

COURSE SYLLABUS Physics 5311-001, Spring 2009

Course Objective: To develop skills to translate between descriptive, pictorial, graphical and mathematical representation of the same concept in problem-solving strategy. Students will learn laws of motion and conservation laws and apply them in solving problem with respect to nuclear static and dynamic phenomena and application.

Learning Outcome: We will record the student's responses during the course of lecture in class meetings to assess their learning outcome. Accordingly certain questions in the exams will explicitly require the course objective to use as learning assessment tools.

Course Coverage: In this course we expect to cover the basic nuclear structure (historical review of discovery of nuclear interaction, nuclear properties, like nuclear sizes, mass, binding energy, nuclear angular momentum and moments), nuclear decay and radioactivity (α , β , γ), nuclear reaction (fission and fusion), application (astrophysics, trace elements, nuclear diagnostics and medicine), super heavy elements and particle physics. Material in chapters, mentioned overleaf will be covered with extended material from other sources of ongoing research

Grades: The course grade will be determined from three (3) in-class tests, each of 20%, final 40%, homework and quizzes 20%, One of the lowest tests or half final will be dropped. A term paper and presentation may be used as an extra credit of 10%

The grade scale will be approximately: $A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F$

Homework: Doing the homework by yourself is very important for success in this course and building the strong foundation. Your examination grades generally reflect how well you understood and do the homework. The homework will be assigned on the material covered and to be covered in the class. Based on the home work a short quiz will be given on regular basis.

Examinations: The examinations are closed book. You may bring a 3" x 5" card with the material of your choice in the exams. Only **simple calculators** without any material stored are allowed. The in-class test if lasts earlier, the lectures will be given for the remaining time.

Make-up exams and quiz: Make up quizzes will not be given and so the exams. In a serious emergency, however, please contact me to find out how a missing grade for an exam will be determined.

IMPORTANT: Experience shows that **you must spend AT LEAST 3 HOURS outside of class for each hour of class meeting** on the lecture part of this course. (The laboratory is extra) Plan on spending about half of your time on your lecture notes and the textbook, and the other half on the homework. Carefully take notes in class. **I encourage you for questions and discussions in the class.** Review the new material in the textbook before each class.

Attendance: I expect you to attend class regularly except for real emergencies. Skipping class generally results in very low course grade.

Withdrawal Policy: Consistent with University policy, i.e. an automatic "W" if you withdraw by the posted deadline. A "W" will be given if you pass the exams with at least a "D" at the time of withdrawal/dropping the course or "WF" if your exam score is below "D" at the time.

NOTE: Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact their instructor as soon as possible so that necessary arrangements can be made.

Syllabus**Nuclear Physics 5311****Spring 2009**

Instructor: M.A.K. Lodhi, Office SC 111; Office Hours: MWF 10:00 – 11:00 am;

Text: *Introductory Nuclear Physics, Kenneth S. Krane, John Wiley*
 The chapters will be covered in the order listed below.

Date	Chapter
January 7	1, Historical development of NP
9	Alpha particle scattering
12	“
14	3, 16
16	“
21	“
23	“
26	4
28	“
30	6
February 2	“
4	“
6	8
9	“
11	“
13 Exam 1	
16	9
18	“
20	“
23	10
25	“
27	“
March 2	11
4	“
6	“
9	13
11	“
13	“
23 Exam 2	
25	14
27	“
30	“
April 1	19
3	“
6	“
8	20
10	“
15	“
17	18
20 Exam 3	
22 Review	
24 Review	
27 Review	and presentation
May 1 Final	7:30 AM Comprehensive

