RUSH UNIVERSITY COLLEGE OF HEALTH SCIENCES

Department of Medical Imaging Sciences

Bachelor of Science Degree Imaging Sciences Program Handbook

2023-2024

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Table of Contents

Faculty Contact Information	4
Rush University	5
Accreditation	5
Mission	5
Vision	5
ICARE Values for Students	5
College of Health Science Mission	6 6
Vision	6
Bachelor of Science in Imaging Sciences Program Mission	6 6
Vision	6
Statement of Educational Philosophy	6
Specialized Accreditation	7
Licensure and Certification	7
Counseling & Advising	7
Imaging Sciences (BS) Program Overview Technical Standards	8 10
Curriculum	12
Clinical Competencies	17
CT Track	17
MRI Track	18
PET Track	19
Interventional Radiology	20
Cardiac Catheterization	21
BS in Imaging Sciences Co-Curricular Activities	22
Peer Mentoring	22
BS in Imaging Sciences Learning Outcomes	23
Imaging Sciences 'Definition of Excellence in Education	23
Ways to Measure Excellence	24
BS in Imaging Sciences Program Policies and Procedures	25
Grading System	25
Comprehensive end-of program competency assessment examination	26
Protocol for Undergraduate Programs Student Academic Support Services	26
Incomplete Grades	26
Academic Progression	27

D, F or N Grades in the BS in Imaging Sciences Program	27
Minimal Acceptable Grade Point for Graduation in the BS in Imaging Sciences Program	28
Final Grades Reported to the Registrar	28
Final Grade Appeals	28
Transfer of Credit	28
Residency Requirements	28
Minimum Core General Education Requirements for Admission	28
Proficiency in English	29
Correspondence between Students and Faculty	30
Electronic Mail Textbooks	30 30
Use of Cellular Phones and Pagers	30
Procedure for Unprofessional Conduct	30
College of Health Science Policies and procedures	32
Criminal Background Check	32
Drug Testing	32
Immunizations	32
Student Academic Appeal and Grievance Procedures	32
Rush University Policies and Procedures Lockers and Mailboxes	35 35
Health Insurance	35
Required Rush University Medical Center OSHA, HIPPA, and Safety Training	35
Change of Address Responsibility	35
Withdrawal from Courses	35
Continuous Enrollment	35
Leave of Absence	36
Withdrawal from the Program	36
Readmission to the Program	36
Office of Student Accessibility Services	37
Appendix A: Course Descriptions Graduation requirements	38 45
Clinical Work	45
Other Program Requirements	50
Appendix B: Minimum Core General Education Requirements for Admission Appendix C: Advanced Standing in the Imaging Sciences Program Appendix D: Clinical Affiliates	52 55 57
SIGNATURE PAGE	58

Rush University

Faculty Contact Information

Merima Karastanovic, MS, R.T. (R) (MR) (ARRT) Program Director Clinical Education Manager Assistant Professor

Office: Suite 1021B, Armour Academic Center (AAC) Phone: 312-942-4156 Fax: 312-942-2100 Email: Merima Karastanovic@rush.edu

Medical Director

Sharon E Byrd, MD, Chairperson Department of Diagnostic Radiology and Nuclear Medicine

Faculty

Sulaimon O. Balogun, MSHI, RHIA, R.T.(R)(CT)(ARRT) Assistant Professor

Tina Buehner, PhD, CNMT, NMTCB(CT)(RS), RT(N)(CT), FSNMMI-TS Assistant Professor

Brinda Desai Bradaric, PhD Assistant Professor

Kenya McGuire Johnson, PT, MA, CHC Instructor Manager of Student, Professional & Career Development

Rhonda L. Owens, EdD, SHRM-CP, PHR Adjunct Instructor

John Posh RT (R), (MR), (ARRT), MRSO (MRSC[™]) Assistant Professor

Clayton Thomason, JD, MDiv Associate Professor

OFFICE HOURS: The faculty does not hold official office hours, but are generally happy to meet with students either before or after class OR can be contacted between classes via the contact information provided according to the information provided in their respective syllabi.

Feel free to approach a faculty member with concern at any time, but to assure time with a faculty member, you must make an appointment in advance. If you do not receive an email or phone reply from a faculty member.

Accreditation

Rush University is accredited by the Higher Learning Commission (HLC), a regional accrediting agency that accredits degree-granting post-secondary educational institutions in the North Central region, which includes 19 states. In its accreditation process, HLC assesses the academic quality and educational effectiveness of institutions and emphasizes institutional structures, processes and resources.

The U.S. Department of Education as certifying institutional eligibility for federal funding in a number of programs, including student access to federal financial aid, recognizes HLC. The Commission accredits institutions, not individual programs. Accreditation of the university's specialty programs is conferred by accrediting organizations specific to each discipline.

<u>Mission</u>

Rush University provides outstanding health sciences education and conducts impactful research in a culture of inclusion, focused on the promotion and preservation of the health and well-being of our diverse communities.

<u>Vision</u>

The Rush learning community will be the leading health sciences university committed to transforming health care through innovative research and education.

ICARE Values for Students

- Scan the environment for opportunities to help.
- Be familiar with the Rush campus and locations of Guest Relations/Information Desk Staff.
- Initiate greeting and offer assistance.
- Let patients go first through doors, hallways and elevators.
- Be courteous to others and remember that visitors cannot always tell the difference between a student and an employee.
- Be aware of backpacks and other bulky possessions, especially in elevators and public spaces.
- Be careful not to push or bump patients with your backpacks or possessions.
- Assist and accommodate with special needs.
- Remember you are representing Rush.
- Use professional language, tone and volume in public areas.
- You never know who might be around.
- Protect privacy and confidentiality, especially in public areas.

- Remember that examples from class may be real cases, or similar to what a patient or family member is going through.

• Demonstrate active listening.

• Refrain from eating, drinking or gum chewing in public areas (non-food service areas), except for the Armour Academic Center.

College of Health Science

<u>Mission</u>

The Mission of the College of Health Sciences is to advance the quality and availability of health care through excellence in education, research and scholarship, service and patient care. The college promotes the values of diversity, access and inclusion in all of its endeavors.

<u>Vision</u>

The College of Health Sciences at Rush University will be a world-class school of allied health sciences whose programs are recognized as among the best in the United States.

Bachelor of Science in Imaging Sciences Program

<u>Mission</u>

The mission of the Bachelor of Science in Imaging Sciences is to provide the highest quality of education to students through formal didactic and state-of-the-art clinical experiences that prepare our students to be imaging professionals, who are patient care focused, critical thinkers, and engaged in lifelong learning. The program also seeks to enroll a diverse student body to promote the values of diversity and inclusion in our program.

<u>Vision</u>

The vision of the Imaging Sciences Program is to be a premier educational program in Imaging Sciences by providing innovative curricular, clinical, and continuing education services to the diagnostic imaging community and the patients we serve. Our vision is to transform lives through academic excellence, innovation, and leadership.

Statement of Educational Philosophy

The Bachelor of Science in Imaging Sciences Program faculty shares a set of beliefs consistent with the philosophies and missions of Rush University and its clinical affiliates. The faculty believes that the knowledge, attitudes, and skills required for professional medical imaging are best achieved through a combination of theory and related clinical experiences. Clinical application of theory-based knowledge in the technical aspects of medical imaging, critical thinking, communication, and quality patient care prepares students to become competent and compassionate professionals dedicated to a career of service to society. Learning is a life-long process promoted when intellectual inquiry, creativity, self-awareness, self-direction, maturity, and responsibility are valued. This process results in positive attitude changes, knowledge acquisition, and technical competence.

The Imaging Sciences Program is dedicated to the mission of the College of Health Sciences and Rush University in that it seeks to enroll a diverse student body to promote the values of diversity and inclusion of our program. The Bachelor of Science in Imaging Sciences Program is committed to preparing advanced-level imaging science professionals to provide high-quality, diagnostic, and interventional imaging procedures to patients.

Specialized Accreditation

Because all entering students must have completed an imaging sciences educational program accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT), or the Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT) AND be eligible for licensure in Illinois as a medical imaging technologist, there are no additional accreditation requirements for this program. Rush is utilizing the curricular guides as published by the American Society of Radiologic Technologists (ASRT), Association of Educators in the Imaging and Radiation Sciences (AEIRS), Society of Nuclear Medicine (SNM, and other professional agencies, as appropriate.

Licensure and Certification

Students entering this program must be graduates of an accredited imaging technology program and eligible for accreditation (licensure) in the practice of medical radiation technology by the Illinois Emergency Management Agency. The requirements for accreditation in medical radiation technology are may be viewed at: http://www.state.il.us/iema/radiation/radtech/radtechlogin.asp

The American Registry of Radiologic Technologists for Imaging Sciences (ARRT) is the national testing agency for Imaging Sciences. According to the ARRT, most states (approximately two-thirds) currently require medical imaging science specialists to hold a state license to practice based on successful completion of the entry-level certification examination for medical imaging science specialists administered by the ARRT (see: <u>http://www.arrt.org/index.html</u>). The Imaging Sciences licensure in Illinois is administered by the Illinois Emergency Management Agency and is based on successful completion of the ARRT-administered examinations (see: <u>http://www.iema.illinois.gov/;</u> and <u>http://www.arrt.org/index.html</u>?content=licensing/certvslic.htm).

Counseling & Advising

The Center for Clinical Wellness (CCW) serves as a hub for all things wellness at Rush and is available to all current members of our community; including students, housestaff, clinicians, and non-clinical employees at Rush University Medical Center, Rush Oak Park Hospital, and Rush Copley Medical Center. In addition to a network of on-site and virtual tools, the CCW provides free counseling, coaching, and other services. For additional specifics, including scheduling, location, hours, and current program offerings, please visit the website.

All students, including distance learners, also have access to the Rush Wellness Assistance Program, 24/7 counseling support for all members of the Rush community and their families. Call 833-304-3627 to access this service.

All members of the Faculty participate in advising students regarding their progress in the program. Any student who finds him/herself in academic difficulty should seek help from a Faculty member as soon as possible.

Program Overview

The Imaging Sciences Program in the College of Health Sciences at Rush University in Chicago is dedicated to clinical and academic excellence in teaching, research, service, and patient care. The Imaging Sciences Program is designed to provide students with an outstanding education in preparation for a satisfying professional career as advanced Imaging Sciences professionals as well as to provide a foundation for leadership in management and supervision, education, and clinical specialization.

The Imaging Science Program is committed to providing a rigorous program to train advanced medical imaging professionals of the future. Through small class sizes and mentoring by faculty members, we provide a learning environment that is both challenging and nurturing. Our goal is to train knowledgeable healthcare professionals who possess critical thinking and leadership skills. The Imaging Sciences Program involves motivation, curiosity, professional fulfillment, and personal satisfaction. The work is both hard and rewarding.

Known for its teacher-practitioner model, Rush University faculty will provide a foundation for practicing radiologic technologists to assume leadership roles in the field, with a primary concentration in a clinical specialty area. The program will provide graduates with the knowledge, skills, and attitudes needed to perform advanced-level imaging procedures including, computed tomography (CT), magnetic resonance imaging (MRI), and other specialties. The overall purpose of the program is to provide a high-quality education that is relevant and professionally sound to meet the advanced imaging needs in the changing health care community with current and developing imaging and therapeutic technologies.

Interaction with faculty, therapists, technologists, physicians, and nurses is essential and is the key to the program. Students engage in seminars, intensive classes, and clinical training in hospitals. The result is an outstanding education in Imaging Sciences, but it is more than that. There is a sense of personal growth and a real commitment to serving people.

