

RADIATION THERAPY TECHNOLOGY (B.S.)

Office: 5134 EACPHS: 313-577-1137

Program Director: Jeannetta Greer

Chairperson: Sara Maher

<http://cphs.wayne.edu/rtt> (<http://cphs.wayne.edu/rtt/>)

Radiation therapy technology is a health care discipline which utilizes ionizing radiation for the treatment of malignant diseases. This field requires a basic understanding of and interest in science, especially mathematics and physics, as well as emotional maturity and a desire to assist in the management of patient care. A radiation therapist has the unique opportunity to blend knowledge and skills of mathematics, medical science, and psychology in his or her everyday work. The therapist comes to know patients over a period of several months and becomes an important presence in their health care, a continued contact that is the source of much satisfaction and professional pride. The Bachelor of Science Degree program in Radiation Therapy Technology at Wayne State University is designed to prepare students for the technical, theoretical and psychological aspects of this career.

Radiation therapists are typically employed in hospitals, clinics, educational institutions, and commercial equipment corporations as staff therapists, clinical supervisors, administrators, educators, and technical marketing personnel. A radiation therapist is able to:

- operate sophisticated radiation equipment to deliver a planned course of radiation therapy;
- assist the physicist in quality assurance and in treatment planning procedures, and in the calibration of equipment;
- observe the clinical progress of the patient undergoing radiation therapy, and recognize when a patient's condition requires the attention of a physician; and
- assist in providing psychosocial support for patients who are dealing with the stress of their illness.

The Bachelor of Science in Radiation Therapy Technology is a four-year degree program consisting of two years of pre-professional courses and two years of professional courses. The program is accredited by the:

Joint Review Committee on Education in Radiologic Technology (<http://www.jrcert.org/>)

20 N. Wacker Drive, Suite 2850

Chicago IL 60606-3182

312-704-5300.

The program complies with the professional curriculum of the American Society of Radiologic Technologists. Upon completion of the program, the student receives a Bachelor of Science Degree in Radiation Therapy Technology and is eligible to take the national certification examination administered by the American Registry of Radiologic Technologists.

Admission to Pre-professional Program

The first two years (pre-professional program) are taken in the College of Liberal Arts and Sciences, the admission requirements of which are satisfied by general admission (<http://bulletins.wayne.edu/undergraduate/general-information/admission/>) to the University. Application forms are available from the Office of Admissions, University Welcome Center. Students should consult with the University Advising Center, 1600 Adamany Library, regarding course selection. Students are urged to seek additional pre-professional advisement by contacting the Office of Student Affairs in the Eugene Applebaum College of Pharmacy

and Health Sciences for registration in a Monthly College Information Night.

Recommended High School Preparation: Students interested in a career in radiation therapy technology should take as many of the following high school courses as possible: biology, chemistry, mathematics, physics, computer science, keyboarding, speech, and composition.

Admission to Professional Program

Admission to the professional program requires completion of the above pre-professional course requirements and satisfaction of specific admission requirements listed below. The application deadline is November 30 for matriculation into the professional program for the subsequent spring/summer term.

Students should contact the University Advising Center (313-577-2680) prior to each fall term to obtain an updated list of pre-professional course and program admission requirements. The program faculty provides career advisement at the Eugene Applebaum College of Pharmacy and Health Sciences 'Monthly College Information Meeting held on the first Tuesday of each month. Attendance to at least one monthly meeting is a mandatory admission requirement prior to the beginning of the application process. Out-of-state applicants should contact a member of the Radiation Therapy Technology faculty for options to accommodate individual circumstances.

Since applicants who are admitted will eventually be working as a member of a health care team, the admissions committee evaluates candidates based on their personal qualities as well as their academic achievement. Therefore, throughout the interview and the completion of other application requirements, such criteria as a student's maturity, motivation, knowledge of the profession, interpersonal skills, personal integrity, and empathy for others is evaluated.

