

# MEDICAL IMAGING & RADIATION SCIENCES (BS)

## Contacts

**Program Director:** Colleen Dempsey, EdD, RT (R)  
**Email:** Colleen.Dempsey@jefferson.edu  
215-503-9191

**Campus:** Center City  
Program Website (<https://www.jefferson.edu/academics/colleges-schools-institutes/health-professions/departments-programs/medical-imaging-radiation-sciences/degrees-programs/bs-programs.html>)

## Program Description

The Department of Medical Imaging and Radiation Sciences prepares students for careers in medical imaging and radiation oncology. As the field of radiology has become more advanced and complex, the need exists for proficient, multi-skilled professionals. Medical imaging and radiation science professionals operate sophisticated equipment to produce optimal diagnostic images, calculate radiation treatment plans and deliver radiation treatments. They have the knowledge to identify normal and abnormal anatomy and physiology, are responsible for the well-being of patients in their care and are a member of the health care team.

The mission of the Department of Medical Imaging and Radiation Sciences is to provide a comprehensive education preparing students for entry-level practice in medical imaging and radiation sciences as competent, caring members of the health care team, cultivating professionalism and life-long learning.

## One Year Program Concentrations

Students who have the 50 prerequisite credits and a baccalaureate degree are eligible to apply to the following one-year concentrations:

- Abdomen-Extended & OB/GYN (General Ultrasound)
- Cardiac Sonography
- Magnetic Resonance Imaging
- Medical Dosimetry
- Radiation Therapy
- Radiography
- Vascular Sonography

Students who have the 50 prerequisite credits and certification in or have graduated from an accredited program in medical imaging and radiation science may apply to the following one-year concentrations:

- Abdomen-Extended & OB/GYN General (Ultrasound)
- Cardiac Sonography
- Computed Tomography – requires ARRT (R), (T), (N) or CNMT
- Invasive Cardiovascular Technology – requires ARRT(R) or ARDMS RDCS/RVT
- Magnetic Resonance Imaging
- Medical Dosimetry – requires ARRT (T) or successful completion of a JRCERT-accredited Radiation Therapy Program)
- Radiation Therapy

- Radiography
- Vascular Sonography

## Two Year Program Concentrations

### Imaging Concentrations

- Abdomen-Extended & OB/GYN (General Ultrasound)
- Cardiac Sonography
- Computed Tomography<sup>1</sup>
- Invasive Cardiovascular Technology<sup>2</sup>
- Magnetic Resonance Imaging
- Radiography
- Vascular Sonography

### Radiation Oncology Concentrations

- Radiation Therapy
- Medical Dosimetry<sup>3</sup>

### Non-Imaging Concentrations

Health Service Management

- <sup>1</sup> Second year -**Only** after the first year of Radiography, Radiation Therapy, or Nuclear Medicine
- <sup>2</sup> Second year- **Only** after the first year of Radiography, Cardiac Sonography, or Vascular Sonography
- <sup>3</sup> Second year-offered in the Institute of Emerging Health Professions

## Concentration: Abdomen-Extended & OB/GYN (General Ultrasound)

Code	Title	Credits
Semester 1		
RSS 321	Patient Care & Serv in Diag Im	2
RSS 400	Ultrasound Physics I	2
RSS 402	Abdominal Sonography I	2
RSS 404	Pelvic Sonography	3
RSS 412	Clinical Sonography I	6
RSS 415	Sonography Procedures I	2
Semester 2		
RSS 403	Ultrasound Physics II	2
RSS 405	Obstetrical Sonography	3
RSS 413	Clinical Sonography II	6
RSS 416	High Resolution Sonography	2
RSS 417	Sonography Procedures II	2
RSS 422	Abdominal Sonography II	2
RSS 498	Spec Topics in General Sonog	2
Semester 3		
RSS 408	Sonography Review Seminar	2
RSS 414	Clinical Sonography III	8

## Concentration: Cardiac Sonography

Code	Title	Credits
<b>Semester 1</b>		
RSCS 302	Noninvasive Test Prin & Proced	1
RSCS 311	Cardiovascular Physiology	2
RSCS 321	Pat Care & Serv in Diag Imag	2
RSCS 331	Cardiac Procedures I	2
RSCS 351	Cardiac Principles I	3
RSCS 400	Ultrasound Physics I	2
RSCS 411	Clinical Cardiac I	6
RSCS 491	Special Topics Cardiac Sonog	1
<b>Semester 2</b>		
RSCS 312	Cadiovascular Pathophysiology	2
RSCS 332	Cardiac Procedures II	2
RSCS 352	Cardiac Principles II	3
RSCS 403	Ultrasound Physics II	2
RSCS 412	Clinical Cardiac II	6
RSCS 492	Special Topics Cardiac Sonog	1
<b>Semester 3</b>		
RSCS 413	Clinical Cardiac III	8
RSCS 481	Cardiac Review Seminar	2
<b>Total Credits</b>		<b>45</b>

