

PHZ 3113: Introduction to Theoretical Physics, Fall 2018

Course objective:

Builds the mathematical foundations for introductory theoretical physics, including classical mechanics, electrodynamics as well as quantum mechanics.

Meetings:

MWF 12:50 pm – 1:40 pm (period 6), at NPB 1200

Instructor:

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

Office Hours:

(tentative) TThF 3:00 pm – 3:50 pm (period 8), at NPB 2140

Textbook:

Recommended: *Mathematical Methods for Physics and Engineering*, by K.F. Riley, M.P. Hobson and S.J. Bence, 3rd Ed., Cambridge University Press (2006).

Other good reference books:

(1) *Mathematical Methods for Physicists*, by G.B. Arfken and H.J. Weber, 5th Ed., Harcourt/Academic Press (2001).

(2) *Mathematical Methods in the Physical Sciences*, by M.L Boas, 3rd Ed., Wiley (2005).

Materials and supplies fees:

There are no additional fees for this course.

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.

Homework and grading:

There will be daily homework assignments, due at the beginning of next lecture. (For medical or other excused absences, see me or send email for approval to submit late.) There will also be three closed-book exams. The total grade will derive 1/3 from homework and 2/3 from the three exams. The final letter grades will be assigned according to the following criteria:

A: $\geq 90\%$
A-: 85 – 89 %
B+: 80 – 84 %
B: 70 – 79 %
B-: 65 – 69 %
C+: 60 – 64 %
C: 50 – 59 %
C-: 45 – 49 %
D+: 40 – 44 %
D: 35 – 39 %
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>

Outline (Tentative):

8/22 – 9/21: calculus of variations and classical mechanics, vectors and vector fields.

9/24: Exam 1 (tentative)

9/26 – 10/22: matrices, normal modes, analytic functions of complex variables.

10/24: Exam 2 (tentative)

10/26 – 12/03: linear vector spaces and quantum mechanics, Fourier series and integrals, ordinary and partial differential equations.

12/05: Exam 3 (tentative)

Class attendance and make-ups:

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.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.

Counseling:

Contact information for the Counseling and Wellness Center is <http://www.counseling.ufl.edu/cwc/Default.aspx/> .

Course evaluation:

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/> . Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available at <https://evaluations.ufl.edu/results/> .