



INSTRUCTIONAL PACKAGE

RAD 201

Radiation Biology

201830

Summer/2019

INSTRUCTIONAL PACKAGE

PART I: COURSE INFORMATION

Effective Term: 201830

COURSE PREFIX: RAD 201

COURSE TITLE: Radiation Biology

CONTACT HOURS: 3

CREDIT HOURS: 2

RATIONALE FOR THE COURSE:

Students need to study and understand the ionizing effects of radiation on the human body and the laws that have been implemented to uphold ALARA principles.

COURSE DESCRIPTION:

This course is the study of the principles of radiobiology and protection. It emphasizes procedures that keep radiation exposure to patients, personnel, and the population at large to a minimum.

PREREQUISITES/CO-REQUISITES:

No academic pre-requisites. Must be a RAD 3 student

REQUIRED MATERIALS: Please visit the Bookstore online site for most current textbook information. Use the direct link below to find textbooks.

[BOOKSTORE.](#)

Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

Radiologic Science for Technologists, 11th Ed, Stewart Bushong, Mosby publishers.

Radiologic Science for Technologists Workbook :Physics, Biology, and Protection 11th edition

ADDITIONAL REQUIREMENTS:

Standard calculator

TECHNICAL REQUIREMENTS:

Access to Desire2Learn (D2L), HGTC's student portal for course materials.

WaveNet and D2L email access.

CLASSROOM ETIQUETTE: As a matter of courtesy to other students and your professor, ***please turn off cell phones*** and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate. ***Audio and/or Video recording is prohibited unless authorized by the instructor.*** Students using cell phones without the professor's permission will be asked to leave the classroom and will result in a recorded absence for the class.

As a group we are with each other for a long time and sometimes with familiarity we can become too comfortable with one another and we can display inappropriate behavior. Occasionally, we do not realize it is not appropriate for the classroom setting. Although we have a lot of policy and procedures already to follow, here is a review of proper classroom etiquette as adopted from Dr. Nardo of Ogelthorpe University. Demonstrating the following qualities shows respect for your professor and fellow students, and upholds the integrity of the classroom.

1. Arrive on time to class.
2. Bring the materials needed for class.
3. **Turn off cell phones and texting devices in class. *Video and/or audio recording is prohibited unless specifically authorized by the instructor.**
4. Use laptops/computers as it relates to classroom activities.
5. Create appropriate emails from your wavenet account.(Note: emails to Dr. Gleasman should go to **douglas.gleasman@hgtc.edu**)
6. Be attentive in class.
7. Dress appropriately.
8. Stay the entire class.
9. **Do the work and avoid excuses/complaints.**
10. **Use professional language and avoid sarcastic and in appropriate comments.**
11. Take your own notes and do your own work.
12. **Avoid asking inappropriate or thoughtless questions.** ie; “can we get out early today”
13. Abide by the honor and conduct code of HGTC as outlined in the College Catalog.

As a matter of courtesy to other students and your professor, please turn off cell phones and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

Part II: Student Learning Outcomes: Biological effects of radiation on the human body are intertwined throughout the semester while highlights of the historical, social, ethical, and medical impacts radiation have had on the last century. Initially the types of ionizing radiation and their effects at the atomic, molecular and cellular levels is examined. Genetic and somatic effects as related to acute and chronic doses of radiation are also discussed. The course further concentrates on and explores medical diagnostic radiation – sources, exposure, dose limits, detection measurements, design of equipment and rooms for maximum protection, reduction of dose and quality control.

COURSE LEARNING OUTCOMES and ASSESSMENTS*:

Objectives

1. Recognize the possible danger of radiation to living tissue from large acute doses of radiation to chronic low level doses. Understand the risk vs. benefit of diagnostic radiography
2. Increase awareness of consequences due to radiation application principles as it pertains to cellular exposure and human biology
3. Understand the effects of X-Radiation on a cellular and molecular level, radiolysis, and free radical formation, cross-linking, DNA damage and repair.
4. Distinguish the difference b/w Deterministic and Stochastic Effects of radiation exposure
5. Students will be able to recognize conditions and select the proper use of exposure factors when performing routine radiographic procedures.
6. Students will understand hormesis, Epilation, Acute Radiation Syndromes, Leukemia, cataracts and other consequences of over exposure to radiation.
7. Develop an knowledge of the Half-Value Layer, Tenth Value Layer and the concepts behind the design of the radiography suite.
8. Develop knowledge and skills to ensure radiation safety and dose reduction to themselves, patients, and staff.

9. Apply ALARA (As Low As Reasonably Achievable) radiation safety practices in all aspects of personal and patient care.

***Students – please refer to the Instructor’s Course Information sheet for specific information on assessments and due dates.**

Part III: Grading and Assessment

EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS*

Students’ performance will be assessed and the weight associated with the various measures/artifacts are listed below.

EVALUATION*

Tests	55%
Assignments	5%
Quizzes	20%
Final Exam	20%
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	100%

<u>Grading scale:</u>	92 - 100	A
	83 – 91	B
	74 – 82	C
	65 -73	D
	64 and below	F

***Students, for the specific number and type of evaluations, please refer to the Instructor’s Course Information Sheet.**

GRADING SYSTEM:

Methods of Instruction: Lecture, laboratory experiments, discussion, note taking, AV materials, problem solving and class handouts.