It will be necessary for the imaging sciences professional to cooperate with all members of the health care team in identifying and solving the problems that relate to the diagnosis and treatment of diseases and disorders that affect patients. The imaging sciences professional must be able to think critically, communicate effectively, demonstrate judgment, and provide self-direction. It is a primary objective of the program to educate well-qualified, competent imaging sciences professionals who demonstrate leadership ability. The Imaging Sciences Program is dedicated to the mission, vision, and values of the College and University Medical Centers.

Rush University's Imaging Sciences Program has been carefully designed to allow working imaging professionals the opportunity to complete advanced training in the areas of Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and other advanced imaging modalities while completing their bachelor's degree. The program will provide graduates with the knowledge, skills, and attitudes needed to perform advanced procedures utilizing the current and developing imaging and therapeutic technologies. Students enrolled in the degree program will be taught and trained at one of the nation's most respected academic medical centers.

This is a career ladder program for certified imaging technologists who have earned an associate's degree in medical radiography, or nuclear medicine technology from a program accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT), or the Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT).

The program includes instruction in applied anatomy and physiology, patient positioning, radiographic technique, radiation biology, safety, and emergency procedures, equipment operation and maintenance, quality assurance, patient education, and medical imaging/radiologic services management and advanced imaging techniques.

In addition to choosing an MRI, CT, or another specialty tract, radiologic technologists enrolled in the program will also complete leadership coursework in management, education, research, statistics, and health care systems. These courses will expose students to skills needed to translate learning into leadership in the areas of education, management and supervision, and diagnostic and interventional imaging specialty areas.

As a part of the program, graduates will complete the clinical training required to be eligible for the advanced registry certifications offered by the American Registry of Radiologic Technologists (ARRT).

For the bachelor's degree program, entering students must have completed an accredited associate's degree in an imaging science field and at least 60 semester credit hours at a regionally accredited college or university to include specific program prerequisite course work in communications, humanities, mathematics, anatomy and physiology physical sciences, behavioral sciences, and social sciences. Applicants to the program must be eligible for accreditation in the practice of medical radiation technology by the Illinois Emergency Management Agency.

In addition to the program prerequisites, the Bachelor of Science in Imaging Sciences degree program requires a minimum of 74 semester credit hours taken at the upperdivision undergraduate level. The "professional phase" of the program, which consists of Imaging Sciences coursework and clinical fieldwork, is completed at Rush University and its affiliated clinical sites. The professional phase is approximately 24 months long when taken on a full-time basis. It is dedicated to clinical and academic excellence and includes about **1000** hours of in-hospital clinical practice.

Imaging Sciences (BS): Technical Standards

Rush University is committed to diversity and to attracting and educating students who will make the population of health care professionals representative of the national population.

Our core values — ICARE — (innovation, collaboration, accountability, respect and excellence) - translate into our work with all students, including those with disabilities. Rush actively collaborates with students to develop innovative ways to ensure accessibility and creates a respectful accountable culture through our confidential and specialized disability support. Rush is committed to excellence in accessibility; we encourage students with disabilities to disclose and seek accommodations.

The following technical functions are required of all students enrolled in the Bachelor of Health Sciences Program:

Acquire information

- Acquire information from demonstrations and experiences in courses such as lecture, group, and physical demonstrations.
- Acquire information from written documents and computer systems (e.g., literature searches & data retrieval).
- Identify information presented in accessible images from paper, slides, videos with audio description, and transparencies.

Use and Interpret

- Use and interpret information from assessment techniques/maneuvers/procedures.
- Use and interpret information generated from diagnostic tools.

<u>Motor</u>

- Possess psychomotor skills necessary to perform or assist with day-to-day responsibilities commensurate with the student's discipline.
- Practice in a safe manner and perform universal precautions against contamination.

Communication

- Communicate effectively and sensitively with patients and families.
- Communicate effectively with faculty, preceptors, employees, other professionals and all members of the healthcare team during practicum, internship and/or other learning experiences.

Intellectual ability

- Measure, calculate, reason, analyze, and synthesize data related to diagnosis and treatment of patients and populations
- Exercise proper judgment and complete responsibilities in a timely and accurate manner according to the health sciences role.
- Synthesize information, problem solve, and think critically to judge the most appropriate theory, assessment, management or treatment strategy

<u>Behavioral</u>

- Maintain mature, sensitive, effective relationships with clients/patients, families, students, faculty, staff, preceptors and other professionals under all circumstances
- Exercise skills of diplomacy to advocate for patients in need
- Possess emotional stability to function under stress and adapt to rapidly changing environments inherent to the classroom and practice settings

Character

- Demonstrate concern for others
- Integrity, accountability, interest, and motivation are necessary personal qualities
- Demonstrate intent and desire to follow the Rush University and Health Sciences code of ethics

The technical standards delineated above must be met with or without accommodation. Students who, after review of the technical standards, determine that they require reasonable accommodation to fully engage in the program, should contact the Office of Student Accessibility Services] to confidentially discuss their accommodations needs.

Given the clinical nature of our programs, time may be needed to implement accommodations. Accommodations are never retroactive; therefore, timely requests are essential and encouraged. Contact the Office of Student Accessibility Services to learn more about accommodations at Rush University:

Marie Lusk, MBA, MSW, LSW Director, Office of Student Accessibility Services Rush University 600 S. Paulina St., Suite 901 Chicago, IL 60612 (312) 942-5237 Marie_Lusk@rush.edu or StudentAccessibility@rush.edu

Imaging Sciences (BS) Curriculum

Professional Phase – Imaging Sciences Professional Courses

Students accepted into the professional phase GENERALLY begin course work in the fall semester of the first year of the program. Course work in the professional phase may be taken on a full-time or part-time basis. Required professional courses for the Bachelor of Science degree are listed below.

Bachelor of Imaging Science Computerized Tomography (CT) Track Fall 1 year

IS 310 Sectional Anatomy & Pathology 5 SH IS 314 Pathophysiology 4 SH IS 337 Computed Tomography (CT) Physics 3 SH IS 453 Computed Tomography Positioning and Protocols 3 SH Total= 15 SH

Spring 1

IS 318 Patient Assessment 3 SH IS 458 Leadership 3 SH IS 331 Education 3 SH IS 338 Advanced Radiation Biology 3 SH Total 12 SH

Summer 1 IS 447 P Clinical Practicum I 9 SH IS 448 Clinical Seminar I 3 SH IS 325 Pharmacology and Radiologic Contrast Agents 3 SH Total 15 SH

Fall 2

CHS 364 Health Care Systems and Policies 1 SH IS 457 P Clinical Practicum II 9 SH IS 449 Clinical Seminar II 3 SH IS 463 Research & Statistical Methods 3 SH Total= 16 SH

Spring 2

IS 467 P Clinical Practicum III 9 SH IS 468 Clinical Seminar III 3 SH IS 454 Health Care Ethics and Cultural Competence 4 SH Total= 16 SH Total = 74 SH

*Regarding practicum courses, the RUCatalog specifies: **one hour of credit represents**

a contact time of three clinical hours per week.

Regarding seminar courses, the RUCatalog specifies: **one hour of credit represents contact time of two hours of small group discussion (seminar). Magnetic Resource Imaging (MRI) Track

Fall 1 year Credit by ARRT RT Proficiency

IS 305 Introduction to Imaging Sciences 3 SH IS 307 Introduction to Patient Care 3 SH Total 6 SH

Fall 1 year

IS 310 Sectional Anatomy & Pathology 5 SH IS 463 Research & Statistical Methods 3 SH IS 314 Pathophysiology 4 SH Total 12 SH

Spring 1

IS 336 MRI Physics 5 SH IS 318 Patient Assessment 3 SH IS 454 Health Care Ethics and Cultural Competence 4 SH IS 444 MRI Positioning and Protocols 4 SH Total 16 SH

Summer 1

IS 447 P Clinical Practicum I 9 SH IS 448 Clinical Seminar I 3 SH IS 325 Pharmacology and Radiologic Contrast Agents 3 SH IS 340 MRI Safety 3 SH Total 18 SH

Fall 2 CHS 364 Health Care Systems and Policies 1 SH IS 457 P Clinical Practicum II 9 SH IS 449 Clinical Seminar II 3 SH Total 13 SH

Spring 2

IS 467 P Clinical Practicum III 9 SH IS 468 Clinical Seminar III 3 SH IS 331 Education 3 SH IS 458 Leadership 3 SH Total 18 SH

Total = 83 SH – 6 SH (credit by ARRT RT proficiency) = 77 SH

*Regarding practicum courses, the RUCatalog specifies: **one hour of credit represents a contact time of three clinical hours per week.**

**Regarding seminar courses, the RUCatalog specifies: one hour of credit represents

contact time of two hours of small group discussion (seminar).

Bachelor of Imaging Science Curriculum Interventional Radiography (IR) Track

Fall 1 year

IS 310 Sectional Anatomy & Pathology 5 SH IS 314 Pathophysiology 4 SH IS 328 Vascular Interventional Technology 6 SH Total= 15 SH

Spring 1

IS 318 Patient Assessment 3 SH IS 331 Education 3 SH IS 458 Leadership 3 SH IS 338 Advanced Radiation Biology 3 SH Total = 12 SH

Summer 1

IS 447 P Clinical Practicum I 9 SH IS 448 Clinical Seminar I 3 SH IS 325 Pharmacology and Radiologic Contrast Agents 3 SH Total = 15 SH

Fall 2

CHS 364 Health Care Systems and Policies 1 SH IS 457 P Clinical Practicum II 9 SH IS 449 Clinical Seminar II 3 SH IS 463 Research & Statistical Methods 3 SH Total = 16 SH

Spring 2

IS 467 P Clinical Practicum III 9 SH IS 468 Clinical Seminar III 3 SH IS 454 Health Care Ethics and Cultural Competence 4 SH Total = 16 SH Total = 74 SH

*Regarding practicum courses, the RUCatalog specifies: **one hour of credit represents a contact time of three clinical hours per week.**

**Regarding seminar courses, the RUCatalog specifies: one hour of credit represents contact time of two hours of small group discussion (seminar).

NOTE: All Professional, Leadership, and Clinical courses require a grade of "C" or better in order for the student to continue in the degree program course sequence with a major in Imaging Sciences. Failure to complete an Imaging Sciences professional course with a letter grade of "C" or better will subject the student to review by the Committee on Progress and Promotions and may result in the student being suspended or dismissed from the program. Students readmitted to the program at times other than the fall quarter of the second year will pick up the course sequence as prescribed by the Committee on Progress and Promotions for Imaging Sciences.

Each student must develop an individualized program plan and this plan must be approved by the program director. Sample full-time course sequences for the CT and MRI track follow:

Entry Level Magnetic Resource Imaging (MRI) Track

Fall 1 year

IS 305 Introduction to Imaging Sciences 3 SH IS 307 Introduction to Patient Care 3 SH IS 310 Sectional Anatomy & Pathology 5 SH IS 314 Pathophysiology 4 SH Total 15 SH

Spring 1

IS 336 MRI Physics 5 SH IS 318 Patient Assessment 3 SH IS 458 Leadership 3 SH IS 444 MRI Positioning and Protocols 4 SH Total 15 SH

Summer 1

IS 448 P Clinical Practicum I 9 SH IS 446 Clinical Seminar I 3 SH IS 340 MRI Safety 3 SH IS 325 Pharmacology and Radiologic Contrast Agents 3 SH Total 18 SH

Fall 2 CHS 364 Health Care Systems and Policies 1 SH IS 457 P Clinical Practicum II 9 SH IS 449 Clinical Seminar II 3 SH IS 463 Research & Statistical Methods 3 SH Total 16 SH

Spring 2

IS 467 P Clinical Practicum III 9 SH IS 468 Clinical Seminar III 3 SH IS 454 Health Care Ethics and Cultural Competence 4 SH IS 331 Education 3 SH Total 19 SH

Total = 83 SH

*Regarding practicum courses, the RUCatalog specifies: **one hour of credit represents a contact time of three clinical hours per week.**

Regarding seminar courses, the RUCatalog specifies: **one hour of credit represents contact time of two hours of small group discussion (seminar).