## Concentration: Computed Tomography

Code	Title	Credits
<b>Semester 1</b>		
RSC 400	CT Physics & Instrumentation	3
RSC 401	Cross Sectional Anatomy I	2
RSC 412	Clin Computed Tomography I	6
RSC 431	CT Procedures I	3
RSC 433	CT Procedures Simulation Lab I	1
<b>Semester 2</b>		
RSC 402	Cross Sec Anatomy II	2
RSC 413	Clinical CT II	6
RSC 432	CT Procedures II	3
RSC 434	CT Procedures Sim Lab II	1
RSC 451	Imaging Informatics	1
RSC 498	Special Topics in CT	1
<b>Semester 3</b>		
RSC 414	Clinical CT III	8
RSC 473	Computed Tomography Seminar	2
<b>Total Credits</b>		<b>39</b>

## Concentration: Invasive Cardiovascular Technology-Cardiac Sonography Background

Code	Title	Credits
<b>Semester 1</b>		
RSI 338	Invasive Procedures I	3
RSI 341	Radiation Physics & Instrum I	3
RSI 357	Invasive Principles I	3
RSI 431	Clinical Invasive I	6
<b>Semester 2</b>		
RSI 313	Radiobiology Health Physics	2
RSI 339	Invasive Procedures II	3
RSI 342	Radiography Physics & Instr II	2
RSI 358	Invasive Principles II	3
RSI 432	Clinical Invasive II	6
<b>Semester 3</b>		
RSI 433	Clinical Invasive III	8
RSI 483	Invasive Review Seminar	2
<b>Total Credits</b>		<b>41</b>

## Concentration: Invasive Cardiovascular Technology-Radiography Background

Code	Title	Credits
<b>Semester 1</b>		
RSI 302	Noninvasive Test Prin & Proced	1
RSI 311	Cardiovascular Physiology	2
RSI 338	Invasive Procedures I	3
RSI 357	Invasive Principles I	3
RSI 431	Clinical Invasive I	6
<b>Semester 2</b>		
RSI 312	Cardiovascular Pathophysiology	2
RSI 339	Invasive Procedures II	3
RSI 358	Invasive Principles II	3
RSI 432	Clinical Invasive II	6
<b>Semester 3</b>		
RSI 433	Clinical Invasive III	8
RSI 483	Invasive Review Seminar	2
<b>Total Credits</b>		<b>39</b>

## Concentration: Invasive Cardiovascular Technology-Vascular Sonography Background

Code	Title	Credits
<b>Semester 1</b>		
RSI 302	Noninvasive Test Prin & Proced	1
RSI 338	Invasive Procedures I	3
RSI 341	Radiation Physics & Instrum I	3
RSI 357	Invasive Principles I	3

Code	Title	Credits
RSI 431	Clinical Invasive I	6
<b>Semester 2</b>		
RSI 312	Cardiovascular Pathophysiology	2
RSI 339	Invasive Procedures II	3
RSI 342	Radiography Physics & Instr II	2
RSI 358	Invasive Principles II	3
RSI 432	Clinical Invasive II	6
<b>Semester 3</b>		
RSI 433	Clinical Invasive III	8
RSI 483	Invasive Review Seminar	2
<b>Total Credits</b>		<b>42</b>

## Concentration: Magnetic Resonance Imaging (MRI)

Code	Title	Credits
<b>Semester 1</b>		
RSM 321	Pat Care & Serv in Diag Imag	2
RSM 400	MRI Physics&Instrumentation I	3
RSM 401	Cross Sectional Anatomy I	2
RSM 411	MRI Patient Care & Safety	2
RSM 412	Clinical MRI I	6
RSM 431	MRI Procedures I	3
<b>Semester 2</b>		
RSM 402	Cross Sec Anatomy II	2
RSM 403	MRI Phys and instrument II	1
RSM 413	Clinical MRI II	6
RSM 415	MRI Pathology	1
RSM 432	MRI Procedures II	3
RSM 451	Imaging Informatics	1
RSM 498	MRI Special Topics	1
<b>Semester 3</b>		
RSM 414	Clinical MRI III	8
RSM 473	MRI Seminar	2
RSM 474	MRI Advanced Scanning Seminar	1
<b>Total Credits</b>		<b>44</b>

