UNIVERSITY OF CALGARY

DEPARTMENT OF PHYSICS AND ASTRONOMY
COURSE OUTLINE

1. **Course:** Physics 211, Mechanics

L01: MTWF 08:00-08:50 ENA201 Dr. Andrew Yau|SB623 |yau@ucalgary.ca| 403-220-8825

L02: MWF 12:00-12:50 ENA201 Dr. Sean Stotyn|SA101C|sean.stotyn@ucalgary.ca| 403-210-7594
T 16:00-16:50 ENA201

L03: MWFR 16:00-16:50 ENA201 Adam Mayer| SB130|ajmayer@ucalgary.ca

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 2016) - Mechanics
Departmental Office: SB 605, 403-220-5385, phasugrd@ucalgary.ca

Office hours (Drop-in Hours): Tue 10:00 am – 2:00 pm, Room ST 025

1. **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.

2. **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)	15%
Laboratory experiments (9)	15%
Activities	5 %
In-class quizzes	15%
Midterm test	15% (October 25, 19:00-21:00)
Final Examination	35% (To be scheduled by the Registrar)

A student's final letter grade will be determined using the percentage to letter grade conversion scale below unless that student falls within the following exception: if the student's overall course grade is greater than 50%, but the student receives less than 50% weighted average on the quizzes, midterm and final examination, the student will receive a D in the course.
Percentage to letter grade conversion scale:

> = 92 %	A +	> = 75 %	B +	> = 60 %	C +	> = 48 %	D +
> = 85 %	A	> = 70 %	B	> = 55 %	C	> = 45 %	D
> = 80 %	A -	> = 65 %	B -	> = 50 %	C -	< 45 %	F

3. **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 midterm

Students who miss the midterm because of ill health, or for other valid reasons, will most often be granted an excused absence by the Course Coordinator provided that alleged problems are supported in writing by a person in a position of authority (physician, counselor, etc.). In the case of a missed exam due to illness, students must fill in the form Missed Midterm (Excel file, should be saved as an Excel file) posted on D2L (Folder: Missed term work) and email it to Dr. Kastyak-Ibrahim along with the note preferably the day of the exam, but no later than 11:59 pm the day after the exam. Once the claim of illness is substantiated, **the weight of the midterm will be shifted to the final exam.**

Missed Labatorials

Students are NOT allowed to attend a different labatorial 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** labatorials. Priority for scheduling a make-up lab will be given to students who missed a lab for a legitimate reason. A note from a physician/counsellor should be provided. Please fill in the form Make-up lab request (Excel file, should be saved as an Excel file) posted on D2L (Folder: Missed term work) and email it to Dr. Kastyak-Ibrahim, the Undergraduate Learning Coordinator at **phasulc@ucalgary.ca** in order to arrange for a make-up labatorial as soon as you know that you might need one. Requests submitted more than 7 days after the date of the missed lab will not be considered.

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.

Missed in class quizzes:

There are no make-ups for in class quizzes. If you have a legitimate reason for missing in-class quiz, please fill in the form Missed Quiz (Excel file, should be saved as an Excel file) posted on D2L (Folder: Missed term work) and email it to Dr. Kastyak-Ibrahim along with the note the day of the quiz, at the latest. Once the claim is substantiated, the weight of the quiz will be shifted to the midterm (Quiz 1) or the final exam (Quiz 2). Sleeping in, missing the bus etc. is NOT considered a legitimate reason.

5. Scheduled out-of-class activities:

Tuesday October 25, 2016, 19:00-21:00: 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 the Course Coordinator as soon as possible so that alternative arrangements may be made for you. Students are expected to make every effort to attend the midterm exam. If you have a legitimate conflict, you must inform the course coordinator **at least 2 weeks prior** to the exam dates so that alternative arrangements may be made.

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. 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. David Feder, by email (dfeder@ucalgary.ca) or by phone (403. 220.3638).

(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@ucagary.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.

(h) STUDENT ADVOCACY INFORMATION: Website: http://www.su.ucalgary.ca. Student Ombudsman: http://www.ucalgary.ca/provost/students/ombuds

(i) LABATORIALS

Labatorials begin Monday, Sep 19, 2016. They take place in ST 030 and 032, and students will have been assigned to a particular room, on a particular day of the week, by the Registrar's Office when enrolling in Physics 211/221. In general, the format of the laboratorials is as follows: Working in groups, students make their way through a carefully written workbook crafted to help students ponder, discuss, and learn concepts being covered in their lectures. TAs offer assistance and guidance, and check student understanding periodically throughout the session. Laboratorials typically involve a class demonstration, computer simulations, or some apparatus, and the tasks presented to students vary accordingly.

The Laboratorials workbook documents will be available on D2L. Students are to print out their own copies and take them to their Laboratorials section to do their work.
It is the student's responsibility to ensure their Laboratorials marks as posted on D2L are correct. A student's Laboratorials mark will not be revised in the D2L gradebook if a period of more than 15 days has passed since the student performed the Laboratorial.

Physics 211/221 Labatorial Schedule – Fall 2016

Week	Dates	Labatorial
1	Sep 12-16	NO LABATORIALS
2	Sep 19-23	Labatorial 1 Units, Equipment, Motion Diagrams
3	Sep 26-30	Labatorial 2 Measuring Motion
4	Oct 3-7	Labatorial 3 Inclined Plane
Oct 10 Thanksgiving Day. No lectures. University is closed		
5	Oct 10-14	NO LABATORIALS
6	Oct 17-21	Labatorial 4 Two Dimensional Motion
*** Midterm Exam – Tuesday October 25th 7-9 pm***		
7	Oct 24-28	Drop-in sessions Mon-Tue
8	Oct 31- Nov 4	Labatorial 5 Statics
9	Nov 7-11	NO LABATORIALS
Nov 10-13 are Reading Days. No lectures on Nov 10. Nov 11th is Remembrance Day – University is closed		
10	Nov 14-18	Labatorial 6 Newton's 2nd Law
11	Nov 21-25	Labatorial 7 Newton's 3rd law
12	Nov 28 -Dec 2	Labatorial 8 Collisions
13	Dec 5 - 9	Labatorial 9 Conservation of Energy
Dec 9 Make-up labatorials		

(j) MASTERING PHYSICS On-line ASSIGNMENTS

Mastering Physics assignments are due by 23:59 on Wednesday nights. The introduction assignment is due on Monday Sep 19, and the first course-related assignment is due Wednesday, September 21st, 2016. Please see detailed schedule of the assignments below.

** All students must sign-up to access Mastering Physics **

If you have a MasteringPhysics account, **Sign In** at http://www.masteringphysics.com and enter your Username and Password. If you cannot remember your username or your password, click Forgot your username or password? and enter the email address you used to register for MasteringPhysics. Your login name and password will be sent to your email.

If you have purchased the new print package with MasteringPhysics or if you bought digital access (with or without the etext) from the bookstore. You will get a MasteringPhysics Student Access Code. To register your code:

- Go to http://www.pearsoncustom.com/can/ucphys and click **Students** under **Register**.
  IMPORTANT – do not go to www.masteringphysics.com to register your access code.

- Under **Did you receive a Course ID from your instructor?** Click **Yes** and enter MPKASTYAKIBRAHIM08079
- Select **Yes, I have an Access Code** Click **Next**.
- **License Agreement and Privacy Policy:** Click **I Accept** to indicate that you have read and agree to the license agreement and privacy policy.
- Select the appropriate option under **Do you have a Pearson Education account**? Continue to give the requested information until you complete the process. The **Confirmation & Summary** page confirms your registration. Information will also be emailed to you for your records.
- Once you have registered at http://www.pearsoncustom.com/can/ucphys you can now login at www.MasteringPhysics.com.
  If you choose to just access the MasteringPhysics assignments without purchasing access to the study material please email Pearson at ucphysics.mastering@gmail.com to get an access code and registration instructions. You will be able to access only the assignments.

Physics 211/221 Assignment Schedule – Fall 2016

Week	Dates	Assignment	Available	Due Date
1	Sep 12-16	Assignment 0	Monday, September 12, 2016	Monday, September 19, 2016
2	Sep 19-23	Assignment 1	Wednesday, September 14, 2016	Wednesday, September 21, 2016
3	Sep 26-30	Assignment 2	Wednesday, September 21, 2016	Wednesday, September 28, 2016
4	Oct 3-7	Assignment 3	Wednesday, September 28, 2016	Wednesday, October 05, 2016
Oct 10 Thanksgiving Day. No lectures. University is closed				
5	Oct 10-14	Assignment 4	Wednesday, October 05, 2016	Wednesday, October 12, 2016
6	Oct 17-21	Assignment 5	Wednesday, October 12, 2016	Wednesday, October 19, 2016
*** Midterm Exam – Tuesday October 25th 7-9 pm***				
7	Oct 24-28	Assignment 6	Wednesday, October 19, 2016	Wednesday, October 26, 2016
8	Oct 31- Nov 4	Assignment 7	Wednesday, October 26, 2016	Wednesday, November 02, 2016
9	Nov 7-11	Assignment 8	Wednesday, November 02, 2016	Wednesday, November 09, 2016
Nov 11th is Remembrance Day – University is closed				
10	Nov 14-18	Assignment 9	Wednesday, November 09, 2016	Wednesday, November 16, 2016
11	Nov 21-25	Assignment 10	Wednesday, November 16, 2016	Wednesday, November 23, 2016
12	Nov 28 -Dec 2	Assignment 11	Wednesday, November 23, 2016	Wednesday, November 30, 2016
13	Dec 5 - 9	Assignment 12	Wednesday, November 30, 2016	Wednesday, December 07, 2016

(k) TopHat

As a vehicle to encourage class participation and student interaction as well as providing instructors with rapid, in-class feedback, the TopHat Monocle System will be employed. A demonstration of this system could happen in your lecture section in the first week of classes.