NOTE: All Professional, Leadership, and Clinical courses require a grade of "C" or better in order for the student to continue in the degree program course sequence with a major in Imaging Sciences. Failure to complete an Imaging Sciences professional course with a letter grade of "C" or better will subject the student to review by the Committee on Progress and Promotions and may result in the student being suspended or dismissed from the program. Students readmitted to the program at times other than the fall quarter of the second year will pick up the course sequence as prescribed by the Committee on Progress and Promotions for Imaging Sciences. Each student must develop an individualized program plan and this plan must be approved by the program director. Sample full-time course sequences for the MRI track follow:

CLINICAL COMPETENCIES

СТ
<u>IS 445 – Clinical Practicum I</u>
1.01 Brain scans
1.02 Abdomen scans
1.03 Stroke studies
1.04 Sedation policy
1.05 Pregnancy policy
1.06 Contrast media preparation/dosage/times
1.07 Equipment troubleshooting
1.08 Patient scheduling
1.09 First shift
1.10 Stock room and get procedure room ready to receive patient
1.11 Safety procedures
IS 455 – Clinical Practicum II
2 01 Abdominal CTA
2.02 PE studies
2.03 Extremity studies
2.04 Brain perfusion studies
2.05 First and second shifts
2.06 NFS Policy Lab values (dehvdration/diabetes)
2.07 Communicate with nursing staff (patient prep/IV access
2.08 Read and interpret protocols
IS 465 – Clinical Practicum III
3.01 Biopsies
3.02 Drainages
3.03 Research [protocols]
3.04 Management skills (JC, HIPAA, IDPH)
3.05 Second and third shifts (after biopsies and drainages)
3.06 Patient communication (pediatric, geriatric, adolescent)
3.07 OMNI CELL for biopsy and drainage (know differences/stocked)
3.08 Triage STAT patients (neuro or ER)
3.09 EPIC, PACS, RADIANT

IS 471 – Clinical Practicum IV

- 4.01 QC checks
- 4.02 Maintenance/equipment checks/cleaning 4.03 PACS (exam sent/archiving/accession number)
- 4.04 Meeting attendance
- 4.05 Sales representatives interaction
- 4.06 First shift

MRI
IS 445 – Clinical Practicum I
1.01 Brain scans
1.02 *Spine exams (cervical/thoracic/lumbar/entire spine & combo spine exams)
1.03 *Daily QC checks
1.04 Anesthesia assistance
1.05 MRA (head & neck)
1.06 MRCP & liver
1.07 Gadolinium dosages
1.08 Sedation policy
1.09 Pregnancy policy
1.10 NFS policy
1.11 Equipment troubleshooting
1.12 First shift
<u>IS 455 – Clinical Practicum II</u>
2.01 Spectroscopy
2.02 Perfusion scans
2.03 Extremity scans
2.04 Fetal imaging
2.05 Cardiac imaging
2.06 First shift
2.07 Read and interpret protocols
IS 465 – Clinical Practicum III
3.01 Research protocols
3.02 Advanced perfusion scans
3.03 Advanced spectroscopy
3.04 Localization of tumor versus lesion
3.05 Managerial skills
3.06 First and second shift
3.07 EPIC, PACS, RADIANT
3.08 Triage patients, understand hierarchy of procedures (pathology vs. routine)

Interventional Radiology		
IS 445 – Clinical Practicum I		
1.01 Sterile technique, patient prep		
1.02 PICC lines		
1.03 Temporary lines		
1.04 Venography		
1.05 Tube checks		
1.06 Drainage studies		
1.07 Thoracentesis		
1.08 Paracentesis		
1.09 Biopsy (liver, kidney)		
1.10 Dialysis grafts		
IS 455 – Clinical Practicum II		
2.01 Percutaneous transhepatic cholangiography		
2.02 TIPS		
2.04 Pulmonary angiography		
2.05 Run-offs		
2.06 IR venography		
IS 465 – Clinical Practicum III		
3.01 Neuroradiology		
3.02 Stroke studies		
3.03 Lumbar puncture		
3.04 Cerebral angiography		
3.05 Neuro IR		
3.06 Call back service		
IS 471 – Clinical Practicum IV		
4.01 Audit reports		
4.02 Billing/coding		
4.03 QA/QC		
4.04 Vendor interaction		
4.05 Price negotiations		
4.06 ICD9		
4.07 PACS		
4.09 Call back service		

Cardiac Catherization Laboratory
IS 445 – Clinical Practicum I
1.01 Observe procedures
1.02 Simple right heart procedures
1.03 Sterile technique
1.04 Anatomy recognition
1.05 Patient centered care
1.06 Physiologic monitoring
IS 455 – Clinical Practicum II
2.01 Left heart procedures
2.02 Advanced hemodynamics
2.03 Valve cases
2.04 Waveform recognition
2.05 Pulmonary angiography
2.06 Pre- and post-drug studies
2.07 QC equipment
IS 465 – Clinical Practicum III
3.01 Valve areas
3.02 IA balloon pump
3.03 Angio JET
3.04 Homeostasis
3.05 Carotid procedures
3.06 EPIC, HIS
3.07 Mange images (post-processing, retrieval, archiving)
IS 471 – Clinical Practicum IV
4.01 Suggest protocols
4.02 Enforce protocols
4.03 IR (angioplasty, stent placement, balloons)
4.04 Research protocols
4.05 IVUS
4.06 Interpret and manage images
4.07 Call back service

BSIS Co-Curricular Activities

Professional Development (Participation required for graduation)

All students are expected to attend a series of sessions in Professional Development each semester. Referred to as "PRO" (Professional & Personal Roadmap to Opportunities) Series, the sessions are learning opportunities for students to develop professional behaviors and personal growth. Sessions are on-campus and online and are presented in a workshop and seminar format facilitated by the Student, Professional & Career Development Program Manager as well as designated faculty and staff. Professional mentoring panel discussions and guest presentations by community clinicians, educators, entrepreneurs and other health care providers are included in the series. In addition to being informative, the sessions are designed to be engaging, collaborative and elicit reflective learning. Students must attend at least 70% of the scheduled sessions in addition completing activities assigned.

Peer Mentoring

The "I.C.A.R.E. Peer Mentoring Program" provides an opportunity for Rush University undergraduate and graduate students to connect with and mentor incoming undergraduate College of Health Science students. By linking new students with experienced peers who are upperclassmen graduate professional students, peer mentoring offers innovative approaches for practical application of networking skills, personal growth, support and service to others. Each approach incorporates the values of Rush University including innovation, collaboration, accountability, respect and excellence, hence I.C.A.R.E. The Peer Mentoring Program is voluntary and on a first come, first serve basis for incoming students who are interested in having a peer mentor. There is an application process for upperclassmen and graduate students interested in becoming a peer mentor in the program.

BS in Imaging Sciences Learning Outcomes

At the end of this program, students/graduates will be able to:

- Demonstrate mastery of advanced medical imaging skills in either Magnetic Resonance Imaging (MRI), Computed Tomography (CT), or Cardiac or Interventional Radiography by producing diagnostic quality Computed Tomography (CT), Magnetic Resonance Imaging (MRI), or Interventional Angiographic procedures.
- 2. Apply proper positioning skills related to imaging procedures.
- 3. Select appropriate technical factors for imaging procedures.
- 4. Justify the appropriate use of magnetic fields and radio frequencies*
- 5. Select appropriate radiation protection practices on patients, self, and others**
- 6. Summarize the patient history and interpret lab results pertinent to imaging procedures.
- 7. Evaluate image quality appropriately.
- 8. Modify standard procedures based on pathology, body habitus, and non-routine situations.
- 9. Demonstrate effective use of oral and writing skills.
- 10. Create effective medical imaging case presentation studies.
- 11. Demonstrate critical thinking and problem-solving skills.
- 12. Demonstrate the value of professional development for patient care and medical imaging practices.
- 13. Demonstrate effective compassionate communication skills with diverse patient populations and support the core values of caring, integrity, and discovery.

*Magnetic Resonance Imaging (MRI) Students Only

**Computed Tomography (CT) and Cardiac-Interventional (CI) or Vascular-Interventional (VI) Radiography Students Only

The Bachelor of Science in Imaging Sciences degree program directly supports the mission of the college by providing a program to prepare advanced-level imaging science professionals who will be equipped to provide high-quality, accessible diagnostic and interventional imaging procedures to patients. The program will also seek to enroll a diverse student body to promote the values of diversity and inclusion in our educational programs.

As a university academic medical center program, the Department of Imaging Sciences must also make an appropriate contribution in the areas of research and scholarship, service, and patient care. Concerning research and scholarship, the department conducts and publishes original papers, and participates in the publication of textbooks and chapters, abstracts, and invited presentations. Service activities include participation on local, state, and national professional boards and committees, community service, university service activities, and continuing education. Patient care is integral to departmental teaching, research, and service activities.

Imaging Sciences' Definition of Excellence in Education

The definition of excellence in the Imaging Sciences Program embodies and exemplifies the practice of educational scholarship (studentship). Excellence in Education is the contribution of educators to the viability and growth of the imaging sciences profession. The development of advanced imaging specialists and documentation of educational activities are key elements in

achieving academic status for excellence. This includes the systematic documentation of teaching, learning, and assessment of learning outcomes, such as demonstrating: a mastery of advanced medical imaging skills in Magnetic Resonance Imaging (MRI), Computed Tomography (CT), or Interventional Radiography by producing diagnostic quality Computed Tomography (CT), Magnetic Resonance Imaging (MRI) and Interventional Angiographic procedures; critical thinking and problem-solving skills and the value of professional development for patient care and medical imaging practices.

Note: The word "scholarship" in the sense that we are using it in this paragraph, signifies the goal to promote and enhance the concept and formal implementation of scholarship in the teaching and learning in the imaging sciences profession.

Ways to Measure Excellence

Our accrediting body for the Imaging Sciences Program is the <u>American Registry of Radiologic</u> <u>Technologists (ARRT)</u>. The benchmarks for outcomes measures are below.

- IS Graduates will demonstrate American Registry of Radiologic Technologists (ARRT) credentialing pass rates of 85% or greater on the first attempt, within six months of graduation. <u>The accrediting standard for this effectiveness measure is a 75% pass rate on the first attempt, within six months of graduation.</u> To date, the Imaging Sciences Program has ARRT credentialing pass rates averaging 95% on the first attempt, within six months of graduation which is much higher than the national rate.
- 2. IS Graduates actively seeking employment will demonstrate a job placement rate of 85% within 12 months of graduation. The accrediting standard for job placement rate is a five-year average of 75% within 12 months of graduation. The Imaging Sciences Program has a five-year average of 96% job placement rate within 12 months of graduation.
- 3. IS Program will demonstrate student course and clinical rotation satisfaction by results from the IDEA and clinical rotation site survey mean score of 4.0 or greater (5.0 scale). *To date, the average* IDEA and clinical rotation site survey *mean score has been 4.4 (5.0 scale).*
- 4. IS Graduates will complete 1,000 hours of clinical specialty experience and will demonstrate a clinical competency performance mean score of 4.0 or greater (5.0 scale). To date, the average clinical competency performance means score has been 4.4 (5.0 scale).
- 5. Graduates' program satisfaction surveys at 6 and 12 months of graduation will demonstrate a program satisfaction score of 4.2 or greater (5.0 scale). *To date, the average graduate program satisfaction score has been 4.8 (5.0 scale) within 6 and 12 months of graduation.*
- 6. Graduates' employer satisfaction surveys at 6 and 12 months of graduation will demonstrate an employer satisfaction score of 4.2 or greater (5.0 scale). To date, the average employer satisfaction score has been 4.5 (5.0 scale) within 6 and 12 months of graduation.
- 7. Overall Imaging Sciences Program completion rate will be greater than 85%. To date, the IS Program has an average completion rate of 92% over the past 5 years.