Professional Program Admission Requirements

The student applying to the professional program must meet the following admission requirements:

1. Completion of all pre-professional courses (or their equivalents) by the fall term in which admittance is desired.
2. Hold a combined cumulative grade point average of 2.50 or above (A = 4.00) for all college-level work at all institutions attended.
3. Completion of a professional program application (<http://www.cphs.wayne.edu>) and two reference forms.
4. Submission of official transcripts from all college institutions attended (other than Wayne State).
5. Attendance at a Monthly College Information Night (<http://cphs.wayne.edu/admissions/before-you-apply.php>) at the Eugene Applebaum College of Pharmacy and Health Sciences, held the first Tuesday of each month at 6:00pm. Out-of-state applicants should contact a Radiation Therapy Technology faculty member for options to accommodate individual circumstances.
6. Completion of two clinical visits to affiliate institutions for the program. Call 313-577-5711 to make an appointment. Out-of-state applicants should contact a Radiation Therapy Technology faculty member for options to accommodate individual circumstances.
7. Submission of two reference forms (available on the online application site): one from an employer/supervisor and one from a college professor/advisor.
8. Completion of at least 57 credit hours before starting the professional program requirements.
9. Satisfaction of the University General Education requirements.

The information requested in requirements 3, 4, 7, and 9 above, should be submitted to the Eugene Applebaum College of Pharmacy and Health Sciences, Office of Student Affairs, 259 Mack, Suite 1600, Detroit, Michigan.

Application Deadline: The deadline for applications is on or about April 1. Applications which are incomplete by the deadline or are submitted after that date will be considered only with the approval of the Program Director. Prospective students are urged to submit applications as early as possible after the fall term.

Application Review: All applications will be reviewed for completeness. The Admissions Committee will review all qualified applicants with completed applications submitted by the deadline date. The Admissions Committee will notify applicants of their interview status. Admission interviews are typically conducted in May of each year. A number of criteria will be evaluated, including academic achievement and personal qualities. The Radiation Therapy Technology Program typically notifies each applicant of the final admission decision in June.

Pre-professional Program

Each of the following required pre-professional courses (or its equivalent) must be completed with a minimum grade of C (2.00 g.p.a., where A = 4.0)

First and Second Years

Code	Title	Credits
BIO 1500	Basic Life Diversity	4
BIO 1510	Basic Life Mechanisms	4
BIO 2870	Anatomy and Physiology	5
CHM 1020	Survey of General Chemistry	4
COM 1010	Oral Communication: Basic Speech	3
ENG 1020	Introductory College Writing	3
ENG 3010	Intermediate Writing	3
MAT 1800	Elementary Functions	4
PHY 2130	Physics for the Life Sciences I	4
PHY 2131	Physics for the Life Sciences Laboratory	1
PHY 2140	Physics for the Life Sciences II	4
PHY 2141	Physics for the Life Sciences Laboratory	1
PSY 1010	Introductory Psychology	4
PSY 2300	Psychology of Everyday Living	4

University Requirements (see General Education Program Requirements)

Professional Program

Degree Requirements

Candidates for the degree Bachelor of Science in Radiation Therapy Technology must complete a minimum of 120 credits, plus sufficient credits to fulfill the University General Education Requirements (<http://bulletins.wayne.edu/undergraduate/general-information/general-education/>) not satisfied by either required courses or the student's choice of electives. The total course work will be distributed between two years of pre-professional courses and the two-year professional program as outlined below. Courses in the professional program are taken in the Eugene Applebaum College of Pharmacy and Health Sciences. Enrollment requires full-time student status for six consecutive terms (twenty-four months), during which time students take didactic and clinical courses. The clinical program includes approximately twenty hours per week of clinical education at multiple affiliate institutions in

the greater metropolitan Detroit area. Such institutions include urban and suburban hospitals.

While most required courses are scheduled during usual daytime hours, students are required to attend some courses or individual class sessions in early evening.