Types of Questions: Questions will be based on knowledge, comprehension, application, analysis and evaluation skills. Most questions will be in a multiple-choice format, although short answer, true and false, matching and diagramming may be incorporated. ***Questions are designed to promote critical thinking*** and in most cases will require more than memorization to obtain the correct answer. Unit Exams, Final Exam, Quizzes and Homework assignments comprise your assigned final grade. ***If a student receives a grade below 75% on any Unit Test or 70% on a Quiz, it will be MANDATORY for the student contact the SSTC to schedule an appointment with the radiology tutor to review the material on the test or quiz.*** If the radiology tutor is unavailable, the student will be required to make an appointment with the course instructor. Every attempt will be made to post examination and quiz grades on D2L a minimum of 24-48 hrs. after everyone in the class has completed the exam or turned in the assignment. The time frame may vary depending on the type of assignment or examination.

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the academic calendar for deadlines for add/drop ([ACADEMIC CALENDAR](#)). You must attend at least one meeting of all of your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

Part IV: Attendance

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be present for a minimum of eighty percent (80%) of his or her classes in order to be eligible to receive credit for any course. Students at HGTC are responsible for all course work and assignments. Attendance is a must. In this course a student may not exceed more than 2 absences (10%) as the Radiography Program requires a 90% attendance. A written warning results after your first absence. A second absence results in a final written warning. Any further absences are grounds for dismissal. If a student is absent on the day of a test or quiz, the student must notify the instructor within 24 hours and schedule a makeup exam/quiz date with the testing center. If a student is absent from a class prior to a class scheduled with a test that day, the student will not be eligible to take the test on that day and it will be up to the student to reschedule a make-up test with the professor.

Tardies- 3 tardies = 1 absence and a verbal warning, 4th a written warning, 5th final written warning.

Part V: Student Resources



The Student Success and Tutoring Center (SSTC)

The SSTC offers to all students the following **free** resources:

1. **Academic coaches** for most subject areas, **Writing Center Support**, and **college success skills**.
2. **On-line student success and academic support resources**.

Visit the SSTC website: [Student Success & Tutoring Center](#) and visit the student services tab in your WaveNet account to schedule appointments using TutorTrac. For more information, call: SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455. Room locations and Live Chat is available on the SSTC website.



Student Information Center: WaveNet Central (WNC)

WNC offers to all students the following **free** resources:

1. **Getting around HGTC:** General information and guidance for enrollment!
2. Use the [Online Resource Center \(ORC\)](#) for COMPASS support, technology education, and online tools.
3. **Drop-in technology support or scheduled training** in the Center or in class.
4. **In-person workshops, online tutorials and more services** are available.

Visit the WNC website: [Wavenet Central](#). Live Chat and Center locations are posted on the website. Or please call one of the following locations: WNC Conway, 349-5182; WNC Grand Strand, 477-2076; and WNC Georgetown, 520-1473.

Disability Services

HGTC is committed to providing an accessible environment for students with disabilities. Inquiries may be directed to Jocelyn Williams, Director of Student Development on the Conway Campus Jaime Davis, Counselor/Advisor on the Georgetown Campus or Kristin Griffin, Counselor on the Grand Strand Campus. These individuals will review documentation of the student's disability and, in a confidential setting with the student, develop an educational accommodation plan.

Note: It is the student's responsibility to self-identify as needing accommodations and to provide acceptable documentation. After a student has self-identified and submitted documentation of a disability, accommodations may be determined, accepted, and provided.

Statement of Equal Opportunity/Non-Discrimination Statement

Horry Georgetown Technical College prohibits discrimination and harassment, including sexual harassment and abuse, on the basis of race, color, gender, national or ethnic origin, age, religion, disability, marital status, veteran status, sexual orientation, gender identity, or pregnancy in educational programs and/or activities.

Title IX Requirements

Horry Georgetown Technical College prohibits the offenses of domestic violence, dating violence, sexual assault, and stalking. Any student who believe he or she has experienced or witnessed discrimination including sexual harassment, domestic violence, dating violence, sexual assault or stalking is encouraged to report such incidents to one of the College's Title IX Coordinators.

*Faculty and Staff are required to report incidents to the Title IX Coordinators when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

Inquiries regarding the non-discrimination policies:	
<p>Student and prospective student inquiries concerning Section 504, Title II, and Title IX and their application to the College or any student decision may be directed to the Associate Vice President for Student Affairs.</p>	<p>Employee and applicant inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Associate Vice President for Human Resources.</p>
<p>Dr. Melissa Batten, AVP Student Affairs <i>Title IX Coordinator</i> Building 1100, Room 107A, Conway Campus PO Box 261966, Conway, SC 29528-6066 843-349-5228 Melissa.Batten@hgtc.edu</p>	<p>Jacquelyne Snyder, AVP Human Resources <i>Section 504, Title II, and Title IX Coordinator</i> Building 200, Room 212A, Conway Campus PO Box 261966, Conway, SC 29528-6066 843-349-5212 Jacquelyne.Snyder@hgtc.edu</p>