BS in Imaging Sciences Program Policies and Procedures

Grading System

The grading system is as follows:

GRADE	QUALITY	POINTS
А	Excellent	4
В	Good	3
С	Satisfactory	2
D	Minimal passing	1
F	Failure	0
I	Incomplete work	-
W	Withdrawal prior to midterm of semester	-
Р	Passing	-
Ν	Not Passing	-

The program uses the following grade scale to assign letter grades:

A= 90-100% B= 80-89% C= 75-79% D= 70-74% F= below 70%

It is the responsibility of the student to become familiar with all requirements as contained in the course syllabus given at the beginning of each course.

Withdrawing or failure to successfully complete a professional course with a letter grade of "C" or better may result in the student being suspended or dismissed from the program. Students who are readmitted to the program at times other than the fall semester will pick up the sequence from the point of exit.

If a student earns grades lower than "**C**" or their average GPA falls below a 2.5 the student may not be permitted to register for subsequent courses or semesters, and the student may be subject to dismissal from the program.

Students who withdraw or have been dismissed from the program must re-apply and will be considered on the same basis as a new applicant. Students requesting re-admission must submit a letter to the College of Admissions.

Students Must Maintain an Overall GPA in The Program of at Least 2.5

Unless otherwise described in a given course syllabus, the minimum satisfactory grade for course credit is 75% (a letter grade of "C"), and all stipulated segments of a course must be passed by this standard. Students must demonstrate proficiency in all clinical skills presented in order to pass clinical courses. For all clinical courses, the final exam must be passed at the designated cut score AND a grade of "C" or better must be maintained in order to successfully complete each Clinical Practice continue in the program.

During the program, if a student's performance is unsatisfactory (GPA less than 2.5 or a letter grade of less than "C"), he/she may not be permitted to register for subsequent classes or quarters. The student will be subject to dismissal from the program. If the student wishes to reenter the program, he/she must reapply and will be considered on the same basis as any new applicant. Students who voluntarily withdraw from the program either passing or failing have no guarantee of reinstatement to the program. Students requesting readmission to the program should submit a letter to that effect to the Committee on Progress and Promotion for Imaging Sciences.

Comprehensive end-of-program competency assessment examination

At the end of the program, the student will complete an end-of-program competency assessment examination as a part of IS 471, Clinical Practicum IV is required to successfully complete IS 471, as well as meet graduation and program completion requirements (see Graduation Requirements). Students who do not successfully complete the examination will receive an Incomplete ("I") for IS 471 and will retake the examination prior to the beginning of the next quarter. Those failing the examination twice will be enrolled in IS 471as a directed Independent Study during the next quarter for remediation. Those failing the examination on the third attempt will be subject to dismissal from the program. Those students may reapply to the program (see Procedures for Readmission).

Protocol for Undergraduate Programs Student Academic Support Services

Students who receive less than 75% on assessments (examples: exams, projects/presentations) will be required to complete an academic enrichment form and/or meet with the Director of Student Professional & Career Development for academic and personal guidance and support. Failure to comply accordingly, including by not limited to incomplete form submissions and missed appointments, will result in documentation of the student's lack of professionalism and will be apart student's academic file. More than one occurrence of aforementioned unprofessional behavior and subsequent documentation will elicit follow up by the Program Director, who will determine the impact on your academic standing in the program. For more details regarding the protocol, contact the Director of Student Professional & Career Development.

Incomplete Grades

The grade of incomplete ("I") is given only when circumstances beyond the control of the student prevent completion of course requirements. Permission of the department chair or program director is required for conferring "I" grades. The

Course Director determines what work will be required to remove the incomplete and establishes a specific timeframe within which the student must complete such work.

Students receiving a grade of "I" are responsible for obtaining from the Course Director the exact work required to remove the incomplete. The "I" grade must be removed prior within 1 year or it will revert to a failing (F or N) grade unless otherwise approved by the Course Director and the Department Chairman.

If the student is not enrolled in other courses while resolving the incomplete, the continuous enrollment fee is imposed (refer to the Financial Affairs section in the Rush University Catalog.

Academic Progression

High academic performance in all courses is expected. Students will be considered in good standing at Rush University unless placed on academic probation. A cumulative grade point average of at least 2.0 is required to be considered in good standing, and to be eligible to continue in the baccalaureate program. Cumulative grade point averages will be reviewed after each term.

The faculty reserves the right to request the withdrawal of a student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University, regardless of grade point average.

Academic Probation

Academic probation is assigned to any student who receives a semester grade point average below 2.5, or whose cumulative grade point average falls below 2.5. Students placed on probation have two terms to regain the status of good standing as follows:

- The student must attain a grade point average of at least 2.5 in the term following the term when probation was assigned.
- Two semesters after being placed on probation, the student must have a cumulative grade point average above 2.5.

Failure to make the minimum term grade point average one term after probation regardless of the cumulative grade point average, or failure to make the minimum cumulative grade point average two terms after probation will result in dismissal from the University.

D. F or N Grades in the BS in Health Sciences Program

Undergraduate students who receive an F or N grade in any course may repeat that course with the F or N grade being replaced by the grade earned upon repeating the course. In the event that a student is required to repeat a course that is a prerequisite for an advanced course, the advanced course may not be taken until the student successfully passes the prerequisite course. Thus, the student's progression in the

program may be affected. Students who receive a second D or F or N grade in the same academic year may be dismissed from the program, regardless of the cumulative grade point average.

Minimal Acceptable Grade Point for Graduation in the BS in Imaging Sciences Program

Candidates for the Bachelor of Science degree must earn a 2.5 cumulative grade point average in all computed upper division credits taken at Rush University. Participation in cap and gown at commencement exercises is expected of all graduates.

Final Grades Reported to the Registrar

Grades reported to the Registrar at the end of each semester are considered final except when an incomplete grade is assigned. Permission of the Department Chairman or Program Director is required for conferring "I" grades.

Final Grade Appeals

Students should be aware of the grade they are getting in a course as the course progresses; thus, the final grade should not be a surprise to the student. In the event that the student receives a final grade that is different from the grade that he/she expected, the student has five (5) working days after final grades are due to be posted to contact the instructor and determine how the final grade was calculated and resolve any discrepancy if present. Additional work cannot be submitted after final grades are posted to increase the final grade and the grade will only be changed if a mistake was made on the part of the instructor. Grade appeals process is available on page 29 of this handbook.

Transfer of Credit

Students who desire to complete additional elective courses, either offered at Rush University or at another regionally accredited college or university, may request to do so, and these electives may be incorporated into the student's program plan with the approval of the student's academic advisor.

Residency Requirements

Students must complete 36 credit hours of coursework in residence at Rush University in order to graduate.

Minimum Core General Education Requirements for admission

All entering students must complete the following core general education requirements in order to be eligible for the Bachelor in Science degree awarded by Rush University. (See Appendix B)

Proficiency in English

All applicants whose native language is not English must present evidence of proficiency in English by satisfactorily completing the Test of English as a Foreign Language examination (TOEFL).

A total TOEFL score of at least 88 on the Internet-based version, or 570 on the paperbased version, or 230 on the computer version, must be achieved. In addition, applicants must score no less than 55 on the paper version or, 20 on the computer version or, 18 on the Internet-based version on each of the three subtests of the TOEFL (listening, structure/writing, and reading).

The Admissions Office must receive an official report of these scores prior to the date(s) on which admission decisions are made for the program(s) to which the applicant has applied. To obtain information or to register to take the TOEFL, write directly to:

The Education Testing Service P.O. Box 6151 Princeton, New Jersey 08541-6151, U.S.A.

You may also wish to visit the TOEFL Web site at http://www.toefl.org . The applicant should indicate on his/her application for the examination that results should be sent to institution code number 1676.

Applicants whose native language is not English and who have graduated from high school or successfully completed a higher education degree program (Associate degree or higher) in the United States or one of its English-speaking protectorates may petition for waiver of the TOEFL requirement to the College of Health Sciences' Dean's Office.

Waiver requests should include proof of receipt of a high school or college diploma from an accredited institution in the United States or one of its English-speaking protectorates. College or university degrees must be granted by a regionally accredited college or university to be considered for waiver of the TOEFL.

Correspondence between Students and Faculty

- 1. A schedule of office hours will be noted in each faculty member's course syllabus.
- 2. Students will be assigned to a faculty advisor in the initial semester of their first year. Students will be notified via email of times for student conferences.
- 3. Each student must have a conference with his/her advisor at least once per semester during the first academic year
- 4. A student conference record will be completed and signed by both the faculty member and student following a formal conference.

Electronic Mail

Communication between students and the faculty and staff of the Department will take place via email. All Rush University students are assigned an email account through the University and the Department will use this account. <u>It is the</u> <u>responsibility of the student to check their Rush email regularly for</u> <u>Departmental communications.</u> In many instances, the only notification sent to a student may be through email.

<u>Textbooks</u>

Listing of textbooks for each course will be posted in RUConnected at the time of registration and in the Rush bookstore at the beginning of each semester.

Use of Cellular Phones and Pagers

Students are required to **place** all cellular phones and pagers on a **silent mode** while in lecture or student and clinical laboratories. Students will not be excused from class to make phone calls or to return pages unless it is an emergency. Students will **not** be allowed to use cellular phones or pagers during examinations.

Professional Conduct

All students are expected to behave in a professional manner during lecture and laboratory sessions, as well as in the clinical laboratories. It is expected that the student will work cooperatively with course instructors, fellow students and laboratory personnel. Failure to maintain a professional demeanor and to comply with the Medical Center's Code of Conduct can lead to dismissal from the program.

The Code of Conduct can be accessed at:

<u>http://inside.rush.edu/Policies/Lists/Master%20Policy/DispForm.aspx?ID=1965</u> under Human Resources. Students who violate an established standard of professional conduct/judgment or moral/ethical behavior will be subject to investigation of the incident and disciplinary action.

Procedure for Unprofessional Conduct

The procedure to be followed for unprofessional conduct is as follows:

Step 1. The student will have been identified as violating an established standard of professional conduct/judgment or moral/ethical behavior, and the Department Chair/Program Director will have been notified.

Step 2. The Department Chair/Program Director will meet with the individual(s) making the allegation and the student's faculty advisor to review the available information and determine the veracity of the allegations.

Step 3. The Department Chair/Program Director, student, and faculty advisor, whenever possible, will meet as promptly as possible after the alleged incident. The Department Chair/Program Director will report to the student the facts and available information and will seek to authenticate or clarify the allegations where possible. If it is determined that there is no basis for the allegation, no further action will be taken.

Step 4. If it is determined that there is a basis for the allegation and that further investigation is necessary, a preliminary hearing of the Committee on Progress and Promotions will be convened to review the allegations and recommend a course of action. Guidelines for the Committee on Progress and Promotions preliminary hearing are provided in the Student Handbook. The Department Chair/Program Director will inform the student and the Dean in writing of the Committee on Progress and Promotions preliminary hearing and the following:

- a. Date
- b. Name of student
- c. Nature of the allegations
- d. Date of alleged incident/occurrence
- e. Professional attributes that allegedly violate standards: skill, behavior, judgment, ethical values, etc.

For more information regarding the procedures for handling instances of unprofessional conduct, see current University Catalog and the College of Health Sciences Rules for Governance.

College of Health Science Policies and Procedures

CastleBranch

CastleBranch is the secure platform that allows you to order your background check and medical document manager online. Once you have placed your order, you may use your login to access additional features of CB, including document storage, portfolio builders and reference tools. CB also allows you to upload any additional documents for

immunizations and drug testing required by Rush University.

