

# **Radiation Sciences RAD/HPS-102**

## **UNIVERSITY OF NEVADA LAS VEGAS**

### **Department of Health Physics and Diagnostic Sciences**

#### **Fall 2021**

Time: Monday - 4:00 p.m. to 6:45 p.m.  
Class Location: BHS 130  
Instructor: Carson Riland  
Office Location: BHS 302  
Office Hours: Tuesdays 2:30 – 3:30 p.m. or by appointment  
Phone: 702-286-5543 (cell)  
Email: carson.riland@unlv.edu

*Note:* The instructor reserves the right to change the syllabus as it relates to how the course is administered.

### **Course Description**

Principles of rad

Explain the basic principles of radiation detection and dosimetry.  
Explain chemical and biological effects of radiation.  
Identify administrative and technical means of reducing unnecessary radiation exposure to the patient, personnel, self, general public, and the environment.  
Explain posting requirements in designated radioactive area to comply with governmental regulations.

## **Required Text**

No text is required, however several texts are suggested below that may be useful. Lecture notes will be provided.

Radiation Protection in Medical Radiography by Sherer  
Physics in Nuclear Medicine by Cherry, Sorenson and Phelps  
Fundamentals of Imaging Physics and Radiobiology by Selman  
Practical Radiation Protection and Applied Radiobiology by Dowd and Tilson

## **Evaluation Methods**

Students will have the opportunity to demonstrate achievement of course objectives through exams. Examinations 1 and 2 will consist of true/false, multiple choice, short answer, and/or matching questions and will cover the material stated in the schedule. The final examination will also consist of multiple choice, short answer, and/or matching questions. The final examination will be comprehensive. Students must take each examination at the scheduled time. If a student is unable to take the examination at the scheduled time, he/she must contact the course instructor in writing in advanced and obtain permission to take the examination early. No examinations may be taken after the scheduled time. If a student has not taken an examination by the end of the scheduled time, a grade of zero will be recorded.

Examinations (2)	50%
Final Exam	30%
Homework	20%

## **Assignment Policy**

Homework will be due on the dates listed in the assignment, unless modified by the instructor. Late homework will be subject to a penalty of 10% per week late, unless approved by the instructor prior to due date. Homework submitted after solutions are posted will receive an additional 50% penalty.

## Grading Scale

A	93 – 100
A-	90 – 94
B+	87 – 89
B	83 – 86
B-	80 – 82
C+	77 – 79
C	74 – 76
C-	70 – 73
D+	67 – 69
D	64 – 66
D-	60 – 63
F	00 – 59

## UNLV Policies

### Public Health Directives

[Face coverings are mandatory for all faculty and students in the classroom.](#) Students must follow all active UNLV public health directives while enrolled in this class. UNLV public health directives are found at [Health Requirements for Returning to Campus](#), <https://www.unlv.edu/coronavirus/health-requirements>. Students who do not comply with these directives may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the [UNLV Student Conduct Code](#),

### Academic Misconduct

Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the source(s). See the [Student Conduct Code](#), <https://www.unlv.edu/studentconduct/student-conduct>.

### Auditing a Course

Auditing a course allows a student to continue attending the lectures and/or laboratories and discussion sessions associated with the course, but the student will not earn a grade for any component of the course. Students who audit a course receive the same educational experience as students taking the course for a grade, but will be excused from exams, assessments, and other evaluative measures that serve the primary purpose of assigning a grade.

### Classroom Conduct

Students have a responsibility to conduct themselves in class and in the libraries in ways that do not

All UNLV students must use their Campus-issued ACE ID and password to log in to WebCampus-Canvas.

UNLV students enrolled in online or hybrid courses are expected to read and adhere to the [Student Academic Misconduct Policy](https://www.unlv.edu/studentconduct/misconduct/policy), <https://www.unlv.edu/studentconduct/misconduct/policy>, which states that “acting or attempting to act as a substitute for another, or using or attempting to use a substitute, in any academic evaluation or assignment” is a form of academic misconduct. Intentionally sharing ACE login credentials with another person may be considered an attempt to use a substitute, and could result in investigation and sanctions, as outlined in the Student



## UNLV Writing Center

One-on-one or small group assistance with writing is available free of charge to UNLV students at the [Writing Center](https://writingcenter.unlv.edu/), <https://writingcenter.unlv.edu/>, located in the Central Desert Complex, Building 3,

## Course Schedule (Tentative)

Week #	Lecture Topics	Notes
1	Introduction and Overview, Atomic and Nuclear Structure	
2	Nuclear Reactions, Radioactive Decay	
3	No Class	Labor Day
4	Radioactive Decay, Decay Modes	End of exam one material
5	Review, Interaction of Radiation with Matter	
6	Exam One	Instructor out-of-town
7	Interaction of Radiation with Matter	
8	Radiation Detection	
9	Biological Effects of Radiation	End of material for Exam Two
10	Review	
11	Exam Two	
12	Radiation Dosimetry	
13	Radiation Protection, Radiation Safety	
14	TBD	

<b>Week #</b>	<b>Lecture Topics</b>	<b>Notes</b>
15	Review	Study Week
16	Final Exam	December 6, 6-8 p.m