



DEPARTMENT OF PHYSICS AND ASTRONOMY
COURSE OUTLINE

1. Course: Physics 259, Electricity and Magnetism (for students in Engineering), Winter 2017

Lecture Sections: **L01:** MWF 15:00 – 15:50 ICT 102 **and** R 17:00 – 17:50 ICT 102
L02: MWF 08:00 – 08:50 KNB 132 **and** R 08:00 – 08:50 KNB 132
L03: MWF 09:00 – 09:50 ENA 201 **and** W 13:00 - 13:50 CHC 119
L04: MWF 16:00 – 16:50 SB 103 **and** R 14:00 – 14:50 ENC 70

Instructors: L01: Dr. Ahmadi | SB 525 | 403 220.5394 | nmoazzen@ucalgary.ca
L02: Ms. Sang-Nourpour | SB 130 | 403 220-3041 | nafiseh.sangnourpour@ucalgary.ca
L03: Dr. Stotyn | SA101C | 403 210-7594 | sean.stotyn@ucalgary.ca
L04: Mr. Tahani | SB 130 | 403 220-3583 | ktahani@ucalgary.ca

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

Course Coordinator: Dr. Marzena Kastyak-Ibrahim | SB 507 | 403-220-8073 | marzena.kastyakibrah@ucalgary.ca
D2L Course: PHYS 259 L01- L04 - (Winter 2017) - Electricity and Magnetism (for students in Engineering)
Departmental Office: SB 605, 403-220-5385, phasugrd@ucalgary.ca

2. Prerequisites: Mathematics 275 (or 265 or Applied Mathematics 217) and Mathematics 211 **Note:** Prior completion of or concurrent registration in Mathematics 277 is highly recommended.

3. Grading: The University policy on grading and related matters is described in 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:

Activities	7%	(2% TopHat +5% group work)
Assignments (WileyPlus)	11%	
Labatorials	17%	(Beginning week of Jan 23) 9 labs 8 end of lab problems
Midterm test	25%	(Tue Feb 14, evening, 7:00–8:30 pm, rooms TBA)
Final Examination	40%	(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% on weighted average on the midterm and final examination, the student will receive a D in the course.

Percentage to letter grade conversion scale:

Calculation of final grade in Phys 259: Percentage grades will be given for all elements of term work and examinations in Physics 259. A weighted course percentage will be calculated for each student after the final exam is written.

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

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 **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**.

5. **Scheduled out-of-class activities:** Dates and times of class exercises held outside of class hours: **Evening midterm test Tuesday, February 14, 1900-2100.**

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.

6. **Course Materials:** " *Fundamentals of Physics*", 10th Edition, by Halliday, Resnick and Walker, Wiley

7. **Examination Policy:** On the midterm and the final examination, you are only allowed to use the Schulich School of Engineering approved calculator. Students should also read the Calendar, [Section G](#), on Examinations.

8. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- (a) **Academic Misconduct:** 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) **Student Accommodations:** 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 (FOIPPA). 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](http://www.ucalgary.ca/secretariat/privacy) Phone: 220-3911 Email: suvpaca@ucalgary.ca.
 SU Faculty Rep: Phone: 220-3913 Email: science1@su.ucalgary.ca, science2@su.ucalgary.ca and science3@su.ucalgary.ca
 Student Ombuds Office: 403 220-6420 Email: ombuds@ucalgary.ca; <http://ucalgary.ca/provost/students/ombuds>
- (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) **U.S.R.I.:** 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) **LABATORIALS**

Labatorials begin Monday, Jan. 23th, 2017. Labatorials take place in ST 036 and 038, 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 259. In general, the format of the labatorials 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. Labatorials typically involve a class demonstration, computer simulations, or some apparatus, and the tasks presented to students vary accordingly.

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

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

Physics 259 Labatorial Schedule – Winter 2017

Week	Dates	Labatorial
1	Jan 9-13	No Labatorials
2	Jan 16-20	No Labatorials
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 Gauss' Law
6	Feb 13-17	No Labatorials
*** Midterm Exam – Tuesday February 14 th ***		
Feb 19-26 Reading Break. No lectures. University open.		
7	Feb 27-Mar 3	Labatorial 4 Motion of Charges
8	Mar 6-10	Labatorial 5 Electric Potential
9	Mar 13-17	Labatorial 6 Capacitors
10	Mar 20-24	Labatorial 7 Play-Doh-Resistors
11	Mar 27-31	Labatorial 8 Magnetic Fields & Forces
12	Apr 3-7	Labatorial 9 Magnetic force on a Loop
13	Apr 10-12	Make-up labatorials

(j) WileyPLUS On-line ASSIGNMENTS

Your text, **Fundamentals of Physics by Halliday, Resnick and Walker** is available in the bookstore bundled with a WileyPLUS code. You should buy the book or WileyPLUS standalone and keep this code, as it will be used to access the online homework system. To register, please go to www.wileyplus.com logon in the top, right hand corner with your U of C email address as your username and your 8 digit student ID as your password. If you took the course last year and changed your password to something different than your student ID, the change will remain intact. For any technical support issues, go to www.wileyplus.com/support and choose the live chat option.

A new text comes bundled with a code, which will give you access to the eBook, Assignments, Tutorials, Videos, Animations and Orion, an adaptive learning self-practice system.

If you would like to purchase just WileyPLUS by itself (without the text), you can do so through the bookstore or else from www.wileyplus.com.

