



DEPARTMENT OF PHYSICS AND ASTRONOMY
COURSE OUTLINE

1. **Course:** Physics 223, Thermodynamics, Electricity & Magnetism– Winter 2015

L01: MWF 8:00 - 8:50 : ICT 102 Dr. Sean Stotyn | SA101C | sean.stotyn@ucalgary.ca | Phone: 403-210-7594

L02: MWF : 12:00 – 12:50 : ENA 201 Dr. Anna Harlick | SB533 | anna.harlick@ucalgary.ca | Phone: 403-220-8648

L03: TR 12:30 - 13:45 : ICT 102 Dr. Anna Harlick | SB533 | anna.harlick@ucalgary.ca | Phone: 403-220-8648

L04: MWF : 16:00 – 16:50 : ICT 102 Dr. Michael Wieser | SB131 | mwieser@ucalgary.ca | Phone: 403-220-3641

Course Coordinator: Dr. Marzena Kastyak-Ibrahim | SB 507 | marzena.kastyakibrah@ucalgary.ca | 403-220-8073

D2L Course PHYS 223 L01-L04 - (Winter 2017) - Thermodynamics, Electricity & Magnetism

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

Office Hours: Each Instructor will make their office time known via D2L or in lecture.

Main Physics Office: SB 605, 220-5385; [Dept. of Physics and Astronomy](#)

MasteringPhysics Course ID – PHYSICS223WINTER2017

2. **Prerequisites:** Physics 211 or 221 or 227.

Note: The Faculty of Science policy on pre- and co-requisite checking is outlined in the UofC Calendar. A student may not register in a course unless a grade at least "C-" has been obtained in each pre-requisite course; it is the responsibility of students to ensure that their registrations are in order. See <http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html> for details.

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: 15%
 Labatorials: 15%
 Activities: 10 %
 In-class quiz: 10%
 Midterm Exam: 20%
 Final Exam: 30%

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:

>= 95 %	A +	>= 80 %	B +	>= 65 %	C +	>= 50 %	D +
>= 90 %	A	>= 75 %	B	>= 60 %	C	>= 45%	D
>= 85%	A -	>= 70 %	B -	>= 55 %	C -	< 45 %	F

As your term work items (labs, assignments and exams) accumulate, the marks for students in Phys223 will be posted on D2L. The marks that appear on this website are the marks that will be used to determine each student's overall course grade. Check your marks frequently. **Missing or incorrectly posted term work marks should be reported to your Instructor as soon as they are noticed.** You should be prepared to produce the original work to verify the requested correction.

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 at; <http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html>

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 one laboratory. 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/counselor 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 marzena.kastyakibrah@ucalgary.ca in order to arrange for a make-up laboratory 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 marzena.kastyakibrah@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 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.**

Scheduled out-of-class activities:

Midterm Exam will be held on **Tuesday Feb 28th, from 19:00 – 21:00 (updated time)**

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. If the course coordinator will not be notified on time, the only possible accommodation will be shifting the weight of the midterm to the final exam.

5. **Course Materials:** *R.D. Knight, Physics for Scientists and Engineers: A Strategic Approach, 3rd Edition, Addison-Wesley.*
6. **Examination Policy:** Closed book exam and mid-term test with formula sheet provided. Rules pertaining to the use of calculators, and other devices, during exams will be discussed in lecture. Students should also read the Calendar, Section G, on Examinations: <http://www.ucalgary.ca/pubs/calendar/current/g.html>.
7. **Approved Mandatory and Optional Course Supplemental Fees:** None
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).

(d) 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.

(e) 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>.

(f) 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

(g) 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.

(h) 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.

(i) STUDENT ADVOCACY INFORMATION:

Website: <http://www.su.ucalgary.ca>. Student Ombudsman: <http://www.ucalgary.ca/provost/students/ombuds>

(j) LABORATORIALS

Laboratorials begin Monday, Jan. 23th, 2017. Laboratorials take place in ST 030 / 032 / 034, 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 223.

Physics 223 Laboratorial Schedule – Winter 2017

Week	Dates	Labatorial
1	Jan 9-13	NO LABORATORIALS
2	Jan 16-20	NO LABORATORIALS
3	Jan 23-27	Labatorial 1 Electric Charges and Forces
4	Jan 30- Feb 3	Labatorial 2 Electric Fields
5	Feb 6-10	Labatorial 3 Equipotential Lines
6	Feb 13-17	Labatorial 4 Electric Circuits
Feb 19-26 Reading Break. No lectures. University open.		
7	Feb 27-Mar 3	NO LABORATORIALS
*** Midterm Exam – Tuesday Feb 28th ***		
8	Mar 6-10	NO LABORATORIALS
9	Mar 13-17	Labatorial 5 Magnetic Field in a Slinky
10	Mar 20-24	Labatorial 6 Ideal Gas Law
11	Mar 27-31	Labatorial 7 First Law of Thermodynamics
12	Apr 3-7	Labatorial 8 Temperature at Microscopic Level
13	Apr 10-12	Make-up labatorials/ Drop-in sessions

In general, the format of the Laboratories 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. Laboratories typically involve a class demonstration, computer simulations, or some apparatus, and the tasks presented to students vary accordingly.

The Laboratories workbook documents will be available on D2L. Students are to print out their own copies and take them to their LT section to do their work.

It is the student's responsibility to ensure their Laboratories marks as posted on D2L are correct. A student's Laboratories mark will not be revised in the D2L gradebook if more than 15 days has passed since the student performed the Laboratory.

(k) MASTERING PHYSICS On-line ASSIGNMENTS

Mastering Physics assignments are due by 23:59 on Wednesday nights. The first graded assignment is due Wednesday, January 18th, 2017. A practice, not for credit, MP assignment will be made available for students to attempt (Assignment 0). Please see detailed schedule of the assignments below.

