PHYS 215: Introductory Quantum Physics
January - April 2020

Instructor: Prof. Michel Lefebvre
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Lectures: 08:30 - 09:50, Mondays and Thursdays in Elliott 062
First lecture: Monday 6 January 2020.

Course web: http://coursespaces.uvic.ca

Office Hours
In Elliott 205A: Thursdays 13:00-15:00 starting 16 January.
You can also email lefebvre@uvic.ca to make an appointment.

Required courses

Prerequisites:	PHYS 110 and 111; or PHYS 120 and 130
Pre- or co-requisites:	MATH 204

Text
Modern Physics for Scientists and Engineers, **4th edition**, S.T. Thornton and A. Rex.
Any other edition is also acceptable, but there are a few differences between the texts.
One copy of the 4th edition text will be on the Library Reserve, with call number “pri 16670”.

Labs
All lab sections are held in the Elliott Lab wing room 139.
Labs start the week of 6 January. You must attend this first lab. Obtain your lab manual and lab notebook at the bookstore. If you cannot attend the section you are registered in, please attend another lab section during the week of 6 January.
If you have any questions regarding the labs:
Dr. Alex van Netten, vannette@uvic.ca
Mr. Rob Rempel, drempel@uvic.ca

Assignments
There will be approximatively 7 assignments, typically due one to two weeks after the issue date. Late assignments are not accepted. If you miss an assignment for a valid reason (with written documentation), then this assignment will not count toward your final assignments grades.

Course material
Course material will be distributed via the CourseSpaces site for PHYS 215, and will include assignments, assignment solutions, and all slides shown in class.

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Topics covered
The course covers the experimental basis of quantum mechanics, the atomic structure and wave properties of matter, the time-independent Schrödinger equation, wave functions and probability, and if time allows an introduction to the Hydrogen atom. The topics covered correspond to chapter 1, a brief review of relativistic energy and momentum from chapter 2, chapters 3, 4, 5, 6, and if time allows part of chapter 7.

Keys to success
- Attend lectures and labs.
- Read the text.
- Do assignments and lab reports.
- Study.

Calculator for exams
You may only use a non-programmable, non-graphing calculator for exams. Examples of acceptable calculators are the Sharp EL-510R or EL-510RNB; they can be bought in the UVic Bookstore for about $10.

Accommodation
Arrangement for reasonable accommodations for customarily accommodated issues will be considered, however this is contingent on your active participation: If you miss a course requirement, you are expected to contact the instructor as soon as reasonably possible, and you are expected to give the instructor advance warning of issues that you could have reasonably foreseen.

Conduct
Attendance in class not required, but strongly recommended.
It is strictly prohibited to use cell phones or laptops to perform texting or social networking during class.
Cheating, plagiarism, and other form of academic fraud are taken very seriously by the University and by the instructor. Please familiarize yourself with the University Policy on Academic Integrity.

Marking and Grades
To obtain credit in the course you must:
- complete all labs and have satisfactory standing in the labs;
- have at least 50% on your final mark, which is the highest mark obtained from the following marking scheme:

	I	II	
Assignments	20%	20%	approximately 7 assignments
Labs	20%	20%	must be passed, all must be completed
Midterm	20%	10%	80-min exam, during class time
Final exam	40%	50%	3 hour exam, April Exam Period

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You cannot pass the course without passing the labs; this is a department regulation and it cannot be waived. If you do not pass the labs, your overall percentage grade will be at most 49%.
If you miss the midterm for a valid reason (with written documentation), then the midterm will not count but your final will count for 60%; there are no remedial or make-up midterms.

If the application of this scheme would result in grades that are judged by the instructor to be inconsistent with the University's grading descriptions, then the instructor will assign percentages consistent with them. The grade N is a failing grade that indicates that you did not complete the required course work.

Lecture and Midterm Tentative Schedule

Date	Lecture Title	Text Reference
Jan 6	The Birth of Modern Physics	1.
Jan 9	Review of Relativistic Kinematics	2.11-13
Jan 13	Review of Relativistic Kinematics	2.11-13
Jan 16	The Experimental Basis of Quantum Theory	3.
Jan 20	The Experimental Basis of Quantum Theory	3.
Jan 23	The Experimental Basis of Quantum Theory	3.
Jan 27	Structure of the Atom	4.
Jan 30	Structure of the Atom	4.
Feb 3	Structure of the Atom	4.
Feb 6	Structure of the Atom	4.
Feb 10	Wave Properties of Matter and Quantum Mechanics I	5.
Feb 13	Wave Properties of Matter and Quantum Mechanics I	5.
Feb 17-21	Reading Break	
Feb 24	MIDTERM EXAM during class time	
Feb 27	Wave Properties of Matter and Quantum Mechanics I	5.
Mar 2	Wave Properties of Matter and Quantum Mechanics I	5.
Mar 5	Wave Properties of Matter and Quantum Mechanics I	5.
Mar 9	Quantum Mechanics II	6.
Mar 12	Quantum Mechanics II	6.
Mar 16	Quantum Mechanics II	6.
Mar 19	Quantum Mechanics II	6.
Mar 23	Quantum Mechanics II	6.
Mar 26	Quantum Mechanics II	6.
Mar 30	The Hydrogen Atom	7.
Apr 2	The Hydrogen Atom	7.