

UNIVERSITY OF CALGARY  
DEPARTMENT OF PHYSICS and ASTRONOMY  
COURSE OUTLINE

1. Course: **Physics 543, Quantum Mechanics II**

Lecture/Time/Session(s): L01: MWF, 10:00-10:50, ST 063, Fall 2013

Instructor: Dr. N. Moazzen-Ahmadi

Office: SB 525, 403-220-5394

Office Hours: 1:00-3:00 p.m. Monday or by appointment

Email: [ahmadi@phas.ucalgary.ca](mailto:ahmadi@phas.ucalgary.ca)

Physics and Astronomy Office: SB 605, 403-220-5385

Course materials will be posted on Blackboard, <https://blackboard.ucalgary.ca>

2. **PREREQUISITES:** Physics 443 or Chemistry 373

3. **GRADING:** The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Assignments	20%	
Midterm Tests (2)	20%	(In class tests, October 25 and November 25)
Weekly quizzes	15%	
Final Examination (3 hours)	45%	(To be scheduled by the Registrar)

Percentage grades will be given for all elements of term work and examinations in Physics 543. A weighted course percentage will be calculated for each student after the final exam is written. A table of conversion from final course percentage to final course letter grade will be published on the Phys 543 Blackboard site later in the term.

4. **Missed Components of Term Work.** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in section 3.6: <http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html>. It is the student's responsibility to familiarize himself/herself with these regulations. See also <http://www.ucalgary.ca/pubs/calendar/current/e-3.html>.

5. **TEXTBOOK:** Quantum Mechanics Course Notes Part II, "Application of Quantum Mechanics", R.T. Thompson. The Notes can be purchased from Physics and Astronomy office SB 605.

6. **EXAMINATION POLICY:** [calculators are permitted, closed book examinations, formula sheets including integrals and trigonometric identities will be provided.] Students are encouraged to read the Calendar, Section G, on Examinations: <http://www.ucalgary.ca/pubs/calendar/current/g.html>.

11. **OTHER IMPORTANT INFORMATION FOR STUDENTS:**

(a) **ACADEMIC MISCONDUCT** (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under K. Student Misconduct (<http://www.ucalgary.ca/pubs/calendar/current/k.html>) to inform yourself of definitions, processes and penalties

(b) **ASSEMBLY POINTS** in case of emergency during class time. Be sure to **FAMILIARIZE YOURSELF** with the information at <http://www.ucalgary.ca/emergencyplan/assemblypoints>.

(c) **ACADEMIC ACCOMMODATION POLICY.** Students with documentable disabilities are referred to the following links:  
Calendar entry on students with disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html>  
Disability Resource Centre: <http://www.ucalgary.ca/drc/>

(d) **SAFEWALK:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

(e) **FREEDOM OF INFORMATION AND PRIVACY:** This course will be conducted in accordance with the Freedom of Information

and Protection of Privacy Act (FOIPP). As one consequence, **students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page.** For more information see also <http://www.ucalgary.ca/secretariat/privacy>.

- (f) **STUDENT UNION INFORMATION:** VP Academic Phone: 220-3911 Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca).  
SU Faculty Rep. Phone: 220-3913 Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca) Website <http://www.su.ucalgary.ca/home/contact.html>.  
Student Ombudsman: <http://www.su.ucalgary.ca/services/student-services/student-rights.html>
- (i) **INTERNET and ELECTRONIC COMMUNICATION DEVICE Information.** You can assume that in all classes that you attend, **your cell phone should be turned off.** Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

# Course Syllabus

*The schedule is tentative*

Chapter I: Review of the material discussed in Part I (Physics 443). (3 Lectures)

Chapter II: Treatment of quantum mechanical two-level systems (5 Lectures)

Chapter III: Spin and generalized angular momentum (5 Lectures)

Chapter IV: Addition of angular momentum (5 Lectures)

Chapter V: Identical particles and spectroscopic notation (4 Lectures)

Chapter VI: Time-Independent Perturbation Theory (5 Lectures)

Chapter VII: Hydrogen atom (5 Lectures)

Chapter VIII: Time-dependent perturbation theory (4 Lectures)

## Conversion scale between % and letter grade

93-100%	A+
85-92.99%	A
80-84.99%	A-
75-79.99%	B+
70-74.99%	B
65-69.99%	B-
60-64.99%	C+
55-59.99%	C
50-54.99%	C-
45-49.99%	D+
40-44.99%	D
Less than 40%	F