DALHOUSIE UNIVERSITY

Faculty of Science Course Syllabus
Department of Physics and Atmospheric Science
PHYC 3180.03 – Contemporary Physics - Winter 2026

Instructor(s): Kimberley Hall Email: Kimberley.Hall@dal.ca Office: Dunn 227
Lectures: Tuesday/Thursday 8:35 am – 9:55 am, Dunn 221C.
Course Prerequisites: MATH 2001.03, and at least one of PHYC 2515.03 or PHYC 2150.03

Course Objectives/Learning Outcomes:

To learn about current research topics in physics and engineering.
To learn how to read and digest current physics topics using the standard presentation in physics journals.
To develop skills required to communicate topics of current interest in physics to classmates through written summaries and oral presentations.
To develop skills required for collaborative discussion to solve research problems.
To learn how to write in the standard journal format using Latex.

Course Content:

The course will provide students with skills used in carrying out scientific research, including how to give a short talk, how to write a paper and how to carry out a literature review. The course will cover current topics in physics related to the subjects listed below, and will include workshop classes, guest lectures, literature reviews, and a series of student talks on literature papers.

1. Biological Physics/Cell Mechanics
2. Quantum Science and Technology
3. Brain Imaging

Course Materials:

There is no textbook for this class. Assigned readings will be supplied throughout the course, consisting of selected journal articles.

Course Assessment:

Workshops:

There will be 3 workshop classes throughout the semester. Each workshop class will require a written summary from each student of an assigned paper, together with a list of aspects of the paper that were not clear. This summary/list must be provided during class 1 lecture period prior to the associated workshop class. Each student must attend the workshop class prepared to discuss the assigned paper in small groups.

Literature Reviews:

The class will read and analyze 1 review article. This will involve creating a summary document that briefly addresses the general interest and open questions within the field. This will also involve group work to dig deeper into selected aspects that will be presented to the class.

Student Talks:

Each student will give a 10 minute talk to the class on a literature paper provided to them for each of the above 3 topics.

In-class Tests:

There will be in-class tests on material covered during the workshops, the student talks and associated discussion following these talks.

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Marking Scheme:

Student Presentations	Due dates provided in class	20
Paper summaries for Workshops	Due dates provided in class	20
Latex paper	Due dates provided in class	20
In-class Tests	Schedule provided in class	20
Attendance/Participation	Schedule provided in class	20

Letter grades will be determined using the Faculty of Science grade conversions. The Weight (% of final grade) of each component is indicated in the table above.

Course Policies:

Workshop attendance is mandatory for all students. No extensions will be given for the paper summaries for any reason. You must present on your assigned presentation day. No make up talks allowed. If you are not able to attend a workshop or your presentation due to illness, you must provide acceptable documentation to avoid penalty. The work that you submit for paper summaries must be a result of your own analysis and be written in your own words. ***AI tools are not permitted for summaries or paper writing***.

Course Description:

This course covers a variety of topics related to areas of current interest in physics.

DALHOUSIE COMMON GRADE SCALE

A+ (90-100)	**B+** (77-79)	**C+** (65-69)	**D** (50-54)
A (85-89)	**B** (73-76)	**C** (60-64)	**F** (<50)
A- (80-84)	**B-** (70-72)	**C-** (55-59)	

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University Policies and Statements

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: https://www.dal.ca/about-dal/internationalization.html

Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Additional academic integrity information can be found at: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre (https://www.dal.ca/campus_life/academic-support/accessibility.html) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html)

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

Diversity and Inclusion – Culture of Respect

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Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: http://www.dal.ca/cultureofrespect.html

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner - perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. The full Code of Student Conduct can be found at: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at: https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at: https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course