Lastly, if you are not able to purchase a new book or the WileyPLUS standalone, you will be able to access the homework in the Taylor Library. You will not have access to any of the other WileyPLUS materials, and must do your homework in the lab, but can upgrade at any time. You will need to register as directed above, and choose the free option.

Physics 259 Assignment Schedule – Winter 2017

Assignment Name	Material covered	Available for students	Due date
Assignment 0	Introduction to Wiley Plus	Monday, January 09, 2017	Monday, January 16, 2017
Assignment 1 - Winter 2016	Math + Mechanics Review	Wednesday, January 11, 2017	Wednesday, January 18, 2017
Assignment 2 - Winter 2016	Electric Force	Wednesday, January 18, 2017	Wednesday, January 25, 2017
Assignment 3 - Winter 2016	Electric Field and Flux	Wednesday, January 25, 2017	Wednesday, February 01, 2017
Assignment 4 - Winter 2016	Gauss's Law	Wednesday, February 01, 2017	Wednesday, February 08, 2017
Assignment 5 - Winter 2016	Gauss's Law applications Electric Potential Energy	Wednesday, February 15, 2017	Wednesday, March 01, 2017
Assignment 6 - Winter 2016	Electric Potential	Wednesday, March 01, 2017	Wednesday, March 08, 2017
Assignment 7 - Winter 2016	Capacitors	Wednesday, March 08, 2017	Wednesday, March 15, 2017
Assignment 8 - Winter 2016	Current and Resistance, DC circuits	Wednesday, March 15, 2017	Wednesday, March 22, 2017
Assignment 9 - Winter 2016	Magnetic Field and Forces	Wednesday, March 22, 2017	Wednesday, March 29, 2017
Assignment 10 - Winter 2016	Sources of magnetic field, Ampere's Law	Wednesday, March 29, 2017	Wednesday, April 05, 2017
Assignment 11 - Winter 2016	Induction and inductors	Wednesday, April 05, 2017	Wednesday, April 12, 2017

(k) ACTIVITIES

In order to help students to better understand and learn course material there will be additional activities. Participation will earn students 7% toward their overall course grade.

- TopHat questions (2%)
- In class group activities and problem solving (5%)

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. 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 259 Lecture Schedule – Winter 2017

Week	Dates	Text	Labatorial	
1	Jan 9-13	21.1-3	Electric Charge	No labatorials
		21.1	Conductors, Insulators, and Induced Charges	
2	Jan 16-20	21.1	Coulomb's Law	No labatorials
3	Jan 23-27	22.1	Electric Field and Electric Field Lines	Electric charges
		22.3-5	Electric-Field Calculations	
		23.1	Charge and Electric Flux	
		23.1	Calculating Electric Flux	
4	Jan 30- Feb 3	23.2	Gauss's Law	Electric fields
5	Feb 6-10	23.4-6	Applications of Gauss's Law	Gauss's Law
		23.3	Charges on Conductors	
		24.1	Electric Potential Energy	
6	Feb 13-17	24.1	Electric Potential	No labatorials
*** Midterm Exam – Tuesday February 14th ***				
Feb 19-26 Reading break				
7	Feb 27-Mar 3	24.2-5	Calculating Electric Potential	Motion of charges
		24.2	Equipotential Surfaces	
		24.8	Potential gradient	
8	Mar 6-10	25.1-2	Capacitors and Capacitance	Electric Potential
		25.3	Capacitors in Series and Parallel	
		25.4	Energy Storage in Capacitors and Electric-Field Energy	
		25.5	Dielectrics	
		25.5	Molecular Model of Induced Charge DC (Direct Current) Electric Circuits	
		26.1-2	Electric Current	
		26.3	Resistance	
26.3	Resistivity			
9	Mar 13-17	27.1	Electromotive Force and Circuits	Capacitors
		26.5	Energy and Power in Electric Circuits	
		27.2	Resistors in Series and Parallel	
		27.3	the Ammeter and the Voltmeter	
		27.4	R-C Circuits	
		28.1	Magnetic Fields	

Week	Dates	Text	Labatorial	
10	Mar 20-24	28.1	Magnetic Fields	Electron current & Energy
		28.1	Magnetic Field Lines and Magnetic Flux	
		28.4	Motion of Charged Particles in a Magnetic Field	
		28.2, 5	Applications of Motion of Charged Particles	
		28.6	Magnetic Force on a Current-Carrying Conductor	
		28.7	Force and Torque on a Current Loop	
		28.7	DC Motors	
11	Mar 27-31	28.3	The Hall Effect	Magnetic Fields & Forces
		28.2	Magnetic Field of a Moving Charge	
		29.1	Magnetic Field of a Current Element (Biot-Savart Law).	
		29.1	Magnetic Field of a Straight Current-carrying Conductor	
		29.2	Force Between Parallel Conductors	
		29.3	Magnetic Field of a Circular Current Loop	
		29.3	Ampere's Law	
12	Apr 3-7	29.4	Applications of Ampere's Law Electromagnetic Induction	Magnetic Force on a Loop
		30.1	Induction Experiments	
		30.1	Faraday's Law	
		30.1	Lenz's Law	
		30.1	Motional Electromotive Force	
		30.2	Eddy Currents	
13	Apr 10-12	30.9	Mutual Inductance	Make-up labs
		30.4-5	Self-inductance and Inductors	
		30.7	Inductors and Magnetic Field Energy	
		30.6	The R-L Circuit	

Department Approval _____ Date _____