# **IU School of Medicine**

### Medical Imaging and Radiologic Sciences

IU Fort Wayne offers a Bachelor of Science in Medical Imaging with two concentration options, Radiography (or Radiologic Technology) or Sonography (or Ultrasound Technology).

The Medical Imaging Program concentrations include general education and professional education courses. Students are designated as pre-medical imaging – radiography or pre-medical imaging – sonography majors as they complete required general education prerequisite courses and prior to admission to the professional program. Admission to the professional portion of either program is competitive and is based on a composite score derived from the prerequisite GPA, submitted recommendation forms, medical imaging preadmission testing, and a personal interview. Completion of course work alone does not ensure admission. Students must apply for admission to the professional program of choice directly to the Office of Medical Imaging and Radiologic Sciences by the first business day of March.

The professional education curriculum is a structured, fulltime, 33-month program beginning Fall semester each year. Professional education is a combination

of classroom and laboratory instruction and clinical experience. In clinical practice, students utilize the theories and concepts that are presented in the professional curriculum. Under the supervision of physicians and registered technologists, students will progress from observing to assisting, and subsequently to completing the imaging examinations.

All students in the process of completing prerequisite course work are strongly encouraged to seek academic advisement from the Pre-Medical Imaging advisor.

### Radiography

Radiographers (or Radiologic Technologists) use radiation to produce images of the human body for the purpose of medical diagnosis. In addition to completing coursework and clinical rotations focused in Radiography, students in the Medical Imaging Radiography Track at IUFW have the opportunity to explore and study several post primary imaging modalities and career pathways such as CT, MRI and Mammography.

Upon program completion, students will be awarded a Bachelor of Science in Medical Imaging. Graduates are eligible to apply to sit for the American Registry

of Radiologic Technologists (ARRT) Examination in Radiography. Each graduate must pass the national exam and become certified as a Radiologic Technologist in Radiography before applying for certification examination in another modality.

### Sonography

Sonographers (or Ultrasound Technologists) use sound waves to produce images of the human body for the purpose of medical diagnosis. Students in the Medical Imaging Sonography Track at IUFW will complete coursework and clinical rotations in abdomen, obstetrics and gynecology, and vascular sonography.

Upon program completion, students will be awarded a Bachelor of Science in Medical Imaging. Graduates are eligible to apply to sit for the American Registry

of Radiologic Technologists (ARRT) Examination in Sonography and/or the American Registry for Diagnostic Medical Sonography (ARDMS) Examinations.

# Admission Standards and Procedures

### **Admission Criteria**

Admission to the Medical Imaging program from Pre-Medical Imaging is limited and competitive, based on a total composite score of the following:

Prerequisite curriculum GPA (Must be 2.5 minimum in order to qualify for preadmission testing)

 Applicant Recommendation Forms (COMPLETED BY NON-FAMILY MEMBERS)

- Preadmission testing
- Personal interview \*

\* If the number of qualified applicants far exceeds the number of positions available, the program's Admission Committee reserves the right to limit the number of applicants to be interviewed to one and a half times the number of positions available in the class.

Completion of the prerequisite coursework and meeting the minimum requirements does not guarantee admission.

#### **Application Requirements**

Applicants seeking admission to the Medical Imaging program must meet the following requirements to sit for the preadmission test:

- Be admitted to IUFW as a degree seeking student (active status is required prior to submitting admission materials).
- 2. Complete and submit all Application Forms
- Complete at least 13 credit hours of the prerequisite curriculum with a minimum 2.5 prerequisite curriculum grade point average. The prerequisite curriculum grade point average (GPA) is a calculation used only for the Medical Imaging admission process.
- Earn a grade of C- or better in all prerequisite curriculum coursework.
- 5. Complete BIOL 20300, BIOL 20400 and a Math course within 5 years of admission to the professional program.
- Applications and other required application materials may be submitted between the first business day of November and the first business day of March each year. <u>IUFW Medical Imaging Program Admissions</u>

