



SAINT LOUIS UNIVERSITY
MADRID

PHYS-1310-M01 PHYSICS I
Fall 2017

Class Days and Time: MWF, 12:00-12:50 p.m.

Classroom: PAH-20

Prerequisite(s): MATH-1200 College Algebra. Must enroll also in a PHYS-1320 lab section.

Credit(s): 3

Instructor: Francisco Prieto

Instructor's Email: francisco.prieto@slu.edu

Instructor's Campus Phone: 91 554 58 58, ext. 250

Office: PAH-203

Office Hours: TR, 11:00 a.m.-12:00 p.m.

Course Description:

To provide a clear and logical presentation of the basic concepts and principles of physics, and to allow the student to develop his/her analytical and problem solving skills. The course is appropriate for students majoring in biology, the health professions, and other disciplines, including environmental, earth and social sciences, and economics. The mathematical techniques used in this course include algebra, geometry, and trigonometry, but no calculus. The topics covered are: Motion in One Dimension; Vectors and Two-Dimensional Motion; Laws of Motion; Work and Energy; Momentum and Collisions; Circular Motion and the Law of Gravity; Oscillatory Motion; Fluids.

Course Goals and Student Learning Outcomes:

Physics Program Objectives

- A. Students will understand the principles of physics and apply these principles to problems of fundamental and practical interest.
- B. Students will design and conduct experiments and analyze and interpret data.
- C. Students will collaborate effectively on teams.
- D. Students will communicate effectively and professionally in oral and written formats.
- E. Students know about contemporary issues in science and technology.
- F. Students will understand the numerical formulation of scientific problems and be able to solve such problems utilizing at least one programming language or environment.

Student Learning Outcomes

Program Objectives	Student Learning Outcomes	Assessment Method
A	A.1. Describe the SI unit system and convert units. A.2. Show answers with correct scientific notation and number of significant figures. A.3. Show the homogeneity of physical equations by using dimensional analysis. A.4. Represent a vector into rectangular components. A.5. Describe and apply the kinematics equations of translational motion of a single particle in one and two dimensions.	Mid-term and Final Exam - Conceptual questions - Problems Force Concept Inventory (FCI) Test

	<p>A.6. Describe and apply the kinematic equations of rotational motion of a rigid body</p> <p>A.7. Apply Newton's laws of motion to solve problems on translational motion of a particle.</p> <p>A.8. Apply the fundamental laws of rotational motion to solve problems on rotational motion of a rigid body.</p> <p>A.9. Apply the equations of static and dynamic equilibrium of a particle and a rigid body.</p> <p>A.10. Apply the Work-Energy Theorem to the translational and rotational motion.</p> <p>A.11. Apply the Principle of Linear/Angular momentum and Linear/Angular impulse.</p> <p>A.12. Calculate the center of mass of a many-particle system.</p> <p>A.13. Apply law of conservation of momentum to solve problems on collisions.</p> <p>A.14. Solve problems on the elastic properties of materials.</p> <p>A.15. Solve problems on static fluids.</p> <p>A.16. Describe the oscillatory motion.</p> <p>A.17. Describe Simple Harmonic Motion qualitatively and quantitatively.</p> <p>A.18. Represent graphically a physical system using the free-body diagram technique.</p> <p>A.19. Identify the essential aspects of a problem, connect it to related areas of physics, formulate a strategy for solving the problem, apply appropriate techniques to arrive at a solution, test the correctness of the solution, and interpret the result.</p> <p>A.20. Show strong mathematical skills.</p>	
B	B.1. Analyze and interpret physics data represented graphically.	Mid-term and Final Exam - Conceptual questions Test of Understanding Graphs – Kinematics (TUGK)
D	D.1. Communicate clearly and effectively the solution of a problem	Mid-term and Final Exam - Problems

Saint Louis University - Madrid Campus is committed to excellent and innovative educational practices. In order to maintain quality academic offerings and to conform to relevant accreditation requirements, the Campus regularly assesses its teaching, services, and programs for evidence of student learning outcomes achievement. For this purpose anonymized representative examples of student work from all courses and programs is kept on file, such as assignments, papers, exams, portfolios, and results from student surveys, focus groups, and reflective exercises. *Thus, copies of student work for this course, including written assignments, in-class exercises, and exams may be kept on file for institutional research, assessment and accreditation purposes.* If students prefer that Saint Louis University - Madrid Campus does not keep their work on file, they need to communicate their decision in writing to the professor.

Required Texts and Materials:

Knight, Jones, Field, *College Physics: a strategic approach*, 3rd Ed., Pearson, 2017

Other References:

Serway, Faughn, *Physics*, 9th Ed., Thomson Brooks/Cole

H. Young, *College Physics*, 9th Ed., Pearson, 2012

Attendance Policy:

- **It is mandatory to attend all classes unless a reasonable excuse is given.** *Any unexcused absences in excess of 3 will result in a lowered grade and even in automatic failure in the course.*
- **Make up exams are not given.** Students who legitimately miss an exam, due to a doctor's visit or family emergency must provide written documentation of the circumstances. A letter from the university counselor is accepted. Exams that are missed illegitimately result in a score of F. Grades for these students will be based on the remaining exams. Missing more than one exam results in an F grade.
- Useful information of the course can be found in Blackboard: <https://myslu.slu.edu>

Course Requirements and Grading Rationale/System:

The grade will be obtained from the following areas:

Homework/Participation: **10 %**

Quizzes: **15 %**

First Mid-term Exam: **25 %**

Second Mid-term Exam: **25 %**

Final Exam: **25 %**

Grading Scales

100 < A < 93%,

93% < A- < 90%

90% < B+ < 87%

87% < B < 83%

83% < B- < 80%

80% < C+ < 77%

77% < C < 73%

73% < C- < 70%

70% < D < 60%

F < 60%

E-mail: Campus and course announcements will often be handled by e-mail. Students should check their "@slu.edu" e-mail regularly.

