COURSE: PHYS 520 Quantum Mechanics
COURSE SYLLABUS: Fall 2020
TR 11:00 am - 01:45 pm  Location: STC146

Note: Uncertainties due to the Covid-19 pandemic might change the terms of this syllabus.

Instructor: Carlos Bertulani
Office Location: Science 140
Office Hours: TR 1:45 - 3:00 pm
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Preferred Form of Communication: face-to-face, classroom, office hours

COURSE INFORMATION


Course Description:
Three semester hours. A course designed to introduce students to quantum mechanics. An introduction to modern quantum mechanics as applied to the hydrogen atom, molecules, and solids. If you do not learn quantum mechanics, then you will not understand the major developments of science, from electronic gadgets to stars. We will cover the chapters of the book containing the material.

1. Basic concepts of quantum mechanics
2. Energy, momentum, bras, kets, operators
3. Schroedinger's equation, Feynman’s path integrals
4. Angular momentum, group theory
5. Perturbation theory
6. Spin
7. Identical particles, scattering
8. The atom

Student Learning Outcomes
1. Students will understand the discipline-specific knowledge in quantum mechanics, covering the subjects:

Syllabus/schedule subject to change
1. Basic concepts of quantum mechanics
2. Energy, momentum, operators
3. Schroedinger's equation, amplitudes, probabilities
4. Angular momentum, tunneling, one-dimensional potentials
8. The atom

2. Students will know the concepts of quantum mechanics and demonstrate a proficiency in the fundamental concepts in this area of science.
3. Students will be able to solve problems using their knowledge and skills in modern physics. They will use critical thinking skills to formulate and solve quantitative problems in applied physics.

COURSE REQUIREMENTS

Activities Assessments
The following measures will be used to assess the success of this course in achieving the above objectives:
Student Work: exams and quizzes.
• The course will have 3 midterm tests, plus a final exam.
• The total grade will consist of tests and the exam.

EXAM DATES
1st test: 11:00 am, September 29, 2020 – in classroom
2nd test: 11:00 am, October 24, 2020 – in classroom
3rd test: 11:00 am, November 24, 2020 – in classroom
Final: 11:00 am, December 08, 2020 – Room to be announced later

GRADING

Final grades in this course will be based on the following scale:
A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% or Below

Assessments
Midterm exams: 66%
Final Exam: 34%

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Syllabus Change Policy
The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus
during the semester. Any changes made to the syllabus will be announced in advance.

**Student Conduct**

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See current Student Guidebook).

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette

http://www.albion.com/netiquette/corerules.html

**Students with Disabilities**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

**Office of Student Disability Resources and Services**

Texas A&M University-Commerce - Gee Library- Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: StudentDisabilityServices@tamuc.edu

Website: Office of Student Disability Resources and Services

http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

**Nondiscrimination Notice**

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

**Campus Concealed Carry statement:** Campus Concealed Carry - Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to

((http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf) and/or
consult your event organizer). Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.