

LAKEHEAD UNIVERSITY

COURSE OUTLINE

INTRODUCTORY PHYSICS I: PHYSICS 1211 FALL 2019

LECTURE HOURS: M/W/F 12:30 pm - 1:30 pm ROOM BB 1075

CREDIT WEIGHT: Half Course (3-3, 0-0) CO-REQUISITE: Mathematics 1151 or 1171

This course is a prerequisite for Introductory Physics II (Physics 1212)

COURSE DESCRIPTION:

A **calculus-based course** intended for students in the physical sciences, applied sciences and mathematics which includes the study of Newtonian mechanics for particles and rigid bodies, gravitation, accompanied by related laboratory work.

COURSE OBJECTIVES:

To develop a conceptual understanding of physical principles, develop reasoning and problem-solving abilities, and relate physical principles to real-life applications.

INSTRUCTOR: Apichart Linhananta

Office: CB 4025 Phone: 343-8016

E-mail: apichart.linhananta@lakeheadu.ca

Teaching Webpage: <http://alinhana.lakeheadu.ca>

[click on **Teaching Webpage** then on **Phys1211** for on-line course material]

OFFICE HOURS: M/W/F 2:30 PM to 4:30 PM; T/TH 1:00 PM to 5:00 PM

Additional consultation time may be arranged with your instructor. Please see instructor after class or contact by phone, e-mail or by calling the Physics Department at 343-8461

LABS:

Students are required to register in one of three lab sections: F1, F2, and F3. Sections F1 and F2 will be divided into sections F1A, F1B and F2A, F2B. Some students will be reassigned to different sections. However, efforts will be made to preserve the original time slots. **The first labs will begin on Tuesday 10 September.**

SECTION	DAY	TIME	LABS
F1(A and B)	T	8:30 a.m. - 11:30 a.m.	Room CB-2010
F2(A and B)	T	2:30 p.m. - 5:30 p.m.	Room CB-2010
F3	T	7:00 p.m. - 10:00 p.m.	Room CB-2010

TEXTBOOKS (REQUIRED) :

Fundamental of Physics (11th edition, Extended), Halliday and Resnick, and Walker. **Available at the university's bookstore** (binder ready or e-book).

WileyPLUS Media Package required for **Online Assignments** and **Tutorials**.

This package is included with the purchase of the textbook.

Experimental Investigations in Introductory Physics, Lakehead University.

Available Online.

SUPPLEMENTARY MATERIALS:

A **hard-cover notebook**, with graph paper on the left-hand pages, is **required** for laboratory reports and can be obtained at the Lakehead University Alumni Bookstore.

A **scientific calculator** is required for tests and examinations.

SYLLABUS:

Kinematics of Particles (3.5 weeks) Chapter 1 to 4

Vectors, position, displacement, velocity and acceleration, uniformly accelerated motion, free-fall motion, projectile motion, relative motion, and uniform circular motion.

Particle Dynamics (4 weeks) Chapter 5 to 9

Force, mass, weight, Newton's Laws, friction, kinetic energy, work, potential energy and conservation of energy, systems of particles, linear momentum, collisions.

Rotational Kinematics and Dynamics (3.5 weeks) Chapter 10 to 12

Rotation with constant angular acceleration, linear and angular variables, kinetic energy of rotation, work, torque, angular momentum, angular momentum of a system of particles and rigid bodies, conservation of angular momentum, centre of gravity, static equilibrium.

WORKLOAD:

Assignments: 8-10 Online Assignments using WileyPlus will be assigned approximately weekly, and due one week later. Once the deadline has passed you will no longer have online access to do the assignment.

Laboratory Work: 5 experiments. Completed lab reports (or solved calculus problem sheets) must be submitted in the mail slot outside Room CB 2010 on the **Tuesday** of the following week.

Reading Assignments: At the end of each lecture you will be given reading assignments to be completed before the next lecture.

Quizzes: about 5 or 6 quizzes held at **random time**, usually at the beginning or end of a lecture, and in some case done at home during the weekend. The quizzes will be on the **reading assignment** assigned at the **previous lecture**.

Tests and Exams (tentative, i.e. may be changed)

2 tests Tentative Dates: September 27, 2019; October 30, 2019.
1 final exam TBA

To receive full marks, assignments, lab reports and tutorial exercises **MUST** be submitted/done on the **specified due dates**.

Laboratory work is an integral part of this course. Attendance is compulsory for all experiments. **A grade of at least 50% must be obtained in the lab component of the course in order to pass the course. Submission of fewer than three (3) lab reports (not including the calculus exercise) will result in a failing grade.**

Students are required to work in the lab for the **full three-hour lab period**. Only students who complete the experiment and submit a completed report may leave before the end of the lab class. **Students who do not hand in the lab report during the lab period must have their data/work signed by the TA, to be eligible to submit the lab report later.**

All tests must be written at the specified times except for the following circumstances: a) illness; b) other exceptional circumstances. If you miss labs, tests, or quizzes, please contact me as soon as possible.

EVALUATION:

Assignments	10.0%
2 Tests	30.0%
Lab	15.0%
Quiz (in-class and/or take home)	10.0%
Final Exam	35.0%
<hr/>	
Total	100%

NOTE: You will receive > 25% of your grades before the **November 8** drop date.

Accommodations: Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please visit: <http://studentaccessibility.lakeheadu.ca>