### COURSE PROFILE

**Degree Program:** Nuclear Engineering and Radiological Sciences

**Prepared by:** Kimberlee Kearfott

<table>
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<tr>
<th>COURSE #</th>
<th>COURSE TITLE</th>
<th>Date: August 25, 2005</th>
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<tr>
<td>NERS 583</td>
<td>Applied Radiation Dose Assessment</td>
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** TERMS OFFERED:** Winter (Alternate Years)

**TEXTBOOKS/REQUIRED MATERIAL:** course notes

**PREREQUISITES:** NERS 484 or graduate status (A)

**INSTRUCTOR(S):** Kimberlee Kearfott

**COGNIZANT FACULTY:** Kimberlee Kearfott

### CoE BULLETIN DESCRIPTION:
Principles and methods of protection against radiation hazards. Occupation, environmental, and medical aspects included. Internal and external dose assessment, dosimetry, health effects, and personnel and patient protection. Special health and medical physics computational techniques and problems.

**COURSE TOPICS:**
1. Practical dose quantities
2. Beta and skin dose assessment
3. External dose
4. Internal dose
5. Dose due to environmental radionuclides
6. Specialized medical and health physics dose computations

### COURSE STRUCTURE/SCHEDULE
Lecture: 2 per week @ 80 minutes

### COURSE OBJECTIVES
Links shown in brackets are to departmental educational outcomes
1. Achieve competence in assessing the risks of radiation through dose assessment and estimation [1, 2]
2. Make assumptions to simplify computational problems [1, 2]
3. Be familiar with usage of standardized engineering approaches to complex dose computations [1, 2]
4. Become familiar with several special topics in health and medical physics [3,4]

### COURSE OUTCOMES
For each course outcome, links to the Program Outcomes are identified.
1. Understand dose quantities and their practical significance [1]
2. Be able to perform simple estimations of external dose [1-4]
3. Be able to perform simple internal assessments using standardized methods [1-4]
4. Be able to use several professional computer codes for dose assessment [1-4]
5. Appreciate various standardized dose computational approaches for different applications [1-4]

### ASSESSMENT TOOLS
For each assessment tool, links to the course outcomes are identified.
1. Completion of problem sets [1-5]
2. Test and examinations [1-3]
3. Course evaluation by each student at the end of the course assessing all outcomes [1-5]