

**Course Assessment Report**  
**Washtenaw Community College**

Discipline	Course Number	Title
Magnetic Resonance Imaging	101	MRI 101 07/22/2019-MRI Safety
Division	Department	Faculty Preparer
Health Sciences	Allied Health	Catherine Blaesing
Date of Last Filed Assessment Report		

**I. Review previous assessment reports submitted for this course and provide the following information.**

1. Was this course previously assessed and if so, when?

No

2. Briefly describe the results of previous assessment report(s).

3.

4. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

5.

**II. Assessment Results per Student Learning Outcome**

Outcome 1: Identify the MRI safety protocols for patients, personnel, Magnetic Resonance (MR) zones, implants and other devices used in the Magnetic Resonance Imaging (MRI) environment.

- Assessment Plan
  - Assessment Tool: Departmental final exam
  - Assessment Date: Fall 2018
  - Course section(s)/other population: All sections
  - Number students to be assessed: All students
  - How the assessment will be scored: answer key
  - Standard of success to be used for this assessment: 80% of the students will score 70% or higher on each related outcome question.

- Who will score and analyze the data: Departmental Faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2018, 2017, 2016		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
23	21

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

One student was dismissed from the program for behavioral issues at the clinical site prior to completion of this course. One student was dismissed from the program due to MRI safety issues at the clinical site and failure to comply with clinical site policies.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students who completed this course were included in this assessment.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

A multiple choice and true/false final exam was given with one point awarded for each correct answer. The final exam was weighted at twenty percent of the overall final grade.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

The standard of success states that 80% of the students will score 70% or higher on each related outcome question. To more accurately reflect students' overall understanding of the area, we used the standard of success: 80% of students will score correctly on 70% of the outcome-related questions. 19 common outcome-related questions between 2016-2018 were used to assess this outcome.

80% of the students scored 18/19 (94.7%) questions correctly, meeting the standard of success.

In the future, the standard of success will be updated to read, "70% of students will score 70% or higher on the final exam."

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The data suggests that all material was effectively presented in a manner that allowed for students' success in this course. It is also important to note that the ARRT standard to pass is 76%, and the average score on the exam for these students was well above, at 89.2%.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Implementation of a worksheet for clearing patient implants was added as an assignment. Students need to identify MRI equipment and parameters for safely scanning a patient implant. Updates to this course will be implemented as MRI Safety information is made available /changed, etc. by the American College of Radiology (ACR) and the Food and Drug Administration (FDA).

We will evaluate the four questions from this outcome which had lower results, to investigate whether we should add instruction on these areas or revise the questions themselves.

Outcome 2: Identify the potential hazards and biological effects associated with the Magnetic Resonance Imaging (MRI) environment and MRI procedures.

- Assessment Plan
  - Assessment Tool: Departmental final exam
  - Assessment Date: Fall 2018
  - Course section(s)/other population: All sections
  - Number students to be assessed: All students
  - How the assessment will be scored: answer key
  - Standard of success to be used for this assessment: 80% of the students will score 70% or higher on each related outcome question.
  - Who will score and analyze the data: Departmental Faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2018, 2017, 2016		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
23	21

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

One student was dismissed from the program for behavioral issues at the clinical site prior to completion of this course. One student was dismissed from the program due to MRI safety issues at the clinical site and failure to comply with clinical site policies.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students who completed this course were included in this assessment.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

A multiple choice and true/false final exam was given with one point awarded for each correct answer. The final exam was weighted at twenty percent of the overall final grade.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

The standard of success states that 80% of the students will score 70% or higher on each related outcome question. To more accurately reflect students' overall understanding of the area, we used the standard of success: 80% of students will

score correctly on 70% of the outcome-related questions. 19 common outcome-related questions between 2016-2018 were used to assess this outcome.

80% of the students scored 9/11 (81.8%) questions correctly, meeting the standard of success.

In the future, the standard of success will be updated to read, "70% of students will score 70% or higher on the final exam."

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The data suggest that the material was presented in a manner that allowed for student understanding and success in the classroom and at the clinical site. The average score for all students assessed based on the final exam questions that were aligned with outcome two was 86.3%, well above the ARRT standard to pass, which is 76%.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Updates to this course will be implemented as MRI Safety information is made available /changed, etc. by the ACR and the FDA. Students will continue to be given the chance to pass the Safety Level One and Safety Level Two exams and obtain a certificate indicating "pass".

We will evaluate the three questions (two related to bioeffects of gradient magnetic fields and radio frequency irradiation) from this outcome, which had lower results, to investigate whether we should add instruction on these areas or revise the questions themselves.

### III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

N/A

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

This course is meeting the needs of the students as is evident by the acceptance of the Level One and Level Two certificates at the clinical sites. In addition, the

success of this course is demonstrated at the clinical site by students in screening patient for MRI safety concerns.

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

A copy of this report will be shared with clinical instructors and department faculty, who will be given an opportunity to comment on the contents.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Assessment Tool	We'd like to incorporate the ARRT exam results as an assessment tool for any MRI course that has a corresponding section(s) on the ARRT exam.	It is important that the standard of success relates to current ranking by the American Registry of Radiologic Technologists. The ARRT exam results indicate that students scored a minimum of 8.0 and up to 9.5 with the average being 9.0 on this exam for the area of MRI Safety and Screening. See attached files.	2020
Assessment Tool	The assessment tool will be updated from "departmental final exam" to "final exam".	To ensure consistency in data collection for future assessment.	2020
Course Assignments	A worksheet for clearing patient implants was added as an assignment.	Identifying MRI implants and devices with the associated parameters for safe scanning: This is an essential skill, and we need to ensure all students master	2019

		this to prepare them for any clinical placement and future employment.	
Other: ARRT requirements	Updates to this course will include any changes necessary because of new 2020 ARRT requirement to MRI registry exam. Continuous updates to this course will continue as MRI Safety information becomes available/changes by the ACR and FDA.	Changes must be made to ensure students are instructed in current MRI Safety guidelines for clinical practice.	2020
Other: Standard of Success	Standard of success to be used for this assessment: 80% of the students will score 70% or higher on each related outcome question should be changed to read "70% of students will score 70% or higher on the final exam".	The standard of success should reflect students' performance on the topic as a whole, not the class performance on each individual question. It is important for these tools and standards of success to reflect ARRT standards and rankings.	2020

5. Is there anything that you would like to mention that was not already captured?

6.
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### III. Attached Files

- [MRI 101 2017 Course Performance](#)
- [MRI 101 2018 Course Performance](#)
- [MRI 101 2016 Goal 1](#)
- [MRI 101 2017 Goal 1](#)
- [MRI 101 2018 Goal 1](#)

[MRI 101 2016 Goal 2](#)  
[MRI 101 2017 Goal 2](#)  
[MRI 101 2018 Goal 2](#)  
[MRI 101 2016-2018 Assessment Data](#)  
[MRI 101 2016 Course Performance](#)  
[ARRT Exam Results](#)

**Faculty/Preparer:** Catherine Blaesing **Date:** 08/22/2019  
**Department Chair:** Kristina Sprague **Date:** 08/22/2019  
**Dean:** Valerie Greaves **Date:** 08/23/2019  
**Assessment Committee Chair:** Shawn Deron **Date:** 02/28/2020