



REVISED COURSE OUTLINE FOR REMOTE LEARNING

To account for the necessary transition to remote learning from March 13 onward, adjustments have been made to assessment deadlines and requirements so that all coursework tasks are in line with the necessary and evolving health precautions for all involved (students and staff). If you are unable to meet the deadlines or requirements specified, please connect with your course instructor to work out alternative dates/assessments.

1. **Course:** PHYS 259, Electricity and Magnetism (for students in Engineering) - Winter 2020

Lecture 01: MWF 14:00 - 14:50 - Remote Learning (check with your instructor or coordinator for details) and R 17:00 - 17:50 - Remote Learning (check with your instructor or coordinator for details)

Instructor	Email	Phone	Office	Hours
Dr. Sean Stotyn	sean.stotyn@ucalgary.ca	403 210-7594	SA 101B	Mondays and Wednesdays 1:30-2:30 PM

Lecture 02: M 14:00 - 14:50 - Remote Learning (check with your instructor or coordinator for details) and 17:00 - 17:50 - Remote Learning (check with your instructor or coordinator for details) and WF 14:00 - 14:50 - Remote Learning (check with your instructor or coordinator for details)

Instructor	Email	Phone	Office	Hours
Dr Daniel Oblak	doblak@ucalgary.ca	403 220-7660	SB 313	Fri. 3:30-4:30 pm (may be adjusted to better fit student schedules)

Lecture 03: MWF 09:00 - 09:50 - Remote Learning (check with your instructor or coordinator for details) and R 11:00 - 11:50 - Remote Learning (check with your instructor or coordinator for details)

Instructor	Email	Phone	Office	Hours
Dr. Emma Spanswick	elspansw@ucalgary.ca	403 220-6339	SB 636	R 9:00-10:00 or by appointment

Lecture 04: MWRFR 16:00 - 16:50 - Remote Learning (check with your instructor or coordinator for details)

Instructor	Email	Phone	Office	Hours
Dr Paul Barclay	pbarclay@ucalgary.ca	403 220-8517	SB 135	Wednesday 1:30 - 2:30 or by appointment

Coordinator(s)

Name	Email	Phone	Office	Hours
Dr. Marzena Kastyk-Ibrahim	phascrscoord@ucalgary.ca	403 220-8073	SB 527A	Fridays 10:00-11:00

Course Site:

Lecture D2L site: PHYS 259 L01-L04 - (Winter 2020) - Electricity and Magnetism (for students in Engineering)

Lab D2L site: PHYS 259 B01-B36 - (Winter 2020) - Laboratorials

Note: Students must use their U of C account for all course correspondence.

2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

Prerequisite(s):

Mathematics 265 or 275 and Mathematics 211.

Antirequisite(s):

Credit for Physics 259 and any of 255, 323 or 355 will not be allowed.

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Component(s)	Weighting %	Date
TopHat	3	Questions asked during lectures (prior to March 13, 2020); you only need 70% of the grade to get a full mark (result will be divided by 0.7 and capped at 100%)
Pre-activity quizzes	4	Due on Mondays 8:30 am, questions related to Activity of the week; grade will be calculated based on Activity 1-6 quizzes. There will be no more quizzes after the one closing on March 18th
Activities	10	Only the grades for Activities you have attended will count. Activities are on the material covered in the previous week, taking place during Monday lecture. Activities 1-5 done in class, last Activity done via D2L on March 18)
Labatorials	18	Beginning the week of January 20 (Labs 7-9 cancelled), grade will be calculated as an average based of the grades you have obtained from the labs you have attended (no need to submit Make-up Lab requests).
Midterm examination	25	Tue, Feb 11, 19:00-21:00, rooms TBA
Additional quizzes	15	Additional quizzes (15% of the final grade) will be administered on-line via D2L. They will take place on March 23 (3%, two attempts), March 30, April 6 and April 14 (4% each, 1 attempt). Quizzes are to be completed individually as an open book exam, but no assistance from other people. The quiz will open on at 10 am and needs to be completed 10 pm. Each attempt will be time limited (for example if the quiz would normally take 30 min, you will be given 1 hour per attempt). No feedback will be provided until after the quiz has closed. Any questions or concerns can be submitted to Additional Quiz (1-4) Dropbox which will open with each quiz. You have one hour after you have completed the quiz to submit the feedback.
Final examination	25	The exam will be administered on-line via D2L. Please plan to complete it during the original time slot (Saturday April 18, 8:30-11:30 am), but there will be a time buffer, so you could start your attempt at a time more convenient for you the day of the exam (details will be provided later). Additional time will be provided as for students registered with SAS according to the information provided in the forms. No feedback will be provided until after the exam has closed. Any questions or concerns can be submitted to Final Exam Feedback Dropbox which will open with the exam. If you envision any technical challenges, please notify us by submitting a PDF file to the D2L Dropbox: "Final exam" listing any concerns. The Dropbox will close on April 9 at noon.

