

UNIVERSITY OF CALGARY
DEPARTMENT OF PHYSICS AND ASTRONOMY
COURSE INFORMATION SHEET

Course: Physics 223, Thermodynamics, Electricity & Magnetism– Winter 2009

Instructors:

Dr. Jason Donev

L01 : MWF 8:00 - 8:50 : SB 103
Office: SB 149, 210-6343

Dr. John Chik

L02 : MWF : 12:00 – 12:50 : ST 148
Office: SB 642, 220-8769

Dr. Phil Langill

L03 : TR 12:30 - 13:45 : ST 148
Office: SB 507, 220-5402

Dr. Daria Ahrensmeier

L04 : TR : 9:30 – 10:45 : ST 148
Office: SB 533, 220-6909

Office Hours: Each Instructor will make known their availability

Main Physics Office: SB 605, 220-5385 **Course Websites:** blackboard.ucalgary.ca phas.ucalgary.ca/phys223

Prerequisites: Physics 211 or 221 or 227.

Note: The Faculty of Science policy on pre- and co-requisite checking is outlined on page 213, columns 2 and 3 of the 2008-2009 Calendar. A student may not register in a course unless a grade of 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 ucalgary.ca/pubs/calendar/2008/what/fac/SC/ for details. The University policy on grading and related matters is also found in the UofC Calendar, which can be found online at; ucalgary.ca/pubs/calendar/2008/how/index.htm

Grading: In determining the overall grade in the course the following weights will be used;

Mastering Physics Assign'ts (10): 10%	Lab Experiments (6): 18%	Tutorial Assignments (7): 21%
Midterm Exams (2): 30%	Final Exam: 21%	

NOTE: Students who attain an overall average exam grade of less than 40%, where the two midterms and the final are weighted as stated above (15:15:21), should not expect to receive an overall course letter grade above a D.

Missed Components of Term Work: The regulations of the Faculty of Science pertaining to this matter are outlined on page 214, column 1, of the 2008 - 2009 UofC Calendar. It is each student's responsibility to familiarize themselves of these regulations. See additional info on page 4, and read ucalgary.ca/pubs/calendar/2008/what/fac/SC/.

Out-of-class-time activities: Dates and times of class activities held outside of class hours:

Midterm Exams will be held on Friday February 13th, and Friday March 20th from 17:30 – 19:30.

Students are expected to make every effort to attend these exams. 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 for you.

TEXTBOOK: *"Physics for Scientists and Engineers" 2nd Ed.*, R. Knight, Pearson-Addison-Wesley 2008.

IMPORTANT/SAFEWALK: Campus Security will escort individuals day or night. Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

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. For more details, please carefully read the sections of the University Calendar under the heading "Student Misconduct (pages 53-56 for 2008-2009). ucalgary.ca/pubs/calendar/2008/how/How_M.htm

FOIPP: This course will be 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.

STUDENT UNION INFORMATION: VP Academic **Phone:** 220- 3911 **Email:** suypaca@ucalgary.ca
SU Faculty Rep. **Phone:** 220 3913 **Email:** sciencerep@su.ucalgary.ca

LABORATORY WORK

Labs begin Monday, Jan. 19, 2009. Labs take place in ST 030 / 032 / 034. This table shows the general lab schedule:

Week Beginning:	Lab topic
Jan. 19 th	Constant Volume Gas Thermometer
Jan. 26 th	Newton's Law of Cooling
Feb. 16 th	Reading Week - No Labs
March 9 th	E Field Mapping
March 23 rd	Electrical Equivalent of Heat
March 30 th	Kirchhoff's Laws
April 6 th	Current Balance (Rm 034 only)
April 13 th	Current Balance (Rms 030 and 032)

Lab Manual Sales: Lab Manuals are on sale **Jan. 12 - 16**, from 10:00 am - 3:00 pm in **ST 039**.

Laboratory reports are due: at the end of each lab period. Talk to your lab TA for details.

