# El Paso Community College
# Syllabus
# Part II
# Official Course Description

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|---|---|
| **SUBJECT AREA** | **Medical Imaging Technology-Radiography** |
| **COURSE RUBRIC AND NUMBER** | **RADR 2213** |
| **COURSE TITLE** | **Radiation Biology and Protection** |
| **COURSE CREDIT HOURS** | **2 2 : 1**<br>**Credits Lec Lab** |

## I. Catalog Description

Studies the effects of radiation exposure on biological systems. Includes typical medical exposure levels, methods for measuring and monitoring radiation, and methods for protecting personnel and patients from excessive exposure. A grade of "C" or better is required in this course to take the next course. **(2:1). Lab fee.**

## II. Course Objectives

Upon satisfactory completion of this course, the student will be able to

A. Discuss the application of principles of patient and radiographer radiation protection through the use of beam limiting devices, shielding, exposure variables, and patient restraint. (B2, H1, H2).
B. Explain the difference between genetic and somatic effects of radiation.
C. Differentiate between the exposure limits for radiation workers and the general public for all body parts.
D. Describe the potential for ionizing radiation to cause biologic damage. (C1)
E. Explain the responsibility for radiation protection in the field of radiology. (C1, C5)
F. Discuss the probability of photon interaction with matter.
G. List and explain the International System (SI) and traditional units for radiation exposure, absorbed dose, and dose equivalent. (A3)
H. List the four major organization that share the responsibility for evaluating the relationship between radiation dose equivalent and induced biologic effects. (G1)
I. Describe the effects of ionizing radiation on the cell.
J. Discuss the importance of radiation exposure monitoring, e.g., film badges, survey meters.
K. Identify radiation safety officers.

## III. THECB Learning Outcomes (WECM)

1. Describe the biophysical mechanisms of radiation damage on humans.
2. indicate typical dose ranges for routine radiographic procedures.
3. describe basic methods and instruments for radiation monitoring, detection, and measurement.
4. Implement radiation protection practices.

## IV. Evaluation

A. Methods
   1. quizzes
   2. unit examinations
   3. comprehensive final examination

B. Grading Scale

.Revised by Discipline: Fall 2015 (next revision in 3 years)

| | | | | |
|---|---|---|---|---|
| 93 | - | 100 | = | A |
| 85 | - | 92 | = | B |
| 75 | - | 84 | = | C |
| 65 | - | 74 | = | D |
| 64 & below | | | = | F |

A total final course grade of below C (i.e., less than 70%) is not acceptable for completion of this course.

C. Final Grade Determination

The final grade for this course is calculated as follows:

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|---|---|
| Quizzes/Worksheets | 10% towards final grade |
| Unit Examinations | 70% towards final grade |
| Comprehensive Final Exam | 20% towards final grade |
| TOTAL | 100% |

Final grades will be determined by rounding the total points earned in the course to equal a whole number. A number followed by a decimal of .5 or more will be rounded to the next highest whole number. A number followed by a decimal of less than .5 will be rounded down to the next lowest whole number.

## V. Disability Statement (American with/Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

## VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.