Physics 223 Assignment Schedule – Winter 2017

Week	Dates	Assignments	Available	Due Date
1	Jan 9-13	Assignment 0 - Intro to MP	Monday, January 09, 2017	Monday, January 16, 2017
2	Jan 16-20	Assignment 1	Wednesday, January 11, 2017	Wednesday, January 18, 2017
3	Jan 23-27	Assignment 2	Wednesday, January 18, 2017	Wednesday, January 25, 2017
4	Jan 30- Feb 3	Assignment 3	Wednesday, January 25, 2017	Wednesday, February 01, 2017
5	Feb 6-10	Assignment 4	Wednesday, February 01, 2017	Wednesday, February 08, 2017
6	Feb 13-17	Assignment 5	Wednesday, February 08, 2017	Wednesday, February 15, 2017
Feb 15-19 Reading Break. No lectures. University open.				
7	Feb 27-Mar 3	None	-	-
*** Midterm Exam – Tuesday Feb 28th ***				
8	Mar 6-10	Assignment 6	Wednesday, March 01, 2017	Wednesday, March 08, 2017
9	Mar 13-17	Assignment 7	Wednesday, March 08, 2017	Wednesday, March 15, 2017
10	Mar 20-24	Assignment 8	Wednesday, March 15, 2017	Wednesday, March 22, 2017
11	Mar 27-31	Assignment 9	Wednesday, March 22, 2017	Wednesday, March 29, 2017
12	Apr 3-7	Assignment 10	Wednesday, March 29, 2017	Wednesday, April 05, 2017
13	Apr 10-12	Assignment 11	Wednesday, April 05, 2017	Wednesday, April 12, 2017

** As was the case in Phys211/221, 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 package with MasteringPhysics in the bookstore:

- Go to www.pearsoncustom.com/can/ucphys and click Register Here under Register / Purchase Access. and click **Students** under **Register**.
- 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. This information will also be emailed to you for your records. You can either click **Log In Now** or return to www.masteringphysics.com later.
 - Select the appropriate option under “Do you have a Pearson Education account?” (**Note:** if you have used a Pearson MyLab/Mastering at U of C you will have an account). If **No**, create a username/pass word. If **Yes**, Sign In with your username/password. Can’t remember? Click [Forgot your username or password?](#) Enter your **Access Code**, click **Next** and complete the registration information.

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 access only the assignments.

Once you have registered in MasteringPhysics, **Join a Course** by entering the MasteringPhysics Course ID – **PHYSICS223WINTER2017**

(I) ACTIVITIES

In order to help students to better understand and learn course material there will be additional activities. Participation will earn students 10% toward their overall course grade.

- Pre-reading quizzes (due every Sunday). Quizzes will be available on Thursday on D2L (Assessments/ Quizzes)
- In class group activities and problem solving

As a vehicle to encourage class participation and student interaction as well as providing instructors with rapid, in-class feedback, the TopHat system will be employed. This is the same response system used in the Fall 2016 semester for Physics 211/221. A demonstration of this system could happen in your lecture section in the first week of classes.

Each lecture section will have two TopHat course names which will be given to you by your instructor. One will be used for group activities, the other one for questions encouraging participation.

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. For group activities questions asked will have a specific correct answer and only the mark for correct answer will be assigned.

Physics 223 Lecture Schedule – Winter 2017

Week	Dates	Topics	Textbook readings	Labatorial
1	Jan 9-13	Coulomb's law. Electric field of a point charge, distributions of point charges, continuous distributions.	25.4, 25.5, 26.1 – 26.4	NO LABATORIALS
2	Jan 16-20	Parallel plate capacitors. Motion of charged particles in E fields. Electric potential energy of point charges.	26.5, 26.6 28.1, 28.2	NO LABATORIALS
3	Jan 23-27	Electric Potential. V in a capacitor. V due to point charges. The connection between E and V.	28.4-28.7, 29.1-29.3	Electric Charges
In-class quiz Feb 1st and Feb 2nd, 2017				
4	Jan 30- Feb 3	E fields of charged conductors. Capacitance and Capacitors Resistance and Ohm's law.	29.4 - 29.6, 30.5	Electric Fields
5	Feb 6-10	DC circuits.	31.1–31.8	Electric Potential
6	Feb 13-17	Introduction to magnetism. Currents and magnetic fields.	32.1 - 32.5	Circuits
Feb 19-26 Reading Break. No lectures. University open.				
7	Feb 27-Mar 3	Induced current. Motional emf. Magnetic flux. Lenz's Law.	32.7 - 32.9	NO LABATORIALS
*** Midterm Exam – Tuesday Feb 28th ***				
8	Mar 6-10	Lorenz force. Cyclotron motion. Hall Effect. Magnetic forces on straight wires and current loops.	33.1 - 33.4	NO LABATORIALS
9	Mar 13-17	Concepts of Pressure. Gauge Pressure. Thermodynamic state variables. Temperature. Phase changes.	15.1 – 15.3	Solenoid Fields
10	Mar 20-24	Ideal gases. Ideal gas processes. pV diagrams. Work in ideal gas processes. Heat.	16.5 – 16.6	Ideal gas
11	Mar 27-31	First Law of thermodynamics. Thermal properties of matter. Calorimetry. Specific heats of gases.	17.1 - 17.7	First Law
12	Apr 3-7	Gas particle collisions and resulting temperature and pressure.	18.1 – 18.3	Temperature
13	Apr 10-12	Thermal energy and Specific Heat. Heat-Transfer Mechanisms.	18.4, 17.8	Make-up labatorials

Department Approval _____ Date _____