PHYSICS 341

ELEMENTARY NUCLEAR PHYSICS

Dr Kate Jones
SERF 611
kgrzywac@utk.edu

General Information
Class Hours: 2:30 – 3:20 Monday/ Wednesday/ Friday
Office Hours: 10:00 – 11:45 Monday/Wednesday and by appointment.
(If you can’t find me in my office try SERF 601 or 602.)
Supplementary texts (optional. I’ve requested that a couple of copies of each be available at the library, or you can purchase at amazon.com etc.):

General Course Description
The course will start with an extension of the quantum mechanics learned in 232 and will progress to cover basic nuclear structure and reactions including fusion and fission.

Prerequisites

Knowledge of basic calculus and physics up to the level of Physics 232 or 250 is required for success in this course. Note this is a prerequisite not a corequisite.

Course Objectives
The course is aimed toward junior level nuclear engineers and physics majors; however other engineering and science majors with the correct preparation are very welcome. The objectives are:
1) To cover the basics of nuclear structure, i.e. how neutrons and protons collect together to form a nucleus.
2) To give students a basic understanding of nuclear reactions and the energetics involved. There will be a focus on fission and fusion.
3) To introduce some of the current regions of research in nuclear physics.
4) To give students the opportunity of working on a small project as part of a team.

Lecture Notes and Communication
Lecture notes will be posted on Online@UT (blackboard). My main modes of communication are:
1) Through the lectures, and the times before and after,
2) Through blackboard and in particular the discussion boards,
3) In my office during office hours or by appointment.
Questions related to the course should be posted on the discussion board forums on blackboard. In this way other students can participate in the discussions. My preferred method of communicating about material in the course, and homework problems in particular, is in person and not over email. If you have a problem you want to discuss, please see me before/after class or in my office.

Reading Assignments
Reading the relevant chapter or sections for each week’s lectures is a compulsory and vital part of the course. The course is structured in such a way that reading prior to the lecture is essential. Much of the class time will be devoted to discussing the material.

Please consult the official UT final exam schedule for the date of the final examination

ACADEMIC HONESTY

All work submitted by a student is expected to represent their own work. Students are expected to submit their own homework. Students are expected to perform all work in conformance with the University policies regarding Academic Honesty.
Classroom Environment

I firmly believe that the classroom atmosphere should be comfortable and open, allowing students and teachers to discuss the material. This requires a great deal of respect and listening to one another as well as reducing side conversations to a minimum. I request that laptops not be used in the classroom, as they can easily become a distraction e.g. email, facebook etc, believe me, I know! This does mean that I expect you to take any notes on paper with a pen, or you can print out my slides and write on them (I post all my slides on blackboard).

Grading Policy

If, for any reason, there is a concern about a grade given on an exam or exam question, an appeal will be entertained if it is raised no later than one week after the date on which the graded exams are made available for return to the class. After this “appeal period” of one week, exam grades will be considered final and will not be altered.

MISSING THE FINAL EXAM IS VERY SERIOUS AND MAY WELL RESULT IN FAILURE OF THE COURSE

Grading Scale

Final Grades are determined from the weighted average, where the weights are: 25% Homework (15% quizzes, 10% homework sets) 15% Group Project 30% Short tests 30% Final Exam

Homework Assignments

There will be quizzes that you can access through blackboard and will require numerical, true/false, or multiple answer (click ALL the correct answers). Additionally there will be homework sets that will have longer answers and need to be handed in on paper during class.

Group Project

Students will work in teams of 5 to research a topic of current interest in nuclear physics. Each group will present their findings to the class and will write a short report. Each student in the group will receive the same grade for the project and will need to sign off that ALL the students in the group
contributed. A list of topics will be posted on blackboard with primary source references.

**Exams**
There will be two short exams during the semester and a final. The final will be comprehensive, but with a bias towards the material covered since the second short exam.

The final grade will be assigned from the weighted average based on the following *provisional* grading scale.

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<tr>
<th>Grade</th>
<th>Score Range</th>
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<tr>
<td>A</td>
<td>90 and above</td>
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<td>A-</td>
<td>87 and above</td>
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<td>B+</td>
<td>83 and above</td>
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<td>B</td>
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<td>F</td>
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Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the Office of Disability Services at 865-974-6087 in Hoskins Library to coordinate reasonable accommodations for students with documented disabilities.