



SCHOOL OF HEALTH AND HUMAN SERVICES

BACHELOR OF SCIENCE IN RADIATION THERAPY

Use Radiation Therapy to Improve Health

Prepare to play an active role in the fight against cancer and other diseases by earning a Bachelor of Science in Radiation Therapy from National University. The Radiation Therapy Program combines classroom work with clinical experiences to prepare you to become an integral part of a healthcare team using radiation to treat cancer as well as benign diseases. You'll learn to assess the physical, emotional, and educational needs of the patients you serve, determine the efficacy of a prescribed treatment, and carry out the accurate delivery and documentation of treatment. The program covers all aspects of radiation therapy, including effective patient care and education, treatment planning, radiation physics, and the biological effects of radiation.

Program highlights:

- Accredited by JRCERT
- Learn to provide the highest quality of patient care, education, and radiation therapy
- Develop effective communication, critical thinking, and problem-solving skills
- Completion of the program qualifies you for the American Registry of Radiologic Technologists national examination and application for certification from the California Department of Public Health, Radiologic Health Branch

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**NATIONAL
UNIVERSITY**

MAJOR IN RADIATION THERAPY

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The Bachelor of Science in Radiation Therapy builds on a broad-based foundation in liberal arts and sciences designed to strengthen critical thinking and communication skills to work with a diverse population in multiple healthcare settings. Graduates of this major will be able to understand all aspects of radiation therapy including effective patient care and education, treatment planning, and radiation physics as well as the biological effects of radiation in a rapidly advancing high touch, highly technical profession. This program is offered at the Kearny Mesa (San Diego), Costa Mesa, and Sacramento campuses through distance education technology.

The Radiation Therapy major combines classroom with clinical experiences to prepare graduates for an entry-level position in the profession as an integral member of the healthcare team using radiation to treat cancer and some benign diseases. Clinical internships are assigned by the Program and may require driving up to 100 miles from designated campus. This mileage is based on distance to the clinical setting from National University at each geographic site. Clinical internships require 40 hours per week in a clinical setting. Working while in the program is not encouraged. Graduates will use their competencies to assess the physical, emotional and educational needs of the patients they serve, determine the efficacy of a prescribed treatment and carry out the accurate delivery and documentation of treatment.

The Radiation Therapy major is a full-time, lock-step program in which each cohort of students progress in unison, taking each of the courses in a sequenced manner. Courses in the program build on knowledge from courses previously completed with medical terminology as an integral component of all courses. Students will also take two courses in one month as scheduled. Students must pass each course with a C or better to progress in the program. Once the program is completed, students will be eligible to apply to sit for the American Registry of Radiologic Technologists (ARRT) national examination and apply for certification from the California Department of Public Health, Radiologic Health Branch. The Radiation Therapy Program has received accreditation by the California Department of Public Health, Radiologic Health Branch and has received accreditation by Joint Review Committee on Education in Radiologic Technology (JRCERT), 20 N. Wacker Drive, Suite 2850, Chicago, IL 60606 (312) 704-5300. www.jrcert.org

The Radiation Therapy Program prepares the graduate to be able to fulfill the following outcomes as an entry-level professional.

Mission Statement

The mission of the Radiation Therapy major is to prepare students to assume the professional role of a radiation therapist. Graduates of the major will be skilled in critical thinking to provide the highest quality of patient care, education, and treatment.

Goals

1. Students will be competent in the delivery of radiation therapy treatments and simulation.
2. Students will communicate effectively.
3. Students will utilize critical thinking and problem-solving skills.
4. Students will demonstrate professional and ethical behavior.

Student Learning Outcomes

- 1.1 Demonstrate safe practice in all aspects of radiation therapy and simulation.
- 1.2 Demonstrate clinical competence in all entry-level aspects of radiation therapy.
- 2.1 Effectively communicate with patients and their families.
- 2.2 Effectively communicate with health providers.
- 3.1 Formulate priorities in daily clinical practice.
- 3.2 Demonstrate the ability to think critically by applying knowledge to new situations.
- 4.1 Demonstrate the concepts of teamwork.
- 4.2 Demonstrate attitudes and behaviors congruent with professional standards.