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95 %	90 %	85 %	80%	75%	70 %	65 %	60%	55%	50 %	45 %

As your term work items (labs, assignments and exams) accumulate, the marks for students in Phys 259 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 University has suspended requirements for students to provide evidence for reasons for absences so please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations. Please let your instructor know immediately if you are ill and cannot meet the deadlines specified.

Missed midterm

Students who miss the midterm for a valid reasons, will be granted an excused absence by the Course Coordinator provided that alleged problems are supported in writing. A supporting document should be provided. Students must notify the Course Coordinator by submitting the form: Missed midterm (Folder: Missed course components) to the D2L Dropbox: Missed midterm the day after the midterm, at the latest. Once the claim is substantiated, the weight of the midterm will be shifted to the final exam.

Missed Labatorials

Labs 7-9 are CANCELLED; there will be no make-up labs and your grade will be calculated as an average based of the grades you have obtained from the labs you have attended (no need to submit Make-up Lab requests).

Missed Activities

Activity 6 (on March 18) will be done via D2L (quiz will be open 8 AM - 11 PM, to be completed individually); the rest of the Activities will be cancelled. Grade will be calculated as an average based on all the Activities you have attended (no need to submit missed activity requests). Pre-activity quizzes are administered via D2L, can be accessed from any location and therefore the dates will not be extended.

Missed Additional quiz

Students must notify the Course Coordinator by submitting a request to Additional Quiz (1-4) D2L Dropbox.

5. Scheduled Out-of-Class Activities:

The following out of class activities are scheduled for this course.

Activity	Location	Date and Time	Duration
Midterm Exam	Will be posted in D2L one week before the Midterm Exam	Tuesday, February 11, 2020 at 7:00 pm	120 Minutes

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a conflict with the out-of-class-time-activity, please contact your course coordinator/instructor no later than **14 days prior** to the date of the out-of-class activity so that alternative arrangements may be made.

6. Course Materials:

Recommended Textbook(s):

Resnik & Halliday, Extended version, *Fundamentals of Physics, 10th Edition*, : Wiley.

- WileyPlus license (see information about Practice on-line Assignments below).
- A TopHat license (free for UC students at tophat.com) and a response device such as a phone, laptop or tablet.
- Lectures will be posted on D2L (free of charge).

7. Examination Policy:

No aids are allowed on tests or examinations. Closed book in -class quizzes with formula sheet provided; Schulich approved calculator allowed.

Students should also read the Calendar, [Section G](#), on Examinations.

8. Approved Mandatory And Optional Course Supplemental Fees:

There are no mandatory or optional course supplemental fees for this course.

9. Writing Across The Curriculum Statement:

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section [E.2](#) of the University Calendar.

10. Human Studies Statement:

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

11. Reappraisal Of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

- a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections [I.1](#) and [I.2](#) of the University Calendar

- b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

12. Other Important Information For Students:

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The University of Calgary is committed to fostering a safe, productive learning environment. The Sexual Violence Policy (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>) is a fundamental element in creating and sustaining a safer campus environment for all community members. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email (svsa@ucalgary.ca) or phone at [403-220-2208](tel:403-220-2208).
- d. **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. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/ fabrication of experimental values in a report. **These are only examples.**
- e. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- f. **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 [procedure-for-accommodations-for-students-with-disabilities.pdf](#).
- Students needing an accommodation in relation to their coursework or to fulfill 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 & Astronomy, Dr. David Feder by email phas.ahugrd@ucalgary.ca or phone 403-220-8127. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.
- g. **Safewalk:** Campus Security will escort individuals day or night (See the [Campus Safewalk](#) website). Call [403-220-5333](tel:403-220-5333) for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- h. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). 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 [Legal Services](#) website.
- i. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: sciencerep@su.ucalgary.ca. [Student Ombudsman](#), Email: ombuds@ucalgary.ca.
- j. **Internet and Electronic Device Information:** Unless instructed otherwise, cell phones should be turned off during class. All communication with other individuals via laptop, tablet, smart phone or other device is

prohibited during class unless specifically permitted by the instructor. Students that violate this policy may be asked to leave the classroom. Repeated violations may result in a charge of misconduct.

