PHY 4605: Introduction to Quantum Mechanics 2, Spring 2022

Meetings: MWF 11:45 AM - 12:35 PM (period 5) in Room NPB 1220.

Instructor: Khandker Muttalib; NPB 2140; Tel: 392-6699; Email:muttalib@phys.ufl.edu

Office Hours: (Tentative) MWF 10:40 AM – 11:30 AM (period 4) in NPB 2140 or by appointment. To make an appointment, please send an email.

Grader: To be announced.

Textbook: Introduction to Quantum Mechanics (3rd Ed): D. J. Griffiths and D.F. Schroeter (Cambridge University Press, 2018).

Homework and grading: There will be daily homework assignments, due at the beginning of each class. (For medical or other excused absences, see me for approval to submit late.) There will also be three in-class, closed-book exams. The total grade will derive 40% from homework and 60% from the three exams.

Expectations: You are expected not to copy any homework solution from anyone else, and not to ask for help until you have tried hard to do it all by yourself. If you fail to do after sincere efforts, you are *encouraged* to get help from fellow class friends, instructor, or anyone else. You are also encouraged to form small study groups and discuss homework assignments, within the above rule. I expect *each* of you to submit *all* homework assignments; they are an integral part of the course. If for any reason you miss an assignment, see me immediately for approval to submit late with partial credit. The course will cover a lot of material, and you should be prepared to invest a substantial amount of time.

Instructional methods: The syllabus, lecture schedule, lecture notes, grades and all announcements will be posted on Canvas.

Exams: There will be three during-term exams which are closed-book and closed-note, but all essential formulae will be given.

Class attendance and make-ups: Regular lecture-attendance is expected. Please make sure from the beginning of the course that you are available for the 3 during-term exams. Make-ups for these exams are rare but will be considered on a case-by-case basis; please contact the instructor.

Outline (Tentative):

1/05 – 2/07: Symmetries and conservation laws, time independent perturbation theory.

2/09: Exam 1

2/11 – 3/14: Hydrogen atom, variational principle, WKB approximation.

3/16: Exam 2

3/18 – 4/18: Scattering, quantum dynamics, adiabatic approximation.

4/20: Exam 3

Grading scale: The final letter grades will be assigned according to the following criteria:

A: $\geq$ 95 %
A–: 90 – 94 %
B+: 85 – 89 %
B: 75 – 84 %
B–: 70 – 74 %
C+: 65 – 69 %
C: 55 – 64 %
C–: 50 – 54 %
D+: 45 – 49 %
D: 35 – 44 %
D –: 30 – 34%
E: $\leq$ 29 %

For current UF grading policies for assigning grade points, see
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Academic Honesty: All University of Florida students are required to abide by the University's Academic Honesty Guidelines and by the Honor Code, which reads as follows:

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

Cheating, plagiarism, or other violations of the Academic Honesty Guidelines will not be tolerated and will be pursued through the University's adjudication procedures.

Special Accommodations: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, http://www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Student Privacy: There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see the Notification to Students of FERPA Rights.

Diversity: Physics is practiced and advanced by a scientific community of individuals with diverse backgrounds and identities and is open and welcoming to everyone. We recognize the value in diversity, equity, and inclusion in all aspects of this course. This includes, but is not limited to differences in race, ethnicity, gender identity, gender expression, sexual orientation, age, socioeconomic status, religion, and disability. All members of this class are expected to contribute to a respectful, welcoming, and inclusive environment for every other member of the class.

Course evaluation: "Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/."

Campus Resources:

Health and Wellness:

U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS): Student Health Care Center, 392-1161.

University Police Department: at 392-1111 (or 9-1-1 for emergencies), or police.ufl.edu.

Academic Resources:

E-learning technical support: 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.

Career Resource Center: Reitz Union, 392-1601. Career assistance and counseling.

Teaching Center: Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

Writing Studio: 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

Updates: As the course progresses, the syllabus may need updating to enhance the learning opportunity. Any such changes will be announced in class.