## Concentration: Medical Dosimetry

Code	Title	Credits
<b>Semester 1</b>		
RSD 322	Patient Care in Rad Oncology	2
RSD 401	Cross Sectional Anatomy I	2
RSD 412	Clinical Med Dosimetry I	6
RSD 430	Case Studies in Dosimetry <sup>1</sup>	1
RSD 435	Medical Dosimetry Physics I	3
RSD 439	Radiation Protection	1
RSD 440	Intro to Radiobiology	2
RSD 480	Survey of Medical Imaging	2
<b>Semester 2</b>		
RSD 402	Cross Sec Anatomy II	2
RSD 413	Clinical Med Dosimetry II	6

Code	Title	Credits
RSD 415	Clinical Radiation Oncology	2
RSD 436	Medical Dosimetry Physics II	3
RSD 442	Quality Assurance & Instrument	2
RSD 443	Brachytherapy	2
RSD 444	Spec Proced for Radiotherapy	2
<b>Semester 3</b>		
RSD 414	Clinical Med Dosimetry III	8
<b>Total Credits</b>		<b>46</b>

<sup>1</sup> Students coming from TJU Radiation Therapy program only

## Concentration: Radiation Therapy

Code	Title	Credits
<b>Semester 1</b>		
RST 322	Patient Care in Rad Oncology (hybrid)	2
RST 401	Cross Sectional Anatomy I	2
RST 409	Rad Therapy Prin & Proc I	3
RST 409L	Radiation Therapy Lab I	1
RST 412	Clinical Rad Therapy I	6
RST 435	Radiation Therapy Physics I	2
RST 439	Radiation Protection	1
RST 440	Intro to Radiobiology	2
<b>Semester 2</b>		
RST 402	Cross Sec Anatomy II	2
RST 413	Clinical Rad Therapy II	6
RST 415	Clinical Radiation Oncology	2
RST 416	Principles of Rad Dosimetry	2
RST 419	Rad Therapy Prin & Proc II	3
RST 436	Radiation Therapy Physics II	3
<b>Semester 3</b>		
RST 414	Clinical Rad Therapy III	10
RST 429	Rad Therapy Prin & Proc III	2
RST 473	Rad Therapy Review Seminar	2
<b>Total Credits</b>		<b>51</b>

## Concentration: Radiography

Code	Title	Credits
<b>Semester 1</b>		
RSR 321	Patient Care & Serv in Diag Im	2
RSR 331	Radiographic Procedures I	2
RSR 331L	Radiographic Procedures I Lab	1
RSR 341	Radiation Physics & Instrum I	2
RSR 353	Radiographic Imaging Princ 1	2
RSR 361	Image Analysis I	2
RSR 371	Clinical Radiography I	4
<b>Semester 2</b>		
RSR 313	Radiobiology Health Physics	2
RSR 332	Radiographic Procedures II	2
RSR 342	Radiography Physics & Instr II	2
RSR 354	Radiographic Imaging Princ II	2
RSR 362	Image Analysis II	2

Code	Title	Credits
RSR 372	Clinical Radiography II	6
<b>Semester 3</b>		
RSR 333	Advanced Radiographic Proced	1
RSR 373	Clin Radiography III	8
RSR 412	Radiographic Pathology I	2
RSR 414	Radiography Capstone	1
RSR 471	Radiography Review Seminar	2
<b>Total Credits</b>		<b>45</b>

## Concentration: Vascular Sonography

Code	Title	Credits
<b>Semester 1</b>		
RSV 311	Cardiovascular Physiology	2
RSV 321	Pat Care & Serv in Diag Imag	2
RSV 335	Vascular Procedures I	2
RSV 353	Vascular Principles I	2
RSV 400	Ultrasound Physics I	2
RSV 401	Vascular Anatomy	2
RSV 421	Clinical Vascular I	6
<b>Semester 2</b>		
RSV 336	Vascular Procedures II	2
RSV 354	Vascular Principles II	2
RSV 403	Ultrasound Physics II	2
RSV 422	Clinical Vascular II	6
RSV 493	Spec Topics in Vascular Tech	2
<b>Semester 3</b>		
RSV 423	Clinical Vascular III	8
RSV 482	Vascular Review Seminar	2
<b>Total Credits</b>		<b>42</b>