



RADIATION THERAPY

■ **DEGREE OFFERED**

Bachelor of Science
Post-Baccalaureate Certificate

■ **PROGRAM DIRECTOR**

Carol Scherbak, M.S.R.S., R.T.(T)

FACULTY AND ACADEMIC INTERESTS

Carol Scherbak, Assistant Professor
M.S.R.S., R.T.(T), Midwestern State University,
2005

Radiation therapist and student interactions in the
clinical environment.

Strahinja Stojadinovic, Assistant Professor
Ph.D., Kent State University, 2004

Development of tools for evaluating animal cancer
models.

Marissa Johnson, Instructor
B.S.R.T., R.T. (T) University of Oklahoma, 2002
Stereotactic body radiotherapy.

Martha Schecter, Adjunct Instructor
J.D., University of Louisville School of Law, 1970;
L.L.M., Columbia University School of Law, 1974
Health care law.

OBJECTIVES

The Radiation Therapy program offers a didactic and clinical education to prepare the graduate for a career in radiation therapy. Students gain experience in all major areas of radiation therapy practice, including treatment delivery, medical dosimetry, simulation and patient care. Students may pursue either a Bachelor of Science or, for those who already hold a bachelor's degree, a post-baccalaureate certificate. The curriculum is designed to support a competency-based clinical education to prepare the graduate to perform as an entry-level radiation therapist. The junior-level courses introduce the

student to the health care industry, patient care, oncologic pathology, radiobiology, medical physics and dosimetry. The senior-level courses integrate these ideas into more advanced concepts concerning treatment planning, treatment delivery and simulation.

The clinical aspect of the program combines the didactic material with simulated and actual patient care and treatment. Clinical experience is located in the Moncrief Radiation Oncology Center at UT Southwestern, where students can experience state-of-the-art cancer treatment under the supervision of faculty and staff. Students also rotate through the Annette Simmons Stereotactic Center at UT Southwestern University Hospital - Zale Lipshy. The clinical setting allows the student to achieve clinical competency and confidence in the treatment of patients with ionizing radiation. Graduates of the program may apply to take the National Registry Exam in Radiation Therapy administered by the American Registry of Radiologic Technologists.

■ ACCREDITATION

The Radiation Therapy program is accredited by the Joint Review Committee on Education in Radiologic Technology (20 North Wacker Dr., Suite 2850; Chicago, IL 60606-3182; 312-704-5300).

REQUIREMENTS FOR ADMISSION

■ BACHELOR OF SCIENCE

The Admissions Committee for the Radiation Therapy program determines the admissibility of an applicant in accordance with the quality of his or her credentials. The application process consists of submitting all application materials, completing 16 hours of clinical observations and attending an interview with the Admissions Committee. In addition to the minimum requirements listed in the Student Information chapter, applicants must satisfy the following requirements:

- 1) Minimum of 60 semester hours of college credit, not including physical education or military science courses;

- 2) Minimum cumulative grade-point average of 2.5 on a 4.0 scale;
- 3) Minimum cumulative GPA of 2.5 on a 4.0 scale in natural science and mathematics courses;
- 4) A grade of C or better on all prerequisite courses;
- 5) Radiation Therapy prerequisite courses as specified in the chart on the following page.

■ TEXAS CORE CURRICULUM POLICY

The state of Texas requires students to complete a core curriculum in order to receive a bachelor's degree from a public college or university. Using guidelines provided by the state, each institution designates its own core curriculum. The UT Southwestern School of Health Professions Core Curriculum consists of 42 semester credit hours in specified component areas. The core curriculum requirements and courses that may be used to satisfy them are listed in the Student Information chapter under Core Curriculum and are included in the admission requirements tables shown in this section. Bachelor's degree applicants who have completed the core curriculum of another Texas public college or university are not required to complete the UT Southwestern core curriculum.

Applicants who attended non-public or out-of-state institutions of higher education or applicants who attended Texas public institutions without completing that institution's core curriculum must complete the UT Southwestern School of Health Professions Core Curriculum prior to enrolling here. Core curriculum courses are not offered at UT Southwestern.

