Assessment Year: 2017

Degree Program: Master of Science in Radiologic Sciences

College: Nursing and School of Allied Health

Prepared by: Dr. Tammy Curtis Date: June 12, 2018

Approved by: Dr. Dana Clawson, Dean Date:

Northwestern State University Mission Statement: Northwestern State University is a responsive, student-oriented institution that is committed to the creation, dissemination, and acquisition of knowledge through teaching, research, and service. The University maintains as its highest priority excellence in teaching in graduate and undergraduate programs. Northwestern State University prepares its students to become productive members of society and promotes economic development and improvements in the quality of life of the citizens in its region.

College of Nursing and School of Allied Health Mission Statement: Northwestern State University College of Nursing and School of Allied Health serves the people of Louisiana and in so doing improves the health of its citizens while advancing the mission of Northwestern State University through excellence in accessible undergraduate, graduate, and continuing education programs that are designed to assist individuals in achieving their professional goals as responsible and contributing members of their profession and society.

School of Allied Health Mission Statement: The School of Allied Health at Northwestern State University of Louisiana is dedicated to providing high quality undergraduate and graduate programs that prepare individuals for a variety of professional healthcare roles and to be conscientious, contributing members of their profession and society.

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.

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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:

- 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

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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.
5. Data is collected during the spring, summer, and fall semesters of a calendar year.

Student Learning Outcomes.

<table>
<tr><th>Student Learning Outcome</th><th>Tool</th><th>Benchmark</th><th>Results</th><th>Met</th><th>Unmet</th></tr>
<tr><td rowspan="2">I. Utilize critical thinking skills to resolve issues in radiologic or healthcare related problems.</td><td>A. Core Section of the Comprehensive Exam</td><td>90% of students will score an 80 or better on first attempt.</td><td>
<table>
<tr><th></th><th>2017</th><th>2016</th><th>2015</th><th>2014</th><th>2013</th></tr>
<tr><td>N</td><td>8</td><td>8</td><td>6</td><td>4</td><td>9</td></tr>
<tr><td>Mean</td><td>83</td><td>82.5</td><td>87.8</td><td>86.2</td><td>80</td></tr>
<tr><td>Range</td><td>62-93</td><td>72-93</td><td>84-91</td><td>80-90</td><td>5-98</td></tr>
<tr><td>%</td><td>75</td><td>63</td><td>100</td><td>100</td><td>77</td></tr>
<tr><td># not met</td><td>2</td><td>3</td><td>0</td><td>0</td><td>2</td></tr>
</table>
</td><td rowspan="2">2015
2014</td><td rowspan="2">2017
2016
2013</td></tr>
<tr><td>B. Critical Analysis Paper</td><td>100% of students will</td><td>
<table>
<tr><th></th><th>2017</th><th>2016</th><th>2015</th><th>2014</th><th>2013</th></tr>
<tr><td>N</td><td>10</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Mean</td><td>83.6</td><td></td><td></td><td></td><td></td></tr>
</table>
</td><td>2017</td></tr>
</table>

	(RADS 5020)	achieve an average of 85% or higher	Range	50-92							
			%	90							
			# not met	1	Tool not used	Tool not used	Tool not used	Tool not used			

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

Findings:

Measure A: Core Section of Comprehensive Exam
2017: Unmet, only 75% of students achieved an 80% or higher
2016: Unmet, only 63% of students achieved an 80% or higher
2015: Met, 100% of students achieved an 80% or higher
2014: Met, 100% of students achieved an 80% or higher
2013: Unmet, only 77% of students achieved an 80% or higher

Measure B: RADS 5020 Critical Analysis Paper
2017: Unmet, only 90% of students achieved an 85% or higher.
2016: Tool not used.
2015: Tool not used.
2014: Tool not used.
2013: Tool not used.

Analysis: Based on the analysis of the 2016 assessment cycle results, the tool used for measure A (comprehensive exam) was revised to multiple choice with justification questions. Previously, the test questions consisted of short answer, fill in the blank, and few multiple-choice. Faculty discussed the grading for the test was more subjective with mostly short answer essay format, and the grading was divided among the faculty who taught the content. As a result, faculty revised the questions to all multiple choice in which students will provide examples, support, and explanation of their chosen answer. Moving forward, faculty discussed practicing more consistent grading and making sure the content of the questions is assessing what the students really need to know for meeting program objectives. Measure B (critical analysis

paper) was identified as another tool to help measure student's critical thinking skills. Faculty did not want to solely measure their skills based on one tool. In 2017, only one student did not meet the benchmark. This student was identified as having personal issues that affected his academic performance.

