PHYS 4900: Experimental Physics II – Fall 2025
Rooms C-4044/4046/4048/4050/4052,
2:00 – 5:00 Mondays and Fridays (Slot 61/65)

Instructor
Prof. L.Y, Beaulieu
Office: Room C-2048,
e-mail: lbeaulieu@mun.ca (do not use D2L)
Office hours: Drop in anytime

Textbook
No textbook is required for this course.

Pre-Requisite:
PHYS 3900

Description:
Physics 4900 is an advanced laboratory course that encourages independent thought and learning through open-ended experiments in select areas of physics using both custom and research-grade commercial instrumentation. Students gain insight into the challenges faced by experimentalists in planning and setting-up a new experiment, but will also experience the feeling of satisfaction that comes when the apparatus works properly and data collection starts. Students who successfully complete this course with have acquired hands-on laboratory skills that are highly valued in the technology sector and in fields such as photonics.

Class Notes
Class notes can be found on Brightspace.

Evaluation Scheme

1) Arduino Lab
   Lab Report: 15% (due tentatively October 6th)
2) Diffusion Limited Aggregation Lab
   Lab Report: 15% (due tentatively October 27th)
3) One 20 min presentation from the list provided (*tentatively October 24th*) 10%
4) Long Experiment. (one or two of the following*)
   - Sonic Crystal
   - Diode laser spectroscopy lab
   - Nuclear magnetic resonance and imaging lab
   - Optical Waveguides

   Lab report (due tentatively December 5th) 30%
   20 min Presentation (plus 5 min questions, tentatively December 1st) 15%
   Publication quality paper (due tentatively December 5th) 15%

* - Some experiments may be more time-consuming than others. If a student decides to complete two experiments instead of one, the 30% mark for the lab report will be split between the two experiments such as to reflect the time and effort the student has committed to each work. The 20 min presentation and the publication quality paper however, will only focus on one of the two experiments. Therefore, the onus is on the student to ensure that at least one experiment has been performed with sufficient depth to complete these two tasks.

The value of any uncompleted work for reasons falling under University Regulation 6.7.5 will be dealt with in a case-by-case scenario.

***** Material handed in late will lose 20% per day *****

Lab practice and safety:
Your workspace should look clean at the end of each lab period. This is part of good lab practice and is essential in any shared laboratory space. This means returning equipment that you borrowed to its usual storage place when you are finished and removing litter. Safety glasses will be provided if needed and closed-toe shoes are required (no open-toe sandals or flip-flops). Food and drink are not permitted in the lab. You must always keep your work area tidy.

Important general information from the University:
It is the student's responsibility to acquaint themselves with these items. Please read.

Accommodations for Students with Disabilities
Memorial University of Newfoundland is committed to fostering equitable and accessible learning environments for all students. Accommodations for students with disabilities are provided in accordance with the Accommodations for Students with Disabilities Policy (www.mun.ca/policy/site/policy.php?id=239) and its related procedures. Students who feel that they may require formal academic accommodations to address barriers or challenges they are experiencing related to their learning are encouraged to contact Accessibility Services (the Blundon Centre) at the earliest opportunity to ensure any required academic accommodations are provided in a timely manner. You can contact Accessibility Services (Blundon Centre) by emailing blundon@mun.ca.

Student Code of Conduct.
Students are expected to adhere to those principles which constitute proper academic conduct. A student has the responsibility to know which actions, as described under Academic Offences in the University Regulations, could be construed as dishonest or improper. Students found guilty of an academic offence may be subject to a number of penalties commensurate with the offence including reprimand, reduction of grade, probation, suspension or expulsion from the University. For more information regarding this policy, students should refer to the University Regulations for Academic Misconduct (Section 6.12) in the University Calendar.

Student Work

Original work, completed wholly by you, is expected to be submitted in this course. The use of an artificial intelligence tool like ChatGPT is not permitted

6.8.2 Exemptions from Final Examinations
http://www.mun.ca/regoff/calendar/sectionNo=REGS-0628