Criminal Background Checks

All students are required to have a criminal background check prior to matriculation into the program. Procedures for obtaining a criminal background check are available from the Department Office. The cost for the background check is the responsibility of the student. Hospitals and other health care facilities often have policies requiring criminal background checks for employees, students, and volunteers. These facilities may refuse to accept individuals for clinical practicum, or other experiential rotations, based on past criminal convictions.

Students should be prepared to comply with the policies and procedures at any facility where they are assigned as part of their educational program and may not request facility assignments in an effort to avoid specific requirements. Students who have certain types of information in their criminal background checks may be ineligible to complete rotations in specific facilities. Students who are not allowed to participate at assigned facilities, or who are terminated from clinical practicum based on the results of a criminal background check will be unable to complete the program requirements for graduation and will be subject to dismissal from the program, regardless of cumulative grade point average.

Persons with certain types of criminal convictions may not be eligible for state licensure and/or national registry or certification. In addition, many employers perform criminal background checks and may not hire individuals with certain types of criminal convictions. Students will have access to consult with an advisor to consider their options on an asneeded basis.

Drug Testing

Hospitals and other health care facilities often have policies requiring drug testing for employees, students, and volunteers. Students who test positive for drugs at most health care facilities are ineligible to complete clinical practicum or work assignments in that facility. Students must comply with the policies and procedures at any assigned facility and may not request facility assignments in an effort to avoid drug screening requirements. Students, who fail to report for clinical practicum assignments, or who are terminated from a clinical practicum because they violate the drug testing, or drug use policies of the facilities, will be subject to dismissal from the program, regardless of cumulative grade point average.

Immunizations

Proof of Immunity under Public Act 85-1315, Illinois College and University Immunity Requirement, stipulates that all students born after December 31, 1956 must show proof of immunity. While documentation of this information for compliance with state regulations is not mandatory for students who were born before 1/1/57, most colleges and programs at Rush have individual immunization requirements for their students. Program immunization requirements are mandatory for all students in those programs regardless of age.

- Measles (Rubeola), Mumps, Rubella positive titers
- Varicella positive titers
- **Hepatitis B –** immunization record and positive titers
- Tetanus/Diphtheria booster within the last 10 years
- **Tuberculosis** two-step PPD Mantoux Skin Test or the Quantiferon-TB Gold test with negative results
- **Meningococcal** immunization record of one dose of meningococcal conjugate on or after the age of 16
- Flu Vaccination

Student Academic Appeal and Grievance Procedures

The College of Health Sciences' student appeals and grievance procedures provide a mechanism whereby any student may obtain a review of a complaint of unfair treatment. The student appeals procedures shall not be used to question a rule, procedure or policy established by an authorized faculty or administrative body. Rather it shall be used to provide due process for those who believe that a rule, procedure or policy has been applied in an unfair or inequitable manner, or that there has been unfair or improper treatment by a person or persons.

Students who are appealing an academic decision that could result in a dismissal from the university may be allowed to continue to progress in the program until the issue is resolved. If the academic decision is upheld and the student is dismissed from the University they will be withdrawn from their current classes. This withdrawal will be backdated to the beginning of the term and the student will receive 100% tuition reimbursement for that term.

A student wishing to appeal an academic decision should follow the process summarized below, in the sequence indicated.

Step 1. In the academic community, the responsibility for course development, course delivery, and the assessment of student achievement rests primarily with each course instructor. Any student who has a complaint of inappropriate treatment related to a course should first seek to resolve it informally with the course instructor. If the course instructor is the department chairperson, or if the complaint does not pertain to a specific course, the student should seek resolution with the department chairperson at the outset.

a. A student with such a complaint must request reconsideration, in writing, of the application of a rule, procedure, or policy or unfair or improper treatment within five (5) working days following the incident that forms the basis for the complaint (e.g., five days after grades are posted).

b. The instructor will meet with the student (or speak with the student *via* telephone for those students who are unable to come to the chairperson's office if

so requested by the student). The instructor will notify the student in writing of the decision regarding the complaint within five (5) working days following the meeting or discussion.

Step 2. If resolution is not achieved informally, as described in Step 1, the student should seek resolution with the chairperson of the department in which the course is offered within five (5) working days following notification by the instructor of their decision.

a. The chairperson will meet with the student (or speak with the student via telephone for those students unable to come to the chairperson's office if so requested by the student) following receipt of the student's request for resolution to discuss the problem or complaint.

b. The chairperson will notify the student of his/her decision in writing following the meeting or discussion.

Step 3. If the issue was not resolved in Step 2 the student may submit a written appeal, describing the nature of the student's complaint and reasons for seeking an appeal to the student progress and promotion committee of the department within five (5) working days following notification by the department chairperson of their decision.

a. The student may appear before the committee in person, make an oral statement and answer questions from the committee. The student will not be allowed to be present during committee deliberations.

b. The committee may request that the course instructor or faculty member named in the grievance appear before the committee to make an oral statement and answer questions. The instructor or faculty member named in the grievance may not be present during committee deliberations.

c. Following review of information provided, the committee will notify the student of its decision.

Step 4. If the issue was not resolved to the student's satisfaction in Step 3 the student may submit a written request seeking a hearing to the Dean of the College of Health Sciences within five (5) working days of receiving the department progress and promotion committee decision. The written request should include a description of the complaint and the reason the student is seeking an appeal.

a. The College of Health Sciences Dean will meet with the student following receipt of the written request from the student for a hearing.

b. Following the meeting with the student, the College of Health Sciences Dean may render a decision, or choose to appoint a panel to investigate the grievance and make a recommendation to the College of Health Sciences Dean.

c. Following review of the information provided and any recommendations from the panel, should one be appointed, the College of Health Sciences Dean will then notify the student of his/her decision. The decision of the College of Health Sciences Dean shall be final.

Rush University Policies and Procedures

Lockers and Mailboxes

All students are assigned lockers and mailboxes by the Office of Student Affairs. All personal items must be stored in the assigned locker. **Coats and book bags are** <u>not allowed in the student or clinical laboratories.</u>

Health Insurance

Students must either purchase the university-provided student health insurance, or provide documentation that they have current health insurance. Documentation must be on file with Academic Health Plans (AHP) be allowed to register for courses and must be done every semester. Students who do not provide evidence of current health insurance will be automatically charged for the Student Health Insurance Plan offered by AHP.

Required Rush University Medical Center OSHA, HIPPA, and Safety Training

Students may be required to take Medical Center Training courses that apply to clinicians prior to their practicum rotations. These courses must be taken annually and are available on Blackboard. Students failing to remain current in these training areas may not be allowed in the clinical setting.

Change of Address Responsibility

It is the responsibility of any student enrolled in the Program to inform both the Office of the Registrar and the department of any change of address or phone number.

Withdrawal from Courses

Withdrawal from a course requires approval from the Course Director and the Program Director. Students should note that some courses in the BS in Imaging Sciences program are sequential and are taught once a year.

Continuous Enrollment

Rush University requires continuous enrollment in almost all of its programs from the time a student matriculates through a student's graduation. Any degree/certificate student not taking courses but needing to replace an outstanding incomplete grade must register for Continuous Enrollment until the grade is satisfied. Registration for Continuous Enrollment requires the approval and signature of the Department Chairman. BS in Imaging Sciences students who enroll in Continuous Enrollment must submit a progress report to the Department Chairman at the end of the semester in which the Continuous Enrollment is taken. This report must contain an acceptable plan for completion of incomplete work and must be approved by the Department Progress and Promotions Committee before the student will be allowed to register for an additional semester of Continuous Enrollment. In cases where a student does not show progress towards completing an incomplete grade, the incomplete grade will revert to a grade of "F" or "N" which may result in the student being dismissed from the program.

Continuous Enrollment appears on the student's transcript with the course prefix that the student is majoring in followed by 999 (i.e. HSC 999). Information about the fee charged for the Continuous Enrollment course is available under "Tuition and Financial Aid" in the University catalog.

Leave of Absence

A student, who must interrupt his or her studies for reasons of sustained ill health or compelling personal situations, may apply for a leave of absence for a stated period of time, not to exceed four semesters. A Petition for Withdrawal / Leave of Absence must be completed and signed by the Department Chairman and other specific University offices (available from the Office of the Registrar or from the web site: (http://www.rushu.rush.edu/registrar/forms.html). If approved by the Department Chairman, the student must satisfy the conditions of the leave before reentering, and must comply with all policies, requirements and course sequences in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment. Only one leave will be granted per academic year.

Withdrawal from the Program

Withdrawal implies the permanent departure from the University without the immediate expectation of return. Undergraduate and graduate students withdrawing from the University must give formal notification by completing a Petition for Withdrawal / Leave of Absence form, which requires them to obtain the signatures of specific University offices. Students may obtain the form from the Office of the Registrar or from the web site: http://www.rushu.rush.edu/registrar/forms.html. This form requires the signature of the Department Chairman. Withdrawals are not allowed after the last class day of the semester, or during the final examination period. Refunds are made only during the limits for refunds. (See Financial Affairs Policy section of the Rush University Catalog).

Readmission to the Program

Any student who has withdrawn from the program, or has not been enrolled for one or more semesters, or any dismissed student, may apply for readmission to their program of study by submitting an admissions application for this purpose. They must follow all admission procedures and will be placed into the pool of applicants for the year in which they are requesting readmission. An interview may be required. Preference will not be given to students seeking readmission into the program. Readmitted students will pay tuition and fees at the rates in effect at the time of reenrollment and will be subject to all current policies and procedures of the program, college and university at the time of their readmission.

A request for accommodation or modification is not cause for withdrawal of the offer of acceptance. If an accommodation is requested, the department may require additional documentation and information and will follow up with the student to discuss the specifics of the request and the appropriate plan of action.

Any student can request accommodations once enrolled in the program. If you are unable to perform any of the above, please contact the department chair or program director for further discussion. See the following Rush University Policies and Procedures for Students with Disabilities for additional information.

Office of Student Accessibility Services

In keeping with its goal to promote diversity among its student population, Rush University is committed to attracting and educating students who will help to make the population of health care professionals reflective of the national population, including individuals with disabilities. In addition, Rush University is committed to ensuring equal access to its facilities, programs and services is available to students with disabilities.

To be eligible for accommodations, a student must have a documented disability as defined by the ADA and Section 504 of the Rehabilitation Act of 1973. Students are encouraged to apply to the Office of Student Accessibility Services as soon as possible to discuss reasonable accommodations for their specific academic programs.

To learn more about accommodations at Rush University, please visit: <u>www.rushu.rush.edu/office-student-accessibility-services</u> or contact:

Marie Lusk, MBA, MSW, LSW Director, Office of Student Accessibility Services 600 S. Paulina St. AAC 901 Chicago, IL. 60612 (312) 942-5237 <u>Marie Lusk@rush.edu</u>

Note: These policies and procedures are subject to change and changes are effective immediately and apply to all students.

Appendix A: Course Descriptions

IS PROGRAM COURSE DESCRIPTIONS- RUSH

IS 305 INTRODUCTION TO IMAGING SCIENCES (3 SEMESTER HOURS)

This course focuses on specialized imaging sciences modalities. It includes concepts and theories of equipment operations and their integration for medical diagnosis. The student will be introduced to the basics of the available advanced imaging modalities used in the assessment of anatomy and diagnosis of disease processes. This course will provide instruction in the Imaging Sciences Program curricula to meet the needs of students for entry-level employment by providing an overview of diagnostic imaging, technological education, and clinical practice. The student will be introduced to the basics of advanced imaging modalities used in the assessment of anatomy and diagnosis of disease processes.

Prerequisite: Admission to the Department.

