

SYLLABUS

Instructor Dr Marc de Montigny
Office CEB 254-L
E-mail montigny@phys.ualberta.ca
Telephone 492-5509
Office hours Mon 10 AM – 1 PM; Wed 1 – 4 PM, or E-mail me to make an appointment
Website <http://www.phys.ualberta.ca/~montigny/phys124.html>

Lectures Mon-Wed-Fri, 9:00 – 9:50 AM
in Tory Lecture (Turtle) TL-B-2

Course description

Algebra-based course primarily for students in life, environmental, and medical sciences. It guides the student through two distinct types of motion: motion of matter (particles) and wave motion. Vectors, forces, bodies in equilibrium, review of kinematics and basic dynamics; conservation of momentum and energy; circular motion; vibrations; elastic waves in matter; sound; wave optics; black body radiation, photons, de Broglie waves. Examples relevant in environmental, life, and medical sciences will be emphasized. *Prerequisites:* Physics 20 or equivalent, Pure Mathematics 30. If you do not have these prerequisites, you must complete an *Application for a Waiver of a Prerequisite* form, otherwise you may not receive credits for the course (See Ms. Janet Couch, CEB 248-A, to obtain a form). Physics 30 is strongly recommended. *Notes:* (1) Credit may be obtained for only one of PHYS 124, 144, or EN PH 131. (2) To proceed to PHYS 146 after taking PHYS 124, it is strongly recommended that a minimum grade of B- be achieved in PHYS 124.

Required Books

- *Physics* by James S. Walker, 3rd Edition (2007) Pearson Education ISBN 0-13-153631-1
- *PHYS 124/126 Laboratory Manual*

Both may be purchased at the Student Union Building Bookstore.

*Students are expected to read the material covered in advance of the lectures.

Course Grading

Assignments ¹	10%		
Laboratory ²	20%		
Mid-term ³	20%	Wednesday, October 24	9:00 – 9:50 AM
Final Exam ³	50%	Tuesday, December 18	9:00 – 12:00 AM

Notes:

- (1) Homework will be assigned approximately once per week. It should be submitted on the due date, either in class or in the designated drop-box. Late assignments will not be accepted for marking and will be given a grade of zero. Solutions will be posted on the course website.
- (2) All students must be registered in and attend a laboratory section. You must earn a laboratory grade of at least 50% in order to pass this course. Grading and other policies will be explained in your laboratory class, which begins the week of September 11. For more details, see <http://polaris.phys.ualberta.ca/>
- (3) You can bring a calculator and a pen or pencil to the exams, but no other materials (no PDA's, laptops, cell phones, etc.). A formula sheet will be provided. To help you with your preparation, this sheet will be posted on the course Website prior to the exam, and a new

copy will be available at the exams. Regulations about examinations are in Section 23.5 of the University Calendar.

The following grading scale will be applied at the end of the term by means of a grading curve appropriate for the class.

<u>Description</u>	<u>Letter Grade</u>	<u>Grade Point Value</u>
Excellent	A+	4.0
	A	4.0
	A-	3.7
Good	B+	3.3
	B	3.0
	B-	2.7
Satisfactory	C+	2.3
	C	2.0
	C-	1.7
Poor	D+	1.3
Minimal Pass	D	1.0
Failure	F	0.0

Academic Integrity

The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at <http://www.ualberta.ca/secretariat/appeals.htm>) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University. [UA Calendar, Section 23.4(2)c]

In fairness to other students, any cases of dishonesty will be dealt with through the appropriate university channels [see Code of Student Behaviour]. You are permitted to discuss homework with others (classmates, friends, etc.), but you must hand in your own work for marking.

Course Outline (Sections refer to Walker's Textbook)

Chapter 1	Introduction to Physics
Chapter 2	One-Dimensional Kinematics
Chapter 3	Vectors in Physics
Chapter 4	Two-Dimensional Kinematics
Chapter 5	Newton's Laws of Motion
Chapter 6	Applications of Newton's Laws
Chapter 7	Work and Kinetic Energy
Chapter 8	Potential Energy and Conservation of Energy (Sections 8.1-4)
Chapter 9	Linear Momentum and Collisions (Sections 9.1-7)
Chapter 10	Rotational Kinematics and Energy
Chapter 11	Rotational Dynamics and Static Equilibrium (Sections 11.1-3, 5-7)
Chapter 12	Gravity (Sections 12.1-2, 4-5)
Chapter 13	Oscillations about Equilibrium (Sections 13.1-6, except <i>The Physical Pendulum</i> , in Section 13.6)
Chapter 14	Waves and Sound (Sections 14.1-2, 4, 5, 7-8, except <i>Intensity Level and Decibels</i> , in Section 14.5)
Chapter 28	Physical Optics: Interference and Diffraction (Sections 28.1-2, 4, 6)
Chapter 25	Electromagnetic Waves (Section 25.3)
Chapter 30	Quantum Physics

Policy about course outlines can be found in §23.4(2) of the University Calendar.