Radiation Therapy Curriculum

Professional Core Courses:

Term Taken	Course Number	Course Name	Credits
Fall	BIO 306	Genetics	4
	HP 250	Medical Terminology (online course)	1
	PHY 386	Radiation Physics	3
	RT 310	Pathophysiology	3
	RT 325	Radiation Therapy Readings, Writings, and Research	3
	RT 330	Professional Issues in Radiation Therapy	2
		Total Semester Credits	**15**
Spring	BIO 333	Radiation Biology	3
	BIO 432	Biology of Cancer	2
	RT 350	Patient Care Issues	3
	RT 370	Health Care Systems and Human Resources in RT	2
	RT 390	Medical Imaging	3
	RT 400	Clinical Internship Seminar	1
		Total Semester Credits	**14**
	Total credits		**30**

Recommended Electives: Students should select from the following

HP 106	Introduction to Health Careers	2
PSY 212	Life-Span Development	3
PSY 334	Health Psychology	3
PSY 343	Group Dynamics	3
PSY 347	Empathic Listening Skills	3
SOC 420	Health Care and Illness	3
SOC 422	Death, Grief and Bereavement	3

Clinical Internship Courses:

Term	Course Number	Course Name	Credits
Summer I	RT 401	Introduction to Radiation Therapy	3
	RT 471	Clinical Practicum I	3
Fall	RT 411	Principles & Practice of Radiation Therapy I	4
	RT 421	Cross Sectional, Topographic & Radiographic Anatomy	3
	RT 431	Radiation Therapy Physics	3
	RT 472	Clinical Practicum II	6
Spring	RT 412	Principles & Practice of Radiation Therapy II	4
	RT 435	Dosimetry & Treatment Planning	3
	RT 437	Quality Management in Radiation Therapy	2
	RT 473	Clinical Practicum III	6
Summer II	RT 481	Seminar in Radiation Therapy	3
	RT 474	Clinical Practicum IV	4
	Total Credits		**44**

Radiation Therapy Course Descriptions

First Year: On-campus Professional Courses

HP/RT 310 Cr.3

Pathophysiology

This course focuses on the pathophysiologic disorders that affect healthy systems across the life span. Theories of disease causation are introduced. Areas of emphasis include cellular and systemic responses, clinical manifestations and the response of tissue to radiation damage. Acquired, immune, infectious, carcinogenic and genetic alterations in body systems are included.

RT 325 Cr.3

Radiation Therapy Readings, Writing, and Research

This course introduces radiation therapy students to the language of radiation therapy and professional issues in the field by the use of selected readings. The Radiation Therapy Writing in the Major program will be introduced along with the types of writing practiced in the field. Students will learn basic research techniques and begin to apply them to their professional education.

RT 330 Cr.2

Professional Issues in Radiation Therapy

This course will provide students with knowledge related to the professional issues pertinent to the field of radiation therapy. Course topics will include: professional development, career advancement/options, radiation therapist scope of practice and practice standards, certification and licensure, radiation therapy professional organizations, legislative issues in radiation therapy, as well as ethics and introductory law in radiation therapy.

RT 350 Cr.3

Patient Care Issues

This course will prepare students to work directly with patients in a health care setting. It will cover such topics as: communication and patient education, assessment, examination and monitoring of patients, body mechanics and patient handling skills, infection control, management of medical emergencies and CPR, nutritional counseling.

RT 370 Cr.2

Health Care Systems and Human Resources in Radiation Therapy

This course will provide entry-level radiation therapists with the basic health system and human resource knowledge. Course topics will include characteristics of U.S. Health Care System, insurance, health care access, reimbursement in radiation therapy, and applicable human resource topics.

RT 390 Cr.3

Medical Imaging

This course will provide radiation therapy students with theory and information regarding medical imaging procedures. Radiation therapists play a crucial role in imaging for treatment planning and treatment field verification. The course will provide instruction on analog and digital imaging, as well as various imaging modalities.