Admission Requirements

Students seeking to study radiation therapy at National University must:

- A. Meet all requirements for admission to an undergraduate degree program at the university as outlined in the university catalog.
- B. Have obtained a 2.50 cumulative GPA from all regionally accredited institutions attended.
- C. Students must complete a minimum of 40 hours of observation in a radiation therapy department. A completed time sheet must be signed by the therapist at the observation site. Time sheets are available in the radiation therapy office. Observation site placement is the student's responsibility and can be completed at any radiation therapy department.

- D. Submit a minimum of 2 letters of reference from radiations therapists in the department where the student observed, and 1 letter of reference form from a teacher, and/or an employer. Reference forms are available from the radiation therapy office. All letters of reference must use the reference form. No other letters will be accepted. All letters of reference must be mailed to National University/Radiation Therapy, 3390 Harbor Blvd., Costa Mesa, CA 92626.
- E. Submit a separate application for admissions* to the Department of Health Science, Radiation Therapy Major.
- F. Complete the written essay describing motivation to be a radiation therapist. Maximum one page, 12 point font, 1.5 spacing.
- G. Submit a current resume with application.
- H. Interview with the Radiation Therapy Admissions Committee.
- I. Have been formally evaluated by the University Office of the Registrar.
- J. Completed all General Education in Areas A-G prior to the start of the program.
- K. Completed all preparation for major courses with a "C" grade or better.

* Application is found in the student portal under e-forms.

Note: According to California Department of Public Health requirements, a student must be at least 18 years of age to participate in Clinical Internship.

Note: Meeting the minimum requirements as listed above does not guarantee admissions into the radiation therapy program.

Admission Process

Admission to the radiation therapy program is a three-step process: 1) Application to the University; 2) Application to the respective radiation therapy major; and 3) Participation in an interview with the Radiation Therapy Admission Committee. Prospective students should follow the university application requirements listed in the "General Admission Procedures" section of this catalog. In addition, prospective radiation therapy students will complete a separate application for admission. These applications, with supporting documentation, are accepted on January 30th of each year. A minimum GPA of 2.50 is required for entry into the Radiation Therapy Program.

A prospective student should first meet with an Admissions Advisor. The advisors are located at each of the university campus offices. The prospective student will arrange to have transcripts from all other colleges and universities sent to National University. These courses will be evaluated by the Registrar's Office for equivalency. All prospective students will enroll in RTT 201 Introduction to Radiation Therapy. This course will review all aspects of the Radiation Therapy curriculum, major and profession to provide applicants with a knowledge base to form their decision to enter the program.

A Calculation Worksheet will be used to evaluate each prospective student's application packet by the Radiation Therapy Admissions Committee. The prospective student will be ranked in comparison to the other applicants during that application year. Application deadline is January 30th.

The scoring will be based on:

- Quality of grades in the prerequisite courses.
- Ranking of the recommendation letters.
- Knowledge of the profession.
- Written essay included with the application packet.
- Ranked interview.

Once all prospective students for a given year have been interviewed, the Radiation Therapy Admissions Committee will rank applicants based on the interview and application materials. The highest-ranked individuals will be invited to enter the program at San Diego, Costa Mesa or Sacramento educational sites. While student education site preference is followed, students may be accepted to another educational site based on the number of spaces available. If a student is unwilling to relocate to the education site for which they were accepted, the student will not be able to join the program. Based on ranking, a student may be invited to enter the program at their second or third preferred education site. There is no waiting list. Students who are not accepted may re-apply for admission one more time in the following year. They are encouraged to speak with the Academic Program Director about strategies to strengthen their application.

Before participating in clinical internship, students must submit proof of the Radiation Therapy Health Clearance, current health insurance and current Cardio-Pulmonary Resuscitation (CPR) certificate from the American Heart Association (BLS-Basic Life Support for Health Care Providers). Students are responsible for determining if their health insurance coverage includes provisions for emergency room visits in the event of a needle stick or other injury in the clinical setting, as well as the costs of anti-HIV drugs if the physician determines the medications are warranted. **Please Note:** if the student is out of the program for 5 months or more, she/he must re-do the drug screen and background check.

In addition, before engaging in clinical practice at health facilities, students will be required to obtain professional liability insurance in the amount of \$1,000,000 per occurrence/\$3,000,000 aggregate. Continued liability coverage as well as current health clearance, clear background check and drug screen, and immunity coverage is required throughout the program.