Third Year		Credits
RT 3000	Concepts of Clinical Care	3
RT 3010	Introductory Radiation Physics	3
RT 3020	Clinical Radiation Physics	3
RT 3110	Clinical Aspects of Radiation Therapy	3
RT 3140	Topographic Anatomy and Medical Imaging	3
RT 3200	Therapeutic Interactions in Oncology Care	2
RT 3310	Clinical Practicum I	4
RT 3320	Clinical Practicum II	4
RT 3330	Clinical Practicum III	4
RT 5650	Pathophysio for Health Sciences	3
		Credits 32
Fourth Year		
RT 4110	Clinical Radiation Oncology	4
RT 4120	Basic Clinical Dosimetry	4
RT 4140	Oncologic Pathology	2
RT 4150	Radiobiology of Radiation Oncology	2
RT 4220	Radionuclide Physics	3
RT 4240	Radiation Therapy Technology Seminar	3
RT 4300	Quality Assurance	2
RT 4350	Clinical Practicum IV	4
RT 4360	Clinical Practicum V	4
RT 4370	Clinical Practicum VI	4

RT 5990	Directed Study in Radiation Therapy Technology (Max 5)	1-5
Elective ¹		3
	Credits	36-40
	Total	68-72
	Credits	

¹ Students are encouraged to take a course in the areas of management, education, humanities or social studies. The course selected may be used to fulfill the social science requirement of the General Education Requirements.

Scholarship

Students in the professional program are subject to high academic and professional standards. A grade of 'C' (2.00) or above is required in each professional course, and the student must maintain a term grade point average of 2.50 throughout the program. A grade of 'C-minus' (1.67) in a professional course indicates unsatisfactory performance; repetition of the course is required, and review by the Academic Committee will occur. A second grade of 'C-minus' or below, or a single grade of 'D' or less (1.00 or less) will result in immediate dismissal from the professional program. Academic standards and program probation policies are subject to change. Academic standards and policies are published annually; copies are available upon request from the Radiation Therapy Technology Program.

Liability Insurance

Each student is required to have professional liability insurance during the entire length of the professional program. Neither the clinical affiliates, nor Wayne State University, assume liability for student actions during clinical education.

RT 3000 Concepts of Clinical Care Cr. 3

Procedures and ethics related to the care and examination of the radiation oncology patient. Topics include: basic pharmacology, drug administration, pain management, treatment side effects and their management. Offered Fall.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$25

RT 3010 Introductory Radiation Physics Cr. 3

Basic introduction of radiation physics including the x-ray machine, physical principles and circuitry; principles of mathematics. Offered Fall.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

RT 3020 Clinical Radiation Physics Cr. 3

Principles of radiation exposure; radiation producing and measuring devices; clinical application of radiation physics. Offered Winter.

Prerequisite: RT 3010 with a minimum grade of C

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

RT 3110 Clinical Aspects of Radiation Therapy Cr. 3

Basic concepts in oncology and radiation therapy technology. Topics include: cancer statistics, neoplasia, and principles of treatment and dosage. Offered Spring/Summer.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$65

RT 3140 Topographic Anatomy and Medical Imaging Cr. 3

Procedures for imaging human structure and their relevance to radiation therapy; topographic and cross sectional anatomy, identification of anatomic structures as demonstrated through various imaging modalities and human anatomy lab sessions; fundamentals of radiographic exposure techniques and film processing. Offered Fall.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$10

RT 3200 Therapeutic Interactions in Oncology Care Cr. 2

Issues related to professional interaction with oncology patients. Impact of cancer diagnosis on patient and family; subsequent role of radiation therapist. Approaches to effective communication. Offered Winter.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$5

RT 3310 Clinical Practicum I Cr. 4

Introduction to clinical radiation therapy. Closely supervised patient-related activities. Emphasis on development of interpersonal communication skills in the clinical setting; medical terminology. Offered Spring/Summer.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$69

RT 3320 Clinical Practicum II Cr. 4

Closely supervised practice in the delivery of prescribed doses of radiation utilizing common radiation equipment. Observation and performance of clinical care procedures; Development of communication skills in patient/therapist relationships. Correlation of medical imaging techniques to diagnostic workup and treatment planning. Completion of clinical competency requirements. Offered Fall.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$69

