

RADIOLOGIC IMAGING SCIENCES (RIS)

RIS 501. Radiologic and Imaging Sciences I. (3 Units)

Basic sciences of radiologic professions including physics, instrumentation, data capture and management. Includes discussions of modalities in radiography, nuclear medicine, radiation therapy, ultrasound, and CVIS.

RIS 502. Radiologic and Imaging Sciences II. (3 Units)

Imaging techniques, technological advances in the radiologic/imaging sciences, patient care trends, and the role of a radiologic and imaging sciences professional.

RIS 503. Radiologic and Imaging Sciences III. (3 Units)

Integrated modalities in the radiologic professions such as CT, MRI, SPECT/CT, PET/MRI, IMRT, 3D imaging and teleradiology. Healthcare legal, regulatory, and ethical issues are also discussed.

RIS 510. RIS Research Methods and Data Analysis. (3 Units)

Introduction to radiologic and imaging science research methods, data analysis, as well as current research trends and publications in the field.

RIS 511. Informatics in Radiologic Imaging Sciences. (3 Units)

Introduction to Health Information Technology (HIT), Radiology Information Systems (RIS) and Picture Archive and Communication Systems (PACS). Includes basic information system technology as well as clinical and administrative application of healthcare information systems in radiologic and imaging sciences.

RIS 520. Radiologic Management I. (3 Units)

Introduction to principles of management with emphasis on it applications in radiologic and imaging department administration.

RIS 521. Radiologic Management II. (3 Units)

Introduction to funding sources, accounting, and financial management as it applies to radiology and imaging administration.

RIS 522. Clinical Practice Accreditation. (3 Units)

Application for and maintenance of clinical professional accreditation of clinical operations. Emphasis is on the role of the radiology administrator.

RIS 530. Pedagogy and Andragogy in RIS. (3 Units)

Principles and practice of effective teaching, curriculum development and evaluation in radiologic and imaging sciences.

RIS 531. Radiologic and Imaging Sciences Program Administration. (3 Units)

Orientation to academic program directorship, faculty development, student affairs, academic affairs, the higher education system in the US and how colleges and universities in the US work. Topics include scholarship, advisement, teaching as well as faculty recruitment retention and development.

RIS 532. RIS Academic Program Accreditation. (3 Units)

An introduction to accreditation of radiologic and imaging sciences academic programs. Topics include outcome assessments, benchmarking, Self-Study preparation, applying for and maintaining accreditation, and accreditation site visits.

RIS 540. CT Physics, Instrumentation and Procedures. (3 Units)

In-depth study of the physical principles and instrumentation in CT.

RIS 541. Advanced Topics in CT. (3 Units)

CT artifacts, reconstruction algorithms, 3-D imaging, angiography and radiation safety are discussed.

RIS 542. CT Clinical Applications. (3 Units)

A discussion on clinical application of CT. Topics include central nervous system, cardiovascular, gastrointestinal, genitourinary, hepatobiliary, musculoskeletal, and cardiac systems.

RIS 550. MRI Physics & Instrumentation. (3 Units)

In-depth study of the physical principles and instrumentation in MRI.

RIS 551. Advanced Topics in MRI. (3 Units)

MRI artifacts, magnetic resonance angiography and MRI safety are discussed.

RIS 552. MRI Clinical Applications. (3 Units)

A discussion on clinical application of MRI. Topics include central nervous system, cardiovascular, gastrointestinal, genitourinary, hepatobiliary, musculoskeletal, and cardiac systems.

RIS 560. Ultrasound Physics and Instrumentation. (3 Units)

Emphasizes principles of physics and instrumentation of diagnostic ultrasound. Topics including sound wave parameters, energy transfer through wave propagation, surface reflection processes, and transducer construction. Includes an overview of A-mode, B-mode, and M-mode.

RIS 561. Advanced Topics in Ultrasound. (3 Units)

Discussion of computer technology and the instrumentation used to create and store the ultrasound image and introduction to fluid dynamics, and the spectral, color and amplitude related to Doppler. Includes discussions about echo cardiology.

RIS 562. Ultrasound Clinical Applications. (3 Units)

Topics include abdominal, OB/GYN, cardiac and vascular sonographic techniques.

RIS 570. PET/CT Physics and Instrumentation. (3 Units)

Introduces the physical principles and instrumentation used in computed tomography and PET. Topics include the physics associated with PET, PET technology, an overview of computed tomography technology, and computer reconstructions algorithms.

RIS 571. PET Radiopharmaceuticals. (3 Units)

A discussion of the radiopharmaceuticals and CT contrast used in PET/CT. Emphasis is on chemistry of positron-emitting nuclides and radiopharmaceuticals, the physiological interactions of radiopharmaceuticals, and iodinated contrast media in patients. Patient safety, patient screening, and radiation safety are included.

RIS 572. PET/CT Clinical Applications. (3 Units)

Encompasses the interrelated aspects of performing PET/CT procedures. Includes anatomy, physiology and pathology of the organ systems, patient preparation and care, imaging instrumentation and protocols.

RIS 580. Radiation Therapy Physics and Treatment Planning. (3 Units)

Basic principles of ionizing radiation, radiation dosimetry, imaging equipment, radiation therapy equipment and radiation detectors.

RIS 581. Principles and Practices of Radiation Therapy I. (3 Units)

The fundamentals of clinical radiation oncology are discussed including the medical, biological, and pathological aspect as well as technical aspects. Topics also include the diagnosis, interpreting and implementing the treatment prescription, and documentation of treatment parameters for various physiological systems.

RIS 582. Principles and Practices of Radiation Therapy II. (3 Units)

A continuation of RIS 581. Introduces Proton beam therapy, Intraoperative Radiotherapy (IORT), and Gamma Knife radiosurgery.

RIS 590. Practicum. (1-3 Units)

Observing and applying discipline specific clinical, educational or managerial principles in a patient care or academic setting. Restricted to majors.

RIS 597. Directed Reading. (3 Units)

Extensive reading in selected areas under the guidance of a faculty mentor. Restricted to majors. Repeatable course.

RIS 598. Directed Research. (3 Units)

Extensive research on a subject related to the student's area of concentration under the guidance of a faculty advisor. Restricted to majors. Repeatable course.

RIS 599. Capstone Project. (3 Units)

Prerequisite: Enrolled in the final semester of the degree program. A radiologic science related, practical project proposed by the student and approved by the advisor.