If your lab section is on Fridays: beware that Friday April 10th is Good Friday.

** You will have to do your Lab (or your tutorial!) in another TA's section earlier in the week. **

ASSIGNMENTS and TUTORIALS

Tutorials: You will find that most of the lecture time will be taken up covering theoretical concepts. Unfortunately, in order for those concepts to have any chance of reaching your psyche and become a part of your greater understanding of these topics, you must attempt as many relevant problems as possible (read: put pencil to paper).

Tutorial sessions are a great opportunity for students to reinforce their physics problem solving skills, and test their understanding of the concepts relevant to this course. Tutorial problem sets will be distributed to students via BlackBoard in enough time for students to attempt them before coming to the tutorial. During your tutorial session your lab TA will be available for guidance and discussion. Problem sets are to be handed in to your TA at the end of the tutorial. Your TA will mark a subset of the entire problem set.

Tutorial problem set solutions must be easily legible. Your TA has the right to refuse to mark your work if it is not written clearly. This includes aspects such as handwriting, logical structure, and figures or diagrams. Neatness counts! State the laws of physics being applied where appropriate. Briefly justify important steps in your solution. Missing steps or disjointed reasoning will probably lead to a deduction in marks. It is generally best to write equations in symbols first and perform derivations using symbols. Number equations and refer to them by number. Substitute in numerical values at the very end. Underline final answers for clarity. Numerical final answers must contain correct units.

Follow these guidelines or risk losing marks!

Tutorial sessions and lab experiments do not alternate sequentially: In this course, the material and concepts associated with a given lab might not be synchronized with the material and concepts presented in lectures. The lab manual provides the necessary background theory of each lab, and each experiment is written and designed so that labs can be performed in an understandable and efficient manner, as stand-alone entities. On the other hand, the tutorials and their associated problem sets (and the weekly online MP assignments) will be synchronized closely with the material being covered in lecture. The course master schedule, and associated textbook sections, is given in the table below.

Online Mastering Physics assignments are due by 23:30 on the Sunday night of the week they are assigned (the first is due Sunday, January 25th, 2009). There will be no MP assignments assigned the weeks where there is a midterm exam. There are 10 MP assignments in total.

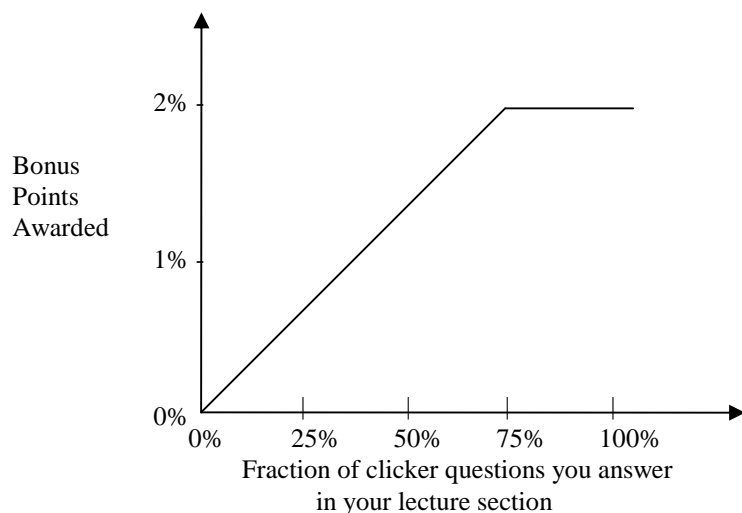
A Student Access Kit is packaged with the textbook, or it can be bought separately in the University Bookstore. Students are responsible for getting registered through the textbook's website.

Our MP course name is **UOFCPHYS223W09**

eInstruction Clickers

As a vehicle to encourage class participation and student interaction as well as providing instructors with rapid, in-class feedback, the Classroom Performance System (CPS) will be employed. Students who do not have a 'clicker' are strongly encouraged to get one from the UofC Bookstore. The set-up procedure is to go to the CPS website to register for the course and activate your clicker. Go to www.einstruction.com and click on STUDENTS at the top. There is a huge drop-down list of institutions on the CPS system, and you first have to select 'University of Calgary'. At some point you will be asked for a 'class key'. Each lecture section will have its own key. Ask your instructor for your class key.

