

Syllabus for the College of Engineering

**ENU-4605: Radiation Interactions and Sources (4 Credits), Fall 2014**  
(Required Course)

**Course Title:**           **Radiation Interactions and Sources**

**Instructor:**           Katherin L. Goluoglu

**Text:**                 James E. Turner, *Atoms, Radiation, and Radiation Protection*, 3<sup>rd</sup> Edition, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, 2007, [ISBN 9783-527-40606-7]

**References:**         *Introduction to Health Physics*, Herman Cember, McGraw-Hill, Inc, New York, 1992.

*Modern Physics*, Serway, Moses, Moyer, Saunders College Publishing, New York, 1989.

*Fundamentals of Nuclear Science and Engineering*, J. Kenneth Shultis and Richard E. Faw, Marcel Dekker, Inc., New York, 2002.

*Introduction to Radiological Physics and Radiation Dosimetry*, Frank. H. Attix, Wiley & Sons, Inc., 1986.

*Physics for Radiation Protection*, James E. Martin, John Wiley & Sons, Inc., 2000.

**Co-requisites:**        ENU-4001

**Office/Hours:**        Room 232 NSC, By appointment.

**Class Meeting**

**Time/Place:**         Monday/Wednesday, 2nd & 3<sup>rd</sup> Periods (8:30-10:25 a.m.), Room CSE E118

**Grade Determination:**    Homework and Other Assignments Including Quizzes:        10%

                                  Midterm Exam 1:    30%

                                  Midterm Exam 2:    30%

                                  Final Exam   30%

**Course Outline:**

- Basic Quantities and Historical Perspective
- Atomic Structure
- The Nucleus and Nuclear Radiation
- Radioactive Decay
- Flux, Fluence, and Cross Sections
- Heavy Charged Particles in Matter
- Interaction of Electrons with Matter
- Phenomena Associated with Charged-Particle Tracks
- Interaction of Photons with Matter
- Interaction of Neutrons with Matter

**Attendance and Expectations:** Attendance is not required but is expected. Cell phones and other electronic disruptions will lead to ejection from the room.

**Grading:** Homework/Quizzes 10%, Midterm 1 30%, Midterm 2 30%. Final Exam 30%.

**Grading Scale:** 92.0%+: A; 90.0-91.9%: A-; 87.0-89.9%: B+; 83.0-86.9%: B; 80.0-82.9%: B-; 77.0-79.9%: C+; 73.0-76.9%: C; 70.0-72.0%: C-; 67.0-69.9%: D+; 63.0-66.9%: D; 60.0-62.9%: D-; 59.9% and lower: E

A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Graduate students need an overall GPA of 3.00 truncated and a 3.00 truncated GPA in their major (and in the minor, if a minor is declared) at graduation.” For more information on grades and grading policies, please visit:

<http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades>

Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

**Honesty Policy:** All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others. Note that failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures.

See <http://www.dso.ufl.edu/sccr/procedures/honorcode.php>

**Accommodation for Students with Disabilities:** Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

**UF Counseling Services:** Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
- Career Resource Center, Reitz Union, 392-1601, career and job search services.

**Software Use:** All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

**Evaluations:** 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 the assessments are available to students at:

<https://evaluations.ufl.edu/results> .