

College: College of Nursing and School of Allied Health

Degree Program: Master of Science in Radiologic Sciences

Assessment Year: 2023

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**Northwestern State University Mission Statement:** Northwestern State University is a responsive, student-oriented institution committed to acquiring, creating, and disseminating knowledge through innovative teaching, research, and service. With its certificate, undergraduate, and graduate programs, Northwestern State University prepares its increasingly diverse student population to contribute to an inclusive global community with a steadfast dedication to improving our region, state, and nation.

**College of Nursing and School of Allied Health Mission Statement:** Northwestern State University College of Nursing and School of Allied Health serves an increasingly diverse student population while advancing the mission of the University by offering excellent and innovative undergraduate, graduate, certificate, and continuing education programs that are designed to assist individuals in achieving their goal to become responsible and contributing members of an interprofessional global community that improves the health of our region, state, and nation.

**MSRS Program Mission:** To provide a learning environment for the development of knowledge, intellectual skills, and dispositions necessary for radiologic sciences professionals to function as leaders in the areas of administration and education and to furnish a foundation for doctoral study.

### Program Goals:

- To prepare radiologic sciences professionals who are able to function as leaders in radiologic sciences professions.
- To develop radiologic sciences professionals who are prepared to contribute to the professional body of knowledge.
- To provide a foundation for radiologic sciences professionals to become lifelong learners who strive for continued professional growth.

### Program Objectives:

Graduates of the MSRS program will be able to:

## MSRS ASSESSMENT 2023

- Distinguish leadership skills in radiologic sciences education or administration.
- Utilize critical thinking skills to resolve issues in radiologic or healthcare-related problems.
- Apply research evidence and skills in the practice setting as an educator or administrator in the radiologic sciences to improve practice.
- Demonstrate effective communication skills in professional settings to maintain collegial and collaborative relationships
- Conduct research studies and disseminate findings and methods to contribute to and improve the practice of the radiologic sciences.
- Implement strategies to effect change within the radiologic sciences profession.
- Evaluate ethical standards in practice as a radiologic sciences educator or administrator.
- Serve as a role model to promote professionalism within the radiologic sciences.
- Contribute to the community and radiologic sciences profession through service.

### Methodology

1. Data from assessment tools are collected and sent to the program coordinator.
2. The program coordinator enters the data into the tables for each SLO.
3. The results are shared with the MSRS Assessment Committee. The committee discusses data analysis, interpretation, actions, trends, results, and future plans.
4. The MSRS Assessment committee findings are discussed in the School of Allied Health faculty meetings. Additional insights and actions are added to the assessment plan, as necessary.

# MSRS ASSESSMENT 2023

## Student Learning Outcome 1:

Utilize critical thinking skills to resolve issues in radiologic or healthcare related problems.

Tool	Benchmark (Target)	Results					
A. Core Section of the Comprehensive Exam (spring, summer & fall)	90% of students will score 80 or better on their first attempt.		<b>2023</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
		N	10	10	18	11	6
		Mean	82.69	84.3	85	82	86
		Range	69-97	72-96	80-95	41-98	80-96
		%	70	70	100	81	100
		# unmet	3	3	0	2	0
B. Critical Analysis Paper (RADS 5020) (fall)	100% of students will achieve an average of 85% or higher.		<b>2023</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
		N	11	27	17	23	16
		Mean	83.91	87	91.4	89.5	87
		Range	77-94	65-97	70-97	70-99	25-100
		%	36	74	94	79	81
		# unmet	7	7	1	5	3
C. Item Analysis Assignment (RADS 5220) (spring)	100% of students will achieve an average of 85% or higher.		<b>2023</b>	<b>2022</b>			
		N	18	10			
		Mean	95.72	100			
		Range	88-100	100			
		%	100	100			
		# unmet	0	0			
D. Quality Management Project (RADS 5310) (fall)	100% of students will achieve an average of 85% or higher		<b>2023</b>	<b>2022</b>			
		N	4	9			
		Mean	94.75	91.6			
		Range	92-96	72-100			
		%	100	78			
		# unmet	0	2			

## **SLO 1: Utilize critical thinking skills to resolve issues in radiologic or healthcare related problems.**

### **Findings:**

#### **Measure A: Core Section of Comprehensive Exam**

2023: Unmet, 70% of students scored 80% or higher.

### **Analysis:**

#### **Measure A: Core Section of Comprehensive Exam**

In 2022, student results decreased from 2021, and only 70% of students scored 80% or higher on the core section of the comprehensive exam. The faculty implemented several changes to drive improvement, which included reviewing and revising the question pool, reviewing, and revising study tips for students, creating outlines for each course to help in preparation, reminding students to keep notes and assignments from all courses to help with preparation for the exam, and creating a video with information on preparing for the exam. However, these strategies did not have the intended outcome, and in 2023, three students scored below the 80% benchmark on their first attempt on the core portion of the comprehensive exam. Again, in examining the areas where students are showing weaknesses on the exam, there does not appear to be a trend. Faculty met and discussed the comprehensive exam at length and made several suggestions for improvement on the exam to accurately assess the student's knowledge.

Two years ago, the faculty decided to phase out this measure in the future and replace it with a more specific measure of critical thinking. However, this measure will continue to be used for one more year. Additionally, since this exam is still an important part of the program, it is still essential that improvement strategies be implemented.

### **Decisions:**

#### **Measure A: Core Section of Comprehensive Exam**

In 2023, the target was that 90% of students would score 80% or higher on their first attempt on the core portion of the comprehensive exam; however, only 70% met the benchmark. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement.

- Revise the format of the exam to be more indicative of student learning.
- Develop a new rubric for evaluating student submissions on the exam.
- Create materials to inform students of the exam changes and help with their preparation.
- Continue to use this measure for one more year and then phase out and use measures C & D in its place.

These changes will improve the student's ability to think critically, pushing the improvement cycle forward.

### **Findings:**

#### **Measure B: RADS 5020 Critical Analysis Paper**

2023: Unmet, 36% of students scored an 85% or higher.

## Analysis:

### Measure B: RADS 5020 Critical Analysis Paper

In 2022, 74% of the students met the benchmark for this measure by scoring 85% or higher on the critical analysis paper, with seven students scoring below the benchmark. To drive improvement, the faculty reviewed and revised critical analysis paper guidelines to ensure they were congruent with the topic, created a video providing students with the expectations for the assignment, and implemented Feedback Fruits to provide students with more feedback before submitting their papers. However, in 2023, there was a continued decline, with only 36% of students meeting the benchmark, and the mean score decreased to 84%. Seven students scored below the benchmark. In examining the reasons for their low scores, it was determined that the writing quality and providing support from the literature for their points throughout the assignment were the areas where most points were deducted. Since the guidelines and rubric were thoroughly reviewed, it is evident that more guidance needs to be provided to students regarding writing skills and providing support from the literature.

## Decisions:

### Measure B: RADS 5020 Critical Analysis Paper

In 2023, the target was that 100% of students would score 85% or higher on their first attempt on the core portion of the comprehensive exam; however, only 36% of students met the benchmark. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement.

- Provide more information regarding writing expectations for the assignment.
- Create learning resources to assist students with understanding how to provide adequate support for the points they make in their papers.
- Continue to use Feedback Fruits to review papers to give students feedback on their writing before submission.

These changes will improve the student's ability to think critically, pushing the improvement cycle forward.

## Findings:

### Measure C: RADS 5220 Item Analysis Assignment

2023: Met, 100% of students scored 85% or higher.

## Analysis:

### Measure C: RADS 5220 Item Analysis Assignment

This is the second year to use this measure in the assessment plan. In 2022, 100% of the students scored 85% or higher on this assignment, with the mean score being 100%. Last year, the faculty discussed the lack of variance in the scores and reviewed and revised the guidelines and rubric for the assignment. In 2023, 100% of the students scored 85% or higher on the assignment, and the mean score was 95%. There was more variability in the scores due to the changes that were implemented, which provided more information regarding student learning.

## Decisions:

### Measure C: RADS 5220 Item Analysis Assignment

In 2023, the target was that 100% of students would score 85% or higher on their first attempt on the core portion of the item analysis assignment and this benchmark was met for the second year. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement.

- Continue to use the revised guidelines and rubric for this assignment to ensure that the data provides useful information regarding students' critical thinking abilities.
- Continue to use this tool to measure critical thinking and begin to get data that can be trended.

These changes will improve the student's ability to think critically, pushing the improvement cycle forward.

## Findings:

### Measure D: RADS 5310 Quality Management Project

2023: Met, 100% of students scored 85% or higher.

## Analysis:

### Measure D: RADS 5310 Quality Management Project

This is the second year to use this measure in the assessment plan. In 2022, 78% of the students scored 85% or higher, with a mean score of 91.6%. The faculty decided to provide more reminders to students regarding due dates and give an example to show students the intent of the project. These strategies appear to have improved student results related to this measure. In 2023, 100% of students scored 85% or higher, with a mean score of 95%. However, with only 4 students included in this analysis, faculty are viewing these results cautiously and will continue to use the strategies implemented in the previous year.

## Decisions:

### Measure D: RADS 5310 Quality Management Project

In 2023, the target was that 100% of students would score 85% or higher on the quality management project in RADS 5310 and the benchmark was met. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement.

- Continue to utilize additional methods to remind students of due dates, such as recorded video or audio messages.
- Provide an exemplar to demonstrate the intent of the assignment.
- Continue to use this tool to measure critical thinking and begin to get data that can be trended.

These changes will improve the student's ability to think critically, pushing the improvement cycle forward.

# MSRS ASSESSMENT 2023

## Student Learning Outcome 2:

Apply research evidence and skills in the practice setting as an educator or administrator in the radiologic sciences to improve practice.

Tool	Benchmark (Target)	Results					
		2023	2022	2021	2020	2019	
A. Core Section of the Comprehensive Exam (spring, summer & fall)	90% of students will score 80 or better on the first attempt.	N	10	10	18	11	6
		Mean	82.69	84.26	85	82	86
		Range	69-97	72-96	80-95	41-98	80-96
		%	70	70	100	81	100
		# unmet	3	3	0	2	0
B. Evidence-based practice project for education and administration (RADS 5510/5530) (spring & summer)	100% of students will score an 85% or higher on the evidence-based project.	N	17	6	21	5	10
		Mean	89.41	94.67	98	96	95
		Range	65-100	83-100	92-100	90-100	80-100
		%	71	83	100	100	100
		# unmet	5	1	0	0	0
C. Teaching Methods Application Presentation (RADS 5210) (fall)	100% of students will achieve an average of 85% or higher.	N	7	17			
		Mean	98.6	97.2			
		Range	95-100	87-100			
		%	100	100			
		# unmet	0	0			
D Cybersecurity Assessment (RADS 5330) (summer)	100% of students will achieve an average of 85% or higher.	N	5	10			
		Mean	97	92.5			
		Range	94-100	77-97			
		%	100	90			
		# unmet	0	1			

## **SLO 2: Apply research evidence and skills in the practice setting as an educator or administrator in the radiologic sciences to improve practice.**

### **Findings:**

Measure A: Core Section of Comprehensive Exam

2023: Unmet, 70% of students scored 80% or higher.

### **Analysis:**

Measure A: Core Section of Comprehensive Exam

In 2022, student results decreased from 2021, and only 70% of students scored 80% or higher on the core section of the comprehensive exam. The faculty implemented several changes to drive improvement, which included reviewing and revising the question pool, reviewing, and revising study tips for students, creating outlines for each course to help in preparation, reminding students to keep notes and assignments from all courses to help with preparation for the exam, and creating a video with information on preparing for the exam. However, these strategies did not have the intended outcome, and in 2023, three students scored below the 80% benchmark on their first attempt on the core portion of the comprehensive exam. Again, in examining the areas where students are showing weaknesses on the exam, there does not appear to be a trend. Faculty met and discussed the comprehensive exam at length and made several suggestions for improvement on the exam and helping students.

Two years ago, the faculty decided to phase out this measure in the future and replace it with a more specific measure of critical thinking. However, this measure will continue to be used for one more year. Additionally, since this exam is still an important part of the program, it is still essential that improvement strategies be implemented.

### **Decisions:**

Measure A: Core Section of Comprehensive Exam

In 2023, the target was that 90% of students would score 80% or higher on their first attempt on the core portion of the comprehensive exam; however, only 70% met the benchmark. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement.

- Revise the format of the exam to be more indicative of student learning.
- Develop a new rubric for evaluating student submissions on the exam.
- Create materials to inform students of the exam changes and help with their preparation.
- Continue to use this measure for one more year and then phase out and use measures C & D in its place.

These changes will improve the student's ability to think critically, pushing the improvement cycle forward.

### **Findings:**

Measure B: RADS 5510/5530 Evidence Based Practice Project for Education and Administration

2023: Unmet, 71% of students achieved 85% or higher.



## Analysis:

### Measure B: RADS 5510/5530 Evidence Based Practice Project for Education and Administration

In 2022, 83% of students achieved the benchmark for this measure, with one student not reaching the benchmark. Faculty continued to improve this assignment by providing information on it to students before they registered for the course to help them prepare for the expectations and requirements for the course. Additionally, a request was made that students watch a video regarding the mentor and expectations for the course. Finally, email reminders were sent to students to remind them to carefully review their assignments before submission to ensure that all components were included. However, in 2023, the measure remained unmet, with only 71% of students reaching the benchmark, and the mean score fell from 94% to 89%. Five students did not reach the benchmark for the assignment; three students had health or family issues that caused their performance to be affected, and two students again did not include all of the required components.

## Decisions:

### Measure B: RADS 5510/5530 Evidence Based Practice Project for Education and Administration

In 2023, the target was that 100% of students would score 85% or higher on the Evidence-Based Practice Project; however, only 71% of students met the benchmark. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement.

- Continue to advise students of course requirements during registration.
- Send an email prior to the course to request that students watch the video regarding the mentor and expectations for the course.
- Send email reminders about the Evidence-Based Practice Project requirements to help ensure that students include all components of the project.
- Create a checklist of the components of the project to help students ensure that everything that is required is included in their submission.

These changes will improve the student's ability to apply research evidence and skills in the practice setting as an educator or administrator in the radiologic sciences to improve practice.

## Findings:

### Measure C: RADS 5210 Teaching Methods Application Presentation

2023: Met, 100% of students scored 85% or higher.

## Analysis:

### Measure C: RADS 5210 Teaching Methods Application Presentation

This is the second year this measure is being used in the assessment plan. In 2022, the benchmark was met, with 100% of students scoring 85% or higher on the presentation. The faculty felt this tool is a good measure for demonstrating students' ability to apply research evidence and skills in the practice setting as an educator. However, the faculty felt the rubric should be reviewed since the

student scores were similar on this assignment. During 2023, the guidelines and rubric for the assignment were reviewed and revised. In 2023, 100% of students met the benchmark, and the mean score increased from 97.2% in 2022 to 98.6% in 2023.

### Decisions:

#### Measure C: RADS 5210 Teaching Methods Application Presentation

In 2023, the target was that 100% of students would score 85% or higher on the Teaching Methods Application Presentation, and the benchmark was met. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement.

- Continue to use the revised guidelines and rubric for this assignment to ensure that the data provides useful information regarding students' ability to apply research evidence and skills in the practice setting as an educator.
- Continue to use this tool to measure students' ability to apply research evidence and skills in the practice setting and begin to get data that can be trended.

These changes will improve the student's ability to apply research evidence and skills in the practice setting as an educator in the radiologic sciences to improve practice.

### Findings:

#### Measure D: RADS 5330 Cybersecurity Assessment

2023: Met, 100% of students achieved 85% or higher.

### Analysis:

#### Measure D: RADS 5330 Cybersecurity Assessment

This is the second year this measure is being used in the assessment plan. In 2022, only 90% of students met the benchmark for this measure. To improve, the faculty created a video with the expectations for the assignment and revised the guidelines and rubric. In 2023, 100% of students met the benchmark for the assignment, and the mean score increased.

#### Measure D: RADS 5330 Cybersecurity Assessment

In 2023, the target was that 100% of students would score 85% or higher on the Cybersecurity Assessment and 100% of students met the benchmark. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement.

- Continue to use the video created to review the expectations for the assignment.
- Continue to use the revised guidelines for the assignment.
- Continue to use this tool to measure students' ability to apply research evidence and skills in the practice setting and begin to get data that can be trended.

These changes will improve the student's ability to apply research evidence and skills in the practice setting as an administrator in the radiologic sciences to improve practice.

**Student Learning Outcome 3:**

Demonstrate effective communication skills in professional settings to maintain collegial, collaborative, and interdisciplinary relationships.

Tool	Benchmark (Target)	Results					
		2023	2022	2021	2020	2019	
A. Research individual presentation (RADS 5110). (spring & fall)	100% of students will achieve an average of 85% or higher.	N	27	13	16	10	4
		Mean	92.22	95	97.6	98.5	95
		Range	82-100	92-100	90-100	95-100	92-100
		%	93	100	100	100	100
		# unmet	2	0	0	0	0
B. Group presentation (RADS 5110) (spring & fall)	100% of students will achieve an average of 85% or higher.	N	28	14	16	10	4
		Mean	92.78	97	93	97	91
		Range	66-100	91-100	63-100	92-100	73-97
		%	96	100	88	100	80
		# unmet	1	0	2	0	1

**SLO 3: Demonstrate effective communication skills in professional settings to maintain collegial, collaborative, and interdisciplinary relationships.**

**Findings:**

Measure A: RADS 5110 Research Presentation

2023: Unmet, 93% of students scored 85 or higher on the individual presentation.

**Analysis:**

Measure A: RADS 5110 Research Presentation

In 2022, this measure met the benchmark for the fourth year. For the last four years, faculty included more resources on creating a presentation and added more detail to the guidelines and rubric. However, in 2023, the benchmark was unmet with only 93% of students achieving the benchmark. Additionally, the mean scores continued to trend slightly lower. Two students scored below 85% on the assignment. Both students did not follow the directions for the assignment completely and, therefore, had points deducted for components that were not included in their submissions.

## Decisions:

### Measure A: RADS 5110 Research Presentation

In 2023, the target was that 100% of students would score 85% or higher on the presentation; however, only 93% met the target. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive improvement:

- Course instructors will continue to include resources for creating presentations.
- Provide reminders to students prior to submission of the assignment to review the guidelines and rubric to ensure that all components are included.

These actions will improve students' ability to demonstrate effective communication skills in professional settings to maintain collegial and collaborative relationships.

## Findings:

### Measure B: RADS 5110 Group presentation

2023: Unmet, 96% of students achieved an average of 85% or higher on the group presentation.

## Analysis:

### Measure B: RADS 5110 Group presentation

In 2022, the benchmark was met for this assignment. To drive improvement, the faculty held a live online session to explain the assignment thoroughly. For students who were unable to attend, the session was recorded. However, in 2023, only 96% of students achieved the benchmark. One student scored below the target. This student failed to meet with his group in a timely manner and his group members did the assignment without his participation. The student then completed the "group presentation" as an individual. Faculty did not feel that this one student was a reason for great concern for this measure, since he appears to be an outlier.

## Decisions:

### Measure B: RADS 5110 Group presentation

In 2023, the target was that 100% of students would score 85% or higher on the group presentation, and that target was unmet with only 96% of students achieving the benchmark. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive improvement:

- Continue to hold live online sessions to explain the assignment thoroughly to students.
- Send reminders early in the semester to get students to start meeting with their group members.

These actions will improve students' ability to demonstrate effective communication skills in professional settings to maintain collegial and collaborative relationships.

**Student Learning Outcome 4:**

**Conduct research studies to contribute to and improve the practice of the radiologic sciences.**

<b>Tool</b>	<b>Benchmark (Target)</b>	<b>Results</b>					
A. Applied research project (RADS 5910) (spring, summer & fall)	100% of students will receive a score of 85% or higher.		<b>2023</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
		N	9	12	18	9	3
		Mean	96	95.7	100	99	100
		Range	90-100	87-100	100	92-100	100-100
		%	100	100	100	100	100
		# unmet	0	0	0	0	0
B. Survey development project (RADS 5123) (spring)	100% of students will receive a score of 85% or higher.		<b>2023</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
		N	17	11	17	7	9
		Mean	87.71	93	96.6	93.5	93.1
		Range	65-100	77-100	93-100	81-100	90-100
		%	76	91	100	86	100
		# unmet	4	1	0	1	0
C. Literature Review (RADS 5110) (spring & fall)	100% of students will achieve an average of 80% or higher		<b>2023</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
		N	26	13	16	10	4
		Mean	86.73	80.23	90.4	88.5	89
		Range	70-97	65-98	80-97	75-98	82-95
		%	85	38	100	80	100
		# unmet	4	8	0	2	0

**SLO 4: Conduct research studies to contribute to and improve the practice of the radiologic sciences.**

**Findings:**

Measure A: RADS 5910 Applied Research Project

2023: Met, 100% of students achieved 85% or higher.

**Analysis:**

Measure A: RADS 5910 Applied Research Project

This measure was met for the fifth year in a row. The strategies implemented for this measure and throughout the program have been successful. In 2023, faculty consistently used the revised rubric to grade the student’s final projects. This provided more information

regarding student performance on this project. Since the rubric was used consistently, the average score has been fairly consistent. In examining the trends regarding where students are losing points, nothing still appears to stand out. Most points are lost for not submitting drafts in a timely manner and for minor writing issues.

### Decisions:

#### Measure A: RADS 5910 Applied Research Project

In 2023, the target was that 100% of students would score 85% or higher on the Applied Research Project, and for the fifth year, this target was met. Based on the analysis of the 2023 results, the faculty will implement the following changes to drive improvement in 2024:

- Continue to use the revised rubric consistently on all projects.
- Continue to examine the areas where students are having points deducted to determine if there are any trends.

These actions will improve students' ability to conduct research studies to contribute to and improve the practice of the radiologic sciences.

### Findings:

#### Measure B: RADS 5123 Survey Development Project

2022: Unmet, 76% of students achieved 85% or higher.

### Analysis:

#### Measure B: RADS 5123 Survey Development Project

In 2022, 91% of students achieved 85% or higher, with only one student scoring below the benchmark. To drive improvement, faculty provided reminders to students to encourage them to carefully review the requirements for the assignment. However, in 2023, only 76% of students met the benchmark for this measure. Four students failed to achieve the target score. All four students were missing some component of the assignment in their submission and had weak writing or content. Even with reminders, some students failed to review the guidelines and did not spend adequate time developing their projects.

### Decisions:

#### Measure B: RADS 5123 Survey Development Project

In 2023, the target was that 100% of students would score 85% or higher on the Survey Development Project; however, the benchmark was unmet, with 76% of students scoring 85% or higher. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement:

- Continue sending email reminders encouraging students to start the assignment early and outline its requirements.
- Create a checklist to help students ensure that all components of the project are included in the submission.

These actions will improve students' ability to conduct research studies to contribute to and improve the practice of the radiologic sciences.

### Findings:

#### Measure C: RADS 5110 Research Paper

2023: Unmet, 85% of students scored 80% or higher.

### Analysis:

#### Measure C: RADS 5110 Research Paper

In 2022, there was a dramatic drop; only 38% of students achieved the benchmark for this measure, and the mean score dropped 10 points to 80.23. In carefully examining the data for this measure, it was determined that the major issue students were having was that they were not adequately developing their topics. To drive improvement, faculty implemented several strategies to help improve student outcomes, including developing a video describing the expectations for the project, providing more details in the guidelines, creating a template for the assignment, posting example papers, and having more online sessions to answer student questions. After the implementation of these changes, in 2023, there was a significant improvement, and 85% of students achieved the benchmark. Additionally, the mean score increased from 80% in 2022 to 87% in 2023. There were four students who did not meet the benchmark in 2023. In examining the reasons for these students' lower scores, there were a variety of issues identified, including weak writing, difficulty in identifying a theoretical framework, and potential AI use.

### Decisions:

#### Measure C: RADS 5110 Research Paper

In 2023, the target was that 100% of students would score an 80% or higher on their 5110 research papers; however, only 85% of students met the benchmark. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement:

- Revise AI policy in the syllabus to be more explicit regarding expectations and consequences of inappropriate use.
- Create a video discussing the use of AI.
- Encourage students to use Feedback Fruits to get feedback on their writing prior to the final submission of the assignment.
- Develop course activity related to theoretical frameworks to help students identify a framework appropriate for their topic and receive feedback.
- Continue to hold live online sessions to answer student questions and provide more information for expectations.

These actions will improve students' ability to conduct research studies to contribute to and improve the practice of the radiologic sciences.

**Student Learning Outcome 5:**

Evaluate ethical standards in practice as a radiologic sciences educator or administrator.

Tool	Benchmark (Target)	Results																																												
		2023		2022		2021		2020		2019																																				
A. Core and Concentration Sections of the Comprehensive Exam (spring, summer & fall)	90% of students will score 80% or better on both sections on the first attempt.	N	10		18		11		6																																					
		Tools	Core	Conc	Core	Conc	Core	Conc	Core	Conc	Core	Conc																																		
		Mean	82.69	78.94	84	89	85	90	82	85	86	85																																		
		Range	69-97	55.38-90	72-96	70-100	80-95	75-100	41-98	70-100	81-96	80-95																																		
		%	70	70	70	80	100	94.4	82	82	100	100																																		
		# unmet	3	3	3	2	0	1	2	2	0	0																																		
		<table border="1"> <thead> <tr> <th></th> <th>2023</th> <th>2022</th> <th>2021</th> <th>2020</th> <th>2019</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>23</td> <td>19</td> <td>10</td> <td>21</td> <td>15</td> </tr> <tr> <td>Mean</td> <td>96.65</td> <td>98</td> <td>95</td> <td>97.71</td> <td>97.5</td> </tr> <tr> <td>Range</td> <td>43-100</td> <td>90-100</td> <td>76-100</td> <td>86-100</td> <td>86-100</td> </tr> <tr> <td>%</td> <td>96</td> <td>100</td> <td>90</td> <td>100</td> <td>100</td> </tr> <tr> <td># unmet</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> </tr> </tbody> </table>												2023	2022	2021	2020	2019	N	23	19	10	21	15	Mean	96.65	98	95	97.71	97.5	Range	43-100	90-100	76-100	86-100	86-100	%	96	100	90	100	100	# unmet	1	0	1
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%	96	100	90	100	100																																									
# unmet	1	0	1	0	0																																									
C. CITI Social & Behavioral Research Modules (RADS 5010) (spring)	100% of students will receive a total score of 85% or higher.			<b>2023</b>	<b>2022</b>																																									
		N	17	36																																										
		Mean	90.82	92.31																																										
		Range	81-97	81-100																																										
		%	94.11	69.44																																										
# unmet	1	11																																												

**SLO 5: Evaluate ethical standards in practice as a radiologic sciences educator or administrator.**

**Findings:**

Measure A: Core and Concentration Sections of Comprehensive Exam

2023: Unmet, 70% of students achieved an 80% or better on the core and concentration sections of the comprehensive exam.



## Analysis:

### Measure A: Core and Concentration Sections of Comprehensive Exam

As previously stated for SLO 1 and 2, in 2022, student results decreased from the previous year. The faculty implemented several changes to drive improvement, which included reviewing and revising the question pool, reviewing and revising study tips for students, creating outlines for each course to help in preparation, reminding students to keep notes and assignments from all courses to help with preparation for the exam, and creating a video with information on preparing for the exam. However, these strategies did not have the intended outcome, and in 2023, three students scored below the 80% benchmark on their first attempt on the core and concentration portions of the comprehensive exam. Again, in examining the areas where students are showing weaknesses on the exam, there does not appear to be a trend. Faculty met and discussed the comprehensive exam at length and made several suggestions for improvement on the exam and helping students.

Two years ago, the faculty decided to phase out this measure in the future and replace it with a more specific measure ethical standards. However, this measure will continue to be used for one more year. Additionally, since this exam is still an important part of the program, it is still essential that improvement strategies be implemented.

## Decisions:

### Measure A: Core and Concentration Sections of Comprehensive Exam

In 2023, the target was that 90% of students would score 80% or higher on their first attempt on the core and concentration portions of the comprehensive exam; however, only 70% met the benchmark for the core portion, and 70% met the benchmark for the concentration portion. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement.

- Revise the format of the exam to be more indicative of student learning.
- Develop a new rubric for evaluating student submissions on the exam.
- Create materials to inform students of the exam changes and help with their preparation.
- Continue to use this measure for one more year and then phase out and use measures C in its place.

These actions will improve students' ability to evaluate ethical standards in practice as a radiologic sciences educator or administrator.

## Findings:

### Measure B: RADS 5030 Legal and Ethical Presentation

2023: Unmet, 96% of students achieved 85% or higher.

## Analysis:

### Measure B: RADS 5530 Legal and Ethical Presentation

In 2022, this measure was met, with 100% of students meeting the benchmark. To drive improvement in 2023, the faculty continued to provide updated sample presentations for students to review to set the expectations of the assignment. In 2023, the benchmark was unmet with only 96% of students achieving the benchmark. However, only one student failed to meet the target score. This student failed to include all components of the assignment and did not devote adequate time to the assignment. Therefore, faculty felt that this student was not indicative of a problem with the measure.

## Decisions:

### Measure B: RADS 5530 Legal and Ethical Presentation

In 2023, the target was unmet, with 96% of students scoring 85% or higher on the Legal and Ethical Presentation. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2024 to drive the cycle of improvement:

- Continue to allow students to review current sample presentation assignments to set the expectations for the quality of the assignment.

These actions will improve students' ability to evaluate ethical standards in practice as a radiologic sciences educator or administrator.

## Findings:

### Measure C: RADS 5010 CITI Social & Behavioral Research Module

2023: Unmet, 94.11% of students achieved a total score of 85% or higher.

## Analysis:

### Measure C: RADS 5010 CITI Social & Behavioral Research Module

This is the second year this measure is being used in the assessment plan. In 2022, only 69.44% of students scored 90% or higher on the CITI training modules. Eleven students scored below the benchmark, and the average score was 92. The faculty examined the student scores carefully and reviewed the set benchmark. It was decided to change the benchmark to 85%. Additionally, to drive improvement, the faculty emphasized to students the importance of these modules. In 2023, 94.11% of the students met the benchmark with only one student scoring below 85. Faculty felt that the new benchmark was more appropriate for the measure.

## Decisions:

### Measure C: RADS 5010 CITI Social & Behavioral Research Module

In 2023, the target was unmet, with 94.11% meeting the benchmark of scoring 85% or higher on the CITI Social & Behavioral Research Module. Based on the analysis of the 2023 results, the faculty will implement the following changes in 2023 to drive the cycle of improvement:

- Continue to emphasize the importance of the modules to students before they complete them.

- Continue to use this tool to measure students' ability to evaluate ethical standards in practice and begin to obtain data for trending.

These actions will improve students' ability to evaluate ethical standards in practice as a radiologic sciences educator or administrator.

### Summary of 2023 Assessment for the MSRS program

In 2022, five new tools to measure the SLOs were introduced into the MSRS assessment plan, and one was removed for a total of 16 benchmarks. After next year's assessment cycle, three more tools will be removed from the plan as trended data is obtained for the new measures. Overall, out of 16 benchmarks, there were eleven that were not met. The faculty find this disappointing; however, in examining the data and the reasons for not achieving the benchmarks, several important observations were made. First, in several cases, the benchmark was not met due to only one or two students being unsuccessful on an assignment. Therefore, most students were successful. Second, the new measures added to the assessment plan are providing a better assessment of student learning. Faculty are pleased with the new measures. Faculty often discuss the results of the assessment plan, and although the results may seem poor, the truth is that many of our benchmarks are intentionally set high. The MSRS program strives for our students to meet high standards. Therefore, the faculty feels it is important to continue our quest to help students meet the high goals that have been set. As such, there is still some refinement that needs to occur to help students achieve the benchmarks that are set. Each student is important and deserves our best efforts to help them succeed at a high level. The MSRS faculty have developed action plans to improve all 5 SLOs. Some strategies implemented in previous assessment cycles have effectively improved student outcomes. However, there are still some measures that need continued improvement.

### Comprehensive Summary of Key Evidence of Improvements Based on Analysis of Results

As always, continuous improvement is the focus of the program. There have been numerous changes that have been implemented throughout the program to positively affect student learning. Most of these changes were brought about through the assessment process. Below are some examples of the changes that have occurred during the 2023 assessment cycle to improve student learning outcomes for the MSRS program:

- SLO 1: Utilize critical thinking skills to resolve issues in radiologic or healthcare-related problems.
  - Reviewed the question pool for the core portion of the comprehensive exam and updated.
  - Reviewed and revised study tips for the comprehensive exam.
  - Created outlines for each course to help with preparation.
  - Sent reminders to students throughout the program to remind them to keep assignments to help them study for the comprehensive exam.
  - Created a video with information on preparing for the comprehensive exam.
  - Reviewed and revised the guidelines and rubric to ensure they are congruent with the new topic for the paper.

- Created a video to provide more information to students regarding the expectations for the assignment.
- Implemented Feedback Fruits to review papers to give students feedback on their writing before submission.
- Reviewed and revised the guidelines and rubric to ensure the data provides useful information regarding students' critical thinking abilities.
- Utilized additional methods, such as recorded video or audio messages, to remind students of due dates.
- Provided an exemplar to demonstrate the intent of the assignment for measure D.
- SLO 2: Apply research evidence and skills in the practice setting as an educator or administrator in the radiologic sciences to improve practice.
  - Reviewed the question pool for the core portion of the comprehensive exam and updated.
  - Reviewed and revised study tips for the comprehensive exam.
  - Created outlines for each course to help with preparation.
  - Sent reminders to students throughout the program to remind them to keep assignments to help them study for the comprehensive exam.
  - Created a video with information on preparing for the comprehensive exam.
  - Continued to advise students of course requirements during registration.
  - Requested that students watch the video regarding the mentor and expectations for the course.
  - Sent email reminders about the Evidence-Based Practice Project requirements to help assure that students included all components of the project.
  - Reviewed and revised the guidelines and rubric for measure C to ensure that the data provides useful information regarding students' ability to apply research evidence and skills in the practice setting as an educator.
  - Continued to use tool C to measure students' ability to apply research evidence and skills in the practice setting and begin to get data that can be trended.
  - Created a video to review the expectations for the assignment for measure D.
  - Reviewed and revised the guidelines for the assignment for measure D.
- SLO 3: Demonstrate effective communication skills in professional settings to maintain collegial and collaborative relationships.
  - Course instructors continued to include resources for creating presentations.
  - Continued to hold live online sessions to explain the assignment thoroughly to students.
- SLO 4: Conduct research studies to contribute to and improve the practice of the radiologic sciences.
  - Continued to use the revised rubric for measure A consistently on all projects.
  - Examined the areas where students are having points deducted to determine if there are any trends for measure A.
  - Sent email reminders encouraging students to start the assignment for measure B early and outline its requirements.
  - Created a video describing the expectations for the assignment for measure C.

- Revised guidelines for the assignment for measure C to provide more detail for students.
- Created templates for measure C assignments to help students ensure that they include all required components.
- Provided exemplars to help students understand the format and expectations.
- Held live online sessions to answer student questions and provide more information about measure C's expectations.
- SLO 5: Evaluate ethical standards in practice as a radiologic sciences educator or administrator.
  - Reviewed the question pool for the core and concentration portions of the comprehensive exam and updated.
  - Reviewed and revised study tips for the comprehensive exam.
  - Created outlines for each course to help with preparation for the exam.
  - Sent reminders to students throughout the program to remind them to keep assignments to help them study for the comprehensive exam.
  - Created a video with information on preparing for the comprehensive exam.
  - Continued to allow students to review current sample presentation assignments to set the expectations for the quality of the assignment.
  - Emphasized the importance of the modules to students before they complete them.

### Plan of Action Moving Forward in 2024

Based on the evidence provided by the 2023 assessment plan, the MSRS program will make the following changes for continuous program improvement:

- SLO 1: Utilize critical thinking skills to resolve issues in radiologic or healthcare-related problems.
  - Revise the format of the exam to be more indicative of student learning.
  - Develop a new rubric for evaluating student submissions on the exam.
  - Create materials to inform students of the exam changes and help with their preparation.
  - Continue to use this measure for one more year and then phase out and use measures C & D in its place.
  - Provide more information regarding writing expectations for the assignment.
  - Create learning resources to assist students with understanding how to provide adequate support for the points they make in their papers.
  - Continue to use Feedback Fruits to review papers to give students feedback on their writing before submission.
  - Continue to use the revised guidelines and rubric for this assignment to ensure that the data provides useful information regarding students' critical thinking abilities.
  - Continue to use new tools to measure critical thinking and begin to get data that can be trended.
  - Continue to utilize additional methods to remind students of due dates, such as recorded video or audio messages.
  - Provide an exemplar to demonstrate the intent of the assignment.

- SLO 2: Apply research evidence and skills in the practice setting as an educator or administrator in the radiologic sciences to improve practice.
  - Revise the format of the exam to be more indicative of student learning.
  - Develop a new rubric for evaluating student submissions on the exam.
  - Create materials to inform students of the exam changes and help with their preparation.
  - Continue to use this measure for one more year and then phase out and use measures C & D in its place.
  - Continue to advise students of course requirements during registration.
  - Send an email prior to the course to request that students watch the video regarding the mentor and expectations for the course.
  - Send email reminders about the Evidence-Based Practice Project requirements to help ensure that students include all components of the project.
  - Create a checklist of the components of the project to help students ensure that everything that is required is included in their submission.
  - Continue to use the revised guidelines and rubric for this assignment to ensure that the data provides useful information regarding students' ability to apply research evidence and skills in the practice setting as an educator.
  - Continue to use new tools to measure students' ability to apply research evidence and skills in the practice setting and begin to get data that can be trended.
  - Continue to use the video created to review the expectations for the assignment.
  - Continue to use the revised guidelines for the assignment.
- SLO 3: Demonstrate effective communication skills in professional settings to maintain collegial and collaborative relationships.
  - Course instructors will continue to include resources for creating presentations.
  - Provide reminders to students prior to submission of the assignment to review the guidelines and rubric to ensure that all components are included.
  - Continue to hold live online sessions to explain the assignment thoroughly to students.
  - Send reminders early in the semester to get students to start meeting with their group members.
- SLO 4: Conduct research studies to contribute to and improve the practice of the radiologic sciences.
  - Continue to use the revised rubric consistently on all projects.
  - Continue to examine the areas where students are having points deducted to determine if there are any trends.
  - Continue sending email reminders encouraging students to start the assignment early and outline its requirements.
  - Create a checklist to help students ensure that all components of the project are included in the submission.
  - Revise AI policy in the syllabus to be more explicit regarding expectations and consequences of inappropriate use.
  - Create a video discussing the use of AI.

## MSRS ASSESSMENT 2023

- Encourage students to use Feedback Fruits to get feedback on their writing prior to the final submission of the assignment.
- Develop course activity related to theoretical frameworks to help students identify a framework appropriate for their topic and receive feedback.
- Continue to hold live online sessions to answer student questions and provide more information for expectations.
- SLO 5: Evaluate ethical standards in practice as a radiologic sciences educator or administrator.
  - Revise the format of the exam to be more indicative of student learning.
  - Develop a new rubric for evaluating student submissions on the exam.
  - Create materials to inform students of the exam changes and help with their preparation.
  - Continue to use this measure for one more year and then phase out and use measures C in its place.
  - Continue to allow students to review current sample presentation assignments to set the expectations for the quality of the assignment.
  - Continue to emphasize the importance of the modules to students before they complete them.
  - Continue to use this tool to measure students' ability to evaluate ethical standards in practice and begin to obtain data for trending.