

**Virginia Western Community College**  
**COURSE SYLLABUS**

- I. **COURSE NUMBER** ROC 141
- II. **COURSE TITLE** Therapy Physics I
- III. **CREDIT HOURS** 2
- IV. **CONTACT HOURS** 30
- V. **COURSE PREREQUISITES** ROC 110, MTH 163

**VI. COURSE DESCRIPTION**

Focuses on concepts of radiation production, interaction, and influencing factors. Emphasis is placed on atomic interactions and dose measurement techniques. Presents a comprehensive overview of the different types of machines used in Radiation Oncology. Evaluation of student will be through weekly homework assignments and examinations.

**VII. COURSE OBJECTIVES**

1. Describe the characteristics of various elements using a periodic table.
2. Examine the properties of photons and apply those properties as they relate to Radiation Oncology.
3. Compare various types of radioactive decay, and perform decay calculation.
4. Describe how x-rays are produced at the atomic level and how the components of an x-ray tube work
5. Describe the various interactions of high-energy x- and gamma rays with matter.
6. Compare physical characteristics and basic operation of a variety of treatment units.

**VIII. REQUIRED TEXT**

McDermott, P. and Orton, C. (2010). *Physics and Technology of Radiation Therapy*. Medical Physics Publishing. ISBN-13: 978-1-930524-32-3

Required Materials:

A TI-30XS or equivalent calculator is required for the course. Equivalent means the keypad has the same layout as the Pearson-Vue® on screen calculator.

**IX. GRADING FORMAT**

A = 93 – 100

B = 84 – 92

C = 75 – 83

F = 74 and below

**X. METHOD OF EVALUATION**

Homework	34%
Midterm Exam	33%
Final Exam	33%

**XI. ACADEMIC HONESTY**

This course will follow the VWCC Student Conduct policy found in the online VWCC Student Handbook under the “VWCC Course Policies” tab. If a student is found cheating on any assignment, test, or quiz a grade of “F” will be awarded

**XII. CLASS EXPECTATIONS**

Students are expected to be prompt and will not be given credit for attending class if entering ten minutes after class has started. No makeup tests will be given unless a legitimate written excuse; i.e. illness or prior notification is provided. Grades will be modified for late or missed assignments.

**MAKE UP/LATE WORK POLICY**

TESTS MUST BE TAKEN ON TIME. Make-up tests will NOT be given unless the student can document an extraordinary circumstance that prevents the taking of the test within the available timeframe.

**XIII. INCLEMENT WEATHER**

In the event of a college closing due to inclement weather on a testing day, the deadline for taking the test will be extended 24 hours or an additional day when the college re-opens.

**College inclement weather link:**

<http://www.viriniawestern.edu/about/inclementweather.php>

Students should try to take tests/exams before the deadline. In the case of inclement weather which closes the student learning center, the instructor will extend the deadline the number of days that the learning center was closed. In the case of extreme weather, the instructor will work with the student to make suitable arrangements.

**XIV. STUDENT RESOURCES**

Additional student resources are available under the Student Resources tab on Blackboard.

**XV. INSTRUCTOR**

James P. Nunn

**Office:** Lewis-Gale Pulaski Oncology Department

**Email:** [James.Nunn@HCAHealthcare.com](mailto:James.Nunn@HCAHealthcare.com)

**Phone:** (540) 239-0224 (home/cell)  
(540) 994-8545 (clinic)

**Office Hours:** By appointment

**The Instructor will respond to any email sent by the student within 72 hours**