### **Special Considerations:**

- Applicants may complete the equivalents of these courses at other colleges and universities. A student may make multiple attempts at a prerequisite course, with the most recent grade calculated in the Prerequisite curriculum GPA.
- 2. Students may petition to fulfill some requirements with courses taken at a higher level than the

specified course provided that the prerequisite course requirement has been fulfilled. This petition must be indicated by using the SUBSTITUTE COURSE COMPLETION portion of the Prerequisite Checklist Form. Students must earn a C- or better in the substitute course. If approved, the substitution grade will be calculated into the prerequisite curriculum GPA provided it is higher than the grade for the course being replaced. Prerequisite curriculum coursework and grades from all postsecondary institutions attended will be reviewed and evaluated. Equivalents to pre-admission testing requirements will be evaluated on an individual basis.

### Admittance to the Program

In order to be admitted to the Medical Imaging program, applicants must complete all Prerequisite curriculum course work by the end of spring semester with a grade of C- or better in each course and maintain a minimum 2.5 Prerequisite curriculum grade point average.

Upon acceptance to the program, final admission is contingent upon an applicant meeting the following requirements:

- Possess skills and abilities required under the MIRS Technical Standards and Physical Demands and Environmental Conditions or request accommodation through Services for Students with Disabilities
- Complete a background check that meets the requirement for clinical site placement
- · Pass a drug screening test
- Complete a physical examination and submit a health record with documentation of required immunizations
- Obtain an Indiana State Board of Health Radiology Permit (Radiography Track)
- Have personal health insurance
- Complete and maintain compliance as required by clinical sites.

Upon acceptance into the Medical Imaging Program, students will be provided with the forms and information necessary to complete the above listed additional requirements. Expenses incurred in meeting these requirements are the responsibility of the applicant.

### **Prerequisite Requirement**

The Prerequisite curriculum is:

- RADX-P170 Fundamentals of Radiologic and Imaging Physics
- BIOL 20300 Human Anatomy & Physiology I
- BIOL 20400 Human Anatomy & Physiology II
- **COM 11400** Fundamentals of Speech Communication
- ENGL 13100 Elementary Composition
- Choose two of the following courses:
  - COM 21200 Approaches to the Study of Interpersonal Communication (recommended) OR
  - PSY 12000 Elementary Psychology OR
  - SOC 16101 Principles of Sociology

- Choose one of the following courses:
  - CS 11200 Computer Science for Everyone
    OR
  - PSY 20100 Introduction to Statistics in Psychology OR
  - STAT 30100 Elementary Statistical Methods I
- Choose **one** of the following courses:
  - MA 15300 College Algebra OR
    - MA 21300 Finite Mathematics I

Course descriptions may be found in the IUFW Bulletin. Note: Two additional general education courses must be completed prior to the final academic year of the professional program; however, students are encouraged to complete these courses prior to program entry if possible.

### Accreditation

### Radiography

The Medical Imaging Program - Radiography Track is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT):

20 N. Wacker Drive, Suite 2850 Chicago, IL 60606-3182 Phone: (312) 704-5300 Fax: (312) 704-5304 www.jrcert.org

### Sonography

The Medical Imaging Program- Sonography track is in the process of seeking accreditation from the Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS):

6021 University Boulevard, Suite 500, Ellicott City, MD 21043 Phone: 443-973-3251 Fax: 866-738-3444

www.jrcdms.org

### Student Learning Outcomes Mission Statement

Medical Imaging and Radiologic Sciences at IU Fort Wayne is committed to preparing highly qualified medical imaging technologists by integrating an outstanding baccalaureate academic education with a comprehensive clinical experience.

#### Medical Imaging Program Goals for Student Learning

Students in the IUFW Bachelor of Science in Medical Imaging program will learn to:

- 1. Communicate effectively in the health care setting.
- 2. Utilize critical thinking and problem-solving skills.
- 3. Model professionalism.
- 4. Demonstrate clinical competence.

### **Student Learning Outcomes**

Students in the IUFW Bachelor of Science in Medical Imaging program will be able to:

 Exercise effective interpersonal communication skills with patients.