College Level Examination Program (CLEP) and Advanced Placement (AP) credit may be accepted for core curriculum requirements as long as such credit has previously been accepted and indicated on the applicant's transcript by a previously attended college or university.

■ POST-BACCALAUREATE CERTIFICATE

The Admissions Committee for the Radiation Therapy program determines the admissibility of an applicant in accordance with the quality of his

■ RADIATION THERAPY BACHELOR DEGREE PREREQUISITE COURSES

COMPONENT AREAS	COMMON COURSE NUMBERS	CREDIT HOURS
Communication		
English Composition	ENGL 1301, 1302, 2311, 2321, 2326, or equivalent	6
Speech/Communication	SPCH 1311 or equivalent	3
Mathematics		
Pre-calculus	MATH 2412 or higher level course	3
Natural Sciences		
General Chemistry with laboratory	CHEM 1405	8
Physics with laboratory	PHYS 1401, 1402	8
Anatomy and Physiology	BIOL 2401, 2402	8
Humanities and Visual/Performing Arts		
Visual and Performing Arts*	Courses with prefixes: ARTS, DANC, MUAP, MUEN, MUSI, DRAM, or equivalent	3
Other Humanities*	Courses including literature, philosophy, religion, modern or classical languages or literature, and cultural studies	3
Social and Behavioral Sciences		
U.S. History* (may include 3 hours of Texas history)	HIST 1301 and 1302 or 1301 and 2301	6
Political Science* (must include study of Texas Constitution)	GOVT 2301 and 2302, or 2301 and 2305, or 2301 and 2306, or 2305 and 2306	6
Social/Behavioral Science*	PSYC 2301, SOCI 1301	6
Computer Science		
Computer Science	COSC 1300, 1401	3
Mathematics or Natural Science elective		
	Courses with prefix of MATH, CHEM, BIOL, PHYS	3
Total Credit Hours		62

*If an applicant has completed a specified core curriculum at a Texas public institution of higher education, this course is not required for admission to the Radiation Therapy program.

Texas Common Course numbers are provided for guidance. Information is available online at www.tccns.org. Click on "The Academic Course Guide Manual." Applicants should contact academic advisers at their college or university to determine course equivalencies prevailing on their home campus. Applicants are encouraged to contact the UT Southwestern Admissions Office or the academic program about other courses that may satisfy core curriculum requirements.

or her credentials. The application process consists of submitting all application materials, completing 16 hours of clinical observations and attending an interview with the Admissions Committee. Post-baccalaureate certificate students must meet all of UT Southwestern School of Health Professions general admission requirements and satisfy the following:

- 1) Bachelor's degree from a regionally accredited college or university;
- 2) Minimum cumulative grade-point average of 2.5 on a 4.0 scale;
- 3) Minimum cumulative GPA of 2.5 on a 4.0 scale in natural science and mathematics courses;
- 4) Radiation therapy prerequisite courses as specified on the chart on following page; and
- 5) A grade of C or better on all prerequisite courses.

■ RADIATION THERAPY POST-BACCALAUREATE PREREQUISITE COURSES

COMPONENT AREAS	TEXAS COMMON COURSE NUMBERS	CREDIT HOURS
Communication		
English Composition	ENGL 1301, 1302, 2311, 2321, 2326 or equivalent	3
Speech	SPCH 1311 or equivalent	3
Mathematics*		
Pre-calculus	MATH 2412 or equivalent	3
Natural Sciences		
Chemistry*	CHEM 1405 or equivalent	4
Physics*	PHYS 1401, 1402 or equivalent	8
Anatomy and Physiology	BIOL 2401, 2402, or equivalent	8
Computer Science*		
Computer Science	COSC 1300, 1401 or equivalent	3

*Higher level courses may be substituted. For example, calculus can be substituted for pre-calculus.

