and the related use of vectors. Conceptually understand the idea of force and the three fundamental laws of mechanics. Be able to solve problems of increasing complexity involving different forces and master the technique of free body diagrams. Understand the theoretical framework of conservation principles (such as conservation of energy and linear momentum). Understand more advanced applications of rotational dynamics and statics. This course serves as a prerequisite for PHYS 201.
- Tests:* There will be **three tests** during the semester. **They will all count toward your final grade, so please try not to miss any of them.** There will be **no make-up tests** given. Tests are closed-book, but you may bring in a sheet of equations.
- Test Dates:* TBA
- Final Exam:* **SECTION 04: Monday - May 2, 4:20pm**
The final exam is cumulative and is equivalent to 2 tests.

Homework: Weekly homework will be assigned and will be self-graded by students. Solutions will be discussed in class and posted online.

Laboratory: The laboratory is an integral part of this course. The experiments will complement the topics of the lectures. The laboratory will count for 15% of your final grade. **If we will be back on campus (during the third week), the labs will be in person in lab rooms with standard procedures. Otherwise, the labs will be asynchronous and you will work on them independently, using all the lab materials posted in Brightspace.** In this latter case, you will work on you own, or in a small group (no more than three students) in self-organized Zoom meetings. Lab reports will be submitted through Brightspace and graded by a TA. Missing 2 or more lab sessions will result in a failing grade for the course. See lab schedule below for more information.
DOWNLOAD LAB MATERIALS AT:
<https://brightspace.lmu.edu/d2l/home/169582>

<i>Grading:</i>	Laboratory	15 %
	Homework	10 %
	Test 1	15 %
	Test 2	15 %
	Test 3	15 %
	Final Exam	30 %

Course Grading: **0-50%=F; 50-55%=D; 55-60%=C-; 60-65%=C; 65-70%=C+; 70-75%=B-; 75-80%=B; 80-85%=B+; 85-90%=A-; 90-100%=A.**

Zoom Conduct Advisory: You are expected to attend synchronous lectures and submit work by the respective deadline, unless prohibited by location. Treat Zoom sessions as you would a regular classroom experience in terms of personal appearance and comport. Unless you are asking a question, please keep yourself muted. Minimize any visual distractions in your background if they might detract from the learning experience. Please keep your camera on so that I and others can see you, unless this creates bandwidth problems.

Academic Honesty: Academic dishonesty will be treated as an extremely serious matter with severe consequences that can range from receiving no credit for assignments/tests, failing the class, to expulsion. It is never permissible to turn in any work that has not been authored by the student, such as work that has been copied from another student or copied from a source (including Internet) without properly acknowledging the source. It is your responsibility to make sure that your work meets the standard set forth in the "[Academic Honesty Policy](#)".

Special Accomodations: Students with special needs who require reasonable modifications, special assistance, or accommodations in this course should promptly direct their request to the Disability Support Services (DSS) Office. Any student who currently has a documented disability (ADHD, Autism Spectrum Disorder, Learning, Physical, or Psychiatric) needing academic accommodations should contact the DSS Office (Daum Hall 2nd floor, 310-338-4216) as early in the semester as possible. All discussions will remain confidential. Please visit <http://www.lmu.edu/dss> for additional information.

Syllabus changes: If necessary, this syllabus and its contents are subject to revision; students are responsible for any changes or modifications announced in class.

Have a nice semester. Good luck!

Phys 1100 - Laboratory Schedule Introduction to Mechanics, Spring 2022

Lab Instructor	Section	Day	Time	Room
Dr. G. Varieschi	03	Tue	1:10 – 2:40pm	S114
Dr. G. Varieschi	04	Tue	3:00 – 4:30pm	S117 (if labs in person)

	<i>Jan 10</i>	<i>M</i>	<i>Classes begin – No lab this week</i>
	<i>Jan 17</i>	<i>M</i>	<i>University Holiday – No lab this week</i>
1.	Jan 25	T	Motion
2.	Feb 1	T	Free Fall
3.	Feb 8	T	Projectile Motion
4.	Feb 15	T	Newton's 2nd Law
5.	Feb 22	T	Newton's 2nd Law - 2 Bodies
	<i>Feb 28 – Mar 4</i>	<i>M-F</i>	<i>No Classes – Spring Break</i>
6.	Mar 8	T	Friction
	<i>Mar 15</i>	<i>T</i>	<i>No lab</i>
7.	Mar 22	T	Conservation of energy
8.	Mar 29	T	Energy – Non-conservative forces
9.	Apr 5	T	Momentum
	<i>Apr 12</i>	<i>T</i>	<i>No lab this week (Easter - Apr 13-15)</i>
10.	Apr 19	T	Rotation
	<i>May 2 – May 6</i>	<i>M-F</i>	<i>Final Examinations</i>

Lab materials are available for download at:

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