Note: Failure to maintain health clearance and a clear background check during the radiation therapy program may result in dismissal from the nursing program and possible refusal of the ARRT to allow the student to take the Radiation Therapy licensure exam. Students are responsible for meeting all of the above requirements.

Background Checks

Radiation Therapy departments used by the Radiation Therapy major require criminal background and drug screenings prior to internship. Students who do not pass the background check and/or drug test may be unable to attend the internship, therefore, may be unable to complete the program of study. Any fee or cost associated with background checks and/or drug testing is the responsibility of the student. Students may be subject to random drug testing. Any fees associated with this will be the responsibility of the student.

Students will need to provide their own transportation to class and clinical internship. Proof of auto insurance and a valid driver's license is required. Travel to clinical internships may require driving up to 100 miles as measured from the National University educational site.

Students successfully completing the Radiation Therapy major will be eligible to apply for state and national examinations. Upon successful completion of the final course within the program, application for the national exam will be provided in the last course of the program. Students are responsible for submitting applications and fees to the State of California and the American Registry of Radiologic Technologists (ARRT).

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate safe practice in all aspects of radiation therapy.
- Effectively communicate with patients and their families.
- Demonstrate clinical competence in the areas of patient care, treatment, and simulation.
- Formulate priorities in daily clinical practice.
- Apply concepts of teamwork.
- Evaluate the clinical significance of treatment parameters as prescribed and suspend treatment as appropriate.
- Develop plans based on patient assessment to address physical, emotional, and educational needs.
- Demonstrate the ability to think critically and apply knowledge to new situations.
- Analyze clinical data to ensure safety and quality improvement of radiation therapy operations.
- Evaluate treatment plans to ensure accurate and effective treatment delivery.
- Demonstrate values and attitudes congruent with the profession's standards and ethics.
- Analyze current health care research for application to radiation therapy practice.
- Apply strategies that promote professional development and life-long learning.

Degree Requirements

To receive a Bachelor of Science degree in Radiation Therapy, students must complete at least 180 quarter units as articulated below, 45 of which must be completed in residence at National University, 76.5 of which must be completed at the upper-division level and a minimum 70.5 units of the University General Education requirements. In the absence of transfer credit, additional general education electives may be necessary to satisfy total units for the degree. Refer to the section on undergraduate admission requirements for specific information regarding admission and matriculation. All students receiving an undergraduate degree in Nevada are required by state law to complete a course in Nevada Constitution.

Preparation for the Major

(12 courses; 42.75 quarter units)

MTH 215*	College Algebra & Trigonometry <i>Prerequisite: Accuplacer test placement evaluation or MTH 12A and MTH 12B</i>
BST 322*	Intro to Biomedical Statistics
BIO 161*	General Biology I
BIO 201*	Human Anatomy & Physiol I <i>Recommended: Prior completion of: BIO 100, BIO 100A, CHE 101 and CHE 101A or equivalent courses.</i>

BIO 201A*	Human Anatomy & Physiol Lab I (1.5 quarter units) <i>Prerequisite: BIO 201</i>
BIO 202*	Human Anatomy & Physiol II <i>Recommended: Prior completion of: BIO 201 and BIO 201A, BIO 100 and BIO 100A, CHE 101, and CHE 101A or equivalent courses</i>
BIO 202A*	Human Anatomy & Physiol Lab II (1.5 quarter units) <i>Prerequisite: BIO 202</i>
BIO 203*	Introductory Microbiology <i>Recommended: Prior completion of: BIO 201 and BIO 201A, BIO 202 and BIO 202A, BIO 100 and BIO 100A, CHE 101 and CHE 101A or equivalent courses</i>
BIO 203A*	Introductory Microbiology Lab (1.5 quarter units) <i>Prerequisite: BIO 203</i>
PHS 181*	Physics for Non-Sci Majors I <i>Prerequisite: 2 years of high school algebra, and MTH 204 or MTH 215 or MTH 216A or MTH 216B</i>

OR

PHS 171*	General Physics 1 <i>Prerequisite: MTH 215 or MTH 216A and MTH 216B</i>
PHS 182*	Physics for Non-Sci Majors II <i>Prerequisite: PHS 181</i>

OR

PHS 172*	General Physics 2 <i>Prerequisite: PHS 171</i>
RTT 201	Introduction to Radiation Ther. (2.25 quarter units)

* May be used to meet a General Education requirement.