■ ESSENTIAL FUNCTIONS

In addition to essential functions for all students (see Entrance Requirements in the Student Information chapter), each student in the Radiation Therapy program must be able to:

- 1) Participate in supervised clinical activities, including walking and standing, for eight-hour days;
- 2) Demonstrate sufficient vision acuity to monitor patients, input data, read computer monitors and distinguish markings in dim lighting;
- 3) Demonstrate sufficient strength to lift, carry and move items weighing up to 40 pounds;
- 4) Distinguish and interpret audio signals from equipment; and
- 5) Demonstrate sufficient upper- and lower-body strength to move, lift and transport patients.

RT 3310	Legal and Ethical Issues in Radiation Therapy	3
HCS 5106	Professional Development	1
SPRING		
RT 3211	Pathology	2
RT 3212	Sectional Anatomy	2
RT 3412	Radiation Biology	4
RT 3413	Radiation and Therapy Physics	4
RT 3304	Clinical Education I	3
SUMMER		
RT 3421	Principles and Practices of Radiation Therapy I	4
RT 3314	Medical Dosimetry I	3
RT 3405	Clinical Education II	4

■ SECOND YEAR

CURRICULUM

■ FIRST YEAR

FALL COURSE	HOURS
RT 3301 Oncology Nursing and Patient Care	3
RT 3302 Introduction to Radiation Therapy	3
RT 3303 Medical Imaging and Processing	3
HCS 3101 Medical Terminology	1

FALL COURSE	HOURS
RT 4422 Principles and Practices of Radiation Therapy II	4
RT 4315 Medical Dosimetry II	3
HCS 4301 Introduction to Research Methodology	3
RT 4406 Clinical Education III	4
SPRING	
RT 4316 Quality Assurance and Operational Issues	3
HCS 4302 Directed Research	3
RT 4323 Registry Review	3
RT 4407 Clinical Education IV	4

COURSE DESCRIPTIONS

See other departmental listings in this catalog for courses that do not begin with the prefix RT.

RT 3211 PATHOLOGY
2 SEMESTER HOURS

This course covers both general pathology and neoplasia. The general pathology section covers basic disease concepts and pathophysiology, while the second part discusses neoplastic transformation and neoplasia.

RT 3212 SECTIONAL ANATOMY
2 SEMESTER HOURS

Topographic, sectional and radiographic anatomy are studied through the use of various diagnostic images, including plain films, nuclear medicine scans, sonograms, computer tomography, magnetic resonance images and other imaging modalities.

RT 3301 ONCOLOGY NURSING AND PATIENT CARE
3 SEMESTER HOURS

Content is designed to provide the student with foundation concepts and competencies in assessment and evaluation of the patient for both external beam and brachytherapy procedures. Psychological and physical needs and factors affecting treatment outcome are presented and examined. Routine and emergency care procedures are discussed.

RT 3302 INTRODUCTION TO RADIATION THERAPY
3 SEMESTER HOURS

The course offers an overview of cancer and the specialty of radiation therapy. The medical, biological and pathological aspects, as well as the physical and technical aspects, are discussed. The history, roles and responsibilities of the radiation therapist are presented. University and program policies are discussed as well.

RT 3303 MEDICAL IMAGING AND PROCESSING
3 SEMESTER HOURS

This course is designed to establish a knowledge base in factors that govern and influence the production and recording of radiographic images.

Both diagnostic and radiation therapy imaging equipment are discussed.