For the 2017 assessment cycle, the students were not successful for the following reasons:

Measure A: Core Section of the Comprehensive Exam: One student expressed that he was affected by the flooding in Florida caused by Hurricane Irma at time of testing. The student started the test late and did not get a chance to finish when the testing center had to close due to inclement weather. The second student had recently quick a job, relocated to another state, and started a new job. The second student struggled balancing work and school. Before the second attempt, faculty advised the student in how to better prepare. The student refocused their study efforts and was successful on the second attempt. While two students were unsuccessful on their first attempt of the comprehensive exam in 2017 this was a slight improvement when compared to the 2016 data in which three students had to repeat the exam.

Measure B: RADS 5020 Critical Analysis Paper: In 2017-2018, one student was identified as having personal family issues. The student fell behind in submitting his assignments, and the quality of work declined. The student was considering quitting the program due to stress of their personal family issues. Near the end of the semester, the family issues resolved, and the student was convinced to not quit the program.

In looking at these results, a possible common thread are personal circumstances that occurred during the time the students were completing their targeted assignments. Students expressed personal challenges and added stress that affected their academic performance.

Based on the analysis of the 2016 assessment cycle results, the evaluation of this SLO for measure A, faculty discussed taking into consideration the range of scores for the number of students who met, but also had the lowest scores on both measuring tools. As a result, in AY 2017 faculty made notes on the strength of justification answers for comprehensive final and APA mistakes in paper. Faculty better advised students in providing examples for testing. Faculty provided free APA resources. Moving forward in the 2018 assessment cycle, in an effort to maintain continuous improvement the faculty are scheduling online web sessions to better advise students in how to prepare for the comprehensive exam. Test content is better emphasized throughout the curriculum in various assignments. Students are reminded of course objectives and advised to develop a portfolio as a study guide and add content each semester in preparation of the comprehensive exam.

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To improve measure B in the AY 2018, faculty are focused on helping the students improve their writing skills and understand grading rubrics. Faculty have added a new resource center in Moodle for students to access material to help students improve their writing format. Additional resources such as free asynchronous paper editing services, writing workshops, library search tutorials, how to find peer-reviewed resources, and APA tutorials and format tips, will be used in the course and the new resource center to help support student learning. In addition, during advising, faculty will target the student's personal wellbeing each semester. Faculty will add the university's counseling services to the new resource center and inform students of the free counselling services. Faculty will reach out to students early who are falling behind in submitting assignments and find out why they are struggling and encourage them to complete their work and offer help in getting them in the right direction. Faculty plan to call, text, and email students when they have not submitted an assignment by the deadline. Faculty hope to identify students who exhibit behavior or academic performance that puts them at risk of dropping out of the program. Faculty plan to identify interventions that may help at-risk students get back on track to graduate.

Decisions:
In terms of students' ability to utilize critical thinking skills to resolve issues in radiologic or healthcare related problems, evidence shows a decrease for the measures used to assess this SLO. However, much of the decrease is possibly due to personal issues students encountered during the assessment cycle, but there is still room for improvement. The following actions will be implemented for 2018:

- Advise students each semester to save their syllabi, graded assignments, and add to their portfolio study guide in preparation of comprehensive final.
- Schedule web advising sessions in preparation of comprehensive exam.
- Increase test pool for comprehensive exam with consistent test question format.
- Incorporate more electronic resources for student learning in new resource center and individual courses.
- Include free editing services provided by the Academic Success Center in the resource center.
- Inform students of free counseling services.
- Provide detailed feedback on writing assignments so students can improve on their mistakes.
- Reach out to students early who are falling behind in submitting assignments and find out why they are struggling and encourage them to complete their work.
- Identify students who exhibit behavior or academic performance that puts them at risk of dropping out of the program.
- Identify interventions that may help at-risk students get back on track to graduate.

