



UNIVERSITY OF CALGARY  
FACULTY OF SCIENCE  
DEPARTMENT OF PHYSICS & ASTRONOMY  
COURSE OUTLINE

1. **Course:** PHYS 323, Optics & Electromagnetism -- Fall 2018

Instructor Name	Email	Phone	Office	Hours
<i>L01:</i> ( MWF 09:00 - 09:50 in SA 104)				
Philip Langill	pplangil@ucalgary.ca	4032205402	SA101b	Wed 13:00-15:30
<i>L02:</i> ( MWF 12:00 - 12:50 in AD 142)				
David Hobill	hobill@ucalgary.ca	403-220-6965	Science B 539	Tu, We, 14:00 - 15:30

**Course Site:**

D2L: PHYS 323 L01-(Fall 2018)-Optics & Electromagnetism

**Department of Physics & Astronomy:**

Office: Science B 605  
Phone: 403 220-5385  
Email: phasoffice@ucalgary.ca

**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):** Physics 211 or 221 or 227 and 223; and Applied Mathematics 217 or Mathematics 249 or 251 or 265 or 275.

**Antirequisite(s):** Credit for Physics 323 and either of Physics 255 or 259 will not be allowed.

**Notes:** 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 [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
Assignments (12)	24	
Lab explorations (6)	24	
Midterm	22	Oct. 25th (u-Vu)
Final Exam	30	TBA

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>	92 %	85 %	80 %	75%	70%	65 %	60 %	55%	50%	45 %	40 %

**NOTE:** Students who attain a combined weighted average grade, on the midterm and final exams, of less than 40% should not expect to

receive a course letter grade above a D.

This course has a registrar scheduled final exam.

#### 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/themself with these regulations. See also [Section E.3](#) of the University Calendar.

**Students who miss a lab or assignment 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.). Student's final marks for their labs (assignments) will be calculated by averaging the revised number of labs (assignments) which are subsequently required.**

**In the case of a missed midterm exam due to illness, students must notify the Course Coordinator 24 hours after the exam, at the latest. Should the claim of illness be substantiated, ONE written make-up exam will be arranged. Should that written make-up exam also be missed for legitimate reasons, an oral make-up exam will be administered.**

#### 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	TBA	Thursday, October 25, 2018 at 6:30 pm u-Vu	2.5 Hours

**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.

Students are expected to make every effort to attend this exam. If you have a legitimate conflict such as a lecture or lab in another course, you must inform the course coordinator at least 2 weeks prior to the exam so that alternative arrangements may be made for you.

#### 6. Course Materials:

Required Textbook(s):

Randall Knight, *Physics for Scientists and Engineers, 4th Ed.*: Pearson .

- **Mastering Physics Assignments:** Online assignments will be employed in this course, just as was done in PHYS 223. Assignments will be mostly made available on Fridays. They are mostly due on Sunday evenings at 11:59PM. The exact schedule of due dates is in the table below. To access the assignments go to <https://www.masteringphysics.com/site/login.html>

Your MP course is named **Phys323F18** with corresponding course ID **MPLANGILL92398**. As with PHYS 223 in W18 there is a free and paid version of this online tool. Students who go with the paid version also have access the course eTextbook. Students should check whether their subscription from last semester is still valid. THE document with all the details about registering for MP is found on the D2L PHYS 323 course.

#### 7. Examination Policy:

**Non-communicating calculators will be allowed during the midterm and final exam.**

**Formula sheets will be provided.**

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.

1. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **15 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 immediately submit the Reappraisal of Graded Term work form to the department in which the course is offered. The department will arrange for a re-assessment of the work if, and only if, the student has sufficient academic grounds. See sections [I.1](#) and [I.2](#) of the University Calendar
2. **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](http://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](mailto: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](mailto: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](mailto:suvpaca@ucalgary.ca). SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca). Student Ombudsman, Email: [suvpaca@ucalgary.ca](mailto:suvpaca@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.

Lecture Schedule

Monday	Some Topics	Textbook
Sept. 10	Electric fields of point charges	22.4, 22.5 23.1, 23.2
Sept. 17	Continuous charge distributions	23.3-23.5 23.7
Sept. 24	Electric flux and Gauss' Law	24.1-24.6
Oct. 01	Ampere's Law	29.3-29.6
Oct. 08	Induced Electric Fields	33.3, 33.5, 33.6
Oct. 15	Maxwell's Equations	34.2-34.7
Oct. 22	Power and Intensity	20.5, 20.6
Oct. 29	Interference in 1D	20.7, 21.5, 21.6
Nov. 05	Diffraction Refraction	22.1-22.5
Nov. 12	Reading Week	
Nov. 19	Thin Lenses	23.4, 23.6, 23.7
Nov. 26	Spherical Mirrors	23.8, 24.1-24.3
Dec. 07	Microscopes Telescopes	24.4-24.5

Final Exam date and time will be scheduled by the Registrar's Office.

### Course Learning Incomes

This course is the natural follow-up to PHYS 223. Students should be ready to take the knowledge of electric and magnetic fields learned there, to a higher level whereby they together constitute electromagnetic waves. Students will also build on the mathematical skills developed in PHYS 223, and/or other introductory physics and math courses.

Department Approval:

Electronically Approved

Date: 2018-09-05 11:58

## **Course Outcomes**

- Students in PHYS 323 will be immersed in an environment including lectures, labs, peer learning situations and casual office hour chats, which encourages critical and analytic thinking.
- Students will come out of PHYS 323 with a greater appreciation of the mathematical tools used to describe the behavior of the world, and a deeper understanding of the fundamental workings of the field nature of the universe.
- Laboratory skills will also be stressed in this course.
- It can be expected that this course will provide students with skills and a knowledge that they should find applicable to their specific degree program.