- Apply effective interdisciplinary communication skills.
- Execute logical procedural variations for non-routine situations.
- Evaluate image quality.
- Exhibit the professional responsibilities of medical imaging technologists.
- Engage in self-development related to professional practice.
- Demonstrate clinical procedural proficiency.
- Utilize appropriate safety practices.

### **Admission for Bachelor Completion**

Students who have completed an A.S. degree or diploma from an accredited imaging program, and currently hold ARRT and/or ARDMS certification, are eligible to complete the BSMI. The School of Medicine (SOM), Medical Imaging and Radiologic Sciences (MIRS) faculty will review transfer credit and special credit eligibility\* on an individual basis. Please contact us to make an appointment for transcript and credit evaluation. \*The mechanisms by which a student may be awarded special credit include credit by professional credentials and credit by professional work experience.

# **Academic Regulations**

Students enrolled in the IU School of Medicine professional Medical Imaging Program are governed by the following academic standards:

- Grading System
- Program Cumulative GPA
- Good Academic Standing

# **Grading System**

Final achievement in a particular RADX course is indicated by a letter grade that is translated into the 4.0 grading system below

	Grade	Scale	Grade Points
Exceptional Achievement	A+	99-100	4.0
	А	96-98	4.0
	A-	94-95	3.7
Above Average	В+	92-93	3.3
	В	89-91	3.0
	B-	87-88	2.7
Average	C+	85-86	2.3
	С	82-84	2.0
	C-	80-81	1.7
Below Average	D+	78-79.9	1.3
	D	75-77	1.0

	D-	73-74	0.7
Failure	F	72 & below	0.0

# **Program Cumulative GPA**

Program Cumulative GPA is the average for all RADX courses taken by the student and will be verified at the end of each grading period to establish academic standing.

# **Good Academic Standing**

To be in good standing in MIRS, the following three requirements must be maintained throughout the three years in the Program:

- Students must achieve a grade of C- or better in all RADX courses.
- Students are also required to maintain a Program Cumulative GPA of 3.00.
- Students must complete the required clinical hours and competency standards within defined time frames.

Students who fail to meet the requirements for Good Academic Standing are subject to dismissal from MIRS

### Immunizations and Insurance Required Immunizations

The following immunizations are required for students admitted to Medical Imaging and Radiologic Sciences. It is recommended that students begin the immunization process prior to admission to the program, as some immunizations require six (6) months to complete the series.

- Measles, Mumps, and Rubella (series of 2) e.g. MMR
- Tetanus and Diphtheria (within last 10 years must not lapse during program) - e.g. Td, Tdap
- Varicella (Chicken Pox, series of 2) e.g. VAR <u>OR</u> documented History of Disease
- Hepatitis B (series of 3) e.g. HepB, HepA-HepB
- Polio (series of 3) e.g. OPV, IPV
- COVID-19 vaccine may be required for clinical placement

Positive titer documentation (showing immunity) may be accepted in place of immunization documentation.

### Tuberculosis (TB) Test and Influenza Vaccine

An annual TB test and influenza vaccine will be required for all students enrolled in the professional medical imaging program. Other vaccinations may be required by affiliated clinical sites. More information regarding this requirement will be provided to students enrolled in the program.

### **Health Insurance**

Students enrolled in a program in the health sciences may be exposed to possible injuries and communicable diseases. All students are required to carry their own health insurance. Costs associated with any incident on campus or at clinical sites shall remain the responsibility of the student.

# Medical Imaging BS Degree Requirements

- 1. General Education/Prerequisites (35 Credits)
- 2. Professional Curriculum Required Courses (85 credits)

# **General Education and Prerequisites**

### **GENERAL EDUCATION/PREREQUISITES 36 Credits**

1. CORE COMMUNICATION - TWO CONTENT AREAS (2 courses, 6.0 Cr Hrs)

Dept	Course	Title	Cr Hrs
*ENGL	13100	Writing	3
*COM	11400	Speaking & Listening	3

### 2. SOCIAL SCIENCES -2 Courses (6.0 Hrs)

Dept	Course	Title	Cr Hrs
	Choose two o	f the following	6
	courses		
*COM	21200	Approaches	
		to the	
		Study of	
		Interpersonal	
		Communicatio	on
		(recommende	d)
		ÒR	
*PSY	12000	Elementary	
		Psychology	
		OR	
*500	16101	Principles of	
	10101	Sociology	
		200.0099	

