



## COURSE OUTLINE

### 1. **Course:** PHYS 259, Electricity and Magnetism (for students in Engineering) - Winter 2021

Lecture 01: MWF 14:00 - 14:50 - Online and R 17:00 - 17:50 - Online

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 02: M 14:00 - 14:50 - Online and 17:00 - 17:50 - Online and WF 14:00 - 14:50 - Online

Instructor	Email	Phone	Office	Hours
Dr. Anna Harlick	anna.harlick@ucalgary.ca	403 220-8648	SB 533	Monday, Tuesday, Thursday, Friday, 10:00 am - 11:00 am

Lecture 03: MWF 09:00 - 09:50 - Online and R 11:00 - 11:50 - Online

Instructor	Email	Phone	Office	Hours
Dr Timothy Friesen	timothy.friesen@ucalgary.ca	403 220-6123	SB 513	F 13:00 - 13:50

Lecture 04: MWRF 16:00 - 16:50 - Online

Instructor	Email	Phone	Office	Hours
Dr. Shabir Barzanjeh	shabir.barzanjeh@ucalgary.ca	TBA	SB 512	Monday 5 pm to 6 pm

#### Coordinator(s)

Name	Email	Phone	Office	Hours
Dr. Sean Stotyn	sean.stotyn@ucalgary.ca	403 210-7594	SA 101B	By appointment

#### Online Delivery Details:

Some aspects of this course are being offered in real-time via scheduled meeting times. For those aspects you are required to be online at the same time.

To help ensure Zoom sessions are private, do not share the Zoom link or password with others, or on any social media platforms. Zoom links and passwords are only intended for students registered in the course. Zoom recordings and materials presented in Zoom, including any teaching materials, must not be shared, distributed or published without the instructor's permission.

This course has a registrar scheduled, synchronous final exam. The writing time is 2 hours + 50% buffer time.

#### Synchronous Components

The following weekly lectures will be held synchronously on Zoom, according to the lecture section indicated:

- L01: MWF 14:00-14:50
- L02: MWF 14:00-14:50
- L03: MWF 9:00-9:50
- L04: MWF 16:00-16:50

All synchronous lectures will be recorded and posted to D2L. The Zoom room details for each lecture section will be made available to the students through D2L.

#### Asynchronous Components

The remaining weekly lecture sessions:

- L01: R 17:00-17:50
- L02: M 17:00-17:50
- L03: R 11:00-11:50
- L04: R 16:00-16:50

will be asynchronous recordings posted to D2L.

#### Course Site:

D2L: PHYS 259 L01-(Winter 2021)-Electricity and Magnetism (for students in Engineering)

**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 211 and 3 units from Mathematics 265 or 275.

**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
Top Hat	5	Questions asked during synchronous lectures will be left open for the duration of the day.
Assignments	2*	Weekly assignments will open on Wednesdays at 5:00 PM and close two weeks later on Wednesdays at 11:59 PM. *The sum of all assignments will replace 2% of the final exam grade weight if it is advantageous for the student.
Activities	10	5 in-class group activities held during every other synchronous Wednesday session.
Labs	15	7 synchronous labs in total beginning the week of January 18. See lab schedule below.
Project	5	Group project on technological applications of E&M, due Tuesday April 6 at 11:59 PM.
Quizzes	30	6 quizzes administered via D2L will be held during the synchronous Wednesday sessions on the following dates: January 27, February 10, March 3, March 17, March 30, and April 14. Only the best 5 of the 6 quizzes will count toward the student's grade.
Final examination	35*	The final exam will be administered as a D2L quiz. Date TBA by the Registrar.

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
<b>Minimum % Required</b>	95 %	90 %	85 %	80%	75%	70 %	65 %	60%	55%	50 %	45 %

This course will have a final exam that will be scheduled by the Registrar. [The Final Examination Schedule](#) will be published by the Registrar's Office approximately one month after the start of the term. The final exam for this course will be designed to be completed within 2 hours.

The final exam will be administered using an on-line platform. Per section [G.5](#) of the online Academic Calendar, timed final exams administered using an on-line platform, such as D2L, will be available on the platform. **Due to the scheduling of the final exams, the additional time will be added to the end of the registrar scheduled synchronous exam to support students. This way, your exam schedule accurately reflects the start time of the exam for any synchronous exams. E.g. If a synchronous exam is designed for 2 hours and the final exam is scheduled from 9-11am in your student centre, the additional time will be added to the end time of the synchronous exam. This means that if the exam has a 1 hour buffer time, a synchronous exam would start at 9 am and finish at 12pm. - updated April 6, 2021**

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 the requirement for students to provide evidence for absences. Please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations.

In the event that a student legitimately fails to submit any online assessment on time (e.g. due to illness etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date. Absences not reported within 48 hours will not be accommodated. If an excused absence is approved, then the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course.

