



*Magnetic Resonance
Imaging Program*



*Student Handbook
Volume II*

2023-2024 Academic Year

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MRI Specific Policies

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West Virginia University Hospitals (WVUH) has a mission of serving as primary clinical facilities for medical education and research. Since 1965, our facilities have supported the operations of accredited programs in the imaging sciences to include Radiography, Nuclear Medicine, Radiation Therapy, and Diagnostic Medical Sonography. As imaging procedures and technology evolve, the need has increased for registered technologists to expand their cognitive and clinical skills in technologies beyond their primary designations. It is this premise which supports the development of the program in Magnetic Resonance Imaging (MRI) affording radiologic technologists with an accelerated pathway for career advancement.

Institution(s):

The MRI program is a joint effort between WVUH and the Center for Advanced Imaging at WVU. West Virginia University Hospitals is accredited as a facility by The Joint Commission (TJC) and is authorized to conduct postsecondary education by the West Virginia Council for Community and Technical College Education. The Center for Advanced Imaging at WVU is accredited by the American College of Radiology (ACR).

Program Description:

The MRI Program began in July of 2009. It is a twelve (12) month, hospital-based, certificate program offering comprehensive didactic & clinical education in Magnetic Resonance Imaging. Successful completion qualifies graduates as educationally eligible to sit for the American Registry of Radiologic Technologists (ARRT) Primary Pathway certification exam in MRI, pending ARRT review and approval. Applicants must be graduates or pending graduates from a JRCERT-accredited program in Radiography and must successfully pass the ARRT certification exam in Radiography. The Program enrolls up to 5 students each academic year and starts on or near July 1st of each year. The Program is accredited through the Joint Review Committee on Education in Radiologic Technology ([JRCERT](https://www.jrcert.org/)) and offers financial aid. Additional information and application materials can be access on the program's website at <https://wvumedicine.org/radtech/magnetic-resonance-imaging/>.

The Center for Advance Imaging at WVU is an ACR-accredited, clinical and research facility with locations in the WVU Health Sciences Center (HSC), Ruby Memorial Hospital (Ruby), Physician Office Center (POC), University Town Centre (UTC), and the Rockefeller Neuroscience Institute (RNI). The department is staffed by over 30 Technologists who provide MRI services to over 20,000 patients per year, which include studies in: Neuro, Body, MSK, Breast, Cardiac, MR Angiography, Spectroscopy, Functional (fMRI), and Pediatric MR Imaging.

The state-of-the-art center operates (7) MRI units to include:

- Siemens MAGNETOM Aera 1.5T in the HSC
- Siemens MAGNETOM Aera 1.5T in the POC
- GE SIGNA Architect 3T in the POC
- Siemens MAGNETOM Sola 1.5T in Ruby
- Siemens MAGNETOM Vida 3T in Ruby
- Siemens MAGNETOM Aera 1.5T in the UTC
- Siemens MAGNETOM Prisma 3T in the RNI

The Siemens MAGNETOM Sola 1.5T & MAGNETOM Vida 3T in Ruby were recently installed in 2022. In 2018 and 2019, respectively, the GE SIGNA Architect 3T and Siemens MAGNETOM Prisma 3T were added to the POC and RNI for research and clinical purposes. The Siemens MAGNETOM Aera 1.5T in the UTC and the Siemens MAGNETOM Aera 1.5T in the POC were upgraded in 2015 and 2016, respectively.

This handbook includes the primary policies which govern the student's education in Magnetic Resonance Imaging. It is not intended to be all inclusive and program officials will review additional policies during orientation. Students must be aware that they are subject to all applicable policies of WVUH and should seek guidance in clinical and didactic situations in which they are unsure.

Mission Statement

The Magnetic Resonance Imaging education program is a joint venture between West Virginia University Hospitals and the Center for Advance Imaging at West Virginia University. Our combined mission is to develop entry-level Magnetic Resonance Imaging technologists through comprehensive didactic and clinical education in Magnetic Resonance Imaging and to provide the necessary skills for professional growth and career advancement in the imaging sciences.

Through continued technological advancement and strong commitment to medical education, West Virginia University Hospitals provides the foundation on which students can cultivate and expand their imaging skills in the Magnetic Resonance discipline. As the sole Magnetic Resonance Imaging education program in the state, we are dedicated to serving the needs of the citizens and physicians of West Virginia and the surrounding region.

Goals

- 1) Students will demonstrate entry-level clinical competence in Magnetic Resonance Imaging.
- 2) Students will practice effective communication skills.
- 3) Students will employ critical thinking / problem solving skills.
- 4) Students will exhibit professionalism.

Faculty Roster

Faculty Member

Course(s)

Brad Holben MSHA, R.T. (R)(MR)
 MRI Program Director

MR Safety
 Fundamentals of Imaging Science & Medical Informatics
 MR Imaging Procedures I & II
 MR Patient Care & Pharmacology
 Sectional Anatomy I & II
 MR Pathology
 MRI Registry Review
 Special Topic – Research Poster Project

David Gultekin Ph.D.
 MRI Physicist

MR Physics I & II

MRI Clinical Preceptor

Polly Snyder R.T. (R)(MR)

MRI Clinical Administration

Manager - Rickey Rager R.T. (R)(MR)

Supervisor - Alice Howlett R.T. (MR)

Modality Specialists - Shauna Poindexter R.T. (R)(MR) & Karen Jackson R.T. (R)(MR)

MRI Staff Clinical Instructors

Nancy Oughton R.T. (R)(M)(MR)
 Cheri Andrews R.T. (R)(MR)
 Cheryl Russell R.T. (R)(M)(MR)
 Heather Franks R.T. (R)(MR)
 Craig Acheson R.T. (R)(MR)
 Deanne Kacmar R.T. (R)(MR)
 Jennifer Morgan R.T. (R)(MR)
 Johnna Zeigler R.T. (R)(MR)
 Cullen Kelley R.T. (R)(MR)
 Kimberly Butcho R.T. (R)(MR)
 Kimberly Mathers R.T. (R)(MR)
 Nicole Everson R.T. (R)(MR)
 Alexandra Hayes R.T. (R)(MR)
 Courtney Mickey R.T. (R)(MR)
 Patrick Ball R.T. (R)(MR)
 Lauren Stanley R.T. (R)(MR)
 Brittany Kimball R.T. (R)(MR)

Allison Ashenfelter R.T. (R)(MR)
 Lindsey Hearn R.T. (R)(MR)
 Travis Moore R.T. (R)(MR)(CT)
 Breanna Mallow R.T. (R)(MR)(CT)
 Gianina Renzelli R.T. (R)(MR)
 Corey Kelley R.T. (R)(MR)
 Ryan Butcho R.T. (R)(MR)
 Lisa Mrazek R.T. (R)(MR)
 Sabra Quinn R.T. (R)(MR)
 Eva Suarez R.T. (R)(MR)
 Lara Bent R.T. (R)(MR)
 Faith Butts R.T. (R)(MR)(CT)
 Sarah Morgus R.T. (R)(MR)
 Sarah Helmick R.T. (R)(MR)
 Pete Javins R.T. (R)(MR)
 Anna McCullough R.T. (R)(MR)
 Mariah Hoit R.T. (R)(MR)

2023- 2024 Academic Calendar

Date: 2023

Event:

June 26 & 29	New Student Orientation (Online Hospital NEO on 26 th & In-person on 29 th)
June 30	No Classes
July 3 – 4	Independence Day Holiday – No Classes
July 5	Tuition Due – Modality & 2 nd yr. Radiography Students
July 5	Modality & 2 nd yr. Rad. Begin Semester I & III Didactic / Clinical Courses
August 7	1 st Year Radiography Begin Sem. I Didactic and Clinical Classes + Tuition Due
September 4	Labor Day Holiday – No Classes
September 29	Mid-Term Grades Due
November 23 & 24	Thanksgiving Holiday – No Classes
December 9	Graduation Ceremony – DMS Program (tentative)
December 15	Last Day of Semester I & III Didactic Courses / Final Grades Due
December 18 – 20	Student Counseling Sessions
Dec. 25 – Jan. 5	Student Holiday Break

Date: 2024

Event:

January 8	Tuition Due - Semester II & IV
January 8	All Students Begin Semester II & IV Didactic / Clinical Courses
February 1	Application Deadline for 2024 Candidates
February 23 - 24	Annual Ohio State University (OSU) MRI Seminar
March 8	Mid-Term Grades Due
April (TBA)	Spring Break – MRI Students
May 10	Last Day of Classes - 2 nd year Radiography Only
May 10	Final Grades Due - 2 nd year Radiography Only
May (TBA)	Graduation Reception (Radiography Graduates)
May 27	Memorial Day Holiday - No Class
June 7	Final Grades Due (Radiation Therapy, Nuclear Medicine, ECHO, & MRI)
June 10 – 13	Student Counseling Sessions (Radiation Therapy, Nuclear Medicine, ECHO, & MRI)
June 14	Graduation Reception - (Radiation Therapy, Nuclear Medicine, ECHO, & MRI)

MRI Admissions Policy

West Virginia University Hospitals and those responsible for the administration of the Imaging Science Education Programs consider each applicant without regards to race, religion, color, national origin, ancestry, age, sex, sexual orientation, gender identity, disability, veteran status or any other status protected by applicable law. Although accredited to enroll **up to (4) students** each academic year, program officials reserve the right to limit enrollment based upon the quality of the applicant pool and current employment market conditions. Admission to the Magnetic Resonance Imaging Program is governed in accordance with the following minimum admission requirements.