IS 307 INTRODUCTION TO PATIENT CARE (3 SEMESTER HOURS)

An overview of the historical development of radiography, and basic radiation protection. An introduction to the many facets of allied health professions; including types of health care professionals, medical ethics, medical terminology, patient assessment, infection control procedures, emergency and safety procedures, communication and patient interaction skills, promoting a safe clinical environment, and basic pharmacology. Topics also include patients' right to privacy, confidentiality, documentation, team building, cultural issues, age-related concerns, and death and dying. This course is intended to assist students in understanding the environment encountered in clinical agencies. This course infers evidence-based medicine to promote the application of critical thinking skills and clinical judgment. Prerequisite: Admission to the Department.

IS 314 PATHOPHYSIOLOGY (4 SEMESTER HOURS)

This course provides an in-depth application of the concepts of pathophysiology for the assessment and management of medical imaging patients. Emphasizes the characteristic manifestations, pattern recognition, and image assessment of pathologies observed in medical images. This course investigates general pathology and organ system pathology. It includes a brief review of normal structure and function, followed by more in-depth descriptions of specific pathologic processes. Students will use textbooks and Internet resources to learn the basic characteristics, etiology, pathogenesis, clinical features, and diagnostic tools including medical imaging procedures, prognoses, and therapies for each of the specific pathologies. Students will participate in online discussions and create interactive pathology presentations in this course.

Prerequisite: Admission to the Department.

IS 318 PATIENT ASSESSMENT (3 SEMESTER HOURS)

Patient evaluation and implementation of evidence-based care plans will be described. Evidence-based practice and critical diagnostic thinking are reviewed and applied to the review of the medical record, patient interview, physical assessment, and evaluation of diagnostic studies. Assessment of oxygenation and arterial blood gases are reviewed. Laboratory studies, imaging studies, and ECG monitoring and interpretation are discussed. Pulmonary function testing, diagnostic bronchoscopy, and other diagnostic studies are also described. The student will integrate assessment findings in the development and evaluation of care plans for specific disease states and conditions. Prerequisite: Admission to the Department.

IS 325 PHARMACOLOGY AND RADIOLOGIC CONTRAST AGENTS (3 SH)

This course provides a study of pharmacodynamics, pharmacokinetics, medication administration, drug categories, and implications of inpatient care. Emphasizes pharmaceuticals frequently used in medical imaging. This course is intended to provide imaging sciences professionals the knowledge in all aspects of basic pharmacology. The purpose is to educate radiologic personnel in basic pharmacology principles, ensuring quality patient care. Contrast media is used by most modalities of Diagnostic Imaging. This course is designed to provide an in-depth understanding of different Contrast media used in Diagnostic Imaging. Brief historical development and evolution of contrast media are reviewed. Topics include uses, prevention of acute reactions, contrast-induced nephropathy, renal adverse reaction, and more. Students will follow weekly modules and or use textbook and Internet resources to learn more about Contrast Media use, safety issues, and guidelines. Prerequisite: Admission to the Department.

IS 328 VASCULAR-INTERVENTIONAL TECHNOLOGY (6 SEMESTER HOURS)

This didactic course includes instruction over: procedural angiography including; imaging of the heart, pulmonary vascular system, thoracic aorta, central venous access procedures, cardiac-interventional, vascular-interventional, and nonvascular interventional procedures. Each student will be working in either Vascular-Interventional Radiology or Interventional Cardiology. The course encourages students to combine theoretical knowledge with the practical experience they acquire while working in these clinical areas. Learning activities for this course review and build upon pre-existing knowledge, such as human anatomy, physiology, pathology, patient care in radiography, and radiation protection. Prerequisite: Admission to the Department.

IS 331 EDUCATION (3 SEMESTER HOURS)

This course will provide students with an introduction to basic principles and techniques

used in Imaging Sciences Professional education. This course will provide students with the knowledge needed by health professionals who interact with other health professionals and/or patients in educational settings including professional development, higher education, patient education, or community education. Case studies will be presented. Topics include: IS professional's role in education, patient education, in-service education, course design, curriculum development and models, objectives and goals, lesson plan development, learning activities, use of media, teaching methods, development of presentations, testing, and evaluation. Prerequisite: Admission to the Department.

IS 334/453 COMPUTED TOMOGRAPHY POSITIONING & PROTOCOLS (3 SH)

Computed Tomography (CT) is a specialized imaging modality. This course is designed to provide an understanding of proper protocols and positioning utilized to acquire appropriate imaging with patient history in mind concepts of Computed Tomography. Anatomy and Pathophysiology are reviewed for appropriate protocol and contrast usage. Protocol and Positioning topics include a basic overview of CT Physics, Patient communication, and safety, Radiation dose, indications for the procedure, preparation, orientation of CT room, positioning and landmarks, patient history and assessment, types of contrast media, and their usage, scan parameters. Imaging protocols for Brain, Chest, Abdomen, Spine, and Musculoskeletal imaging will be covered in this course. CT protocols vary from site to site and most often are dependent on the radiologist's preference. Prerequisite: Admission to the Department.

IS 336 MRI PHYSICS (5 SEMESTER HOURS)

This course will provide the student with an introduction to the field of MRI. Topics will include an overview of MRI history and development, fundamental principles of Magnetism, Safety in MRI, equipment, terminology, and coils. This course will explain in-depth concepts of MRI physics. Topics will include, Basic Principles of MRI, Image weighting and contrast, tissue characteristics, signal production, image formation, image acquisition & image production, pulse sequences, flow phenomena, artifacts in MRI, scanning parameters, Contrast media administration, along with Functional Imaging techniques. Prerequisite: Admission to the Department.

IS 337 COMPUTED TOMOGRAPHY PHYSICS (3 SEMESTER HOURS)

This course will provide the student with an in-depth review of the fundamental physical principles of Computed Tomography (CT). CT is a specialized imaging modality. The historical development and evolution of CT will be reviewed. Physics topics include x-radiation in forming the CT image, CT beam attenuation, linear attenuation coefficients, tissue characteristics, and Hounsfield number application. Data acquisition and manipulation techniques, image reconstruction algorithms will be also explained. This

course will also provide students with knowledge of quality control, and instrumentational concepts. Prerequisite: Admission to the Department.

IS 338 ADVANCED RADIATION BIOLOGY (3 SEMESTER HOURS)

This course is directed to Computed Tomography (CT) and Interventional Radiography students enrolled in the Imaging Sciences program. Content will include review and continuation of basic radiobiology involved with radiography and advanced modalities. It will address the radiobiological/biophysical events at the cellular and subcellular levels. Analysis of factors influencing the radiation response of cells and tissues will be covered. Construction and evaluation of radiobiological data on graphs, charts, and survival curves will be included. Relationships of time, dose, fractionation, volume, and site as they apply to tissue response will be evaluated. The principles of radiation response modifiers, hyperthermia, chemotherapy, and their influence on biological effects in combination with radiation will be examined. Prerequisite: Admission to the Department.

IS 340 MRI SAFETY (3 SH)

This course provides an in-depth application of the health and safety concerns of MRI technology. Both theoretical and practical information will be covered. MRI physics bioeffects of static, gradient and radiofrequency electromagnetic fields will be covered as well as the risks associated with acoustic noise. The use of MRI during pregnancy, the design of an MRI facility to support safety, the procedures to screen patients and other individuals, and the management of patients with claustrophobia, anxiety, or emotional distress will be addressed. Review of the safety of MRI contrast agents, use of ferromagnetic detection systems, techniques for physiological monitoring, unique safety needs of interventional MRI centers, and administration of sedation and anesthesia during MRI will be covered. Proper management of patients with metallic implants and complex electronically activated devices, such as cardiac pacemakers and neuromodulation systems will be covered. MRI safety policies and procedures will be reviewed for hospitals/medical centers, outpatient facilities, children's hospitals, and research facilities. Finally, MRI standards and guidelines will be addressed for the United States. Prerequisite: Admission to the Department.

IS 444 MRI POSITIONING AND PROTOCOLS (4 SEMESTER HOURS)

Magnetic Resonance Imaging (MRI) is a specialized imaging modality. This course is designed to provide an understanding of proper protocols and positioning utilized to acquire appropriate imaging with patient history in mind concepts of Magnetic Resonance Imaging. Anatomy and Pathophysiology are reviewed for appropriate protocol and contrast usage. Protocol and Positioning topics include a basic overview of MRI Physics, indications for the procedure, preparation, orientation of MRI room, positioning and landmarks, patient history and assessment, types of contrast media

and their usage, scan parameters for brain, spine, upper, and lower extremity imaging, Female and Male pelvis, Abdominal imaging, Cardiac, and Breast imaging. MRI protocols vary from site to site and most often are dependent on the radiologist's preference. Students will follow weekly modules and or use textbook and Internet resources to learn MRI protocols and positioning. Prerequisite: Admission to the Department.

IS 454 HEALTH CARE ETHICS AND CULTURAL COMPETENCE (4 SH)

This course covers ethical issues that Allied Health professionals can expect to encounter during their education and career. It covers such areas of concern as professionalism, cultural differences, confidentiality, informed consent, responsible practice, handling mistakes, difficult cases, and key legal aspects of these issues. The course will begin by helping the student understand the value of diversity in our society and allow the student to make a self-examination of their own beliefs, values, and biases. This will be followed by the dynamics involved when two cultures interact. Students will examine specific cultural characteristics as they apply to health care and propose ways of adapting diversity to the delivery of health care. The course will include an in-depth assessment of the Culturally and Linguistically Appropriate Services [CLAS] standards and cultural competency information available to healthcare organizations. Prerequisite: Admission to the Department.

IS 458 LEADERSHIP 3 SEMESTER HOURS

This special topic course is designed to provide a basic introduction to leadership by focusing on what it means *to be a good leader*. The emphasis in the course is on the *practice of leadership*. The course will examine topics such as the nature of leadership, recognizing leadership traits, developing leadership skills, creating a vision, setting the tone, listening to out-group members, handling conflict, overcoming obstacles, and addressing ethics in leadership. Attention will be given to helping students to understand and improve their leadership performance. Prerequisite: Admission to the Department.

IS 463 RESEARCH & STATISTICAL METHODS (3 SEMESTER HOURS)

An introduction to the methods of scientific research to include research design and statistical analysis. A critical review of the components of research reports will be performed to include a definition of the problem, review of the literature, research design, data analysis, and results. Prerequisite: Admission to the Department.

IS 447 P – CLINICAL PRACTICUM I (9 SEMESTER HOURS)

Supervised clinical experience in the imaging track selected. This course is designed so the students gain the clinical experience needed to function in an active imaging sciences department and to document the needed clinical procedures. Each of the three clinical practicums will consist of 333.33 hours (total of 1000 hours) in an assigned facility for supervised practice of acquired knowledge and skills. Review of medical imaging with an emphasis on problem-solving and critical thinking in the imaging track selected. Admission to the Program. Successful completion of a "C' or better in all imaging modality track courses.

IS 457 P - CLINICAL PRACTICUM II (9 SEMESTER HOURS)

Supervised clinical experience in the imaging track selected. This course is designed so the student gains the clinical experience needed to function in an active imaging sciences department and to document the needed clinical procedures. Each clinical practicum requires 333.33 hours in an assigned facility for supervised practice of acquired knowledge and skills. This course will offer a review of medical imaging with an emphasis on problem-solving and critical thinking in the imaging track selected. *Admission to the Program. Successful completion of a "C' or better in all imaging modality track courses including IS 445 P-Clinical Practicum I.*

IS 467 P - CLINICAL PRACTICUM III (9 SEMESTER HOURS)

Supervised clinical experience in the imaging track selected. This course is designed so the students gain the clinical experience needed to function in an active imaging sciences department and to document the needed clinical procedures. Each of the three clinical practicums will consist of 333.33 hours (total of 1000 hours) in an assigned facility for supervised practice of acquired knowledge and skills. Review of medical imaging with an emphasis on problem-solving and critical thinking in the imaging track selected. Admission to the Program. Successful completion of a "C' or better in all imaging modality track courses including IS 445 P Clinical Practicum I and IS 455 P Clinical Practicum II.