### **Missed quizzes**

If a student misses a quiz, they must fill out the Missed Course Component form on D2L and submit it to the appropriate dropbox **within 2 days of the missed quiz**. If the request is approved, the weight of the missed quiz will be shifted to the final exam. Any missed quizzes that do not have an approved accommodation from the course coordinator will result in a zero for that quiz.

### **Missed Labs**

If a student misses a lab, they must fill out the Missed Course Component form on D2L and submit it to the appropriate dropbox **within 2 days of the missed lab**. If the request is approved, the student will be asked to complete the lab individually and submit it to the appropriate dropbox by a specified deadline. Students can miss at most one lab, barring extenuating circumstances. Any missed labs that do not have an approved accommodation from the course coordinator will result in a zero for that lab.

### **Missed Activities**

If a student misses an in-class activity, they must fill out the Missed Course Component form on D2L and submit it to the appropriate dropbox **within 2 days of the missed activity**. If the request is approved, the weight of the missed activity will be shifted to the final exam. Any missed activities that do not have an approved accommodation from the course coordinator will result in a zero for that activity.

## **5. Scheduled Out-of-Class Activities:**

There are no scheduled out of class activities for this course.

## **6. Course Materials:**

Recommended Textbook(s):

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

- WileyPlus license (see information about Online 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).

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- Webcam/Camera (built-in or external);
- Microphone and speaker (built-in or external), or headset with microphone;
- Current antivirus and/or firewall software enabled;
- Stable internet connection.

For more information please refer to the UofC [ELearning](#) online website.

## **7. Examination Policy:**

All tests in this course (Quizzes and Final Exam) are open book and open resource, including access to the internet. However, they must be **completed solely by the student**. The use of discord servers, third-party homework sites such as Chegg, and other forms of communication with others during a test is strictly prohibited. Any student found in violation will be reported for academic misconduct.

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 Services:** For more information, see [www.ucalgary.ca/wellnesscentre](http://www.ucalgary.ca/wellnesscentre) or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** 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 ([syasa@ucalgary.ca](mailto:syasa@ucalgary.ca)) or phone at [403-220-2208](tel:403-220-2208). The complete University of Calgary policy on sexual violence can be viewed at (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>)
- d. **Misconduct:** Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional [Code of Conduct](#) and promote academic integrity in upholding the University of Calgary's reputation of excellence. Some examples of academic misconduct include but are not limited to: posting course material to online platforms or file sharing without the course instructor's consent; submitting or presenting work as if it were the student's own work; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. Please read the following to inform yourself more on academic integrity:

[Student Handbook on Academic Integrity](#)  
Student Academic Misconduct [Policy](#) and [Procedure](#)  
[Research Integrity Policy](#)

Additional information is available on the [Student Success Centre Academic Integrity page](#)

- e. **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.

- f. **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.
- g. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](#) Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca). SU Faculty Rep., Phone: [403-220-3913](#) Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca). [Student Ombudsman](#), Email: [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca).
- h. **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.
- i. **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.

## LABS

Labs begin on Monday Jan 18, 2021. They will take place synchronously online via Zoom, where the room details per section will be posted to D2L. The lab documents will be available on D2L on a weekly basis, and the lab groups will be formed during the first lab period. In general, the format of the labs 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. The labs for the Winter 2021 semester have been modified to be done completely online and there is no in-person component. Instead, the students work through the lab document in their groups via Zoom breakout rooms. The only exception is Lab 7 in which the students will be controlling live equipment remotely.

PHYS 259 Lab schedule W2020

Week	Dates	Labatorial
1	Jan 11-15	NO LABS
2	Jan 18-22	Lab 1: Electric Charges and Forces
3	Jan 25-29	Lab 2: Electric Fields
4	Feb 1-5	Lab 3: Guass' Law
5	Feb 8-12	Introduction to Project
	<b>Feb 15-19</b>	<b>TERM BREAK (NO LABS)</b>
6	Feb 22-26	Lab 4: Electric Potential
7	Mar 1-Mar 5	Lab 5: Capacitors
8	Mar 8-12	Project Research Time
9	Mar 15-19	Project Research Time
10	Mar 22-26	Lab 6: Charge-to-Mass Ratio
11	Mar 29-Apr 1	Lab 7: Magnetic Field of a Slinky
12	Apr 6-9	Projects Due
13	Apr 12-15	Group Project Presentations

## **TOP HAT**

As a vehicle to encourage class participation and student interaction, as well as to provide instructors with rapid, real-time feedback, the Top Hat student response system will be employed. Detailed instructions on how to register for an account will be provided via D2L. **Each lecture section will have its own Top Hat course name, which will be given to you by your instructor.** The type and number of questions asked over the semester is at the sole discretion of your instructor.

## **IN-CLASS A**

### **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 - Apr 06 2021 16:55**

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**Department Approval**