RT 400 Cr.1

Clinical Internship Seminar

This course will prepare students for the clinical internship portion of the program. Course topics will include: professional development, team building skills, radiation therapy terminology, basic clinical concepts, immobilization device construction, CPR, and radiation therapy equipment basics.

Second Year- Clinical Internship Courses

RT 411 Cr.4

Principles and Practice of Radiation Therapy I

This course, taught during the clinical internship year, addresses the concepts of cancer treatment, focusing primarily on radiation therapy. Methods of improving therapeutic advantage are investigated. Students learn safe and effective use of equipment and accessories along with the rationale for their clinical application. Technical aspects of treatment simulation and delivery are developed. Treatment related side effects and their management and special patient situations are addressed.

RT 412 Cr.4

Principles and Practice of Radiation Therapy II

This course, taught during the clinical internship, advances the student's knowledge of neoplastic disease management. Cancers and some benign conditions of various body sites are discussed in relation to natural history, treatment and prognosis. Technical aspects related to radiation planning and delivery are closely investigated as well as pertinent anatomical considerations, combination therapy, treatment results and the therapist's role in disease management.

RT 421 Cr.3

Cross Sectional, Topographic & Radiographic Anatomy

This course, taught during the clinical internship, revisits anatomy specifically from an imaging perspective. Students will learn to identify structures and pathology on x-rays, CT and MRI scans and locate topographic landmarks on diagnostic and simulation films.

RT 431 Cr.3

Radiation Therapy Physics

This course, taught during the clinical internship, expands the student's understanding of physics related to radiation therapy. Topics include the components and operation of linear accelerators and other treatment machines, brachytherapy, specification and modification of beam quality and characteristics, measurement of absorbed dose, treatment machine calibration, beam geometry and treatment with particles.

RT 435 Cr.3

Dosimetry and Treatment Planning

This course, taught during the clinical internship, focuses on the characteristics, measurement and manipulation of radiation dose delivery in treatment. This involves advanced concepts of methods of altering dose to optimize the effectiveness of the radiation treatment. Treatment planning for a variety of tumor sites and situations is discussed.

RT 437 Cr.2

Quality Management in Radiation Therapy

This course, taught during the clinical internship, focuses on the purpose and techniques of quality management in a radiation oncology program. The importance of documentation, consistent application of specified protocols and assessment of outcomes are addressed. The responsibilities of the radiation therapist within the radiation oncology team for quality functions are highlighted.

RT 471 Cr.3
Clinical Practicum I
This course, offered the first summer session of the clinical internship, will orient students to the clinical operation of the internship site. Students will observe staff operations in the radiation therapy clinic, simulation, treatment planning, and treatment delivery areas.

RT 472 Cr.6
Clinical Practicum II
This course, offered fall semester of the clinical internship, will progress students' clinical skills from observation in simulation, treatment planning and treatment delivery to the point of participation and development of basic competencies.

RT 473 Cr.6
Clinical Practicum III
This course, offered spring semester of the clinical internship, will offer students the opportunity to continue the process of developing competence and confidence in the areas of simulation, treatment planning and treatment delivery. They will demonstrate competence in intermediate and some advanced procedures. Students will also be given opportunity to work in dosimetry.

RT 474 Cr.4
Clinical Practicum IV
This course, offered during the final summer session of the clinical internship, will complete the students' clinical education experience. By the end of this course, students will have developed proficiency and confidence in areas of simulation, treatment planning and treatment delivery. They will complete all required competencies. Opportunities to broaden the experience and work with different equipment, techniques and advanced procedures will be offered.

RT 481 Cr.3
Seminar in Radiation Therapy
The course, offered during the clinical internship, is a capstone course in which students present patient case information, discuss application of radiation science theory, review and critique journal articles and prepare for the national certification exam.

RT 499 Cr.1-3
Independent Study in Radiation Therapy
Independent study in radiation therapy may include individual readings and writing, projects, or research under the direction of a radiation therapy instructor. Repeatable for credit – maximum six.