

General Physics Lab
01:750:205
Fall 2020

Instructor: Gabe Alba

Summary: Introduction to experimentation and demonstration of physical principles of mechanics, rotation, fluids, and thermodynamics through illustrative experiments.

Complementary to General Physics 1, 01:750:203. Intended primarily for students in the life sciences, science majors not requiring analytical physics 01:750:123-124, and science teaching majors.

Pre-requisites: Pre-calculus

Co-requisites: 01:750:203, any calculus course

Meeting times: One three hour lab per week, 10 labs per semester

Text: None

LMS: Canvas

Remote Instruction:

All course material and announcements will be disseminated on Canvas, with email notifications sent from there. There will also be links to the online classes conducted on the web-conferencing system (either Webex or Zoom). The classes will be taught synchronously, meaning there will be a specific meeting time, and will be led by a TA (Teaching Assistant), aided by an LA (Learning Assistant). Course material, in the form of PDF documents, Java, HTML5 or Flash simulations and short videos, will be posted on Canvas at least 24 hours before the first section of the week meets.

The lab will consist of:

- Introduction to the lab topic, associated theory and activities by the TA
- Lab partners going into Breakout Rooms, which simulate lab tables, in which they can collaborate.
- Lab activities will include using simulations and/or videos of actual laboratory activity which student will observe and analyze, formulate theories to make predictions, test these theories and refine if necessary, and draw conclusions.
- Lab reports will be written concurrently by lab partners on Google Docs. Submission of the group lab report, completed by the end of the period.
- A quiz on some weeks, lasting 15 to 20 minutes and usually at the start of the period, which will be timed and administered through Canvas; these are individual efforts and collaboration is not allowed.

Technology Requirements:

A laptop or desktop computer running Mac OS or Windows with the latest operating system, as well as a fast internet connection, is required. Chromebooks, iPads and computers running Linux may be problematic, but there are possible workarounds for those. A microphone is required. A Webcam is optional, but a smartphone camera is recommended especially for incorporating pictures of hand drawings or equations into Google Docs.

Provisional Grading Plans:

- Lab reports: 60%
- Quizzes 40%

Schedule (provisional):

Week:	Topic
Week 1	No lab
Week 2	Introduction to Experimentation
Week 3	Kinematics
Week 4	Newton's laws I
Week 5	No lab
Week 6	Newton's laws II
Week 7	Work, energy, and circular motion
Week 8	Linear momentum
Week 9	Rotational equilibrium and momentum
Week 10	no lab
Week 11	Fluids
Week 12	Thermodynamics
Week 13	Waves
Week 14	No lab

Academic Integrity:

Students are expected to maintain the highest level of academic integrity. You should be familiar with the university policy on academic integrity: <http://academicintegrity.rutgers.edu/academic-integrity-policy/> Violations will be reported and enforced according to this policy.

Use of external sources to obtain solutions to homework assignments or exams is cheating and is a violation of the University Academic Integrity policy. Cheating in the course may result in penalties ranging from a zero on an assignment to an F for the course to expulsion from the University. Posting of homework assignments, exams, recorded lectures, or other lecture materials to external sites without the permission of the instructor is a violation of copyright and constitutes a facilitation of dishonesty, which may result in the same penalties as explicit cheating.

Not only does the use of such sites violate the University's policy on Academic Integrity, using such sites interferes with your achievement of the learning you are paying tuition for. Assignments, quizzes, and exams are given not simply to assign grades, but to promote the active learning that occurs through completing assignments on your own. Getting the right answer is much less important than learning how to get the right answer. This learning is critical to your success in subsequent courses and your careers.

Student wellness Services

Student Counseling, ADAP & Psychiatric Services (CAPS) wellness for non-emergency psychological health issues services (848) 932-7884, 17 Senior Street, New Brunswick, NJ 08901

<http://health.rutgers.edu/medical-counseling-services/counseling/>

Violence Prevention & Victim Assistance (VPVA), (848) 932-1181, 3 Bartlett Street, New Brunswick, NJ 08901, <http://www.vpva.rutgers.edu/>

Office of Disability Services (848) 445-6800, Lucy Stone Hall, Suite A145, Livingston, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854, <https://ods.rutgers.edu/>

Scarlet Listeners for confidential peer counseling and referral hotline, (732) 247-5555, <http://www.scarletlisteners.com>