RT 3304 CLINICAL EDUCATION I
3 SEMESTER HOURS

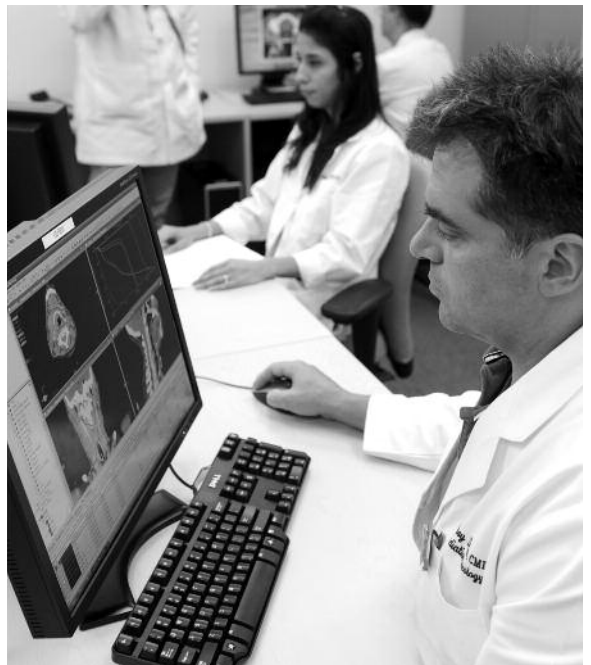
Student begin to gain skill in clinical procedures, interactions with patients and professional personnel as they apply didactic knowledge to the clinical setting of radiation therapy and become familiar with each section of the radiation therapy department.

RT 3310 LEGAL AND ETHICAL ISSUES IN RADIATION THERAPY
3 SEMESTER HOURS

Legal and ethical issues as they pertain to health care and the field of radiation therapy are discussed.

RT 3314 MEDICAL DOSIMETRY I
3 SEMESTER HOURS

This course covers the basic concepts in treatment planning, including treatment accessories and their relationship to dose distribution. Derivations and definitions of dosimetric terms and basic treatment calculations are presented. Treatment planning computerized systems are introduced.



RT 3405 CLINICAL EDUCATION II
4 SEM ESTER HOURS

Students gain additional skills through clinical procedures and interactions with patients and professional personnel.

RT 3412 RADIATION BIOLOGY
4 SEM ESTER HOURS

This course examines the effects of radiation on the cell, tissue and whole body. The biological consequences of ionizing radiation on living tissue, as well as tolerance doses and fractionation schemes, also are discussed.

RT 3413 RADIATION AND THERAPY PHYSICS
4 SEM ESTER HOURS

This course reviews basic concepts in radiation physics concerning atomic structure, production and characteristics of ionizing radiation. The quality of ionizing radiation and measuring equipment also are presented. Linear accelerator design and radiation protection are discussed.

RT 3421 PRINCIPLES AND PRACTICES OF RADIATION THERAPY I
4 SEM ESTER HOURS

This course examines the etiology, epidemiology, detection, diagnosis and treatment rationale of a multidisciplinary approach for the management of neoplastic disease. Specific topics address the radiation therapist's role in patient education, simulation and treatment delivery.

RT 4315 MEDICAL DOSIMETRY II
3 SEM ESTER HOURS

This course continues the concepts presented in RT 3314 with intensity-modulated radiation therapy, brachytherapy, stereotactic techniques

and nontraditional fractionation schemes studies. New treatment modalities and their impact on dose distribution are presented.

RT 4316 QUALITY ASSURANCE AND OPERATIONAL ISSUES
3 SEM ESTER HOURS

This course focuses on the evolution of quality management programs and continuing quality improvements in radiation oncology. Human resources, coding and billing, insurance, and departmental budgets are discussed as they apply to the radiation oncology department.

RT 4323 REGISTRY REVIEW
3 SEM ESTER HOURS

Students review all course material in preparation for the national board examination in radiation therapy.

RT 4406 CLINICAL EDUCATION III
4 SEM ESTER HOURS

This course is a continuation of RT 3304 and RT 3405. Students continue to improve their skills in clinical procedures by interacting with patients and professional personnel. Students gain clinical experience in dosimetry and medical physics.

RT 4407 CLINICAL EDUCATION IV
4 SEM ESTER HOURS

This course continues the clinical education sequence. Students apply didactic knowledge to their clinical experience.

RT 4422 PRINCIPLES AND PRACTICES OF RADIATION THERAPY II
4 SEM ESTER HOURS

This course is a continuation of RT 3421.