Only student participation counts. Correctness does not matter! This is a rare opportunity to "answer" questions without "fear" of being right or wrong. Use your clicker and earn BONUS credit. The type and number of "clicker questions" you will encounter over the semester is at the sole discretion of your section's instructor. Participate and you can earn up to an extra 2% toward your overall course grade according to the following graph;



TERM WORK GRADES

As your term work items (labs, assignments and exams) accumulate, the marks for students in Phys223 will be posted on phas.ucalgary.ca/phys223/. 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.

Overall Physics 223 percentages are converted into a final course letter grade using the following thresholds:

92% - 100%	A+	75% - 80%	B+	60% - 65%	C+	45% - 50%	D+
85% - 92%	A	70% - 75%	B	55% - 60%	C	40% - 45%	D
80% - 85%	A-	65% - 70%	B-	50% - 55%	C-	35% - 40%	D-
						<35%	F

Policy regarding missed elements of term work: Students who miss a lab (assignment) because of ill health, or for other valid reasons, will be granted an excused absence by their Instructor provided that alleged problems are supported in writing by a person in a position of authority (physician, counselor, etc.). Once substantiated, the student's final mark for their labs (assignments) will be calculated by averaging the revised number of labs (assignments) which are subsequently due.

Physics 223 Schedule – Winter 2009

Week of	Topics	Textbook readings	Lab or Tutorial
Jan 12 th	Thermodynamic state variables. Temperature. Phase changes. Ideal gases.	16.1–16.5	Tutorial
Jan 19 th	Ideal gas processes. pV diagrams. Work in ideal gas processes. Heat. 1st. Law of thermodynamics.	16.6, 17.1–17.4	Lab (Abs. Zero)
Jan 26 th	Thermal properties of matter. Calorimetry. Specific heats of gases. Heat-Transfer Mechanisms.	17.5 - 17.8	Lab (Cooling Law)
Feb 2 nd	Gas particle collisions and resulting temperature and pressure. Thermal energy and the equipartition theorem.	18.1, 18.2, 18.3, 18.4	Tutorial
Feb 9 th	Coulomb's law. Electric field of a point charge, distributions of point charges, continuous distributions. *** Midterm #1 - Friday Feb 13th ***	26.4, 26.5, 27.2 – 27.4	Labatorial
Feb 16 th	Reading Break. No lectures. University open.	All of the above	-
Feb 23 rd	Parallel plate capacitors. Motion of charged particles in E fields. Electric potential energy of point charges.	27.5, 27.6 29.1, 29.2	Labatorial
Mar 2 nd	Electric Potential. V in a capacitor. V due to point charges. The connection between E and V.	29.4 - 29.7, 30.3	Labatorial
Mar 9 th	E fields of charged conductors. Capacitance and Capacitors	30.4, 30.5, 30.6	Lab (E fields)
Mar 16 th	Resistance and Ohm's law. DC circuits. ***Midterm #2 - Friday Mar 20th ***	31.5, 32.1–32.8	Tutorial
Mar 23 rd	Introduction to magnetism. Currents and magnetic fields.	33.1 - 33.5	Lab (Elect \equiv Heat)
Mar 30 th	Lorentz force. Cyclotron motion. Hall Effect. Magnetic forces on straight wires and current loops.	33.7 - 33.9	Lab (K's Laws)
Apr 6 th	Induced current. Motional emf. Magnetic flux in uniform B fields. *** April 10th - Good Friday, University closed. ***	34.1 - 34.3	Lab / Labatorial
Apr 13 th	Lenz' law. Faraday's law. Applications of induced currents.	34.4, 34.5, 34.7	Labatorial / Lab