Requirements for the Major

(21 courses; 73.5 quarter units)

Students must pass all courses with a C or better to progress in the program. Students will need 76.5 quarter units of upper-division level coursework. In absence of units students may need to take additional upper-division electives to satisfy the total upper-division units for the degree.

RTT 310	Sectional/Topographic Anatomy <i>Prerequisite: BIO 201 with a minimum grade of C and BIO 202 with a minimum grade of C</i>
RTT 300	Medical Imaging <i>Prerequisite: RTT 200 with a minimum grade of C, acceptance into the Radiation Therapy Program or RTT 201</i>
RTT 305	Patient Care I (3 quarter units) <i>Prerequisite: BIO 201 with a minimum grade of C, and BIO 202 with a minimum grade of C, and BIO 203 with a minimum grade of C and RTT 300 with a minimum grade of C, Corequisite: RTT 320</i>
RTT 320	Pro Ethics and Legal Issues (1.5 quarter units) <i>Prerequisite: RTT 300, Corequisite: RTT 305</i>
RTT 315	Clinical Concepts I <i>Prerequisite: RTT 305 with a minimum grade of C and RTT 306 with a minimum grade of C</i>
RTT 480	Internship I <i>Prerequisite: RTT 300 with a minimum grade of C, RTT 305 with a minimum grade of C, RTT 306 with a minimum grade of C, RTT 310 with a minimum grade of C and RTT 320 with a minimum grade of C</i>
RTT 410	Clinical Radiation Physics I <i>Prerequisite: MTH 215 with a minimum grade of C, PHS 171 with a minimum grade of C and RTT 300 with a minimum grade of C</i>
RTT 411	Clinical Radiation Physics II <i>Prerequisite: RTT 410 with a minimum grade of C</i>
RTT 306	Patient Care II <i>Prerequisite: RTT 305 with a minimum grade of C</i>
RTT 415	Clinical Oncology I (2.25 quarter units) <i>Prerequisite: RTT 305 with a minimum grade of C, and RTT 306 with a minimum grade of C, and RTT 310 with a minimum grade of C and RTT 480 with a minimum grade of C, Corequisite: RTT 316</i>
RTT 316	Clinical Concepts II (2.25 quarter units) <i>Prerequisite: RTT 315 with a minimum grade of C and RTT 480, Corequisite: RTT 415</i>
RTT 416	Clinical Oncology II (2.25 quarter units) <i>Prerequisite: RTT 415 with a minimum grade of C</i>
RTT 317	Clinical Concepts III (2.25 quarter units) <i>Prerequisite: RTT 316 with a minimum grade of C, Corequisite: RTT 416</i>
RTT 481	Internship II <i>Prerequisite: RTT 480 with a minimum grade of C</i>
RTT 420	Radiation Biology (3 quarter units) <i>Prerequisite: RTT 410 with a minimum grade of C, RTT 411 with a minimum grade of C, RTT 415 with a minimum grade of C, RTT 416 with a minimum grade of C and RTT 481 with a minimum grade of C, Corequisite: RTT 460</i>

- RTT 460 Operational Issues (1.5 quarter units)
Prerequisite: RTT 316 with a minimum grade of C and RTT 416 with a minimum grade of C, Corequisite: RTT 420
- RTT 455 Medical Dosimetry
Prerequisite: RTT 315 with a minimum grade of C, RTT 316 with a minimum grade of C, RTT 317 with a minimum grade of C, RTT 410 with a minimum grade of C and RTT 411 with a minimum grade of C
- RTT 440 Research in Radiation Therapy (2.25 quarter units)
Prerequisite: BST 322 with a minimum grade of C, RTT 315 with a minimum grade of C, RTT 316 with a minimum grade of C, RTT 317 with a minimum grade of C, RTT 410 with a minimum grade of C, RTT 411 with a minimum grade of C, RTT 415 with a minimum grade of C and RTT 416 with a minimum grade of C, Corequisite: RTT 450
- RTT 450 Quality Management (2.25 quarter units)
Prerequisite: RTT 410 with a minimum grade of C and RTT 411 with a minimum grade of C, Corequisite: RTT 440
- RTT 482 Internship III (6 quarter units)
Prerequisite: RTT 481 with a minimum grade of C
- RTT 490 Advanced Capstone
Prerequisite: Completion of major requirements.