Assessment Year: 2017

These actions will improve students' ability to utilize critical thinking skills to resolve issues in radiologic or healthcare related problems.

<table>
<tr><th>Student Learning Outcome</th><th>Tool</th><th>Benchmark</th><th>Results</th><th>Met</th><th>Unmet</th></tr>
<tr>
<td>II. Apply research evidence and skills in the practice setting as an educator or administrator in the radiologic sciences to improve practice.</td>
<td>A. Core and Research Sections of the Comprehensive Exam

B. Evidence based practice project for education and administrati</td>
<td>90% of students will score an 80 or better on both sections for first attempt.

100% of students will score an 80 or higher on evidence based project</td>
<td>
<table>
<tr><th></th><th>2017</th><th>2016</th><th colspan="2">2015</th><th colspan="2">2014</th><th colspan="2">2013</th></tr>
<tr><td>N</td><td>8</td><td>8</td><td colspan="2">6</td><td colspan="2">4</td><td colspan="2">9</td></tr>
<tr><td></td><td>R/C</td><td>R/C</td><td>R</td><td>C</td><td>R</td><td>C</td><td>R</td><td>C</td></tr>
<tr><td>Mean</td><td>83</td><td>82.5</td><td>87.8</td><td>87.8</td><td>93.2</td><td>86.2</td><td>83.8</td><td>80</td></tr>
<tr><td>Range</td><td>62-93</td><td>72-93</td><td>80-98</td><td>84-91</td><td>90-100</td><td>80-90</td><td>58-98</td><td>5-98</td></tr>
<tr><td>%</td><td>75</td><td>62</td><td>100</td><td>100</td><td>100</td><td>100</td><td>77</td><td>77</td></tr>
<tr><td># not met</td><td>2</td><td>3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>2</td><td>2</td></tr>
</table>
<table>
<tr><th></th><th>2017</th><th>2016</th><th>2015</th><th>2014</th><th>2013</th></tr>
<tr><td>N</td><td>4</td><td>12</td><td></td><td></td><td></td></tr>
<tr><td>Mean</td><td>92.2</td><td>93.1</td><td></td><td></td><td></td></tr>
<tr><td>Range</td><td>87-94</td><td>80-100</td><td></td><td></td><td></td></tr>
<tr><td>%</td><td>100</td><td>100</td><td></td><td></td><td></td></tr>
<tr><td># not met</td><td>0</td><td>0</td><td>Tool not used</td><td>Tool not used</td><td>Tool not used</td></tr>
</table>
</td>
<td>2015
2014

2017
2016</td>
<td>2017
2016
2013</td>
</tr>
</table>

	on RADS 5510/ 5530				

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 and Research Sections of Comprehensive Exam
2017: Unmet, only 75% of students achieved an 80% or higher.
2016: Unmet, only 62% of students achieved an 80% or higher
2015: Met, 100% of students achieved an 80% or higher
2014: Met, 100% of students achieved an 80% or higher
2013: Unmet, only 77% of students achieved an 80% or higher

Measure B: RADS 5510/5530 Evidence Based Practice Project for Education and Administration
2017: Met, 100% of students achieved an 80% or higher.
2016: Met, 100% of students achieved an 80% or higher.
2015: Tool not used.
2014: Tool not used.
2013: Tool not used.

Analysis:
During the revision of the tool used for measure A (comprehensive exam) in 2016, faculty discussed that "research" should be considered part of the core section of the exam. RADS 5010 – Research I and RADS 5110 – Research II are core courses in the curriculum. Therefore, in 2017 the research questions were moved to "core" section for measurement A. In addition, because of being unmet in the 2016 assessment cycle, the tool used for measure A (comprehensive exam) was revised to multiple choice with justification questions. Previously, the test questions consisted of short answer, fill in the blank, and few multiple-choice. Faculty discussed the grading for the test was more subjective with all short answer essay format, and the grading was divided among the faculty who taught the content. As a result, faculty revised the questions to all multiple choice in which students will provide examples, support, and explanation of their chosen

answer. Moving forward, faculty discussed practicing more consistent grading and making sure the content of the questions is assessing what the students really need to know for meeting program objectives.

