

RADIATION THERAPY (RATH)

RATH 2301

Principles and Practice of Radiation Therapy I

4 Credit Hours

Provides 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. Roles and responsibilities of the radiation therapist, the treatment prescription, the documentation of treatment parameters and delivery are also discussed. (4 lecture hours)

Prerequisite: Admission to the Radiation Therapy program or consent of instructor.

RATH 2302

Principles and Practice of Radiation Therapy II

4 Credit Hours

Examines the management of neoplastic disease from a multidisciplinary perspective. The epidemiology, etiology, detection, diagnosis, patient condition, treatment and prognosis of neoplastic disease are presented, discussed and evaluated in relationship to histology, anatomical site and patterns of spread. The radiation therapist's responsibility in the management of neoplastic disease is examined and linked to the skills required to analyze complex issues and make informed decisions. (4 lecture hours)

Prerequisite: Admission to Radiation Therapy program and RATH 2301, RATH 2321, and RATH 2331, all with a grade of C or better, or equivalent or consent of instructor.

RATH 2303

Principles and Practice of Radiation Therapy III

4 Credit Hours

Establishes factors that influence and govern clinical planning of patient treatment. Encompassed are isodose descriptions, patient contouring, radiobiologic considerations, dosimetric calculations, compensation and clinical application of treatment beams. Optimal treatment planning is emphasized along with particle beams. Stereotactic and emerging technologies are presented. (4 lecture hours)

Prerequisite: Admission to the Radiation Therapy program and RATH 2302, RATH 2311, RATH 2322, and RATH 2332, all with a grade of C or better or equivalent or consent of instructor.

RATH 2310

Radiation Therapy Physics

3 Credit Hours

Establishes a basic knowledge of physics necessary to develop an understanding of radiation used in the clinical setting, and to develop a knowledge base in factors that govern and influence the production and recording of radiographic images for patient simulation, treatment planning and treatment verification in radiation oncology. Fundamental physical units, measurements, types of radiation, fundamentals of X-ray generating equipment, X-ray production, radiation oncology imaging equipment and related devices are emphasized. (3 lecture hours)

Prerequisite: Admission to Radiation Therapy program or consent of instructor.

RATH 2311

Radiation Biology and Protection

4 Credit Hours

Presents basic concepts and principles of radiation biology and radiation safety as they relate to radiation therapy. The interactions of radiation with cells, tissues and the body as a whole and resultant biophysical events are presented. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies and health care organizations are also incorporated. (4 lecture hours)

Prerequisite: Admission to Radiation Therapy program and RATH 2301, RATH 2310, RATH 2321, and RATH 2331, all with a grade of C or better or equivalent or consent of instructor.

RATH 2312

Quality Management in Radiation Therapy

3 Credit Hours

Focuses on the evolution of quality management (QM) programs and continuing quality improvements in radiation oncology. Topics include the need for quality assurance (QA) checks, QA of the clinical aspects and chart checks, film checks, the various types of evaluations and tests performed on simulators, megavoltage therapy equipment and therapy planning units, the role of radiation therapists in QM programs, legal and regulatory implications for maintaining appropriate QM guidelines as well as the role of computers and information systems within the radiation oncology department. (3 lecture hours)

Prerequisite: Admission to Radiation Therapy program and ARRT certification, RATH 2302, RATH 2311, RATH 2322, and RATH 2332, all with a grade of C or better, or equivalent.

RATH 2321

Cross-Sectional Anatomy

2 Credit Hours

Basics of cross-sectional anatomy related to lesion localization in Radiation Therapy, normal sectional anatomy as shown in diagrams and radiographic, sonographic, computerized tomography (CT), nuclear medicine, and magnetic resonance (MR) images. (2 lecture hours)

Prerequisite: Admission to Radiation Therapy program or consent of instructor.

RATH 2322

Pathophysiology for Radiation Therapy

3 Credit Hours

Introduces basic disease concepts, theories of disease causation, and system-by-system pathophysiologic disorders most frequently encountered in clinical practice. The processes involved in the development and classification of both benign and malignant tumors and site-specific information on malignant tumors are addressed. (3 lecture hours)

Prerequisite: Admission to Radiation Therapy program, and RATH 2301 and RATH 2310, both with a grade of C or better, or equivalent, or RATH 2321 and RATH 2331, both with a grade of C or better, or equivalent, or consent of instructor.

RATH 2323

Operational Issues in Radiation Therapy

3 Credit Hours

Focuses on various radiation therapy operational issues. Addresses concepts of team practice, patient-entered clinical practice and professional development. The interrelatedness of standards of care, law, ethical standards and competence will also be examined. (3 lecture hours)

Prerequisite: Admission to Radiation Therapy program and ARRT certification, RATH 2302, RATH 2311, RATH 2322, and RATH 2332, all with a grade of C or better, or equivalent.

RATH 2331

Clinical Practice I

3 Credit Hours

Provides sequential development, application, analysis, integration, synthesis, and evaluation of concepts and theories in radiation therapy. Through structured sequential assignments in clinical facilities, concepts of team practice, patient-centered clinical practice and professional development are discussed, examined and evaluated. (24 clinical hours)

Prerequisite: Admission to Radiation Therapy program or consent of instructor.

RATH 2332

Clinical Practice II

3 Credit Hours

Expands the skills learned in RATH 2331. Through structured sequential assignments in clinical facilities, concepts of team practice, patient-centered clinical practice, and professional development shall be discussed, examined, and evaluated. (24 clinical hours)

Prerequisite: Admission to Radiation Therapy program, RATH 2301 and RATH 2331, both with a grade of C or better, or equivalent, or consent of instructor.

RATH 2333

Clinical Practice III

3 Credit Hours

Advanced integration of skills learned in RATH 2331 and RATH 2332. Through structured sequential assignments in clinical facilities, concepts of team practice, patient-centered clinical practice and professional development shall be discussed, examined and evaluated. (24 clinical hours)

Prerequisite: Admission to the Radiation Therapy program, and RATH 2302 and RATH 2332, both with a grade of C or better or equivalent, or consent of instructor.

RATH 2351

Principles of Proton Therapy

8 Credit Hours

Establishes factors that influence and govern clinical planning of patient treatment using proton beams. Encompassed are radiobiology of charged particles, particle accelerators, treatment delivery systems, quality assurance for proton therapy and clinical issues in proton radiotherapy. Optimal treatment planning with particle beams is emphasized. (8 lecture hours)

Prerequisite: Graduation from approved Radiation Therapy Program and consent of instructor.

RATH 2352

Proton Therapy Lab Practicum

5 Credit Hours

Establishes factors that influence and govern clinical planning of patient treatment using proton beams and a two week lab practicum at the ProCure Treatment Centers, Inc. training site in Bloomington, Indiana. (4 lecture hours, 2 lab hours)

Prerequisite: Consent of instructor is required.

RATH 2353

Clinical Experience in Proton Therapy

3 Credit Hours

Provides sequential development, application, analysis, integration, synthesis, and evaluation of concepts and theories in proton radiation therapy. (24 clinical hours)

Prerequisite: Consent of instructor is required.