Physics 4850 Quantum Mechanics – Fall 2025
Tuesdays and Thursdays 3:30 – 4:50, Room C2045

Prerequisites: PHYS 3750, 3820

Course description on department web page:
https://www.mun.ca/physics/undergraduates/syllabus/physics-4850-quantum-mechanics/

Instructor
Dr. Murray Wilson
Office: C3022
Phone: 865-6724
Email: murray.wilson@mun.ca (Preferred contact method)

Office Hours: 13:00 – 15:00 Wednesdays and by appointment.

Course Communication: General information will be communicated via Brightspace. Individual communication with students shall be via email. Response to emails shall normally be within 24 hours on weekdays, with the exception of scheduled university holidays.

Recommended Optional Reference Books

- Quantum Mechanics by Claude Cohen-Tannoudji, Bernard Diu, and Franck Laloë, Volumes 1 & 2
- Introduction to Quantum Mechanics by David Griffiths
- **No required text for this course**

Evaluation Scheme
Assignments (6) - 24% - (Expected due dates: September 23rd, October 7th, October 21st, November 4th, November 18th, December 2nd). Submit in class, or via Brightspace before 23:59 that day.
Late submissions without prior agreement will be penalized at 15% per day late, rounded up to the nearest whole day.
Mid-term examination – 26% - (Tuesday October 28th)
Students allowed one single-side 8.5x11 (letter-size) sheet of hand-written notes during mid-term
Final Examination – 50%
Students allowed one double-sided 8.5x11 (letter-size) sheet (or two single-sided sheets) of hand-written notes during final exam

Important Dates
Tuesday September 30th – Truth and Reconciliation Day, no class
Tuesday October 14th – Thanksgiving break, no class
Thursday October 28th – Midterm Exam
Tuesday November 4th – Last day to drop course

Thursday December 4th – Final lecture
Monday Dec 8th to Tuesday December 16th – Final exam period

Outline

This course loosely follows selected material from chapters 1 – 14 of Quantum Mechanics by Cohen-Tannoudji.

Material covered:

1. Brief review of particles in scalar potentials
2. Formal notation for quantum mechanics
3. Postulates of Quantum Mechanics
4. Harmonic Oscillator
5. Spin
6. Angular Momentum
7. Time independent perturbation theory
8. Time dependent perturbation theory
9. Systems of Identical Particles
10. Scattering of Particles

In the case of a class disruption or cancellation, and in the case of revisions to evaluation methods, students registered in the course shall be notified via Brightspace. Any necessary revisions to the evaluation methods will be made in consultation with the students registered in this course. If a student demonstrates that they would be disadvantaged by the change, then, as per 6.7.4 of the University Calendar, accommodations will be made.

Students are expected to abide by the student code of conduct (https://www.mun.ca/student/media/production/memorial/administrative/student-life/files/supports-services/respect/Student_Code_of_Conduct_May_11_2017.pdf) and academic misconduct guidelines in Section 6.12 of the university regulations (https://www.mun.ca/regoff/calendar/sectionNo=REGS-0748) as set out by Memorial University.

Memorial University of Newfoundland is committed to supporting inclusive education based on the principles of equity, accessibility and collaboration. Accommodations are provided within the scope of the University Policies for the Accommodations for Students with Disabilities (http://www.mun.ca/policy/site/policy.php?id=239). Students who may need an academic accommodation are asked to initiate the request with the Glenn Roy Blundon Centre (http://www.mun.ca/blundon) at the earliest opportunity.

The instructor reserves the right to restrict the use of electronic devices in the classroom if such use, by the discretion of the instructor, is deemed deleterious to the experience of other students.

Original work is expected to be submitted in this course. The use of artificial intelligence tools to generate assignment submissions is not permitted.