

Phys 435: “Nuclear Physics”--- spring 2010

Course Information:

Instructor: Dr. L. Gan
Office: DL Rm. #202
Tel: 962-3583
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Classes meet: Tue and Thur at 2:00pm-3:15pm
DL Rm. # 213

Office hours: Wed 12:00pm-5:00pm
Other hours by appointment

Course web site: <http://people.uncw.edu/ganl/phy435/index.htm>

Course Description:

This course Studies subatomic structure, basic constituents and their mutual interactions.

Required Text:

“Nuclear and Particle Physics”, by W.S.C. Williams
(Oxford Science Publications)

Supplementary Readings:

“Subatomic Physics”, by Hans Frauenfelder and Ernest M. Henley
“Introduction to Elementary Particles”, by D. Griffiths

Important!!!

Read ahead of the lecture and solve the weekly homework problems assigned. Weekly reading assignment is given below in the course outline. Even if you only read the assigned sections for about 30 minutes before each class, you will be much better prepared. Look through each chapter before we begin them. The course will move at a fast but steady pace and it is your responsibility to keep up with the lectures.

Homework:

Approximately 3-7 problems will be assigned every week. Homework will be collected on Thursday during the class in one week after each assignment is announced. Show all works clearly. **Late homework will not be accepted.** It is absolutely essential that you work out the assigned problems.

Examinations:

There will be two midterm exams during the semester and a three-hour comprehensive final exam. The exams will consist of a mixture of multiple choice, conceptual questions,

and selected problems. The tentative dates of these exams are given below in the course outline. Do not miss any of these exams.

Make-up Exams:

There will be no make-up exams. In case of evidence of extraordinary circumstance, each case will be discussed and evaluated on an individual basis. No general policy will apply to the class as a whole.

Grading:

Homework	25%
Two tests	40%
Final examination	35%

Grading scale:

90 -100	A
80 - 89B
70 - 79	C
60 - 69	D
Below 60	F

Attendance:

YOU ARE EXPECTED TO ATTEND ALL OF THE LECTURES! Your final grade will be dropped by **half a letter grade** if you have more than five absences. No absences can be excused. Attendance will be taken at the beginning of each class and will be closed 15 minutes after the class starts. Please do not be late!

Academic Integrity:

All members of UNCW's community are expected to follow the academic Honor Code. Please read the UNCW Honor Code carefully (as covered in the UNCW Student Handbook). Academic dishonesty in **any** form will not be tolerated in this class.

Disability Services:

Students with diagnosed disabilities should contact the Office of Disability Services (962-7555). Please give me a copy of the letter you receive from Office of Disability Services detailing class accommodations you may need. If you require accommodation for test-taking please make sure I have the referral letter no less than three days before the test.

Violence and Harassment:

UNCW practices a zero tolerance policy for any kind of violent or harassing behavior. If you are experiencing an emergency of this type contact the police at 911 or UNCW CARE at 962-2273. Resources for individuals concerned with a violent or harassing situation can be located at <http://www.uncw.edu/wsrc/crisis.html>.

Phys 435: “Nuclear Physics” – Course Outline:

Date	Topic	Text Reference
Jan. 7	Introduction	Chapter 1
Jan 12 & 14	Some Quantitative Formalities	Chapter 2
Jan 19 & 21	Size and Shape of Nuclei	Chapter 3
Jan 26 & Jan 28	Masses of Nuclei	Chapter 4
Feb 2 & 4	Nuclear Models	Chapter 8
Feb 9 & 11	Nuclear Instability	Chapter 5
Feb 16 & 18	Alpha Decay	Chapter 6
Feb 23	Exam 1	Chapter 1-6 & 8
Feb 25 & Mar 2	Nuclear Collisions and Reactions	Chapter 7
Mar 4 & 16	Forces and Interactions	Chapter 9
Mar 18 & 23	Hadrons and Quark-Parton Model	Chapter 10
Mar 25	Exam 2	Chapter 7-10
Mar 30 & April 6	The Electromagnetic Interaction	Chapter 11
April 8 & 13	The Weak Interaction	Chapter 12
April 15 & 20 & 22	Particle: Summary and Outlook	Chapter 13
April 29	Final exam (3:00pm-6:00pm)	Chapter 1-13

This schedule is subject to change.