IS-481P CLINICAL SPECIALTY PRACTICUM (9 SEMESTER HOURS)

Supervised clinical experience in the imaging track selected. This course is designed so the student gains the clinical experience needed to function in an active imaging sciences department and to document the needed clinical procedures. The clinical specialty practicum will consist of 200 hours in an assigned facility for supervised practice of acquired knowledge and skills. *Admission to the Program. Successful completion of a "C' or better in all imaging modality track courses including IS 445 P Clinical Practicum I, IS 455 P Clinical Practicum II and IS-467P- Clinical Practicum III.*

IS 446 - CLINICAL SEMINAR I (3 SEMESTER HOURS)

COURSE DESCRIPTION

This course builds on the previous learning related to imaging sciences. This course will allow the students to engage in self-directed study to prepare for the American Registry of Radiologic Technologist (ARRT) by completing registry review board modules. This course will provide the students the opportunity to integrate theory and clinical practice to meet the complex needs of patients. ARRT registry review modules and case presentations will be completed. This course will provide a review of medical imaging with an emphasis on problem-solving and critical thinking in the imaging track selected. The course is intended for senior students to prepare for the ARRT's credentialing exam. *Admission to the Program. Successful completion of a "C' or better in all imaging modality track courses.*

IS 456 - CLINICAL SEMINAR II (3 SEMESTER HOURS)

COURSE DESCRIPTION

This course builds on the previous learning related to imaging sciences. This course will allow the students to engage in self-directed study to prepare for the American Registry of Radiologic Technologist (ARRT) by completing registry review board modules. This course will provide the students the opportunity to integrate theory and clinical practice to meet the complex needs of patients. ARRT registry review modules and case presentations will be completed. This course will provide a review of medical imaging with an emphasis on problem-solving and critical thinking in the imaging track selected. The course is intended for senior students to prepare for the ARRT's credentialing exam. Admission to the Program. Successful completion of a "C' or better in all imaging modality track courses and IS 446 Clinical Seminar I.

IS 466 - CLINICAL SEMINAR III (3 SEMESTER HOURS)

COURSE DESCRIPTION

This course builds on the previous learning related to imaging sciences. This course will allow the students to engage in self-directed study to prepare for the American Registry of Radiologic Technologist (ARRT) by completing registry review board modules. This course will provide the students the opportunity to integrate theory and clinical practice to meet the complex needs of patients. ARRT registry review modules and case presentations will be completed. This course will provide a review of medical imaging with an emphasis on problem-solving and critical thinking in the imaging track selected. The course is intended for senior students to prepare for the ARRT's

credentialing exam. Admission to the Program. Successful completion of a "C' or better in all imaging modality track courses and IS 456 Clinical Seminar II

IS-999 CONTINUOUS ENROLLMENT

The requirement for Continuous Enrollment applies to all students admitted or readmitted for Fall 2015 or later. Doctoral students should follow program requirements for continuous enrollment and degree completion. Students who have not completed their degree requirements are required to maintain Continuous Enrollment through the College of their program until the degree is earned. Continuous Enrollment courses are graduate level courses set up by departments at Rush University for students who need to remain actively enrolled in the University while they finish their graduate work.

Graduation Requirements

Degree requirements that must be met include:

- 1. Satisfactory completion of all general education coursework as listed.
- 2. Completion of each required Imaging Sciences professional course with a grade of "C" or better.
- 3. Cumulative grade point average (GPA) of 2.5 or better.
- 4. Successfully complete a comprehensive end-of-program competency assessment

Clinical Work

A student may not be paid as an employee during clinical credit hours. Also, a student may not count any paid work as an employee for clinical credit hours in the program.

Blood Borne Pathogen and Communicable Disease Policy

If a student is exposed to a blood-borne pathogen or communicable disease he/she should report to the emergency room for care.

Uniform Policy for Clinical Practice

The following guidelines are used to assist the student in adjusting to various hospitals and other health agencies. The policies vary, but in general, the rules established by the program will cover the student's responsibility when entering such health agencies. Rush University wishes to have its students represent the University in a manner that reflects its goal of high standards of professionalism.

Hospital Identification Badges

Students must wear ID badges at all times in the clinical area.

Uniform/Patches

Students must purchase a prescribed uniform to be worn in the clinical area. Students must wear patches sewn to the left upper arm of the uniform and lab coat. Patches will identify students by discipline and/or program. There are NO exceptions to this rule.

Professional Attitude/Conduct

Students must maintain a professional attitude and behavior as outlined by the "Code of Ethics" of the American Society of Radiologic Technologists and the American Registry of Radiologists. Students must comply with the Rules and Regulations of the hospital and the program.

• Students shall not eat, drink or smoke while on duty except in assigned areas.

• Excessive talking, laughing and other unprofessional behavior will not be tolerated in the hallways or around patients.

• Any student having a problem with and instructor, supervisor, or technologist may file for conference time. A conference date will be arranged with the student, instructor, technologist or supervisor and the Program Director.

• Personal telephone calls are not allowed (only emergency calls can be received by students).

• Use of cell phones is prohibited while on duty. Cell phones should be used only during breaks and/or lunch

Attendance Regulations

Clinical Practice

There are no excused absences from clinical practice. Each clinical practice has a requisite number of mandatory clinical hours. Any student not completing the required clinical hours during a given session will not receive a passing grade for that clinical practice. Time for any excused absence must be made up at the discretion of the clinical instructor. Clinical instructors are not required to allow a student to make up missed days. If clinical absences are not made up, a letter grade of "F", "I" or "IP" may be given at the discretion of the faculty.

Clinical practice, unless otherwise announced, begins at the start of the affiliate shift. (6:45 a.m., 2:30 p.m., 6:30 p.m., etc.) Students are expected to be prompt and prepared to begin clinical rotations. Tardiness delays and hampers all student

assignments made for that clinical day. If assignments cannot be arranged because of tardiness the student may be required to make-up that day of tardiness as a full clinical day.

Any student exceeding four (4) tardies or four (4) clinical absences may be subject to dismissal from the program.

For those times when students may be in clinical affiliates outside of regular school or clinical times, a special request form needs to be submitted for approval to the Director of Clinical Education.

Procedure for Notification of Illness Procedure for Notification of Illness or Lateness

- 1. First, call the hospital at least 30 minutes before your assigned shift begins if possible.
- 2. Speak with the clinical instructor or shift supervisor.
- 3. Identify yourself and tell the shift supervisor that you are a Rush University student.
- 4. Inform the shift supervisor that you will be late or absent.
- 5. Next, call the Manager of Clinical Education.
- 6. If the Manager of Clinical Education does not answer, call the Rush University Department of Imaging Sciences and leave a message about your absence.

Illness

In the event of a "lengthy" illness, each case will be reviewed individually in regards to time lost, time available for completion, and content of objectives to be covered. Any such absence may require documentation by a physician in writing.

Tardiness (Class and/or Clinical)

The student should be in the appointed place at the appropriate time; disregard for this demonstrates irresponsibility and is unacceptable professional behavior. This cannot be tolerated and action may be taken at the discretion of the instructor. Excess tardiness may result in a grade reduction. In certain instances, the student may be subject to administrative withdrawal from the course and/or program.

Incomplete Assignments and Make-Up Examination

All assignments are to be turned in as specified on the course syllabus. Assignments not turned in to the instructor when due will result in a "0" for that assignment. Students

given an incomplete in a course must have the mechanism for resolving the incomplete agreed upon with the course instructor by the first week of classes in the subsequent quarter. The agreement must be in writing and must include the signature of the student and the instructor.

As a general policy, make-up exams will <u>not</u> be given for missed exams. A request for a make-up exam should be directed to the individual course instructor. In cases of serious illness or accident, a make-up exam may be considered.

Professional Continuing Education and Service

As a part of each clinical course in the curricula, students will be required to attend at least eight hours per quarter of approved professional continuing education and/or service activities. Seminars, lectures, workshops, and related activities may be submitted to meet this requirement.

Alternative Clinical Activities (Clinical Pass)

Students may apply for attendance to additional seminars, workshops, and lectures to acquire clinical release time. Approval of the application will be dependent upon clinical skills and -curriculum grade point average (GPA). Each function will be evaluated independently as to its educational value in terms of how much time will be awarded.

The use of this pass is limited. It cannot be used unless appropriate approval is awarded <u>prior</u> to the projected day of use and does <u>NOT</u> include specialty rotations or case studies.

Outside Employment

The faculty realizes that it may be necessary for some students to work part-time while attending school. This should not be done at the expense of the Imaging Sciences Program. It is the student's responsibility to fulfill all school obligations.

If a student appears too fatigued to perform safely in the clinical laboratory, the instructor may dismiss the student from the clinical agency. It is not advisable for a student to work from 11:00 p.m. to 7:00 a.m. and then come to the university as fatigue frequently is a cause for accidents or poor clinical judgment.

Illness or Injury of Student While Attending Classes

Illness or injury while in the classroom or clinical area must be reported to the professor present. Students who are pregnant should inform the clinical director who will inform the instructor so that no assignment will be made involving exposure to radiation or other hazards.

Use of Hospital Libraries

The use of hospital libraries varies according to agency policy. Check with the current clinical instructor about the procedure needed.

Membership in Professional Organizations

One key attribute of a professional is participation in associations and societies which influence the direction, education, and practice of the members of a profession. In order to develop this aspect of professionalism, the student will be expected to maintain active student membership in an appropriate professional association or society during the clinical phase of the curriculum. **Membership in the American Association for Imaging Sciences is mandatory.** Membership in the Illinois Society for Imaging Sciences is also encouraged.

State and National Credentialing

Graduates of Imaging Sciences program are eligible for registration by examination in the advanced modality of Computed Tomography or Magnetic Resonance Imaging sponsored by the American Registry of Radiologic Technologists upon completion of the didactic and clinical requirements of the program. The successful passing of the ARRT examination allows the graduate to place the initials RT (R), (CT), (ARRT) or RT (R), (MR) (ARRT) after his/her name.

Change In Policy

Additional policies and regulations may be established by the department or by the instructor for a course or any portion of a course. After due and proper notification, students will be expected to comply fully with all regulations.

General Technical Requirements

In order to graduate from the Imaging Sciences program, students must be able to meet certain technical requirements. Graduates of this program must be able to meet certain physical and mental requirements to ensure the safe performance of imaging procedures. Due to the nature of typical employment assignments, a graduate of this program must be able to:

1. Work in a clinical setting for eight (8) to ten (10) hours performing physical tasks requiring physical energy without jeopardizing patient safety. Examples of these tasks include but are not limited to: Pushing wheelchairs, stretchers, carts, and mobile radiographic equipment; lifting and carrying imaging coils weighing up to twenty (20) pounds, wearing a five-ten (5-10) pound, lead apron when needed; reaching, manipulating, and operating patient positioning tables, radiographic tables, stands, tubes, and other radiographic and imaging equipment to obtain the requested radiographic or diagnostic image; cleaning and preparing patient positioning tables, radiographic tables, stands, and other accessory equipment; moving and assisting patients on and off radiographic tables, carts, and stretchers, or in and out of wheelchairs.

2. Interact with patients and other medical personnel in providing appropriate patient care and in performing imaging procedures. Examples of these interactions include but are not limited to: effectively communicating with patients and medical staff; providing patients with a clear and complete explanation of procedures; providing oral and written information, reading written information, and receiving oral and written information from patients and medical staff relevant to patient care; responding appropriately to unusual patient situations; making appropriate judgments in critical and non-critical patient care situations.