Requirements for Admission Consideration

All of the following criteria are required for admission consideration and documentation must be received on or before February 1st of the year in which the student is applying for admission.

1. Applicant must be a graduate (or pending graduate) from a JRCERT accredited program in Radiologic Technology.
2. Applicant must **review** the following documents on the program's website (<https://wvmedicine.org/radtech/magnetic-resonance-imaging/>).
 - a. Essential Performance Standards
 - b. MR Safety Information for Prospective Students
3. Applicant must **submit** the following by the February 1st to be considered for the program starting in July each year:
 - a. Program Application
 - b. Three personal reference forms (included with the application packet)
 - c. Transcript(s) of all post-secondary education (college, radiography, technical school, etc.)
 - d. American College Test (ACT) scores **or** Scholastic Aptitude Test (SAT) scores
 - i. Minimum recommended composite score: **ACT- 19, SAT- 900.**
 - ii. The ACT or SAT Writing component is not required or included in the minimum score.
 - iii. ACT or SAT requirement is waived for applicants possessing an Associate's degree or higher.
 1. However, if the ACT or SAT score is provided and it satisfies or exceeds the minimum recommended composite score, additional points will be awarded.
 - iv. **ACT School Code - 4549 SAT School code - 3863**
4. American Registry of Radiologic Technologists (ARRT certification).
 - a. Registry-eligible students are accepted on the condition that they successfully pass the ARRT examination in Radiography.
 - b. Students who do not pass must withdraw from the Program and can only regain admission by entering the applicant pool in subsequent enrollment years.
5. To be eligible to sit for the ARRT Primary Pathway certification exam in Magnetic Resonance Imaging, applicants must document the following:
 - a. Completion of an **Associate's degree or higher** from an accredited post-secondary institution. The degree can be in any field or discipline.

Academic Evaluation

Program officials utilize an established, objective screening mechanism to assign academic points to a candidate based on their current & prior levels of academic achievement. The following categories are evaluated in assigning academic points:

1. ACT Composite Score or SAT (Critical Reading & Math) Score
2. Radiography Program / College / University Grades:
 - a. Physics & Radiobiology
 - b. Image Production & Characteristics (Exposure)
 - c. Anatomy & Physiology (Human Structure & Function)
 - d. Radiographic Procedures & Positioning
 - e. Applied Radiographic Procedures (Clinic)
 - f. Mathematics (Cumulative)
 - g. Science (Cumulative)
 - h. Healthcare – other applicable/non-Radiography (Cumulative)
3. College / University Degree + Radiography Combined GPA
 - a. Associate
 - b. Baccalaureate
 - c. Graduate
4. Healthcare Experience
5. Military Service / VA Benefit Eligible
 - a. For applicants that will potentially be using VA educational benefits, if accepted, WVUH will accept, review and maintain a written record of previous education and training for each candidate. Such materials will be reviewed to determine if credit towards admission or program completion is possible.

Interview Evaluation

Interviews are granted to the **top (12)** academic candidates each year; however, the Education Coordinator / Program Director reserves the right to limit or expand this number based on the quality of the applicant pool. Applicants not receiving an interview will be notified by mail. Interviews will be conducted in March of each year and candidates will be notified of their admission status no later than April 1st of each year.

Interviews are conducted by an Admissions Committee consisting of a least (3) members selected by the Education Coordinator / Program Director and may include faculty members, department managers and /or clinical staff. Using a standardized form, total interview scores from each committee member will be calculated and averaged for each candidate. Candidates must score a minimum average of **(25) interview points** (out of a possible 40) to be considered eligible for admission to the program. (See Interview Form)

Overall Evaluation

The Education Coordinator / Program Director will combine the Academic & Interview Points into a cumulative Total Score for each candidate and will rank the candidates in descending order. The Admissions Committee will review the scores and finalize the assessment.

Selection

The Education Coordinator / Program Director will rank the candidates in descending order and will extend offers up to the top candidates having the highest Total Point scores. The remaining candidates will be waitlisted in the event one or more of the top candidates do not accept the position. Waitlisted positions expire once a class is filled and do not carry over to the next admission year.

MR Admissions Policy (cont.)

The candidates selected for admission will receive:

1. Acceptance letter
2. Copy of the student handbook
3. Invoice for Admission Fee
4. The following forms (to be completed, signed and returned)
 - Statement of Intent To Enroll
 - Essential Performance Standards
 - MR Safety Screening
 - Non-ARRT registered verification

All other applicants interviewed will receive a written verification of their non-admission or waitlisted status.

Acceptance

The selected applicants will be given approximately 10-15 business days to respond to the offer of admission by completing the following prior to the established deadline:

1. Read the Student Handbook
2. Complete, sign & return the following forms:
 - Statement of Intent to Enroll
 - Essential Performance Standards
 - MR Safety Screening
 - Non-ARRT registered verification
3. Submit a \$50.00 check to WVUH for the admissions fee.


If an applicant fails to respond to the offer of admission by the established deadline, program officials will consider the offer as null and void, and will proceed by offering the position to a wait-listed applicant.

Enrollment

Enrollment is contingent upon the student satisfactorily completing the following screening and assessment procedures within the guidelines specified by West Virginia University Hospitals (WVUH). These screenings will be conducted during the orientation time frame or at a time specified by program officials. Students will be provided with additional information regarding these procedures prior to the program start date.

Students will be required to:

1. Complete a health assessment and a vaccination record review conducted by the Employee Health department.
2. Complete the criminal background investigation process. (See WVUH Policy V.036)
3. Complete the drug screening / testing process. (See WVUH Policy V.035)
4. Complete all other WVUH mandatory orientation procedures



MRI Education Program Director

Weighted Values for Applicant Admission Points

The following values will be assigned to the applicant’s previous academic achievements and the personal interview. Points assigned to each candidate will be summated and utilized as criteria for admission consideration:

I. ACT / SAT scores

<u>ACT Composite Score Range</u>	<u>SAT Score Range (CR + M)</u>	<u>Points Assigned</u>
> 31	1360 – 1600	4
27 - 30	1210 – 1359	3
23 - 26	1050 – 1209	2
19 - 22	900 – 1049	1
< 19	< 900	0

II. Radiography / College / University Curriculum

Applicants are assigned the following values for each of the listed courses or categories relative to the grade the student achieved in their Radiography program and College / University course(s). Multiple courses completed in each category are averaged and the point values are based upon the following:

Courses

- Physics
- Image Production & Characteristics (Exposure)
- Anatomy & Physiology (Human Structure & Function)
- Radiographic Procedures & Positioning
- Applied Radiographic Procedures (Clinic)
- Mathematics (Cumulative)
- Science related (Cumulative)
- Healthcare – other applicable/non-Radiography (Cumulative)

<u>Letter Grade</u>	<u>Points Assigned</u>
A	5
B	4
C	3
D or F	0

III. College / University Degree + Radiography Combined GPA

Points are based on an applicant’s cumulative GPA and are awarded for the highest achieved degree. Point values are based upon the following:

Associate Degree + Radiography

<u>GPA</u>	<u>Points Assigned</u>
3.6 – 4.0	3
3.0 – 3.59	2
2.0 – 2.99	1
< 2.0	0

Baccalaureate Degree + Radiography

<u>GPA</u>	<u>Points Assigned</u>
3.6 – 4.0	5
3.0 – 3.59	4
2.0 – 2.99	3
< 2.0	0

Graduate Degree + Radiography

<u>GPA</u>	<u>Points Assigned</u>
3.6 – 4.0	7
3.0 – 3.59	6
2.0 – 2.99	5
< 2.0	0

IV. Healthcare Experience

Points are assigned to applicants that document healthcare-related work experience other than the clinical education in their Radiography program. Point values are based upon the following:

<u>Category</u>	<u>Points Assigned</u>
Health related work experience \geq 3 years	3
Health related work experience \geq 2 years	2
Health related work experience \geq 1 year	1
Health related work experience $<$ 1 year	0

V. Interview Points

Individual interviewer points in the following categories are summated and averaged to obtain an overall average interview score. Candidates must score a minimum of 25 Interview Points to be considered eligible for admission to the program.

<u>Category</u>	<u>Points Assigned (see Interview Form)</u>
Appearance	1 - 5
Affability / Attentiveness	1 - 5
Poise / Stability	1 - 5
Personality	1 - 5
Communication Skills	1 - 5
Knowledge About the MRI Profession	1 - 5
Drive and Ability to Succeed	1 - 5
Initiative Towards Program Admission	1 - 5



MRI Education Program Director

Direct / Indirect Supervision of MRI Students

This policy serves to identify the current guidelines for clinical supervision of Magnetic Resonance Imaging students in reference to the direct and indirect provisions stated in the Standards for an Accredited Educational Program in Radiologic Sciences

Direct Supervision

All students performing Magnetic Resonance Imaging procedures must do so under direct supervision.

The parameters of direct supervision are:

- 1) A registered technologist reviews the request for examination and the scanning protocol with the student.
- 2) A registered technologist evaluates the condition of the patient.
- 3) A registered technologist is present at all times during the performance of the examination to offer advice and assistance to the student if needed.
- 4) A registered technologist reviews and approves all images.
- 5) A registered technologist is present during any rescanning procedures.

Indirect Supervision

No provisions are established for the performance of Magnetic Resonance Imaging under indirect supervision. A registered technologist must be present at all times during student clinical exam performance.



MRI Education Program Director

Transfer Credit / Advanced Placement / Part-time Enrollment / Distance Education Policy

Transfer Credit Policy

This policy serves to identify the Program's philosophy relative to transfer of credit.

The Magnetic Resonance Imaging program at West Virginia University Hospitals may consider accepting transfer credit at the discretion of program officials. Transfer credit will only be considered for certain courses completed within the curriculum of an JRCERT-accredited radiography program and within five years of the date of transfer consideration. If transfer credit is approved by program officials, valid documentation (*i.e.*, Radiography school transcript) must be provided to program officials as proof of satisfactory course completion prior to the start of the MRI program. Failure to provide valid documentation may result in the revocation of the transfer credit. Documentation of approved transfer credit will be retained permanently.

Advanced Placement / Part-Time Enrollment / Distance Education Policy

This policy serves to identify the Program's philosophy relative to advance placement into the program, part-time student attendance, and distance education.

With respect to the following considerations:

1. The Magnetic Resonance Imaging program length of 12 months;
2. The specificity of the course content;
3. The precise correlation between the didactic curriculum and clinical education;
4. The sequential and progressive nature of the curriculum format;
5. The competitive nature of the enrollment process and a limited number of available positions;
6. The framework of effective clinical education requires on-site participation with direct patient interaction; and
7. The operational hours of the clinical facility.

The Magnetic Resonance Imaging program at West Virginia University Hospitals does not make provisions for advance placement status or part-time enrollment or distance education.



MRI Education Program Director

Attendance Policy

A student's daily attendance is vitally important in order for them to maintain satisfactory didactic and clinical performance. Students that miss exceptional amounts of clinic time will find it difficult to acquire the exams needed to fulfill their clinical education requirements. Students need to realize that poor attendance during their education can have a negative effect on their future. Employers tend to be wary of student applicants that have a record of excessive absenteeism. It is natural to relate absenteeism with a poor work ethic and a lack of commitment to the profession.

Personal Time Off: (PTO)

Personal time off (PTO) may be utilized for unscheduled absences (illness, personal emergency, etc.) and scheduled absences (job interviews, doctor appointments, etc.).

Twelve-month programs:

The student will be allotted 48 hours of personal time off for a twelve-month program. In addition, each school year will include three (3) weeks of leave to include: 2 weeks over the Christmas / New Year holiday, and one week in the spring.

Eighteen-month programs:

The student will be allotted 72 hours of personal time off for an eighteen-month program. In addition, each school year will include four (4) weeks of leave to include: 2 weeks over the Christmas / New Year holiday, one week in June, and a final week in the fall which is determined by the education coordinator.

Compensatory Time Off: (Comp Time)

Compensatory time off is awarded at the discretion of the program director for activities that may exceed an 8 hour school day and/or for extraordinary circumstances. Some examples include but are not limited to: staying late to assist with heavy workload, going above and beyond duties, and/or conference(s) that are outside of the typical time frame of a normal school day.

Scheduled & Unscheduled Absences:

1. It is the student's responsibility to notify both the Program Director and Clinical Rotation site when calling to report off for illness or other personal emergencies. Notification must be received by a Program Official no later than 30 minutes prior to the beginning of the student's assigned shift. Failure to notify a Program Official in a timely manner will result in the student receiving an unexcused absence for that day. Students are required to leave a message on the phone mail system of the Program Director and the clinical rotation site.
2. In addition to calling off, students must document their absence by completing a Time Off Request form in Trajecsys. Comp time may not be utilized for unscheduled absences.
3. Students that miss consecutive days due to an illness will only be charged 8 hours of PTO for every three (3) days of absence, providing the student has a valid medical excuse from a physician stating the amount of time that the student is excused. The provision does not apply to time missed due to illnesses or incapacitation related to elective procedures or surgeries. Please refer to the Medical Leave of Absence policy regarding extended illnesses.
4. PTO and comp time shall be granted in minimum increments of 1 hour, unless previously approved by the Program Director.

5. Students requesting time-off for non-emergent reasons should pre-schedule PTO or comp time with program officials by the end of their shift at least one (1) day prior to the requested time off. Students should complete a Personal Time Off Request form in Trajecsys and inform the Program Director as soon as the form has been submitted to ensure prompt review.

Excessive Absenteeism

This policy serves to identify the procedure and criteria implemented when a student exceeds their allotted number of hours of personal time off (PTO).

1. Excessive absenteeism will not be tolerated. If a student exhausts their allotted PTO days, they will be subject to the following disciplinary action.

Twelve-month programs:

- a. If the 48 hours of allotted PTO is exhausted, the student will receive documented counseling regarding their attendance and 1 point will be deducted from their overall clinical grade.
- b. If 16 additional hours are missed (total 64 hours), the student will receive a second formal written warning regarding their position in the Program and 2 additional points will be deducted from their overall clinical grade (total 3).
- c. If 16 additional hours are missed (total 80 hours), the student will receive a final formal written warning regarding their position in the Program and 2 additional points will be deducted from their overall clinical grade (total 5).
- d. If the total amount of time absent exceeds 80 hours, the student will be dismissed from the Program if any additional time off occurs. Students will be evaluated on an individual basis as to the circumstances causing the absenteeism.

Eighteen-month programs:

- a. If the 72 hours allotted PTO is exhausted, the student will receive documented counseling regarding their attendance and 1 point will be deducted from their overall clinical grade.
 - b. If 16 additional hours are missed (total 88 hours), the student will receive a second formal written warning regarding their position in the Program and 2 additional points will be deducted from their overall clinical grade (total 3).
 - c. If 16 more additional hours are missed (total 104 hours), the student will receive a final formal written warning regarding their position in the Program and 2 additional points will be deducted from their overall clinical grade (total 5).
 - d. If the total amount of time off exceeds 104 hours, the student will be dismissed from the Program if any additional absences occur. Students will be evaluated on an individual basis as to the circumstances causing the absenteeism.
2. In the event that a student exceeds their allotted personal time off, their clinical education will be extended beyond graduation so that all clinical requirements can be satisfied. However, the clinical education process cannot be extended beyond 5 days after graduation. All absences over the allotted personal time off will be considered as unexcused absences and will result in documentation of unsatisfactory attendance on the final transcript.
 3. In accordance with the Standards of an Accredited Educational Program in Radiologic Sciences, with regard to the maximum hours of clinical and didactic instruction, students will not be permitted to make-up their excessive missed time by extending their hours in clinic on a daily basis.

Unexcused absences

Unexcused absences are classified as the following:

1. Leaving the facility grounds without a program official's permission.
2. Leaving your assigned clinical area without program officials or a staff technologist's permission.
3. Failure to notify program officials prior to your assigned shift of an unscheduled absence.
4. Absences that occur as a result of disciplinary action (e.g. suspension) or those in excess of the allotted 48 hours PTO for twelve-month programs or 72 hours PTO for eighteen-month programs.

In the event that a student incurs an unexcused absence, the Disciplinary Action policy will be implemented. It is mandatory for all students to make-up, after graduation, any time missed as a result of an unexcused absence so that all clinical requirements can be satisfied. As with the excessive absenteeism policy, the clinical education process cannot be extended beyond 5 days after graduation for unexcused absences.

Tardiness

Students are required to be in their assigned clinical or didactic area and fully prepared to begin the daily clinical assignments prior to or by their designated starting time. Students should be aware that falsifying attendance records is grounds for immediate dismissal.

Tardiness is subject to the following guidelines and provisions:

- a. Tardiness is considered as any arrival time past the designated start of the student's shift.
Example: if your shift begins at 7:00am, you would be considered tardy at 7:01am.
- b. Tardiness beyond 30 minutes will result in the student being charged 0.5 days (4 hours) of PTO.
- c. Failure to notify program officials 1 hour beyond the designated time of arrival will result in the student being charged 1 day (8 hours) of PTO, marked as an unscheduled absence, and will result in a written warning.
- d. Excessive tardiness will not be tolerated and will result in a reduction in Clinical Points which will negatively affect the student clinical grade. Continued abuse will additionally result in disciplinary action and will result in documentation of "unsatisfactory attendance" on the final transcript.
- e. Exceptions to this policy will be at the program official's discretion and will be limited to unforeseen events.

Tardiness will be governed by the following limits and corresponding corrective actions:

Twelve-month programs:

- a. Upon the occurrence of three incidences of tardiness, the student will be issued a verbal warning and 1 point will be deducted from their clinical grade.
- b. Upon the occurrence of three additional incidences of tardiness (total of 6), the student will be issued a formal written warning and 2 additional points will be deducted from their clinical grade (total 3).
- c. Upon the occurrence of three additional incidences or tardiness (total of 9), the student will be issued a second formal written warning and 2 additional points will be deducted from their clinical grade (total 5). At this level, the student's attendance will also be marked as "unsatisfactory" on their final grade transcript.
- d. Upon the occurrence of one additional incident of tardiness (total of 10), the student will be issued a third formal written warning which will result in their subsequent dismissal from the program.

Eighteen-month programs:

- a. Upon the occurrence of three incidences of tardiness, the student will be issued a verbal warning and 1 point will be deducted from their clinical grade.
- b. Upon the occurrence of three additional incidences of tardiness (total of 6), the student will be issued a formal written warning and 2 additional points will be deducted from their clinical grade (3 total).
- c. Upon the occurrence of three additional incidences of tardiness (total of 9), the student will be issued a second formal written warning and 2 additional points will be deducted from their clinical grade (5 total). At this level, the student's attendance will also be marked as "unsatisfactory" on their final grade transcript.
- d. Upon the occurrence of three additional incidences of tardiness (total of 12), the student will be issued a third formal written warning which will result in their subsequent dismissal from the program.

Funeral Leave

Students will be given a maximum of three (3) days excused absence for deaths in their immediate family. Immediate family shall include: husband, wife, child, mother, father, brother, sister, mother-in-law, father-in-law, and grandparents. Exceptions to this policy may be granted only by the Program Director.

Students needing to utilize funeral leave will be required to submit a Leave Request form in the Trajecsys Report System and notify a program official of submission as soon as possible, prior to being absent.

Military Leave

West Virginia University Hospitals supports the Military Services of the Government of the United States and provides the following provisions for students serving in the Military Reserves during their enrollment in the program.

- a. Students serving in any branch of the U.S. Military Reserves are allotted 2 weeks (10 days) of leave per academic year to fulfill their required military commitment. Students that miss additional time (>10 days) due to military service will be required to utilize personal leave or arrange an acceptable time frame in which to make-up the time missed so that the program's clinical requirements can be fulfilled. Make-up time is subject to the Education Coordinator's discretion and subsequent approval.
- b. Students are responsible for all didactic and clinical course materials presented during their absences related to military service.
- c. In the event that a student is called-up to active military duty, the program will reserve a position for that student so that they can be re-enrolled upon the completion of their active duty assignment.

Vacation and Holidays

Twelve-month programs:

Students are granted three (3) weeks of vacation during their 12-month enrollment in the Program. Vacations are scheduled as two (2) weeks over Christmas/New Year's and one week in the spring. Program officials reserve the right to alter vacation dates.

Students are granted seven (7) holidays per year which include the following:

**New Year's Day
Memorial Day
Independence Day (July 4th)**

**Thanksgiving AND Friday after Thanksgiving
Labor Day
Christmas**

Eighteen-month programs:

Students are granted one (1) week of vacation during each semester enrolled in the Program. Vacations are scheduled as two (2) weeks over Christmas/New Year's, one (1) week in June and the final week of vacation being held in the fall. The final week in the fall is determined by the education coordinator. Program officials reserve the right to alter vacation dates.

Students are granted seven (7) holidays per year which include the following:

New Year's Day	Thanksgiving AND Friday after Thanksgiving
Memorial Day	Labor Day
Independence Day (July 4th)	Christmas

Attendance Documentation

Students are required to document their attendance by using the Trajecsys Report System.

Using PTO or Compensatory Time:

Students desiring to use PTO or Compensatory Time will be required to submit a Time Off Request form in the Trajecsys Report System and notify a program official of submission by the end of their shift at least one (1) day prior to the requested time off. The exact number of hours to be taken must be marked, appropriate designation must be selected (PTO, comp, military, medical, funeral), and student must provide time of day they wish to use their time if not a whole day (i.e., 2 hours PTO, 2pm - 4pm, leaving early). A comment box will be provided on the leave request form for further information, if necessary.

Please note that if requesting to use a half-day of PTO or Comp time you would be utilizing four (4) hours of PTO or Comp time. For example, if you are scheduled from 7:30am - 4:00pm and request a half day in the afternoon, you would work 7:30am-11:30am, using four (4) hours. If you are scheduled from 7:30am-4:00pm and request a half day in the morning, you would work 12:00pm - 4:00pm.

Interview Time Off:

Students are allotted Interview Time Off for the purpose of interviewing for a job in the area of advanced imaging for which they are currently enrolled. The amount of time allotted is dependent upon location of the interview, not to exceed eight (8) hours, and is limited to one (1) time use, regardless of amount of time used. For all interviews taking place on-site within student's respective department or within a 40-mile distance, a total of 4 hours may be used if necessary. For all interviews taking place off-site and greater than a 40-mile distance, a total of up to eight (8) hours may be used to account for travel.

All interview time off must be pre-approved by the Program Director at least 24 hours prior to the interview date. Students desiring to use any amount of interview time off will be required to submit a Personal Time Off Request form in Trajecsys by the end of their shift at least one (1) day prior to the interview date. The student will also be required to complete necessary forms which can be located and printed from the "Documents" section of Trajecsys. These forms must be signed by a member of the interview committee and returned to the Program Director the next school day, immediately following the interview. If the signed document is not returned, the absence will be considered unexcused and PTO will be taken. If additional interview time is needed, PTO must be used.

Policy Enforcement:

Accurate evaluation and interpretation of student attendance can only be accomplished if students are methodical and precise in their documentation. For this reason, the following guidelines have been established and will be strictly enforced.

1. Each student must clock in and clock out in the Trajecsys Report System to document daily attendance times upon their arrival and departure of clinical duties.

2. Students that fail to document accurately and timely will be counted absent until they notify the designated Program official. All time not accounted for (missed documentation) will be deducted from the student's PTO balance and disciplinary action may be enforced in accordance with the excessive absenteeism policy.
3. Logging attendance must be performed on an approved hospital computer. Logging attendance with a mobile device is unauthorized and will be considered falsification of attendance documentation unless previously approved by a program official under special circumstances. Falsification of attendance documentation is grounds for immediate dismissal from the program in accordance with the disciplinary action policy.
4. Time exceptions will be considered unauthorized unless approved by a program official under special circumstances.
5. Any student failing to properly utilize the attendance system (failing to clock in and clock out in Trajecsys, failing to comment on early dismissals, etc.) will be subject to the following:

Twelve-month programs:

- a. Upon the occurrence of three incidences of failing to log attendance, the student will be issued an oral warning and 1 point will be deducted from their clinical grade.
- b. Upon the occurrence of three additional incidences of failing to log attendance (total of 6), the student will be issued a formal written warning and 2 additional points will be deducted from their clinical grade (total 3).
- c. Upon the occurrence of three additional incidences of failing to log attendance (total of 9), the student will be issued a second formal written warning and 2 additional points will be deducted from their clinical grade (total 5). At this level, the student's attendance will also be marked as "unsatisfactory" on their final grade transcript.
- d. Upon the occurrence of one additional incident of failing to log attendance (total of 10), the student will be issued a third formal written warning which will result in their subsequent dismissal from the program.

Eighteen-month programs:

- a. Upon the occurrence of three incidences of failing to log attendance, the student will be issued an oral warning and 1 point will be deducted from their clinical grade.
- b. Upon the occurrence of three additional incidences of failing to log attendance (total of 6), the student will be issued a formal written warning and 2 additional points will be deducted from their clinical grade (3 total).
- c. Upon the occurrence of three additional incidences of failing to log attendance (total of 9), the student will be issued a second formal written warning and 2 additional points will be deducted from their clinical grade (5 total). At this level, the student's attendance will also be marked as "unsatisfactory" on their final grade transcript.
- d. Upon the occurrence of three additional incidences of failing to log attendance (total of 12), the student will be issued a third formal written warning which will result in their subsequent dismissal from the program.

The Program Director has the discretion to make changes to this policy at any time based on the situation.



MRI Education Program Director

Didactic Course Make-up Policy

Program officials and instructors will abide by the following procedures when permitting students to make-up course work missed as a result of being absent from a scheduled lecture session. This policy serves to eliminate, as much as possible, any potential advantage that a student may achieve by being absent from a scheduled didactic session and thereby obtaining a greater amount of study and/or preparation time, for the scheduled activities of the class, than those students in attendance.

1. The student is solely responsible for the lecture material covered and for making up any examinations, quizzes, homework assignments, etc. which occurred during their absence from a didactic session.
2. All examinations and/or quizzes must be made up on the student's first regular scheduled day of attendance (Monday thru Friday) following their absence.
3. Course instructors reserve the right to revise the structure of a make-up exam or quiz within the context of the material covered.
4. The student must follow the following procedures:
 - a. Contact the course instructor by **8:00 am** on the day of your return and inform the instructor that you are ready to make-up the missed examination and/or quiz.
 - b. In the event that the course instructor is not available, contact a program official and inform him/her.
5. Course instructors may request a program official to proctor the make-up session in situations when the course instructor may not be available.
6. Failure of the student to follow the aforementioned make-up guidelines imposes a mandatory requirement upon the instructor to record a percentage grade of zero (0) for the examination and/or quiz.
7. A student who fails to meet an assignment (i.e., term paper) deadline as a result of being absent on the deadline day must submit the assignment on the first regular scheduled day of attendance following the absence. The equivalent of a 10% reduction in grade will be imposed as a penalty for missing the deadline. If the student fails to submit the assignment as described above, the instructor is required to enter a percentage grade of zero (0) for the assignment.

This policy and procedure will be followed in all cases except where a program official and the course instructor have agreed to waive this policy because of special extenuating circumstances.



MRI Education Program Director

Clinical Education / Clinical Standards Policy

The Magnetic Resonance Imaging Program employs a competency-based clinical structure that places emphasis on assessing the student's psychomotor, critical thinking, and communication skills as well as their affective behavior. The clinical structure and requirements are governed by the ARRT's clinical competency requirements, the ASRT's recommended curriculum, and the JRCERT "Standards for an Accredited Educational Program in Magnetic Resonance".

Clinical Education Methodology

The following steps are employed in the clinical competency process:

1. Didactic Instruction

Students are progressively introduced to the various procedural and technical requirements for each clinical exam through didactic instruction and testing during the 1-year program.

2. Clinical Experience

Concurrent with didactic instruction, the practical application of the various examinations is demonstrated by the Clinical Instructor, Clinical Preceptor, or Program Director during clinical rotations.

3. Supervised Clinical Exam Performance:

After an appropriate timeframe for demonstration and experience, students are required to log, in the Trajecsys Clinic Report System™, all levels of repetitions of each clinical exam under the immediate and direct supervision of a credentialed technologist. Each student will keep a Daily Log Sheet in Trajecsys of all levels of repetition and successful completion is documented by the Clinical Instructor, Clinical Preceptor, or Program Director.

4. Clinical Competency

After completing a particular number of Level 5 (Performed Independently) repetitions of a specific examination under direct supervision on a patient, the student may request to be evaluated on that specific examination. Competency exams may be conducted by the Clinical Preceptor, Program Director or any Clinical Instructor. Successful completion of a Competency exam **does not** qualify a student to perform that particular examination under indirect supervision.

5. Comprehensive Evaluation

At mid-term and semester end, the Clinical Preceptor or Program Director will select an exam for the student to complete as a comprehensive assessment. Comprehensive exams are selected from those exams in which the student has already completed a Competency evaluation. Successful completion is documented by the Clinical Instructor, Clinical Preceptor, or Program Director.

Overall Weighted Average / Semester

Each student is required to achieve a minimum overall weighted clinical average of **86%** at the end of each semester in order to successfully complete the clinical education component of the program. Due to the progressive nature of the clinical education component, no provisions are provided for repeating a clinical level. Each clinical education level must be completed before advancing to the subsequent semester; therefore, students who fail to achieve an **86%** weighted clinical average at the end of each semester will be dismissed from the program. Students are counseled by the Program Director regarding their clinical progress at mid-term, semester end, and/or as needed; however, it is the student's responsibility to maintain awareness of their clinical progress at all times.

Clinical Grade Calculation

The student's clinical grade consists of several components, each utilizing a different mechanism to assure a complete and comprehensive evaluation of clinical performance. The following components and weighted averages are utilized:

<u>Component</u>	<u>Weighted Average</u>
Daily Log Sheets	5%
Clinical Preceptor Points	10%
Orientation Checklists	10%
Evaluations	10%
ARRT Mandatory Competencies	20%
Total Clinical Competencies	30%
Comprehensive Exams	15%

Each clinical grading component and related forms are included and explained in the student Trajecsys Clinic Report System™ for each performance level.

Clinical Grade Scale

The following grading scale will be utilized as an objective evaluation mechanism for representing the student's clinical grade and performance.

<u>Percentage Grade</u>	<u>Letter Grade</u>
93% - 100%	A
86% - 92%	B
78% - 85%	C
70% - 77%	D
< 70%	F



MRI Education Program Director

Clinical Education - Assigned Scanner Policy

This policy serves to clarify how each student is assigned to his/her MRI scanner (*e.g.*, HSC Siemens Aera 1.5T, POC Siemens Aera 1.5T, POC GE Architect 3T, Ruby Siemens Sola 1.5T, Ruby Siemens Vida 3T, UTC Siemens Aera 1.5T, or RNI Siemens Prisma 3T) and how switching scanners to get a repetition or to be graded for a competency is to be followed. The clinical structure is set up to be fair and to give each student approximately the same experience.

Assigned Scanner Methodology

The following steps are employed in the clinical scanner assignment process:

1. Student Number

Students are given a “student number” of 1 through 5.

2. Scanner Rotation

Clinical rotation is set up so that every MRI student rotates through each MRI scanner.

Each student will rotate through the scanners as equally as possible. Rotations will consist of a minimum of two (2) weeks and a maximum of one (1) month per scanner rotation. No student will exceed three (3) total months at any scanner.

3. Switching Scanners on Scheduled Shift

If a student needs to obtain a repetition or competency on a study that is scheduled on a different scanner and is during his/her scheduled shift:

- a) The student needs to see if another student is assigned to that scanner for that particular shift.
- b) If another student is scheduled to be on that scanner, arrangements need to be made between the students to switch.
- c) If no student is scheduled to be on that scanner, the student needing to get a repetition or competency may switch.

4. Switching Scanners Off-Shift

If a student needs to obtain a repetition or competency on a study that is scheduled on the same or different scanner but is NOT during his/her scheduled shift:

- a) The student needs to see if another student is assigned to that scanner for that particular shift.
- b) The student scheduled for that particular shift shall have precedence over a student that is not scheduled.
- c) Whether or not another student is scheduled to be on that scanner for that particular shift, arrangements need to be made between the students to switch.
- d) If a switch occurs, the Program Director needs to be notified so proper compensatory time can be given to the student that is staying beyond his/her scheduled hours.



MRI Education Program Director

Pregnancy Policy

It is the policy of the West Virginia University Hospitals Imaging Education Program in Magnetic Resonance Imaging to provide reasonable radio frequency protection to student technologists occupationally exposed to radio frequency. Pregnant students are expected to follow the recommendations of the ACR and the MRI department regarding pregnant health care practitioners as outlined in the ACR White Paper on Magnetic Resonance (MR) Safety and MRI Safety Policy for Pregnant Patients, Staff and Visitors.

ACR Pregnancy-Related Issues:

Pregnant health care practitioners are permitted to work in and around the MR environment throughout all stages of their pregnancy. Acceptable activities include, but are not limited to, positioning patients, scanning, archiving, injecting contrast, and entering the MR scan room in response to an emergency. Although permitted to work in and around the MR environment, pregnant health care practitioners are requested not to remain within the MR scanner bore or Zone IV during actual data acquisition or scanning.

MRI Department Safety Policy:

Pregnant staff and health care providers may enter the scan room when the static field is on, but should not remain in the room during the scan.

Furthermore, it is the policy of this Program to grant a leave of absence, upon verification of pregnancy, to students who do not wish to take the unknown risks to the fetus associated with prenatal magnetic field or radio frequency exposure.

Upon medical verification of her pregnant condition, disclosure of the said condition to program officials is the student's responsibility and is to be initiated voluntarily. Students have the right to refuse disclosure of medical information; however, in the event that a student chooses not to disclose information regarding pregnancy, the student is acknowledging that they are assuming all responsibility for their condition and any potential complications that may arise.

Declaration of Pregnancy

Upon medical verification that a pregnancy exists, students have the following three (3) options:

- **Option #1 - Choose Not to Disclose Information Regarding Pregnant Condition**
 - By choosing this option, the student implies acknowledgement that she has chosen to disregard the recommendations made by the ACR and the Program and that she is assuming responsibility for all potential risks and related complications.
 - No policy or performance exceptions will be allowed should the student choose this option.
- **Option #2 - Request a Leave of Absence During Pregnancy.**
 - If the student so decides, she may elect to leave the Program during the pregnancy period.
 - i. If the student decides to accept this option, she must notify the Program Director immediately.
 - ii. The terms and conditions of the leave of absence are specified in the Medical Leave of Absence policy.
- **Option #3 - Remain in Program Throughout Pregnancy.**
 - If the student so decides, she may continue in the Program under the following conditions:
 - i. The student shall not remain in the scan room during actual data acquisition or scanning.
 - ii. The student shall participate in all scheduled clinical rotation areas as assigned
 - iii. Absences due to pregnancy are governed by the Attendance and Medical Leave of Absences policy

The Program Director shall document the student's decision in regards to Options #2 & #3.

For Options #2 or #3, the student shall complete and sign the attached form acknowledging receipt of information and associated documentation in regards to pregnancy.

Withdrawal of Declaration of Pregnancy

The student has the right to withdraw their declaration of pregnancy due to birth or other complications with pregnancy and must fill out the attached Withdrawal of Declaration of Pregnancy form. By filling out the form, the student acknowledges that their medical condition (i.e., pregnancy) no longer exists.

All documentation shall be entered into the student's permanent personal file.



MRI Education Program Director

West Virginia University Hospitals
Imaging Science Education Programs - MRI

Declaration of Pregnancy Form (MRI)

I verify by my signature below that:

- 1) I have notified the MRI Program Director of my pregnancy.
- 2) I have been advised by the MRI Program Director in regard to safety measures, as well as, the risks associated with radio frequency (RF) and static magnetic field exposure to the fetus.
- 3) I have read the ACR White Paper on Magnetic Resonance (MR) Safety and the MRI Safety Policy for Pregnant Patients, Staff and Visitors.
- 4) It has been explained to me that entering the scan room when the static magnetic field is on poses no risk to me or the fetus. It also has been explained to me that I am not to remain in the scan room or Zone IV during data acquisition or scanning.
- 5) I have had the opportunity to discuss questions concerning RF or static field safety during my pregnancy with the MRI Program Director. Furthermore, I understand that should additional questions arise, I may again consult with the MRI Program Director.

Please Choose One of the Following:

_____ I understand the potential risks involved to me and my fetus during my pregnancy in the MRI Education Program. I **elect to remain** in the Program and adhere to the requirements as stated in Option # 3 of the attached Pregnancy Policy.

_____ I do understand the potential risks involved to me and my fetus during my pregnancy in regard to pregnancy-related MRI safety. However, I **elect not to remain** in the MRI Education Program and that a **leave of absence** from the Program has been granted to me as stated in Option #2 of the attached Pregnancy Policy. I have read, understand, and agree to the conditions specified in the Medical Leave of Absence Policy.

Student

Date

MRI Program Director

Date

Education Manager

Date

West Virginia University Hospitals
Imaging Science Education Programs - MRI

Withdrawal of Declaration of Pregnancy Form (MRI)

I verify by my signature below that:

- 1) I have notified the MRI Program Director my medical condition (i.e., pregnancy) no longer exists.

- 2) I withdraw my previous declaration of pregnancy and fully resume my duties as a student.

Student

Date

MRI Program Director

Date

Education Manager

Date

Hours of Academic and Clinical Education

In accordance with the JRCERT “Standards for an Accredited Educational Program in Magnetic Resonance”, the program limits clinical and academic education to not more than (40) hours per week. Unless utilizing PDO or Compensatory Time, students are required to attend all scheduled clinical and didactic hours.

Students will attend clinical and academic course work during weekdays only. Students will not be scheduled to clinical rotations on midnight (third shift), weekends, or designated student holidays.

Routine educational assignments will require the student to be in attendance Monday through Friday, from 7:30 a.m. to 4:00 p.m. Students will be assigned to participate in four evening (second shift) clinical rotations in the second semester. Evening clinical education assignments will require the student to be in attendance Monday through Friday, from 11:00 a.m. to 7:00 p.m., 12:00 p.m. to 8:00 p.m. or 3:00 p.m. to 11:00 p.m., depending on the scanner’s schedule.

Didactic course attendance may require the student to begin an evening assignment prior to their start time; however, the student will only be required to attend a total of (8) hours per day. Compensatory Time will be given in the event a student electively exceeds the 40-hour week in order to obtain needed competencies or repetitions.



MRI Education Program Director

Graduation Requirements / ARRT Exam Eligibility

Graduation Requirements

Students enrolled in the Magnetic Resonance Imaging program must complete the following to be eligible for graduation and receive authorization from the Program Director that they have completed the necessary didactic and clinical criteria to sit for the American Registry of Radiologic Technologists (ARRT) primary certification exam in Magnetic Resonance Imaging.

- Achieve a passing grade ($\geq 78\%$) in each didactic course by the end of each semester.
- Achieve a passing grade ($\geq 86\%$) in each clinical course by the end of each semester.
- Successfully complete an Associate's degree (or higher) from an accredited post-secondary institution. The degree can be in any field or discipline.
- Complete the required number of repetitions and clinical competency on each specified mandatory & elective exam.
- Complete the published number of clinical hours within the provisions established by the program's attendance policy.
- Demonstrate critical thinking, effective communication, and problem solving skills within the framework of the education structure.
- Demonstrate ethical and professional behavior within the standards of the institution and the ARRT's code of ethics.
- Meet all financial obligations to the school and the facility.

ARRT Certification Exam

It is the policy of the school that students must graduate from the program and successfully complete an Associate's degree (or higher) from an accredited post-secondary institution to receive authorization to sit for the ARRT Primary Pathway certification exam in Magnetic Resonance Imaging (MRI). The Program Director is the only individual designated to authorize ARRT exam applications.



MRI Education Program Director

Imaging Science Education Programs

MRI

Course / Clockhour Profile

Semester I

Course #	Title	Clock hours
MRIT 301	MR Safety	21
MRIT 304	Fundamentals of Imaging Science & Medical Informatics	15
MRIT 308	MR Imaging Procedures I	25
MRIT 310	MR Physics I	22
MRIT 312	Sectional Anatomy I	20
MRIT 315	MR Patient Care & Pharmacology	21
Total Didactic		124
MRIT 410	<i>Clinic</i> : Applied MRI Procedures I	Total Clinic 718
Semester I Educational Clockhour Total		842
Holidays	July 4th, Labor Day, Thanksgiving x2	Total Holiday 32
Vacation	Christmas & New Years Week	Total Vacation 80

Semester II

Course #	Title	Clock hours
MRIT 305	MR Pathology	38
MRIT 309	MR Imaging Procedures II	22
MRIT 311	MR Physics II	22
MRIT 313	Sectional Anatomy II	22
MRIT 320	MRI Registry Review	36
MRIT 399	Independent/Self-Directed Study: Research Poster Project	8
Total Didactic		148
MRIT 420	<i>Clinic</i> : Applied MRI Procedures II	Total Clinic 621
Semester II Educational Clockhour Total		769
Holiday	Memorial Day	Total Holiday 8
Vacation	Spring Break	Total Vacation 40
Total Clock Hours =		1611

Course Descriptions

<u>Course#</u>	<u>Title & Description</u>
MRIT 301	<p>MR Safety 21 clock hours per semester.</p> <p>Introduces the basic principles of MR safety and covers the basic concepts of patient management. Educating patients and ancillary staff on magnet safety also is presented. Patient and magnet-related emergencies represent a unique situation to an MR technologist; recommended procedures and responsibilities of the technologist will be discussed for these situations. This content also covers MR contrast agents.</p>
MRIT 304	<p>Fundamentals of Imaging Science and Medical Informatics 15 clock hours per semester.</p> <p>Provides an overview of the foundations in Radiologic science and the practitioner's role in the health care delivery system. The principles, practices and policies of the health care organization are examined and discussed in addition to the professional responsibilities of the MR technologist.</p> <p>Introduces knowledge in computing and information processing. Presents computer applications in the Radiologic sciences related to image capture, display, storage and distribution. The basic concepts of patient information management, privacy and regulatory issues are examined. The role of the technologist is identified and discussed. Provides an understanding of the components, principles and operation of digital imaging systems found in MR, image data management, storage and data manipulation. Factors that impact image acquisition, display, archiving and retrieval are discussed.</p>
MRIT 305	<p>MR Pathology 38 clock hours per semester Pre-requisite: MRIT 308, MRIT 310, MRIT 312</p> <p>This course familiarizes the student with the common pathologies found in magnetic resonance imaging and the appearance of these pathologies in various imaging protocols. The course content is inclusive of all commonly-imaged body systems and areas.</p>

MRIT 308, 309**MR Imaging Procedures I, II**

25 clock hours for MRIT 308

22 clock hours for MRIT 309

Pre-requisite for MRIT 309 is MRIT 308

Provides the student with imaging techniques related to the central nervous system (CNS), neck, thorax, musculoskeletal (MSK) system and abdominopelvic regions. The content covers specific clinical applications, coils that are available and their use, considerations in the scan sequences, specific choices in the protocols (e.g., slice thickness, phase direction and flow compensation), and positioning criteria. Anatomical structures and the plane that best demonstrates anatomy are discussed as well as signal characteristics of normal and abnormal structures.

MRIT 310, 311**MR Physics I, II**

45 clock hours per semester.

Pre-requisite for MRIT 311 is MRIT 310

Provides the student with a comprehensive overview of MR imaging principles. Provides the student with knowledge of the parameters and imaging options used to create MR images. In addition, the content introduces quality assurance / quality control (QA/QC) measures used in maintaining image quality. Provides a comprehensive overview of the instrumentation associated with MR imaging. Provides the student with a comprehensive overview of MR pulse sequences. Pulse sequences include spin echo, fast spin echo, gradient echo, inversion recovery, echo planar, parallel imaging and spectroscopy. Topics include the history of MR, nuclear MR signal production, tissue characteristics, pulse sequencing, imaging parameters/options and image formation, image contrast, magnetism, properties of magnetism, MR system components, MR magnets (permanent, resistive, superconducting, hybrid), radio frequency (RF) systems, gradient systems, shim systems and system shielding, contrast agents and post processing techniques.

MRIT 312, 313**Sectional Anatomy I, II**

20 clock hours for MRIT 312

22 clock hours for MRIT 313

Pre-requisite for MRIT 313 is MRIT 312

Provides a study of human anatomy as seen in multiple orthogonal planes. Bone, muscle, vascular structures, organs and soft tissues of the following anatomical regions are studied: central nervous system (brain and spine), other structures in the head, soft tissue neck, musculoskeletal, cardiovascular, thorax, abdomen and pelvis.

MRIT 315**MR Patient Care & Pharmacology**

21 clock hours per semester.

Provides the necessary education to become proficient in these skills: patient management, competently apply basic protocols, recognize and appropriately alter standard protocols, recognize equipment and patient considerations that affect image quality, and maintain a safe MRI environment.

Provides basic concepts of pharmacology. This section covers the theory and practice of basic techniques of venipuncture and administering diagnostic contrast agents and/or intravenous medications. The appropriate delivery of patient care during these procedures is emphasized

MRIT 320**MRI Registry Review**

36 clock hours per semester.

Pre-requisite for MRIT 320 is the completion of Semester I

This course prepares the student for the primary ARRT MRI certification exam by reviewing and taking practice exams related to the Content Categories -- Patient Care, Imaging Procedures, Data Acquisition and Processing, and Physical Principles of Image Formation.

MRIT 399**Independent / Self-Directed Study: Research Poster Project**

8 clock hours per semester.

Pass/Fail Course

The course is designed to engage the student in the basics concepts, strategies and methodologies of conducting research in MRI and presenting a professional poster. The student will conduct research on a particular subject matter that includes practical applications to improve patient care or diagnosis using MR technology. The chosen topic may include current technology or future developments. Student projects will be presented at the annual MRI conference.

MRIT 410**Applied MRI Procedures I**

718 clock hours per semester.

This is the first of two courses that offers the student clinical education in MRI. This course takes place in the MRI Departments of the Health Science Center (HSC), Ruby Memorial Hospital (Ruby), WVUM Children's Hospital (Children's), Physician Office Center (POC), University Town Centre (UTC), and Rockefeller Neuroscience Institute (RNI). This course incorporates a minimum of two (2) weeks and a maximum of one (1) month rotations through clinical areas that include 1.5T and 3T magnets. The student will be oriented to the department and patient care. The student will perform MRI procedures under direct supervision. The student also receives instruction and experience in regard to technologist responsibilities for shifts during the daytime hours.

MRIT 420**Applied MRI Procedures II**

621 clock hours per semester.

Pre-requisite: MRIT 410

This is the second of two courses that offers the student clinical education in MRI. This course takes place in the MRI Departments of the Health Science Center (HSC), Ruby Memorial Hospital (Ruby), WVUM Children's Hospital (Children's), Physician Office Center (POC), University Town Centre (UTC), and Rockefeller Neuroscience Institute (RNI). This course incorporates a minimum of two (2) weeks and a maximum of one (1) month rotations through clinical areas that include 1.5T and 3T magnets. The student rotates evening clinical shifts (two weeks per month from February to May) to further develop their confidence and competency. The student also receives instruction and experience concerning technologist responsibilities for shifts with reduced staffing. The student is instructed in prioritizing patient examination requests and in handling emergency situations. This final course in clinical education serves to finalize the student's development and prepares them to enter the professional work force.



MRI Education Program Director

Non-Registered Student Admissions Policy

West Virginia University Hospitals MRI Education Program matriculates students who have provided proof of ARRT registration or have documented in writing that they are ARRT registry eligible for the Radiography examination. This policy is applicable to students that have not passed the American Registry of Radiologic Technologists (ARRT) registry examination in Radiography. Registry eligible students are accepted into the MRI Education Program on the condition that they successfully pass the ARRT exam in Radiography.

Procedure:

1. The student must take the ARRT exam in Radiography **within 30 days** of entering the program (during or before the month of July).
2. The student must provide the Education Coordinator with proof of eligibility (i.e., photocopy of admission ticket).
3. The Program must receive documentation of ARRT Registration **within 90** days following matriculation into the Program.
4. In the event that the student does not successfully pass the ARRT Radiography exam taken on or before July, the Education Advisory Committee will review and evaluate the student's case. The following evaluation criteria will include:

Evaluation Criteria:

1. The student must have maintained an overall didactic average of 86% (B) or better while enrolled in the program.
2. The student must not have been counseled regarding poor didactic or clinical performance while in the Program.
3. The student must have demonstrated a high level of proficiency, integrity and clinical ability.
4. The student must have met all financial obligations to the Program.

If the Education Advisory Committee decides to allow the student to remain in the Program based on the above criteria, the following action will occur:

5. The student will be placed on academic probation until the results of a repeat attempt on the ARRT Radiography registry are obtained. The repeat attempt must occur **within 30 days** of the notification by the ARRT that the students failed the registry.
6. The student must provide the Education Coordinator with proof of eligibility (i.e. photocopy of admission ticket).
7. The Program must receive documentation of ARRT Registration **within 60** days following the date of the repeat exam.
8. **In the event that the student does not successfully pass the repeat ARRT Radiography exam, the student will be dismissed from the Program without further consideration.** The student may reapply for admission consideration when they have successfully passed the ARRT exam in Radiography.

This policy is enacted for the purpose of:

1. Assuring that all students meet the required admissions requirements for the MRI Education Program, thereby assuring the Program maintains high admission standards for accepting quality students.
2. Affording students who have made satisfactory academic, clinical and professional progress in the program another attempt to successfully pass their ARRT Exam in Radiography.



MRI Education Program Director

West Virginia University Hospitals
Magnetic Resonance Imaging (MRI) Education Program

Non-Registered Student Admission Agreement

I have received a copy of the non-registered student admissions policy for the West Virginia University Hospitals MRI Education Program. I have read and understand these regulations and agree to abide by the same. I agree not to hold West Virginia University Hospitals liable for any losses incurred including financial loss.

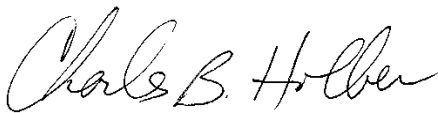
Student Signature: _____ Date: _____

Simulated Exam Policy

The West Virginia University Hospitals (WVUH) Magnetic Resonance Imaging (MRI) Education Program conducts simulated exams in a controlled laboratory setting under the supervision of the Clinical Preceptor, Program Director, or Clinical Instructor. Simulated exams are incorporated into the curriculum as a mechanism for developing psychomotor skills and clinical scanning techniques in a simulated patient environment. Volunteer imaging subjects are utilized and may include students and/or other members of the general population. Simulated exams are conducted for educational purposes only and are non-diagnostic. Student participation as an imaging subject is voluntary and is governed by the following:

Procedure

1. During orientation, the Program Director will review this policy and provide students with an information sheet describing the simulated exam procedure and specifics regarding participation and the anatomical areas generally imaged.
2. The Program Director will explain to the students that participation as an imaging subject is strictly on a voluntary basis and that refusal to participate will not affect the student's clinical grade and/or evaluations.
3. Students will be given the opportunity to discuss any concerns, questions, and/or reservations they may have regarding the simulated exam procedure and their potential participation as an imaging subject.
4. Students will be asked to complete the attached form reflecting their decision regarding their level of participation. A copy will be retained as part of the student educational record.
5. Students will be advised that during their participation as an imaging subject, should a situation arise in which they feel uncomfortable, they reserve the right decline participation regardless of their indicated choice on the attached authorization form.



MRI Education Program Director

Policy for Incidental Medical Findings During Simulated MRI Exams

The images produced during simulated MRI exams are not sufficient for diagnostic purposes. At times, however, abnormalities in such images can be observed by the technologist(s) performing the studies. In such cases, the policy of the WVUH MRI Education Program is the following:

- 1) **Review of Imaging Data:** When a possible abnormality is first observed, contact an appropriately trained medical professional, and have him/her come to examine the images. This should be done as soon as possible; prior to the volunteer leaving the facility whenever feasible. If image review must be conducted after the volunteer leaves the facility, do not comment on the potential finding to the volunteer yourself.
- 2) **Informing the Subject:** If, after review of the images, it is determined that an anomaly exists, an appropriately trained medical professional should discuss the finding with the volunteer. Ideally, this would be done before the volunteer leaves the facility. If that is not possible, a direct contact should be made with the volunteer as quickly and efficiently as possible, and without alarming the volunteer any more than is necessary. Discussion with the volunteer may include recommendations for follow-up, further evaluation, and addressing the volunteer's questions. After this discussion, the appropriately trained medical professional should reiterate the findings and information in a written letter to the subject in a timely fashion.
- 3) **Sharing Imaging Information:** While the images obtained may not be appropriate for diagnostic purposes, they may be informative in further follow-up. It should be made clear in any communication with the volunteer that an appropriately trained medical professional will be available for further questions and will provide information to the subject's physician. In addition, this notification is the extent of WVUH's responsibility in the matter.



MRI Education Program Director

Simulating MRI Procedures

Information sheet to be reviewed by volunteer for simulated MRI examination.

Thank you for considering participation in this simulated exam. The information below is to help you decide whether or not you wish to proceed with the MRI.

Why are we doing this simulation?

MRI offers a safe and effective way of seeing what is beneath the skin surface. MRI can show you what lies inside our bodies, but the images are not initially easy to understand for the students. Also, setting up the examination and positioning the patient are extremely important to get the proper images for the radiologist. Hence, why the more experience a student receives; the easier these procedures will be to perform.

How will the simulation be organized?

With permission of the volunteer, a MRI student will begin the scan under the supervision of the Clinical Preceptor, Program Director, or Clinical Instructor. The student will be practicing the normal protocol imaging that is required for each organ or study. Please remember that this is a *non-diagnostic & non-contrast study*.

Is it safe?

MRI has been widely used in clinical practice for over 30 years and the consensus is that there are no known long-term adverse biological effects of extended exposure to the magnetic fields used in MRI.

It is recognized that some very intensive MRI sequences could produce heating in the tissues, which carries a theoretical risk to sensitive tissues, particularly the fetus. Because of this, there are strict guidelines that limit the amount of RF and gradient power that can be used by the MRI scanner. Our MRI equipment (Siemens Aera 1.5T, Siemens Sola 1.5T, Siemens Vida 3T, Siemens Prisma 3T, and GE Architect 3T) operate well within or below these guidelines.

In conclusion, through constant research, current data indicates that there are no confirmed biological effects on patients and their fetuses exposed to the prudent use of MRI.

Continued on next page

What will volunteers have to do?

First, read and understand the information sheet and ask any further questions you may have. If you decide to offer yourself as a volunteer, we will ask you to sign the attached consent form.

Also, all volunteers will need to change into scrubs and fill out an MRI screening form to ensure their safety in MRI Zones III and IV.

The simulation will concentrate on patient and coil positioning, exam protocol selection, parameter settings / manipulation, slice positioning, and image acquisition / display.

What happens if I change my mind about taking part?

You can withdraw from the simulated exam as a volunteer without disadvantage to yourself of any kind (this is a standard condition of informed consent).

Will any information about me collected or preserved?

No identifiable information will be collected from volunteers. If your examination provides a particularly good view that might be useful for teaching, we may ask you if we can preserve it in an anonymized form. This will not be done without your consent. Such images will only be used for teaching in procedures, anatomy, or pathology classes.

If in the unlikely event that something is detected, which would need preserving in the interests of your own health (see below), this will be done only with your consent.

What happens if something unexpected is found?

On rare occasions, there is an unexpected finding which may require further investigation. If this should occur, you will be informed and we will offer to assist in finding an appropriate medical service. However, it is ultimately your responsibility to seek appropriate medical services.

Should something unexpected be found, every attempt will be made to ensure that the other members of the student group are not aware of it. However, you should appreciate that this may not be always possible, depending on the circumstances under which the finding is made.

For further information, please contact the Program Director at 304-598-4169

Simulated Exam Authorization Form for MRI Students

I, _____, as a student enrolled in the West Virginia University Hospitals MRI Education Program acknowledge the following:

1. I have received a copy of the Simulated Exam Policy.
2. I understand the procedures and practices inherent in simulated exams and the essential use of imaging subjects in the clinical education process.
3. I have been given the opportunity to ask questions and seek clarification on all aspects relative to the simulated exam and my voluntary participation as an imaging subject.
4. I understand that my participation as an imaging subject is strictly voluntary and that my refusal to participate does not negatively affect my clinical grades and/or evaluations.
5. I understand should a situation arise in which I feel uncomfortable, I reserve the right to decline participation regardless of my indicated choice on this authorization form.

Therefore, in consideration of the aforementioned criteria:

I agree to voluntarily participate as an imaging subject during simulated exams while I am enrolled in the MRI program at WVUH with no exceptions.

I agree to voluntarily participate as an imaging subject during simulated exams while I am enrolled in the MRI program at WVUH with the following exceptions.

Please list:

I do not wish to participate as an imaging subject during simulated exams while I am enrolled in the MRI program at WVUH.

Student Signature: _____

Date: _____