- k. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.
- l. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.

FORMATIVE ASSESSMENTS

The following course components are designed to help you and the instructors assess your comprehension, learning needs, and academic progress during the course.

LABATORIALS

Labatorials begin on Monday Jan 20, 2020. They take place in ST 030 and 032, and students will have been assigned to a particular room by the Registrar's Office when enrolling in Physics 259. Please note that groups will be formed during the first labatorial. 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. The Labatorials workbook documents will be available on D2L. Students are to print out their own copies and take them to their Labatorials section to do their work. Marking rubric for the Labatorials is posted on the D2L lab site.

PHYS 259 Labatorial schedule W2020

Week	Dates	Labatorial
1	Jan 13-17	NO LABATORIALS
2	Jan 20-24	Labatorial 1
3	Jan 27-31	Labatorial 2
4	Feb 3-Feb 7	Labatorial 3
5	Feb 10-14	NO LABATORIALS (Midterm week)
6	Feb 24-28	Labatorial 4
7	Mar 2-Mar 6	Labatorial 5
8	Mar 9-13	Labatorial 6
9	Mar 16-20	Cancelled
10	Mar 23-27	Cancelled
11	Mar 30-Apr 3	Cancelled
12	Apr 6-9	Cancelled
13	Apr 14-15	NO LABATORIALS

- Labatorial 1 Electric Charges and Forces
- Labatorial 2 Electric Fields
- Labatorial 3 Gauss' Law
- Labatorial 4 Electric Potential
- Labatorial 5 Capacitors
- Labatorial 6 Play-Doh-Resistors
- Labatorial 7 Magnetic Force and Torque on a Loop
- Labatorial 8 Charge to mass ratio experiment
- Labatorial 9 Magnetic Fields & Forces

WileyPLUS On-line ASSIGNMENTS

WP assignments will be available for practice and the detailed instructions how to purchase a code and register will be provided via D2L site.

ACTIVITIES

In order to help students to better understand and learn course material there will be additional activities. Participation in activities will earn students 17% toward their overall course grade.

- In class individual TopHat questions (3%)
- Pre-activity quizzes (4%), due at 8:30 am on Monday for each activity, completed via D2L/ quizzes
- In class group activities and problem solving, including peer evaluation of group work (10%)

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.

Pre-activity quizzes are 4-5 multiple-choice question quizzes set on D2L (Assessments/ quizzes) designed to help you prepare individually to group activities scheduled on Mondays (see lecture schedule below). They will be available on Tuesdays (six days before the activity) and due at 8:30 am on the day of each activity.

In class Monday activities will be completed by each group (you will work with the same group as during laboratorials; groups will be formed during the first week of laboratorials with the help of lab TAs). You will be given a worksheet and the completed work should be given to the TAs before the end of each class. In order to evaluate the contribution of each member of the group you will be completing the peer evaluation at the end of the term. Peer evaluation will count for 1% of your grade.

SUMMATIVE ASSESSMENTS

ADDITIONAL QUIZZES

Additional quizzes (15% of the final grade) will be administered on-line via D2L. They will take place on March 23 (3%, two attempts), March 30, April 6 and April 14 (4% each, 1 attempt each). Quizzes are to be completed individually as an open book exam, but no assistance from other people. The quiz will open on at 10 am and needs to be completed 10 pm. Each attempt will be time limited (for example if the quiz would normally take 30 min, you will be given 1 hour per attempt). No feedback will be provided until after the quiz has closed. Any questions or concerns can be submitted to Additional Quiz (1-4) Dropbox which will open with each quiz. You have one hour after you have completed the quiz to submit the feedback.