University Statement on Academic Integrity: Academic integrity is honest, truthful and responsible conduct in all academic endeavors. The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care and community service via which SLU embodies its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern.

The governing University-level Academic Integrity Policy can be accessed on the Provost's Office [website](#). Additionally, SLU-Madrid has posted its academic integrity policy online: <http://www.slu.edu/madrid/academics>. As a member of the University community, you are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions and appeals.

The professor will review these matters during the first weeks of the term. Please direct questions about any facet of academic integrity to your faculty, the chair of the department of your academic program or the Academic Dean of the Madrid Campus.

University Title IX Statement: Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you to report this to the University. If you speak with a faculty member about an incident of misconduct, that faculty member must notify SLU's Title IX deputy coordinator, Marta Maruri, whose office is located on the ground floor of Padre Rubio Hall, Avenida del Valle, 28 (mmaruri@slu.edu; 915-54-5858, ext. 213) and share the basic fact of your

experience with her. The Title IX deputy coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

If you wish to speak with a confidential source, you may contact the counselors at the SLU-Madrid's Counseling Services on the third floor of San Ignacio Hall (counselingcenter-madrid@slu.edu; 915-54-5858, ext. 230) or Sinews Multiplettherapy Institute, the off-campus provider of counseling services for SLU-Madrid (www.sinews.es; 917-00-1979). To view SLU-Madrid's sexual misconduct policy and for resources, please visit the following web address: <http://www.slu.edu/Documents/Madrid/campus-life/SLUMadridSexualMisconductPolicy.pdf>.

Students with Special Needs: In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. Students who think they might benefit from these resources can find out more about:

- Course-level support (e.g., faculty member, departmental resources, etc.) by asking your course instructor.
- University-level support (e.g., tutoring/writing services, Disability Services) by visiting the Academic Dean's Office (San Ignacio Hall) or by going to <http://www.slu.edu/madrid/learning-resources>.

Students with a documented disability who wish to request academic accommodations must contact Disability Services to discuss accommodation requests and eligibility requirements. Once successfully registered, the student also must notify the course instructor that they wish to access accommodations in the course. Please contact Disability Services at disabilityservices-madrid@slu.edu or +915 54 58 58, ext. 230 for an appointment. Confidentiality will be observed in all inquiries. Once approved, information about the student's eligibility for academic accommodations will be shared with course instructors via email from Disability Services. For more information about academic accommodations, see "Student Resources" on the SLU-Madrid webpage.

Note: Students who do not have a documented disability but who think they may have one are encouraged to contact Disability Services.

Fall 2017 Course Schedule (tentative):

Class date	Topic
Sept. 4	Course presentation
Sept. 6	Introduction.
Sept. 9	Motion in one dimension
Sept. 11	Motion in one dimension
Sept. 13	<i>Problems.</i>
Sept. 15	Vectors. Motion in two dimensions
Sept. 17	Last Day to Drop a Class Without a Grade of W and /or Add a Class, choose Audit (AU) or Satisfactory/Unsatisfactory (S/U) Options
Sept. 18	Motion in two dimensions
Sept. 20	<i>Problems</i>
Sept. 22	The laws of motion
Sept. 25	The laws of motion
Sept. 27	The laws of motion
Sept. 29	<i>Problems</i>
Oct. 2	<i>Problems</i>
Oct. 4	<i>Review</i>
Oct. 6	First Mid Term Exam
Oct. 9	Work and energy

Oct. 11	Work and energy
Oct. 13	Holiday
Oct. 16	<i>Problems</i>
Oct. 18	Momentum and collision
Oct. 20	Momentum and collision
Oct. 23	Momentum and collision
Oct. 25	<i>Problems</i>
Oct. 27	Circular Motion
Oct. 30	Circular Motion
Oct. 30	Last Day to Drop a Class and Receive the Grade of W.
Nov. 1	Holiday
Nov. 2	Spring Registration Opens!
Nov. 3	<i>Review</i>
Nov. 6	Second Mid Term Exam
Nov. 8	Rotational equilibrium
Nov. 10	Rotational equilibrium
Nov. 13	Rotational dynamics
Nov. 15	Rotational dynamics
Nov. 17	<i>Problems</i>
Nov. 20	Angular momentum
Nov. 22	<i>Problems</i>
Nov. 24	Oscillatory motion
Nov. 27	Oscillatory motion
Nov. 29	<i>Problems</i>
Dec. 1	Fluids
Dec. 4	Fluids
Dec. 6	Holiday
Dec. 8	Holiday
Dec. 11	<i>Review</i>
Dec. 13	<i>FCI Test</i>
Dec. 19	Final Exam (12:00 p.m.)

FALL 2017 FINAL EXAM SCHEDULE

	14 Dec (Th)	15 Dec (Fr)	18 Dec (Mn)	19 Dec (Tu)	20 Dec (Wd)
08:30-11:30	Mn classes that meet at 9:00 & 9:30	Mn classes that meet at 10:00	Mn classes that meet at 11:00 & 11:30	Tu classes that meet at 9:30 & 10:00	Tu classes that meet at 8:00
12:00-15:00	Tu classes that meet at 11:00	Mn classes that meet at 13:00	Tu classes that meet at 14:30	Mn classes that meet at 12:00	Tu classes that meet at 12:30
15:30-18:30	Mn classes that meet at 14:30	Tu classes that meet at 17:00 & 17:30	Mn classes that meet at 16:00	Tu classes that meet at 15:30 & 16:00	Mn classes that meet at 17:30
19:00-22:00	---	---	Mn classes that meet at 19:00	Tu classes that meet at 19:00	---