Essential Job Functions

The following essential functions are required of all students enrolled in the Imaging Sciences Program. Medical imaging science specialists are responsible for the care of patients, some of whom are critically ill. They are often required to manage highly complex pieces of equipment, as well as interact with patients in order to make assessments. Medical imaging science specialists must also be able to communicate with other health care professionals. Therefore, in order to be successful in the Imaging Sciences Program, all applicants should be able to perform, or learn to perform, the following functions:

1. Spend much of the day traveling in between the Imaging Sciences Department and various nursing areas.

- 2. Move and position bedridden patients.
- 3. Perform physically demanding tasks such as lifting and positioning advanced imaging equipment.
- 4. Communicate effectively with patients and staff.
- 5. Respond to alarms.
- 6. Accurately measure contrast media, read patient records, evaluate information displayed on patient monitors, and make observations of patients as required for Imaging Sciences.
- 7. Manipulate equipment and perform such tasks as venipuncture and IV-line management.
- 8. Apply sufficient intellectual and emotional skills in order to plan and exercise independent judgment, and to respond quickly to medical emergencies.

The program reserves the right to require applicants or students to demonstrate any of these essential functions.

Other Program Requirements

Residency requirements (minimum number of credit hours that must be satisfied by courses offered by the institution)

Students must complete at least 36 semester credit hours at Rush University.

• Language requirements

There is no language requirement for this program.

• Research requirements (thesis, dissertation, research project)

Students must complete a research course and a senior project as part of the requirements for this program.

• Qualifying or comprehensive examination requirements

Students must complete the Comprehensive End of Program Competency examination in order to meet program Standards of Progress and Graduation requirements. The requirement is described.....

• *Practicum, clinical, or field experience requirements*

Clinical courses which include rotations in the hospital and through other clinical agencies are an integrated part of this training program.

• The time limit for completion of programs

Students must complete all degree requirements within five years of initial enrollment into the program.

• Other requirements unique to the institution or program

The program has specific requirements for professional conduct, behavior in the clinical agency, attendance and make-up work, and attire. The requirements are described below.

Graduation Requirements

Degree requirements that must be met include:

- 1. Satisfactory completion of all general education coursework as listed.
- 2. Completion of each required Imaging Sciences professional course with a grade of "C" or better.
- 3. Cumulative grade point average (GPA) of 2.5 or better.
- 4. Successfully complete a comprehensive end-of-program competency assessment

Appendix A: Minimum Core General Education Requirements for Admission

All entering students must complete the following core general education requirements in order to be eligible for the Bachelor in Science degree awarded by Rush University.

Degree Offered: Bachelor of Science Degree in Imaging Sciences

In addition to at least 60 semester hours (90 quarter hours) of general education and pre-professional pre-requisite course requirements, the Bachelor of Science degree in Imaging Sciences requires a minimum of 98 quarter hours of upper-division credit for graduation. This program requires 26 semester hours of specific program pre-professional prerequisite or more semester credits of general education. The **pre-professional phase** requirements may be completed at any regionally accredited college or university. Dedicated to clinical and academic excellence, the professional phase includes about 1000 hours of in-hospital clinical practice. Additional elective coursework in management and education may be taken, for students interested in these areas.

Preprofessional Phase - Program Prerequisites

The pre-professional phase (lower-division college-level course work) requires a minimum of 60 semester hours (90 quarter hours) of prescribed study.

General Education Requirements

Successful completion of general education course work in communications, humanities, mathematics, anatomy and physiology, physical sciences, behavioral sciences, and social sciences as outlined below

RushU	Semester Credit Hours	Quarter Credit Hours
Communications (English composition is required) The second course may be in composition, speech or another communication topic.	6	9
Mathematics (College Algebra or higher)	3	4
Humanities	3	4
Social and behavioral sciences	3	4
Physical Sciences (must include Physical Science or General Physics)	3	4
Human anatomy and physiology	8	11

Electives (Courses in communications, medical terminology, computer science, ethics, fine arts, humanities, life sciences, literature, philosophy, physical sciences or social sciences, foreign language, literature, music, history, religion, etc)	34	54
TOTAL	60	90

Admission Factors

A maximum of 15 full-time students or an equivalent number of part-time students will be admitted per year. Admission is on a competitive basis. The basis for inviting an applicant for an interview includes the applicant's academic performance represented by coursework grades, load, trends, and degree of difficulty. In addition, the review includes consideration of the non-academic qualifications listed below in no particular order of preference or weight:

- employment history, especially as it occurred simultaneously with undergraduate academic preparation
- o positions of leadership held
- o community service/healthcare or "volunteer" related activities
- prior experience in providing health care related services
- o communication skills as demonstrated in the essay and personal interview
- o reference letters or recommendations
- research accomplishments
- o applicant's future goals
- knowledge of, and preparation to enter, the profession of advanced-level imaging sciences in Computed Tomography (CT) or Magnetic Resonance Imaging (MRI) gained through experience or observation

Admission Requirements

Applicants must have completed 60 semester credit hours (90 quarter credit hours) of the Rush University College of Health Sciences core curriculum requirements to include 26 credit hours of program prerequisites (see note regarding pre-requisites below). These core curriculum requirements may be completed at any regionally accredited college or university. Admission requirements include:

 Associate's degree in medical radiography or nuclear medicine technology (not applicable if applying to the entry-level MRI track) from a program accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT) or the Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT). Applicants who have successfully completed an accredited hospital-based program should contact the program director to determine if they may be admitted on this basis.

- Licensure or eligibility for accreditation in the practice of medical radiation technology by the Illinois Emergency Management Agency (not applicable if applying to the entry-level MRI track).
- Completion of program general education course requirements. [Note: in some cases, students may receive permission to defer completion of general education course work and begin course work in the program. In all cases, however, the general education course requirements must be met prior to award of the bachelor's degree. For more information on this option, contact the program offices.
- Completion of program pre-professional prerequisites with a grade of at least "C" in all courses prior to the start of professional course classes.
- Minimum overall grade point average of at least 2.5 in all college/university coursework
- Sophomore standing or higher at the time of application
- Personal interview with program faculty
- Ability to meet the general technical requirements for the field and perform the essential functions of the job

* Total Rush Core Curriculum is 60-semester credits (90 quarter credit hours). The courses listed above will meet the core requirements (see General Education Requirements). Students entering the three-year track program may complete selected prerequisites during years one and two.

Appendix B: Advanced Standing in the Imaging Sciences Program

Introduction

Individuals may have acquired academic credit in Imaging Sciences courses from other schools and universities. Some individuals may acquire knowledge through experience and on-the-job training. When such persons apply for admission into the program, an attempt is made to grant academic credit for equivalent educational courses, equivalent knowledge acquired from experience, and/or successful completion of the certification and registry examinations.

All students graduating from the Imaging Sciences Program must meet the same standards for graduation; the awarding of advanced standing does not signify a lesser quality education than that offered through regular course work. What it does, however, is attempt to exempt the student from those areas of the formal program where the student already has the knowledge and expertise in those skills that would be offered. The program has identified the minimum competencies that imaging science professionals must have to provide safe, high-quality patient care. The identification of these competencies is a complex task and a great deal of care must be taken to ensure a standard of excellence.

The following policies and procedures are designed to ensure that those individuals who receive advanced standing are qualified to do so and that the screening process adheres to university as well as departmental policies at all times.

To allow individuals who are not qualified, to receive advanced standing, is not in the student's or the program's best interest.

Definition

Advanced standing is defined as a special and individually determined status granted to a student in a formal educational setting, who has already gained through other sources or through non-academic experiences, knowledge, skills, and professional attitudes taught in the program courses.

Purpose of Advanced Standing Procedures

The purpose of the advanced standing procedures is to recognize and give formal educational credit for knowledge and/or ability gained through previous training or experience.

METHODS OF GRANTING ADVANCED STANDING

1. Advanced standing can be awarded through transfer credit.

2. Advanced standing can be awarded through the passing of an equivalency examination covering a certain area of knowledge. (An "equivalency" examination is an

instrument or means by which a student accepted into the Imaging Sciences Program can demonstrate mastery of a knowledge area, content area or skill and thus be exempted from a course in the program which teaches that area or skill.)

3. Advanced standing can be awarded as credit for successful completion of national certification or registry examinations.

Who is eligible for advanced standing?

1. Transfer students (who have been accepted into the Rush University Imaging Sciences Program) may receive transfer credit for equivalent courses within the Imaging Sciences Program curriculum.

2. Credentialed students in an imaging specialty area who have been accepted into the Rush University Imaging Sciences Program may receive credit and/or be eligible to take equivalency examinations in certain courses. Specifically, individuals holding an advanced certification in CT, MRI, interventional studies, cardiac studies, or PET awarded by the American Registry of Radiologic Technologists (ARRT) or other acceptable credentialing agency may be eligible to receive credit based on the advanced certification credential. Such individuals must enroll in and complete a minimum of 36 semester credit hours of coursework at Rush University. Individuals holding the ARRT credential must apply for admission to the program at least 60 days prior to the first day of the quarter in which they wish to begin coursework at Rush. General education prerequisites may be waived for these individuals for admission to the program. All general education requirements must be completed prior to graduation and all other program requirements apply.

Policy for Transfer Students

Students who have completed course work at other approved Imaging Sciences programs may petition to have these courses transferred instead of specific course work in the Rush University program. Students must submit a transcript of their courses from the program and a copy of the course syllabus for each course in which they desire transfer credit. The syllabus must contain the following: course objectives, lecture outlines, course content, evaluation procedures, and related information. These courses will be evaluated on an individual basis for content and total contact hours and credit hours.

The Department reserves the right to test the proficiency of any student in course work transferred from other Imaging Sciences programs and the right to disallow such transfer credit in such course work in cases in which the student cannot demonstrate acceptable proficiency. All transfer credit is subject to the approval of the Committee on Progress and Promotions for Imaging Sciences. The student must also have a minimum grade of "C" (2.0) for each course being transferred. A student cannot receive transfer credit for any Imaging Sciences coursework if he/she left the previous program due to academic probation, suspension, or exclusion. All University policies regarding transfer credit must be satisfied. Forms are available in the Registrar's Office

Appendix D: Clinical Affiliates

Advocate Illinois Masonic Medical Center

836 W. Wellington Avenue Chicago, Illinois 60657 (773) 975-1600

Advocate Trinity Hospital

2320 E 93rd St Chicago, IL 60617 (773) 967-2000

Ann & Robert H. Lurie Children's Hospital of Chicago

225 E. Chicago Avenue Chicago, IL 60611 (312) 227-3395

Circle Imaging Center (RUMC)

Radiology Department (Suite 456) 1725 W. Harrison Street Chicago, IL 60612 (312) 563-2694

Loyola University Health System

2160 South First Avenue Maywood, IL 60153 (708) 216-9000

Northwestern Medicine Lake Forest Hospital

1000 N Westmoreland Rd, Lake Forest, IL 60045 847-535-6362

Rush Midwest Orthopedics

1611 W. Harrison Chicago, IL 60612 (312) 942-5052

Rush University Medical Center:

Imaging Sciences Services Senn 303 Rush University Medical Center 1756 West Harrison Street Chicago, IL 60612 (312) 942-5781

The University of Chicago Medical Center

5841 S. Maryland Avenue Chicago, IL 606637 773-834-3953

University of Illinois Medical Center Department of Radiology (MC 931) 1740 West Taylor Street, Suite2488 Chicago, Illinois 60612 (866) 600-2273

SIGNATURE PAGE

This page must be turned in to the Imaging Sciences program Office. Your signed form will be kept in your departmental student folder.

I,_____, (Print your name here)

I have received a copy of the **Bachelor of Science in Imaging Sciences Student Handbook.** I have read and understand the content of this document. I understand that it is my responsibility to comply with all policies and procedures of the Health Sciences Program, as well as all policies and procedures contained in the Rush University Catalog and those of Rush University Medical Center.

(Signature)

(Date)