

ENU 4605: Radiation Sources and Interactions (4 Cr) - Fall 2016

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| INSTRUCTOR | Dr. Leigh Winfrey 170 Rhines Hall winfrey@mse.ufl.edu 352.273.0297 |
| LECTURES | Mondays, 8:30 am - 9:20 am, NSC 227 Mondays, 9:35 am - 10:25 am, NSC 227 Wednesdays, 8:30 am - 9:20 am, NSC 227 Wednesdays, 9:35 am - 10:25 am, NSC 227 |
| OFFICE HOURS | Tuesdays and Thursdays, Period 4, 10:40 am - 11:30 am, or by appointment. |
| TEACHING ASSISTANT | Mr. John Echols echolsj@ufl.edu Office Hours: By Arrangement |
| PREREQUISITE | None. |
| CO-REQUISITE | ENU 4001 or equivalent. |
| REQUIRED TEXT | <i>Atoms, Radiation, and Radiation Protection, Third Ed.</i> , J.E. Turner, Wiley, 2007 |
| COURSE DESCRIPTION | Interaction of ionizing radiation with matter; cross sections and radiation fields with emphasis on photons, heavy charged particles, and electrons. |
| COURSE PURPOSE | Following successful completion of this course, the student will have developed an integrated understanding of interactions of radiation with matter with emphasis on the radiation of fission and fusion reactors. |
| COURSE GOALS AND OUTCOMES | Through this course students will develop additional knowledge and skills for students in the area of radiation shielding in order to achieve the following: Goals: <ul style="list-style-type: none">• Graduates will have an ability to apply knowledge of mathematics, science, and engineering.• Graduates will have an ability to develop an engineering design to meet specific technical requirements within realistic constraints such as economic, environmental, health and safety and reliability.• Graduates will have an ability to identify, formulate, and solve engineering problems.• Graduates will have an ability to communicate effectively, using both oral and written presentations, in engineering practice.• Graduates will have an ability to apply advanced mathematics, science, and engineering sciences, including atomic and nuclear physics, to nuclear and radiological systems and processes.• Graduates will have an ability to work professionally in one or more of the areas of: nuclear systems, nuclear instrumentation and measurement, radiation protection and shielding, and radiation sources and applications. |

COURSE COMMUNICATION Communication from the instructor will come in class, via email and through the course **Canvas** site, found at <https://lss.at.ufl.edu/>.

ATTENDANCE POLICY There is no attendance requirement, however students are encouraged to regularly attend class.

CANCELLATION POLICY Barring emergencies, the instructor will give students prior notice of cancelled classes and office hours. Should an emergency situation occur, the instructor will attempt to notify the class as soon as possible. Office hours that are cancelled in advance will be covered or rescheduled. Notifications of class or office hour cancellation will come via email.

GRADING POLICY A 10 point grading scale will be used for this course. Detailed information on University of Florida Grading Policies may be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

| Range | Grade | Range | Grade |
|----------|-------|---------|-------|
| 95 - 100 | A | 73 - 76 | C |
| 90 - 94 | A- | 70 - 72 | C- |
| 87 - 92 | B+ | 67 - 69 | D+ |
| 83 - 86 | B | 63 - 66 | D |
| 80 - 82 | B- | 60 - 62 | D- |
| 77 - 79 | C+ | 0 - 60 | E |

Assignments and exams will be weighted as follows:

- 50% Homework Assignments
- 20% Project
- 10% Exam 1
- 10% Exam 2
- 10% Final

Partial credit will be given on all assignments, projects, and quizzes unless otherwise specified. Errors in calculating a student's grade for an assignment, project, or quiz will be corrected promptly if they occur.

Re-grading or re-assigning points on a homework assignment, project, or quiz will be made at the discretion of the instructor. To receive a re-grade, students must return the assignment or examination to the instructor within two business days of receiving the graded work and include a brief written explanation of the requested re-grade; ***the entire assignment will be re-graded*** and returned to the student no sooner than two days after re-submission.

HOMEWORK The student is responsible for all material in the reading assignments from the text even if not covered in class. Homework assignments will be posted on Canvas and announced in class. Students may conduct homework and study sessions in groups. However, each person must ***independently*** write up and submit his or her own work. Copying is not permitted. It is the student's responsibility to ensure homework is legible; at the discretion of the instructor ***unreadable homework may receive no credit***.

All homework is due at the beginning of class; homework received after the start of class will be considered late. Late homework will be accepted up to 5:00 PM on the day after the due date. Late homework may be turned in either to the instructor in person or to the instructor's box (104 Rhines Hall). ***Late homework may receive a 10% grade penalty.*** Makeup homework or late homework turn-in in the event of illness or travel can be arranged on discussion with the instructor; this should be arranged prior to the due date when possible.

PROJECTS Students will be formed into groups of approximately 4 people for each project. A small design project will be assigned approximately one month into the semester. Students will be placed into groups. Further information, requirements, evaluation metrics, and topics will be given at the time of assignment.

EXAMS Three exams will be given through out the semester: two during the semester, approximately 5 weeks apart, and one final exam. All will be equally weighted and announced at least one week in advance.

Makeup exams will be given under limited circumstances. Excused absences consist of university-sanctioned absences, or other justified absences, verified and approved by the instructor. If the absence or conflict is known in advance, the student must notify the instructor prior to the exam, and ***rescheduling must take place prior*** to be counted as an excused absence.

HONOR CODE The University of Florida Policy on Academic Misconduct will be observed and strictly enforced. Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the **UF Student Honor Code** found at <http://www.dso.ufl.edu/students.php>.

SPECIAL REQUIREMENTS Any student with special needs, disabilities, or requiring accommodations should schedule a meeting with the instructor to discuss his or her needs as soon as possible.

Further, from the University of Florida Policy on Accommodating Students With Disabilities, students requesting accommodation for disabilities must first register with the **Dean of Students Office** found at <http://www.dso.ufl.edu/drc/>. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

CHANGES IN THE SYLLABUS This syllabus represents current plans and objectives. As the semester progresses, those plans may need to change to enhance the class. Such changes will be communicated clearly, are not unusual and should be expected.