RT 3330 Clinical Practicum III Cr. 4

Expanded supervised practice in the delivery of radiation therapy treatments. Submission of essay on radiation oncology topic. Completion of clinical competency requirements. Offered Winter.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$65

RT 4110 Clinical Radiation Oncology Cr. 4

General presentation of malignant conditions, their etiology and methods of treatment; specific radiation treatment methodology including technical parameters of field size and direction, dosage, blocking, and patient positioning. Offered Fall.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$15

RT 4120 Basic Clinical Dosimetry Cr. 4

Basic concepts of clinical dosimetry and treatment planning; various external beam techniques, depth dose data, and summation of isodose curves. Offered Winter.

Prerequisite: RT 4110

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$10

RT 4140 Oncologic Pathology Cr. 2

Basic principles of neoplasia, including types of growth, causative factors, biological behavior, and significance of staging procedures. Pathology of radiation injury. Offered Fall.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$10

RT 4150 Radiobiology of Radiation Oncology Cr. 2

Biological effects of ionizing radiation on living tissue. Cell and tissue radiosensitivity; radiation syndromes and related effects. Basic radiobiological principles of radiation oncology and radiation protection. Offered Winter.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

RT 4220 Radionuclide Physics Cr. 3

Natural radioactivity; isotopes and nuclear structure; techniques of radiation measurement. The clinical use of radionuclides. Radiation safety. Offered Fall.

Prerequisite: RT 3020 with a minimum grade of C

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

RT 4240 Radiation Therapy Technology Seminar Cr. 3

Issues relevant to the practice and profession of radiation therapy technology explored through group discussion and case studies. Topics include: psychosocial, cultural, economic, physical, and educational factors which affect the patient; professional, administrative, legal, and bioethical issues which influence professional practice. Offered Spring/Summer.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$15

RT 4300 Quality Assurance Cr. 2

Principles and application of a comprehensive quality assurance program, addressing general clinical and physics factors. Contents include: tasks to be performed, with their frequency and acceptable limits; model implementation program; and legal implications. Lecture and laboratory settings. Offered Winter.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$10

RT 4350 Clinical Practicum IV Cr. 4

Continued supervised practice in a wide spectrum of clinical activities. Submission of a critical bibliography from current literature of radiation therapy, cancer management and related areas. Completion of clinical competency requirements. Offered Fall.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$69

RT 4360 Clinical Practicum V Cr. 4

Satisfies General Education Requirement: Writing Intensive Competency
Continued clinical practice under limited supervision. Submission of essay on radiation oncology topic. Completion of clinical competency requirements. Satisfies the University General Education Writing Intensive Course in the Major requirement. Offered Fall.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

RT 4370 Clinical Practicum VI Cr. 4

Continued clinical practice under minimal supervision. Practice of procedures related to the development of various treatment plans and methods of treatment planning. Submission of report on quality assurance activities. Completion of clinical competency requirements. Offered Winter.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Course Material Fees: \$69

RT 5650 Pathophysiology for Health Sciences Cr. 3

Fundamental knowledge of the nature of disease for the health sciences student; physiologic and morphologic changes accompanying disease processes; mechanisms of repair and recovery. Offered Winter.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Equivalent: OT 5650, PT 5650

RT 5990 Directed Study in Radiation Therapy Technology Cr. 1-5

Production of a paper, written assignment, or presentation to develop critical thinking, research, writing and presentation skills. Focus on career options within the field. Offered Every Term.

Restriction(s): Enrollment limited to students in the BS in Radiation Therapy Tech program.

Repeatable for 5 Credits

GREER, JEANNETTA M.: M.S., B.S.R.T(T), Wayne State University; Director (Academic)

KAGEN, ALISA A.: M.S.A., Central Michigan University; B.S.R.T(T), Wayne State University; Clinical Assistant Professor