

**UNIVERSITY OF CALGARY
DEPARTMENT OF PHYSICS AND ASTRONOMY
COURSE INFORMATION SHEET**

Course: Physics 223, Thermodynamics, Electricity & Magnetism– Winter 2011

1. Instructors:

Dr. Jason Donev

L01 : MWF 8:00 - 8:50 : SB 103

Office: SB 149, 210-6343

Dr. Mahin Afshari

L02 : MWF : 12:00 – 12:50 : CHC 119

Office: SB 533, 220-7270

Dr. Phil Langill (coordinator)

L03 : TR 12:30 - 13:45 : ST 148

Office: SB 507, 220-5402

Dr. Josef Biel

L04 : MWF : 16:00 – 16:50 : SB 103

Office: SB 642, 220-8769

Office Hours: Each Instructor will dedicate an hour of office time to ST025. Other details to follow.

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

2. Prerequisites: Physics 211 or 221 or 227.

Note: The Faculty of Science policy on pre- and co-requisite checking is outlined in the 2010-2011 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: In determining the overall grade in the course the following weights will be used;

Mastering Physics Assignments (12): 18%	Laboratorials (10): 15%
Exam#1: 21% Exam#2: 21% Exam#3: 23%	Clicker Participation: 2%

NOTE: Students who attain an overall average exam grade of less than 40%, should not expect to receive an overall course letter grade above a D. Overall course percentage grade to course letter grade conversion is discussed on the following pages. The University policy on grading and related matters is also found in the UofC Calendar. Details can be found at; <http://www.ucalgary.ca/pubs/calendar/current/f.html>

4. Missed Components of Term Work: The regulations of the Faculty of Science pertaining to this matter are outlined in the UofC Calendar at; <http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html>

It is each student's responsibility to familiarize himself or herself with these regulations.

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

Midterm Exams will be held on Friday February 18th, and Friday March 25th 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.

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

7. Examination Policy: Rules pertaining to the use of calculators, and other devices, during exams will be discussed in lecture.

Students are encouraged to read the Calendar, Section G, on Examinations:

<http://www.ucalgary.ca/pubs/calendar/current/g.html>.

8. Course fees: There are no additional fees required to take Phys 233.

9. Writing across the curriculum: In this course, the quality of the student's writing in laboratory reports will factor in the evaluation of those reports. See also <http://www.ucalgary.ca/pubs/calendar/current/e-2.html>.

10. Human studies: Students are invited to participate in Physics Education Research. Details will be given early in the term.

See also <http://www.ucalgary.ca/pubs/calendar/current/e-5.html>.

Department Approval: _____ Date: _____

Associate Dean's Approval for out of regular
class-time activity: _____ Date: _____

11. 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 K. Student Misconduct <http://www.ucalgary.ca/pubs/calendar/current/k.html> 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 at <http://www.ucalgary.ca/emergencyplan/assemblypoints>.**
- (c) **ACADEMIC ACCOMMODATION POLICY.** Students with documentable disabilities are referred to the following links:
Calendar entry on students with disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html>
Disability Resource Centre: <http://www.ucalgary.ca/drc>
- (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 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.** 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
Website: <http://www.su.ucalgary.ca/home/contact.html>.
Student Ombudsman: <http://www.su.ucalgary.ca/services/student-services/student-rights.html>
- (i) **INTERNET and ELECTRONIC COMMUNICATION DEVICE Information.** You can assume that in all classes that you attend, **your cell phone should be turned off.** 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.

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.

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

LABATORIALS (aka LTs)

Labatorials begin Monday, Jan. 17, 2011. As with Physics 211/221, LTs 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. There is one Teaching Assistant assigned to each room, and other TAs circulating between the three rooms.

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

We are always trying to find improved ways to help students learn the concepts presented in Physics 223, and an important aspect of this is to try and find out from students what is working well and what is not. To this end LTs also consist of a pre-test and a post-test. By comparing post-test to pre-test performance, student learning can be gauged.

All students must do the pre-test right at the start of the LT, and 5% of the LT mark is given for student participation – regardless of how well they do. All students must do the post-test before leaving the LT. It constitutes up to 5% of the LT mark, depending on how well students do. That is, the post-test is graded, but the pre-test is not. The rest of the LT work is worth 90%.

MASTERING PHYSICS On-line ASSIGNMENTS

Mastering Physics assignments are due by 23:59 on Wednesday nights. The first graded assignment is due Wednesday, January 19th, 2011. A practice, not for credit, MP assignment will be made available for students prior to this date.

A Student Access Kit is packaged with the textbook, or it can be bought separately in the University Bookstore. If you took Physics 211/221, your MP registration is probably still valid. Students are responsible for getting registered through the textbook's website. Our MP course name is **UOFCALGARYWINTER2011PHYS223**

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' need to purchase 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.**

This is an opportunity to answer questions in class – anonymously. The type and number of "clicker questions" you will encounter over the semester is at the sole discretion of your instructor. Participate and you can earn up to 2% toward your overall course grade.

The model will be as it was in Physics 211/221. That is, 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. The mark a student gets will be the total clicker marks they earned divided by the maximum clicker marks obtainable, times 2%.

TERM WORK GRADES

As your term work items (labs, assignments and exams) accumulate, the marks for students in Phys223 will be posted on phas.ualgary.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-
						00% - 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 Lecture Schedule – Winter 2011

Week of	Topics	Textbook readings	Labatorial
Jan 10 th	Concepts of Pressure. Thermodynamic state variables. Temperature. Phase changes.	15.1 – 15.3 16.1–16.4	-
Jan 17 th	Ideal gases. Ideal gas processes. pV diagrams. Work in ideal gas processes. Heat.	16.5 – 16.6 17.1–17.3	Pressure
Jan 24 th	First Law of thermodynamics. Thermal properties of matter. Calorimetry. Specific heats of gases.	17.4 – 17.7	Ideal Gas
Jan 31 st	Gas particle collisions and resulting temperature and pressure.	18.1, 18.2, 18.3	First Law
Feb 7 th	Thermal energy and Specific Heat. Heat-Transfer Mechanisms.	18.4, 17.8	Temperature
Feb 14 th	Coulomb's law. Electric field of a point charge, distributions of point charges, continuous distributions. *** Midterm #1 ***	26.4, 26.5, 27.2 – 27.4	-
Feb 21 nd	Reading Break. No lectures. University open.	All of the above	-
Feb 28 th	Parallel plate capacitors. Motion of charged particles in E fields. Electric potential energy of point charges.	27.5, 27.6 29.1, 29.2	Electric Charges
Mar 7 th	Electric Potential. V in a capacitor. V due to point charges. The connection between E and V.	29.4 - 29.7, 30.3	Electric Fields
Mar 14 th	E fields of charged conductors. Capacitance and Capacitors	30.4, 30.5, 30.6	Electric Potential
Mar 21 nd	Resistance and Ohm's law. DC circuits. ***Midterm #2 ***	31.5, 32.1–32.8	-
Mar 28 th	Introduction to magnetism. Currents and magnetic fields.	33.1 - 33.5	Circuits
Apr 4 th	Lorentz force. Cyclotron motion. Hall Effect. Magnetic forces on straight wires and current loops.	33.7 - 33.9	Solenoid Fields
Apr 11 th	Induced current. Motional emf. Magnetic flux. Lenz's Law	34.1 - 34.4	Current Balance