PHYS 215: Introductory Quantum Physics
January - April 2017

Instructor: Prof. Michel Lefebvre
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Lectures: 08:30 - 09:50, Mondays and Thursdays in Elliott 062
First lecture: Thursday 5 January 2017.

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

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 9 January. You must attend this first lab.
Obtain your lab manual and lab notebook at the bookstore.
If you have any questions regarding the labs:
Dr. Alex van Netten, vannette@uvic.ca
Mr. Rob Rempel, drempel@uvic.ca

Office Hours: In Elliott 205A: Mondays and Thursdays 13:00-14:00 starting 9 January. You can also email lefebvre@uvic.ca to make an appointment.

Course material
Course material will be distributed via the University's http://coursespaces.uvic.ca web site. This includes any slides shown in class, a detailed probable schedule of lectures and associated readings, and notes pointing to other useful resources.

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.

Required courses

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

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

Calculator
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.

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 obtained from the following marking scheme:

Assignments	15%	approximately 10 assignments
Labs	20%	all labs must be completed
Midterm exam	20%	50 min exam, tentatively 23 Feb in class
Final exam	45%	3 hour exam, April exam period

Assignments will typically be due one week after the issue date. Late assignments are not accepted.
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%.

The final grade follows the Senate-approved percentage grading scheme for conversion of numerical scores to letter grades:

A+	90-100	B+	77-79	C+	65-69	E	40-49*
A	85-89	B	73-76	C	60-64	F	0-49
A-	80-84	B-	70-72	D	50-59	N	Not Complete

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.
*If you pass the labs and if your final percentage grade is equal to or greater than 40% and less than 50%, you will be assigned an E, with the possibility of a supplemental exam, if you are eligible.

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Arrangements and Conduct
The instructor is willing to arrange reasonable accommodations for:

- missed exams or course deadlines due to illness or other affliction;
- conflicts between classes or examinations, and religious observances;
- similar issues.

If you anticipate missing a course requirement, you are expected to contact the instructor a reasonable amount of time in advance.

Cheating, plagiarism, ad other form of academic fraud are taken very seriously by the University and by the instructor. Please familiarize yourself with the Policy on Academic Integrity which can be found in the Undergraduate Calendar.

Tentative Lecture Schedule (last update 5 December 2016)

Date	Lecture Title	Text Reference
Jan 5	The Birth of Modern Physics	1.
Jan 9	Review of Lorentz Transformations	2.1, 2.3 - 2.6
Jan 12	Review of Relativistic Kinematics	2.11 - 2.13
Jan 16	The Experimental Basis of Quantum Theory	3.
Jan 19	The Experimental Basis of Quantum Theory	3.
Jan 23	The Experimental Basis of Quantum Theory	3.
Jan 26	The Experimental Basis of Quantum Theory	3.
Jan 30	Structure of the Atom	4.
Feb 2	Structure of the Atom	4.
Feb 6	Structure of the Atom	4.
Feb 9	Structure of the Atom	4.
Feb 13-17	Reading Break	
Feb 20	Wave Properties of Matter and Quantum Mechanics I	5.
Feb 23	MIDTERM EXAM	
Feb 27	Wave Properties of Matter and Quantum Mechanics I	5.
Mar 2	Wave Properties of Matter and Quantum Mechanics I	5.
Mar 6	Wave Properties of Matter and Quantum Mechanics I	5.
Mar 9	Quantum Mechanics II	6.
Mar 13	Quantum Mechanics II	6.
Mar 16	Quantum Mechanics II	6.
Mar 20	Quantum Mechanics II	6.
Mar 23	Quantum Mechanics II	6.
Mar 27	Quantum Mechanics II	6.
Mar 30	The Hydrogen Atom	7.
Apr 3	The Hydrogen Atom	7.