### 3. ARTS and Humanities - 1 Course (3.0 Hrs)

Option	1	Course	Cr Hrs
CHOC ELEC	OSE 1 TIVE	Choose 1 Elective that meets the General Education requirement for Arts and Humanities	3

#### 4. CULTURAL UNDERSTANDING - 1 course (3.0 Cr Hrs)

Option	Course	Cr Hrs
CHOOSE 1 ELECTIVE	Choose 1 Elective that meets the General Education requirement	3

### for Cultural Understanding

5. ANALYTICAL REASONING - TWO CONTENT AREAS - 1 course from each list (6.0 Cr Hrs). At least one course must be from List A. Second course can be from List A or B

Options	Course	Title	Cr Hrs
+LIST A - cho	oose 1		3
	*MA 15300	Algebra and Trigonometry I (Preferred) OR	
	*MA 21300	Finite Math	
+Enrollment in completion of	n List A math c prerequisite co	ourses requires ourse	s placement or
++LIST B – cł	noose 1		3
	*CS 11200	Survey of Computer Science OR	
*PSY 20100	Introduction to Statistics in Psychology OR		
*STAT 30100	Elementary Statistical Methods		
++Enrollment 15300 as a pr	in PSY 20100 erequisite	or STAT 30100	) requires MA

# 6. LIFE AND PHYSICAL SCIENCES - 2 Courses (8.0 Cr Hrs minimum)

Dept	Course	Title	Cr Hrs
*BIOL	20300	Human Anatomy and Physiology	4
*BIOL	20400	Human Anatomy and Physiology	4

### 7. Program Requirement - 1 Course (3.0 Cr Hrs)

Dept	Course	Title	Cr Hrs
RADX	P170	Fundamentals of Radiologic and Imaging Physics	s 3

- Courses marked with an asterisk (\*) must be completed by spring semester prior to the planned start date of the professional program, and will be used to calculate the cumulative prerequisite coursework GPA.
- Additional general education courses must be completed prior to the final academic year of the

professional program; however, students are encouraged to complete these courses prior to program entry if possible.

# • Biology courses and a college math course must be completed within 5 years of anticipated program start date.

# **Medical Imaging BS Curriculum**

Professional Curriculum Information

### **Radiography Track**

### Second Year - 29 Cr Hrs

### Fall

Dept	Course	Title	Cr Hrs
RADX	R105	Orientation to Radiography and Medical Imaging	3
RADX	R106	Fundamentals of Patient Care for Medical Imaging	3
RADX	R111	Radiography I	3
RADX	R270	Radiologic Physics	3

### Spring

Dept	Course	Title	Cr Hrs
RADX	R190	Introduction to Clinical Education	3
RADX	R211	Radiography II	3
RADX	R215	Medical Imaging Modalities	3
RADX	R271	Foundations of Image Acquisition	3

### Summer

Dept	Course	Title	Cr Hrs
RADX	R191	Medical Imaging Clinical Education I	2
RADX	R304	Medical Imaging Anatomy	3

### Third Year - 29 Cr Hrs

### Fall

Dept	Course	Title	Cr Hrs
RADX	R192	Medical Imaging Clinical Education II	3
RADX	R255	Radiation Biology and Protection in Radiography	3
RADX	R185	Medical Terminology	3
RADX	R371	Advanced Image Acquisition	3

### Spring

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Dept	Course	litle	Cr Hrs
RADX	R291	Medical Imaging Clinical Education III	3
RADX	R206	Advanced Patient Care for Medical Imaging	3
RADX	R305	Radiographic Image Critique	3
RADX	R307	Pharmacology for Medical Imaging	/3

### Summer

Dept	Course	Title	Cr Hrs
RADX	R292	Medical Imaging Clinical Education IV	2
RADX	R315	Exploring Modalities	3