FINAL EXAM

Final exam will weight will be 25%. The exam will be administered on-line via D2L. Please plan to complete it during the original time slot (Saturday April 18, 8:30-11:30 am), but there will be a time buffer, so you could start your attempt at a time more convenient for you the day of the exam (details will be provided later). Additional time will be provided as for students registered with SAS according to the information provided in the forms. No feedback will be provided until after the quiz has closed. Any questions or concerns can be submitted to Final Exam Feedback Dropbox which will open with the exam.

If you envision any technical challenges, please notify us by submitting a PDF file to the D2L Dropbox: "Final exam" listing any concerns. The Dropbox will close on April 9 at noon.

PHYS 259 DETAILED LECTURE SCHEDULE

PHYS 259 Lecture schedule part 1 (before reading week)

Week	Dates	Text	Topic
1	Jan 13-Jan 17	Chapter 21/22	Brief intro to course and E & M
			Charges and Coulombs Law simple examples
			Coulombs Law in 2D
			Dipole and symmetry
2	Jan 20-Jan 24	Chapter 21/22	Electric force from a finite line
			Electric field and symmetry
			Electric field lines and point charges in E-field
			Dipoles in electric field (torque, energy), polarization
3	Jan 27-Jan 31	Chapter 22/23	Activity 1
			Flux; Gauss' Law intro
			Spherical symmetry
			Cylindrical and planar symmetry; Applications for insulators
4	Feb 3- Feb 7	Chapter 23	Activity 2
			Electric potential energy
			Electric potential
			Calculation of the potential for insulators
5	Feb 10 - Feb 14	Chapter 24	Activity 3
			Equipotential surfaces, potential gradients
			Charges on conductors (Gauss' Law)
			Charges on conductors (Gauss' Law) continued, intro to capacitors and capacitance

PHYS 259 Lecture schedule part 2 (after reading week)

Week	Dates	Text	Topic
6	Feb 24- Feb 28	Chapter 23-25	Activity 5
			Properties of capacitors followed by Gauss law to get capacitance
			Energy Storage in Capacitors and Electric-Field Energy
			Dielectrics
7	Mar 2- Mar 6	Chapter 25	Activity 5
			Electric Current, current density
			Resistance, Resistivity, molecular view of Ohm's Law
			RC circuits
8	Mar 9- Mar 13	Chapter 26/27	Activity 6
			Magnetic Fields, Magnetic Field Lines, Motion of Charged Particles in a Magnetic Field
			Cyclotrons and mass spectrometer
			Hall Effect with examples
9	Mar 16- Mar 20	Chapter 28	Activity 7
			Magnetic Force on a Current-Carrying Conductor
			Force and Torque on a Current Loop plus potential Energy (magnetic dipole)
			Magnetic Field of a Current Element (Biot-Savart Law)
10	Mar 23- Mar 27	Chapter 28/29	Activity 8
			Ampere's Law
			Coaxial cable, superposition, other examples
			Solenoids and toroids
11	Mar 30- Apr 3	Chapter 29	Activity 9
			Faraday's Law & Lenz's Law
			Examples and applications (motional EMF, non-conservative electric fields)
			Examples and applications (motional EMF, non-conservative electric fields)
12	Apr 6- Apr 9	Chapter 30	Activity 10
			Self-inductance and Inductors; Inductors and Magnetic Field Energy
			The R-L Circuit
			The R-L Circuit
13	Apr 14- Apr 15	Chapter 30	Review

COURSE INCOMES:

Students coming into PHYS 259 should be able to:

- Demonstrate ability to solve the quadratic formula
- Use trigonometry and basic geometry to solve problems
- Employ basic algebraic manipulations
- Perform derivatives and integrals

Course Outcomes:

- By the end of the course, students will be expected to exploit and use symmetry to simplify physical problems in electricity and magnetism;
- Apply the principle of superposition to calculate the electric and magnetic fields of extended objects;
- Develop mathematical models of physical situations;
- Carry out calculations symbolically in terms of physical variables;
- Carry out calculations numerically, using appropriate values and their units;
- Obtain experimental data and relate them to predicted physical laws governing electricity and magnetism;
- and communicate and collaborate effectively within team environments.

Electronically Approved - Mar 18 2020 16:31

Department Approval

Electronically Approved - Mar 18 2020 18:02

Associate Dean's Approval for alternate final examination arrangements or remote learning and out of regular class-time activity