



UNIVERSITY OF CALGARY

DEPARTMENT OF PHYSICS AND ASTRONOMY COURSE OUTLINE

1. Course: Physics 211, Mechanics

L01: MTWF 08:00-08:50 ICT102 Brandon Koger | bmkoger@ucalgary.ca | Office: W 09:00-10:30

L02: MWF 12:00-12:50 MFH162 Dr. Jo-Anne Brown | SB527 | jocat@ucalgary.ca | 220-8014 | Office: W 10:30-12:00
T 16:00-16:50 MFH 162

L03: MWF 16:00-16:50 ST140 William Archer | SB 130 | wearcher@ucalgary.ca | 220-8519 | Office: W 12:00-13:30
R 16:00-16:50 MFH 162

Course Coordinator: Dr. Marzena Kastyak-Ibrahim: SB 507 403-220-8073 phasulc@ucalgary.ca
D2L Course PHYS 211 L01-L03/ PHYS 221 L01-L02 - (Fall 2015) - Mechanics
Departmental Office: SB 605, 403-220-5385, phasugrd@ucalgary.ca

Office hours (Drop-in Hours): Wed 9:00 – 17:00, Room **ST 025**

2. **Prerequisites:** Mathematics 30-1 or Pure Mathematics 30 or Mathematics II (offered by Continuing Education). Note: Physics 30 is recommended as preparation for Physics 211.
3. **Grading:** The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Assignments (best 11 of 12)	22%
Laboratory experiments (9)	18%
Class Response Activity	2%
Pre-reading quizzes	3%
Midterm test	25% (October 23, 17:30-19:30)
Final Examination	30% (To be scheduled by the Registrar)

Students who receive a weighted mean mark <40% over the term test and the Final Examination should not expect to receive a course grade higher than “D”.

Percentage to letter grade conversion scale:

> = 95 %	A +	> = 75 %	B +	> = 60 %	C +	> = 48 %	D +
> = 85 %	A	> = 70 %	B	> = 55 %	C	> = 45 %	D
> = 80 %	A -	> = 65 %	B -	> = 50 %	C -	< 45 %	F

4. **Missed Components of Term Work:** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in Section 3.6. It is the student's responsibility to familiarize himself/herself with these regulations. See also Section E.6 of the University Calendar

Missed Laboratories

Students are NOT allowed to attend a different laboratory section than the one in which they are registered. A make-up lab session will be scheduled in the last week of classes. You can make-up **a total of two** laboratories. Priority for scheduling the make-up laboratories will be given to students who missed a laboratory for a legitimate reason. A note from a physician/counselor should be provided. Others will be allowed to do make-up laboratories as space permits. Please contact Dr. Kastyak-Ibrahim, the Undergraduate Learning Coordinator at phasulc@ucalgary.ca in order to arrange for a make-up laboratory as soon as you know that you might need one.

Missed assignments:

Please contact Dr. Kastyak-Ibrahim, the Undergraduate Learning Coordinator at phasulc@ucalgary.ca if you have a legitimate reason for missing a deadline for an assignment. Sleeping in, forgetting about the deadline etc. is NOT considered a legitimate reason.

5. Scheduled out-of-class activities:

Friday October 23, 2015, 17:30-19:30: Mid-term Test

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

6. Course Materials: *R.D. Knight, Physics for Scientists and Engineers: A Strategic Approach, 3rd Edition, Addison-Wesley.*

7. Examination Policy: Closed book exam and mid-term test with formula sheet provided; calculator allowed; Students should also read the Calendar, Section G, on Examinations.

8. Approved Mandatory and Optional Course Supplemental Fees: None

9. Other Important Information for Students:

(a) Academic Misconduct: (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under Section K. Student Misconduct to inform yourself of definitions, processes and penalties

(b) Assembly Points: In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on assembly points.

(c) Academic Accommodation Policy: Students needing an Accommodation because of a Disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available at http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf. Students needing an Accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of the Department of Physics and Astronomy, Dr. Michael Wieser, by email (mwieser@ucalgary.ca) or by phone (403.220.3641).

(c) Safewalk: Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

- (d) **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information see also <http://www.ucalgary.ca/secretariat/privacy>.
- (e) **Student Union Information:** VP Academic Phone: 220-3911 Email: suvpaca@ucalgary.ca. SU Faculty Rep. Phone: 220-3913 Email: sciencerep@su.ucalgary.ca; Student Ombudsman
- (f) **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.
- (g) **USRI:** At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference - please participate in USRI Surveys.

