New Course Request

Check Appropriate Boxes: Undergraduate credit ✓ Graduate credit ☐ Professional credit ☐

1. School/Division: College of Health and Human Services
2. Academic Subject Code: (must be cleared with University Enrollment Services)

3. Course Number: RADX-R255
4. Instructor: Duncan

5. Course Title: Radiation Biology and Protection in Radiography
Recommended Abbreviation (Optional): Radiation Biology (Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Spring 2012

7. Credit Hours: Fixed at 3 or Variable from to

8. Is this course to be graded S-F (only)? Yes ☐ No X

9. Is variable title approval being requested? Yes ☐ No X

10. Course description (not to exceed 50 words) for Bulletin publication: Radiation safety issues critical to medical imaging practice will be analyzed. A study of the effects of ionizing radiation on cells, organs and the whole body. Organizations and regulations which influence radiation exposure will be discussed.

11. Lecture Contact Hours: Fixed at 3 or Variable from to

12. Non-Lecture Contact Hours: Fixed at or Variable from to

13. Estimated enrollment: 20 of which 0 percent are expected to be graduate students.

14. Frequency of scheduling: once a year Will this course be required for majors? Yes

15. Justification for new course: critical to the program, integral portion of national curriculum.

16. Are the necessary reading materials currently available in the appropriate library? Yes

17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.

18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by: [Signature]
Date Department Chairman/Division Director
Date

Dean of Graduate School (when required)
Date

Approved by: [Signature]
Date
Dean
Date
Chancellor/Vice-President
Date
University Enrollment Services
Date

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.
Course Title: Radiologic biology and protection in Radiography

Course Number: RADX-R255

Instructor: Radiography Faculty

Course Description: Radiation Safety issues critical to medical imaging practice will be analyzed. A study of the effects of ionizing radiation on cells, organs and the whole body. Organizations and regulations which influence radiation exposure will be discussed.

Text: Radiation Protection in Medical Radiography (6th Edition) Statekiewicz-Sherer, Viconti, Ritenour

Course Objectives:

1. Identify the types of biological effects of ionizing radiation.
2. Describe various sources of radiation exposure.
3. Define the quantities and units used for measurement of radiation.
4. List and describe the various methods used to minimize patient and personnel exposure.
5. Describe devices used to detect and measure radiation.
6. Describe the ALARA concept.
7. Identify and describe traditional and SI units for radiation exposure, absorbed dose, and dose equivalent in man.
8. Discuss methods which may be used for protection of the patient and the radiographer during radiologic procedures.
9. Describe the methods of radiation monitoring including operation, advantages and disadvantages.
10. Discuss radiation responses following radiation exposure of humans.
11. Explain the Law of Bergonie and Tribondeau.
12. Discuss the physical and biological factors affecting radiosensitivity.
13. Differentiate between direct and indirect effects and the target theory of radiation.

Course Outline:

Biological Aspects of Radiation
   Radiosensitivity
   Somatic effects
   Systemic Responses
   Embryonic and Fetal Risks
   Genetic Impact
Minimizing patient Exposure
   Exposure
   Shielding
   Beam Restriction
   Filtration
   Exposure Reduction
   Image Receptors
   Fluoroscopy

Personnel Protection
   Sources of exposure
   Basic methods of protection
   Protective devices

Radiation Exposure and monitoring
   Units of measure
   Dosimeters

Regulations and regulators