Each lecture section will have its own TopHat course name which will be given to you by your instructor.

The type and number of response questions you will encounter over the semester is at the sole discretion of your instructor. If students make any attempt to answer a question they get 1 mark, and if they get the answer correct they get 1 more mark. Such questions are worth 2 marks. Some of the questions asked will not have a specific correct answer and are worth 1 mark.

Physics 211/221 Lecture Schedule – Fall 2016

Week	Dates	Topics	Labatorial	Assignment
1	Sep 12-16	1.1 Motion diagrams 1.2 The particle model 1.3 Position and Time 1.4 Velocity 1.5 Linear Acceleration	NO LABATORIALS	Assignment 0
2	Sep 19-23	1.6 Motion in One Dimension 1.7 Solving Problems in Physics 1.8 Units and significant figures 2.1 Uniform motion 2.2 Instantaneous velocity 2.3 Finding position from velocity 2.4 Motion with constant acceleration 2.5 Free fall	Labatorial 1	Assignment 1
3	Sep 26-30	2.6 Motion on an inclined plane 2.7 Instantaneous acceleration 3.1 Vectors 3.2 Properties of vectors 3.3 Coordinate systems and vector components 3.4 Vector algebra 4.1 Acceleration	Labatorial 2	Assignment 2
*** In-class Quiz 1 – Wednesday October 5th ***				
4	Oct 3-7	4.2 Kinematics in two dimensions 4.3 Projectile Motion We do not cover 4:4 Relative motion 4.5 Uniform circular motion	Labatorial 3	Assignment 3
Oct 10 Thanksgiving Day. No lectures. University is closed				
5	Oct 10-14	4.6 Velocity & acceleration in uniform circular motion 4.7 Non-uniform circular motion 5.1 Force 5.2 A short catalog of forces 5.3 Identifying forces 5.4 What do forces do? A virtual experiment	NO LABATORIALS	Assignment 4

Week	Dates	Topics	Labatorial	Assignment
6	Oct 17-21	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 6.3 Mass, weight, and Gravity 6.4 Friction; 6.5 Drag 6.6 More examples of Newton's 2nd Law	Labatorial 4	Assignment 5
*** Midterm Exam – Tuesday October 25th 7-9 pm***				
7	Oct 24-28	7.1 Interacting Objects 7.2 Analyzing Interacting Objects 7.3 Newton's Third Law 7.4 Ropes and pulleys 7.5 Examples of interacting-object problems	Drop-in sessions	Assignment 6
8	Oct 31-Nov 4	8.1 Dynamics in two dimensions 8.2 Uniform circular motion 8.3 Circular orbits 8.4 "Why does Water Stay in the Bucket" subsection only 8.5 Nonuniform circular motion	Labatorial 5	Assignment 7
9	Nov 7-9	9.1 Momentum and Impulse 9.2 Solving impulse and momentum problems 9.3 Conservation of momentum	NO LABATORIALS	Assignment 8
Nov 10-13 are Reading Days. No lectures on Nov 10. Nov 11th is Remembrance Day – University is closed				
*** In-class Quiz – Wednesday November 16th ***				
10	Nov 14-18	9.4 Inelastic collisions 9.5 Explosions 9.6 Momentum in Two Dimensions 10.1-2 Kinetic & gravitational potential energy	Labatorial 6	Assignment 9
11	Nov 21-25	10.3 A closer look at gravitational PE 10.4 Restoring forces and Hooke's Law 10.5 Elastic potential energy 10.6 Elastic collisions 10.7 Energy diagrams	Labatorial 7	Assignment 10

Week	Dates	Topics	Labatorial	Assignment
12	Nov 28 - Dec 2	11.1 The basic energy model	Labatorial 8	Assignment 11
		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		
13	Dec 5 - 9	11.7 Thermal energy	Labatorial 9	Assignment 12
		11.8 Conservation of energy		
		11.9 Power		
		12.5 Torque		
		12.8 Static equilibrium		

Department Approval_____Date_____

Associate Dean Approval_____Date_____