Fall, 2015 PHYS 211 Week-by-week Course Schedule

Week 1 Sep 8-11	No laboratories in Week 1.
1.1 Motion diagrams	Do Assignment 1 on-line by 11:59 pm Sun, Sep 13. It is an Introduction to MasteringPhysics.
1.2 The particle model	
1.3 Position and Time	
1.4 Velocity	
Week 2 Sep 14-18	Laborial 1: Units, Equipment, Motion Diagrams
1.5 Linear Acceleration	Do Assignment 2 on-line by 11:59 pm Wed, Sep 16. It is a Math Review.
1.6 Motion in One Dimension	
1.7 Solving Problems in Physics	Classroom response activity counts for marks starting Wed, Sep 16.
1.8 Units and significant figures	
2.1 Uniform motion	
2.2 Instantaneous velocity	
Week 3 Sep 21-25	Laborial 2: Measuring Motion
2.3 Finding position from velocity	Assignment 3: 11:59 pm Wed, Sep 23.
2.4 Motion with constant acceleration	
2.5 Free fall	
2.6 Motion on an inclined plane	
2.7 Instantaneous acceleration	
3.1 Vectors	Assignment 4: 11:59 pm Wed, Sep 30.
3.2 Properties of vectors	
3.3 Coordinate systems and vector components	
Week 4 Sep 28-Oct 2	
3.4 Vector algebra	Assignment 4: 11:59 pm Wed, Sep 30.
4.1 Acceleration	
4.2 Kinematics in two dimensions	
4.3 Projectile Motion	
<i>We do not cover 4.4 Relative motion</i>	
4.5 Uniform circular motion	

Week 5	Oct 5-9	Labatorial 4: Two Dimensional Motion
4.5 Uniform circular motion (cont'd)		
4.6 Velocity & acceleration in uniform circular motion		
4.7 Non-uniform circular motion		Assignment 5: 11:59 pm Wed, Oct 7.
Monday, Oct 12, is Thanksgiving Day: No Lecture.		
Week 6	Oct 13-16	NO labatorials
5.1 Force		
5.2 A short catalog of forces		Assignment 6: 11:59 pm Wed, Oct 14.
5.3 Identifying forces		
5.4 What do forces do? A virtual experiment		
5.5 Newton's Second Law		
5.6 Newton's First Law		
5.7 Free-Body Diagrams		
6.1 Equilibrium		
6.2 Using Newton's Second Law		
Week 7	Oct 19-23	Labs: Open Tutorial for Midterm Preparation
6.3 Mass, weight, and Gravity		
6.4 Friction; 6.5 Drag		Assignment 7: 11:59 pm Wed, Oct 21.
6.6 More examples of Newton's 2nd Law		
7.1 Interacting Objects		
7.2 Analyzing Interacting Objects		
**IMPORTANT: Term Test 1 on evening of Friday, Oct 23		
Week 8	Oct 26-30	Labatorial 5: Statics
7.3 Newton's Third Law		
7.4 Ropes and pulleys		
7.5 Examples of interacting-object problems		
8.1 Dynamics in two dimensions		Assignment 8: 11:59 pm Wed, Oct 28.
8.2 Uniform circular motion		
8.3 Circular orbits		
Week 9	Nov 2-6	Labatorial 6: Newton's 2nd Law
8.4 "Why does Water Stay in the Bucket" subsection only		
8.5 Nonuniform circular motion		Assignment 9: 11:59 pm Wed, Nov 4.
9.1 Momentum and Impulse		
9.2 Solving impulse and momentum problems		
9.3 Conservation of momentum		
Week 10	Nov 9-10	NO labatorials
9.4 Inelastic collisions		No Assignment
9.5 Explosions		
Nov 11-15 are Reading Days. No lectures Nov 11-13.		
Week 11	Nov 16-20	Labatorial 7: Newton's 3rd law
9.6 Momentum in Two Dimensions		
10.1-2 Kinetic & gravitational potential energy		
10.3 A closer look at gravitational PE		Assignment 10: 11:59 pm Wed, Nov 18.
10.4 Restoring forces and Hooke's Law		

Week 12 Nov 23-27	Labatorial 8: Collisions
10.5 Elastic potential energy	Assignment 11: 11:59 pm Wed, Nov 25.
10.6 Elastic collisions	
10.7 Energy diagrams	
11.1 The basic energy model	
11.2 Work and kinetic energy	
11.3 Calculating and using work	
11.4 The work done by a variable force	
11.5 Force, work, and potential energy	We do not cover 11:6 Finding force from PE
Week 13 Nov 30-Dec 4	Labatorial 9: Conservation of Energy
11.7 Thermal energy	Assignment 12: 11:59 pm Wed, Dec 2.
11.8 Conservation of energy	
11.9 Power; 12.5 Torque	
Week 14 Dec 7-8	Make up labatorials
12.8 Static equilibrium	
Lectures end Tuesday, December 8.	

Department Approval _____ Date _____