### Fourth Year - 27 Cr Hrs

### Fall

Dept	Course	Title	Cr Hrs
RADX	R293	Medical Imaging Clinical Education V	3
1			

RADX	R306	Radiographic Pathology	3
RADX	R400	Leadership in Medical Imaging	3
RADX	R401	Legal and Ethical Issues in Medical Imaging	3
RADX	R410	Imaging Informatics and Acquisition Technology	3

RADX	S190	Introduction 3 to Clinical Education
RADX	S215	Abdominal 3 Sonography II
RADX	S211	Obstetric & 3 Gynecologic Sonography I
RADX	S371	Sonography 3 Physics and Instrumentation II

### Summer

Dept	Course	Title	Cr Hrs
RADX	S191	Sonography Clinical Education I	2
RADX	R304	Medical Imaging Anatomy	3

### Third Year - 30 Cr Hrs

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Dept	Course	Title	Cr Hrs
RADX	S192	Sonography Clinical Education II	3
RADX	S212	Obstetric & Gynecologic Sonography I	3
RADX	R185	Medical Terminology	3
RADX	S112	Vascular Sonography I	3

# Spring

Dept	Course	Title	Cr Hrs
RADX	S291	Sonography Clinical Education III	3
RADX	R206	Advanced Patient Care for Medical Imaging	3
RADX	S206	Vascular Sonography II	3
	Elective	RECOMMENT RADX-R307 Pharmacology or RADX- R320 Professional	XED: ,

### Spring

DeptCourseTitleCr HrsRADXR391Clinical Education VI3RADXR310Seminar in Radiography3RADXR450Quality Management3RADXR481Medical Imaging Internship Capstone3				
RADXR391Clinical Education VI3RADXR310Seminar in Radiography3RADXR450Quality Management3RADXR481Medical Imaging Internship Capstone3	Dept	Course	Title	Cr Hrs
RADXR310Seminar in Radiography3 RadiographyRADXR450Quality Management3 Imaging Internship Capstone	RADX	R391	Clinical Education VI	3
RADX R450 Quality 3 Management RADX R481 Medical 3 Imaging Internship Capstone	RADX	R310	Seminar in Radiography	3
RADX R481 Medical 3 Imaging Internship Capstone	RADX	R450	Quality Management	3
	RADX	R481	Medical Imaging Internship Capstone	3

# Sonography BSMI Curriculum Second Year - 29 Cr Hrs

### Fall

Dept	Course	Title	Cr Hrs
RADX	R105	Orientation to Radiography and Medical Imaging	3
RADX	R106	Fundamentals of Patient Care for Medical Imaging	:3
RADX	S111	Abdominal Sonography I	3
RADX	S271	Sonography Physics and Instrumentatio	3 on

### Spring

De	pt Cou	urse Title

Cr Hrs

Development in Medical Imaging	
Imaging	

### Summer

Dept	Course	Title	Cr Hrs
RADX	S292	Sonography Clinical Education IV	3
RADX	R306	Medical Imaging Pathology	3

### Fourth Year - 26 Cr Hrs

### Fall

Dept	Course	Title	Cr Hrs
RADX	S293	Sonography Clinical Education V	4
RADX	R400	Leadership in Medical Imaging	3
RADX	R401	Legal and Ethical Issues in Medical Imaging	3
RADX	R410	Imaging Informatics and Acquisition Technology	3

## Spring

Dept	Course	Title	Cr Hrs
RADX	S391	Sonography Clinical Education VI	4
RADX	S310	Seminar in Sonography	3
RADX	R450	Quality Management in Medical Imaging	3
RADX	R481	Medical Imaging Internship Capstone	3
	Dept RADX RADX RADX RADX	Dept Course RADX S391 RADX S310 RADX R450 RADX R481	DeptCourseTitleRADXS391Sonography Clinical Education VIRADXS310Seminar in SonographyRADXR450Quality Management in Medical ImagingRADXR481Medical Imaging Internship Capstone

# **Courses**