CAMOSUN COLLEGE	***School of Arts & Science*** ***PHYSICS DEPARTMENT*** **PHYS 215-1** **Introductory Quantum Physics** **2008 W**

COURSE OUTLINE

The Approved Course Description is available on the web @ _____

Ω *Please note: this outline will be electronically stored for five (5) years only. It is strongly recommended students keep this outline for your records.*

1. Instructor Information

(a)	Instructor:	John Pratt		
(b)	Office Hours:	M.,T.,W. 10:30 - 11:20, Th., 8:30 – 9:20, F. 3:20 – 4:20		
(c)	Location:	F 346 B		
(d)	Phone:	370-3516	Alternative Phone:	370-3511
(e)	Email:	prattj@camosun.bc.ca		
(f)	Website:			

2. Intended Learning Outcomes

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

Upon completion of this course the student will be able to:

1. Describe and account, on the basis of the light quantum (photon) concept, blackbody radiation, photoelectric effect, pair production, and the Compton effect, and solve technical problems involving this concept in each case.
2. Describe the classical principles of wave motion, superposition and interference and their use in the development of the Schrödinger equation.
3. Describe the chief features of the Rutherford scattering experiment, and it relevance to the determination of nuclear sizes, and to solve technical problems involving the scattering of charged particles under a central force.
4. Describe and define de Boglie waves, wave-packets, the Davisson-Germer experiment and the Heisenberg Uncertainty principle.
5. Describe the Bohr theory of the hydrogenlike atom, and solve technical problems associated with the absorption/emission of photons in transitions between allowed levels.
6. State the postulates of Quantum Mechanics. State Schrödinger's equation in 1D (time dependent and independent forms) and apply this equation to simple 1D systems (harmonic oscillator, particle in a box).
7. State the Schrödinger equation in 3D and solve technical problems involving energy levels of the hydrogenlike atom, and state and describe the differences between the Bohr atom and the quantum-mechanical atom.
8. Provide an account of the classification of elementary particles, applicable conservation laws, and the Standard Model.

3. Required Materials

(a)	Texts	Serway, Moses and Moyer “Modern Physics” 2. Edition
(b)	Other	Phys. 215 Lab. manual

4. Course Content and Schedule

(Can include: class hours, lab hours, out of class requirements and/or dates for quizzes, exams, lectures, labs, seminars, practicums, etc.)

M.,T., W.,F. 11:30 – 12:20 : Th. 10:30 – 12:20

5. Basis of Student Assessment (Weighting)

(Should be linked directly to learning outcomes.)

(a)	Assignments	
(b)	Quizzes	
(c)	Exams	Midterm,30%, Final 50%
(d)	Other (eg, Attendance, Project, Group Work)	*Lab.work 20%*

6. Grading System

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at **camosun.ca** for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description

I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	*In progress*: A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. *(For these courses a final grade will be assigned to either the 3rd course attempt or at the point of course completion.)*
CW	*Compulsory Withdrawal:* A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**.
It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services and on the College web site in the Policy Section.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED