Washtenaw Community College Comprehensive Report

MRI 146 MRI Clinical Education II
Effective Term: Fall 2022

Course Cover

College: Health Sciences
Division: Health Sciences
Department: Allied Health
Discipline: Magnetic Resonance Imaging
Course Number: 146
Org Number: 15600
Full Course Title: MRI Clinical Education II
Transcript Title: MRI Clinical Education II
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Three Year Review / Assessment Report
Change Information:
    Consultation with all departments affected by this course is required.
    Course description
    Credit hours
    Total Contact Hours
    Distribution of contact hours
    Pre-requisite, co-requisite, or enrollment restrictions
    Outcomes/Assessment
    Objectives/Evaluation
Rationale: Update syllabus to meet requirements for updated program.
Proposed Start Semester: Fall 2022
Course Description: This is the second clinical course for certified radiologic technologists ARRT(R) (RRT)(CT), who are admitted to the Magnetic Resonance Imaging (MRI) program. Students will observe, assist, and perform basic patient care and MRI clinical procedures under direct and indirect supervision. Students are expected to gain practical experience and demonstrate competency in MR scanning techniques, safety procedures, image evaluation, image post-processing, and patient care. This course requires a 15 week, 32-hours/week clinical rotation under the supervision of an American Registry of Radiologic Technologist (ARRT) MRI registered technologist. This course was previously MRI 145.

Course Credit Hours

Variable hours: No
Credits: 4
Lecture Hours: Instructor: 0 **Student:** 0
Lab: Instructor: 0 **Student:** 0
Clinical: Instructor: 480 **Student:** 480

Total Contact Hours: Instructor: 480 **Student:** 480
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites
Prerequisite
MRI 126 minimum grade "C"
Corequisite
MRI 130
Corequisite
MRI 140
Enrollment Restrictions
Admission to the Magnetic Resonance Imaging (MRI) program

General Education

Request Course Transfer
Proposed For:

Student Learning Outcomes

1. Demonstrate clinical competency in performing magnetic resonance (MR) procedures of the central nervous system (CNS), musculoskeletal (MSK) system, abdomen and pelvis.
   Assessment 1
   Assessment Tool: Clinical evaluation rubric
   Assessment Date: Fall 2023
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Item analysis of outcome-related rubric criteria
   Standard of success to be used for this assessment: 90% of the students will score 80% or higher on the clinical evaluation rubric.
   Who will score and analyze the data: Departmental faculty

2. Demonstrate clinical competency in performing magnetic resonance (MR) procedures of the arterial, venous and cerebral fluid systems.
   Assessment 1
   Assessment Tool: Clinical evaluation rubric
   Assessment Date: Fall 2023
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Item analysis of outcome-related rubric criteria
   Standard of success to be used for this assessment: 90% of the students will score 80% or higher on the clinical evaluation rubric.
   Who will score and analyze the data: Departmental faculty

3. Perform all mandatory and elective procedures required by the American Registry of Radiologic Technology (ARRT) to take the ARRT MRI registry test.
   Assessment 1
   Assessment Tool: Clinical evaluation rubric
   Assessment Date: Fall 2023
   Assessment Cycle: Every Three Years

Course section(s)/other population: All sections
Number students to be assessed: All students
How the assessment will be scored: Item analysis of outcome-related rubric criteria
Standard of success to be used for this assessment: 90% of the students will score 80% or higher on the clinical evaluation rubric.
Who will score and analyze the data: Departmental faculty

Course Objectives

1. Prepare and screen patients for magnetic resonance (MR) procedures, preparing a clean, comfortable, and safe environment as well as employing proper precautions to prevent disease transmission for patients, self, and others.
2. Obtain a complete and accurate history of previous surgeries, allergies, conditions, general complaints/symptoms pertinent to the requested magnetic resonance (MR) procedure.
3. Prior to scanning, screen all patients for metallic implants, devices, foreign and/or loose metallic objects.
4. Prepare the imaging suite and table for each type of procedure by selecting and positioning imaging devices and aids such as coils, coil holder, sponges, etc.
5. Speak with the patient and others in a professional, empathetic manner.
6. Demonstrate a working knowledge of appropriate anatomic landmarks for each procedure.
7. Evaluate the diagnostic quality of MR images and identify the methods of correction, if necessary.
8. Perform routine quality assurance procedures.
9. Identify normal and abnormal anatomy on magnetic resonance (MR) scans.
10. Properly select and utilize the appropriate coil, equipment, accessories, cushioning, and pulse sequences for each procedure.
11. Operate magnetic resonance imaging (MRI) equipment and ancillary devices.
12. Evaluate the diagnostic quality of Magnetic Resonance images; recognize and minimize magnetic resonance imaging (MRI) artifacts.
13. Identify the phase and frequency direction for the scan planes for CNS, MSK, vascular and body imaging.
14. Respond appropriately in emergency situations; recognize patient adverse reactions during magnetic resonance (MR) procedures to contrast administration and act accordingly.
15. Critique images for appropriate clinical information, image quality and patient information.
16. Recognize advantages and disadvantages of axial, sagittal, coronal and oblique images utilized in scanning protocols.
17. Communicate effectively with patients, their family members and staff.
18. Identify common indications and common pathology for the MR imaging of mandatory and elective studies performed.
19. Work effectively with clinicians as a member of the healthcare team and respond to emergency situations appropriately.
20. Utilize critical thinking, problem-solving, and decision-making skills to manipulate parameters and optimize the image quality when performing diagnostic MR procedures.
21. Utilize the imaging plane, pulsing sequences and parameters that maximize the diagnostic value of an MR imaging of mandatory and elective studies performed.
22. Demonstrate knowledge of scanning menus, archival (DICOM)(RIS)(HIS) procedures, and display functions.
23. Demonstrate proficiency in CNS, MSK and body MR imaging.
24. Work effectively with clinicians and MRI staff as members of the healthcare team.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Off-Campus Sites

Reviewer	Action	Date
Faculty Preparer:		
Catherine Blaesing	*Faculty Preparer*	*Feb 15, 2022*
Department Chair/Area Director:		
Kristina Sprague	*Recommend Approval*	*Feb 15, 2022*
Dean:		
Shari Lambert	*Recommend Approval*	*Feb 15, 2022*
Curriculum Committee Chair:		
Randy Van Wagnen	*Recommend Approval*	*Feb 24, 2022*
Assessment Committee Chair:		
Shawn Deron	*Recommend Approval*	*Feb 24, 2022*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Mar 02, 2022*

Washtenaw Community College Comprehensive Report

MRI 145 MRI Clinical Education II
Effective Term: Fall 2015

Course Cover
Division: Math, Science and Health
Department: Allied Health
Discipline: Magnetic Resonance Imaging
Course Number: 145
Org Number: 15600
Full Course Title: MRI Clinical Education II
Transcript Title: MRI Clinical Education II
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: New Course
Change Information:
Rationale: This is a required course for the Magnetic Resonance Imaging (MRI) program.
Proposed Start Semester: Winter 2016
Course Description: This is the second clinical course for certified radiologic technologists ARRT (R), who are admitted to the Magnetic Resonance Imaging (MRI) program. Students will observe, assist, and perform basic patient care and MRI clinical procedures under direct supervision. Students are expected to gain practical experience and demonstrate competency in MR scanning techniques, safety procedures, image evaluation, image post processing, and patient care. This course requires a 15 week, 24-hours/week clinical rotation under the supervision of a certified MRI technologist.

Course Credit Hours
Variable hours: No
Credits: 3
Lecture Hours: Instructor: 0 **Student:** 0
Lab: Instructor: 0 **Student:** 0
Clinical: Instructor: 0 **Student:** 360

Total Contact Hours: Instructor: 0 **Student:** 360
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing
College-level Reading & Writing

College-Level Math
Requisites
Prerequisite minimum grade "C"
MRI 125 - MRI Clinical I
Corequisite
MRI 140
Enrollment Restrictions
Admission to the Magnetic Resonance Imaging (MRI) program

General Education
Request Course Transfer
Proposed For:

Student Learning Outcomes

1. Demonstrate clinical competency in performing magnetic resonance (MR) procedures of the central nervous system.
   ### Assessment 1
   Assessment Tool: Clinical Evaluation Rubric
   Assessment Date: Winter 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Item analysis of numerical data from the Clinical Evaluation Rubric
   Standard of success to be used for this assessment: 90% of the students will score 80% or higher on the Clinical Evaluation Rubric.
   Who will score and analyze the data: Departmental Faculty

2. Demonstrate clinical competency in performing magnetic resonance (MR) procedures of the cervical spine, thoracic spine, and lumbar spine.
   ### Assessment 1
   Assessment Tool: Clinical Evaluation Rubric
   Assessment Date: Winter 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Item analysis of numerical data from the Clinical Evaluation Rubric
   Standard of success to be used for this assessment: 90% of the students will score 80% or higher on the Clinical Evaluation Rubric.
   Who will score and analyze the data: Departmental Faculty

3. Demonstrate clinical competency in performing magnetic resonance (MR) procedures of the internal auditory canal (IAC) and pituitary region.
   ### Assessment 1
   Assessment Tool: Clinical Evaluation Rubric
   Assessment Date: Winter 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Item analysis of numerical data from the Clinical Evaluation Rubric
   Standard of success to be used for this assessment: 90% of the students will score 80% or higher on the Clinical Evaluation Rubric.
   Who will score and analyze the data: Departmental Faculty

4. Demonstrate clinical competency in performing magnetic resonance (MR) procedures of the liver.
   ### Assessment 1
   Assessment Tool: Clinical Evaluation Rubric
   Assessment Date: Winter 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students

How the assessment will be scored: Item analysis of numerical data from the Clinical Evaluation Rubric
Standard of success to be used for this assessment: 90% of the students will score 80% or higher on the Clinical Evaluation Rubric.
Who will score and analyze the data: Departmental Faculty

Course Objectives

1. Prepare and screen patients for magnetic resonance (MR) procedures.
   Matched Outcomes
2. Obtain a complete and accurate history of previous surgeries, allergies, conditions, general complaints/symptoms pertinent to the requested magnetic resonance (MR) procedure.
   Matched Outcomes
3. Prior to scanning, screen all patients for metallic implants, devices, foreign and/or loose metallic objects.
   Matched Outcomes
4. Prepare the imaging suite and table for each type of procedure by selecting and positioning imaging devices and aids such as coils, coil holder, sponges, etc.
   Matched Outcomes
5. Position the patient, coils, and other devices for each procedure.
   Matched Outcomes
6. Demonstrate working knowledge of appropriate anatomic landmarks for each procedure.
   Matched Outcomes
7. Perform routine quality assurance procedures.
   Matched Outcomes
8. Identify normal and abnormal anatomy on magnetic resonance (MR) scans.
   Matched Outcomes
9. Select the appropriate pulse sequences for each procedure.
   Matched Outcomes
10. Operate magnetic resonance imaging (MRI) equipment and ancillary devices.
    Matched Outcomes
11. Recognize and minimize magnetic resonance imaging (MRI) artifacts.
    Matched Outcomes
12. Identify the phase and frequency direction for the sagittal head, coronal sella, axial spine, and coronal spine.
    Matched Outcomes
13. Select appropriate imaging parameters to reduce flow artifact, motion, and aliasing (wrap-around).
    Matched Outcomes
14. Differentiate between gradient-echo and spine-echo techniques.
    Matched Outcomes
15. Recognize patient adverse reactions during magnetic resonance (MR) procedures to contrast administration and act accordingly.
    Matched Outcomes
16. Critique images for appropriate clinical information, image quality and patient information.
    Matched Outcomes
17. Recognize advantages and disadvantages of axial, sagittal, coronal and oblique images.
    Matched Outcomes
18. Communicate effectively with patients, their family members and staff.
    Matched Outcomes
19. Identify common indications and common pathology for the central nervous system, internal auditory canal (IAC), pituitary region, and liver.
    Matched Outcomes
20. Use the imaging plane and pulse sequence parameters that maximize the diagnostic value of a magnetic resonance (MR) scan of the central nervous system, internal auditory canal (IAC), pituitary region, and liver.
    Matched Outcomes

New Resources for Course
Course Textbooks/Resources
  Textbooks
  Manuals
  Periodicals
  Software
  Equipment/Facilities

Reviewer	Action	Date
Faculty Preparer:		
Connie Foster	*Faculty Preparer*	*Nov 18, 2014*
Department Chair/Area Director:		
Connie Foster	*Recommend Approval*	*Nov 18, 2014*
Dean:		
Kristin Brandemuehl	*Recommend Approval*	*Nov 19, 2014*
Vice President for Instruction:		
Bill Abernethy	*Approve*	*Jan 05, 2015*