Measure B (Evidence Based Practice Project for Education and Administration) was identified as another tool to help measure student's application of research and evidence skills in their career setting. Faculty did not want to solely measure their skills based on one tool. Based on the analysis of the results for Measure B, a new project will be implemented in Spring 2018 that students complete in the RADS 5510 or 5530 depending on their concentration. The project is designed to allow students to address a problem, issue, or concern in professional practice, develop pre-established objectives, and work with an external educator in completing the project. The evidence-based project is part of the student's "practicum" experience. For the 2016 assessment cycle, students successfully met the benchmark for completing a portfolio based on their onsite practicum experiences and meeting personal career goals. However, based on the analysis of the results the course was redesigned in 2017 to better accommodate students having difficulty securing an external site to complete their practicum practice. However, since the use of the new tool in 2017, faculty have identified revising the assignment and adding more micro steps to help guide students during the process, make them accountable throughout the semester by submitting smaller and more frequent sections of the project. Faculty will provide feedback for each submission to keep students on track for successfully completing measure B (evidence-based project) tool.

For the 2017 assessment cycle, the students were not successful for the following reasons:

Measure A: Core Section of the Comprehensive Exam: As previously mentioned, two students were identified who had added stress and challenges during the time they took the comprehensive exam. One student was affected by the flooding in Florida caused by Hurricane Irma at time of testing. The second student had difficulty balancing work career changes and school.

In looking at these results, a possible common thread is personal circumstances that occurred during the time the students were completing the targeted assignments. Two students expressed personal challenges that added stress. One student indicated that the testing environment affected his ability to complete the test. While two students were unsuccessful on their first attempt of the comprehensive exam in 2017, this was a slight improvement when compared to 2016 in which three students had to repeat the exam.

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Based on the analysis of the results of 2016 assessment cycle, during the evaluation of this SLO for measure A, faculty discussed taking into consideration the range of scores for the number of students who met, but also had the lowest scores on both assignments. Faculty made notes on the strength of justification answers for comprehensive final and better advised students in providing examples for testing. As a result, in 2017 faculty scheduled online web sessions to better advise students in how to prepare for the comprehensive exam. Test content is better emphasized throughout the curriculum in various assignments. Students are reminded of course objectives and advised to develop a portfolio as a study guide and add content each semester in preparation of the comprehensive exam. Keeping in mind that measure B is a new tool, in 2018, faculty have identified revising the assignment and adding more detailed steps to help guide students during the process, make students accountable throughout the semester, and submit smaller more frequent sections of the project. Faculty will provide feedback for each submission to keep students on track for successfully completing measure B (evidence-based project) tool.

Decisions:
In terms of students' ability to apply research evidence and skills in the practice setting as an educator or administrator in the radiologic sciences to improve practice, evidence shows a decrease for the measures used to assess this SLO. However, much of the decrease is possible due to personal issues student encountered during the assessment cycle, but there is still room for improvement. The following actions will be implemented for 2018:

- Advise students each semester to save their syllabi, graded assignments, and add to their portfolio study guide in preparation of comprehensive final.
- Increase test pool for comprehensive exam with consistent test question format.
- Incorporate more electronic resources for student learning in new resource center and individual courses.
- Revise measure B for students to submit more frequent portions, in smaller increments, and receive feedback.
- Reach out to students early who are falling behind in submitting assignments and find out why they are struggling and encourage them to complete their work.
- Identify students who exhibit behavior or academic performance that puts them at risk of dropping out of the program.
- Identify interventions that may help at-risk students get back on track to graduate.

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

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<table>
<tr><th>Student Learning Outcome</th><th>Tool</th><th>Benchmark</th><th>Results</th><th>Met</th><th>Unmet</th></tr>
<tr>
<td>III. Demonstrate effective communication skills in professional settings to maintain collegial and collaborative relationships.</td>
<td>A. Research paper and presentation (RADS 5110).

B. Presentation (RADS 5030)</td>
<td>100% of students will achieve an average of 85% or higher on the two assignments combined.

100% of students will achieve an</td>
<td>
<table>
<tr><td></td><td colspan="2">2017</td><td colspan="2">2016</td></tr>
<tr><td>N</td><td colspan="2">5</td><td colspan="2">8</td></tr>
<tr><td></td><td>Pres</td><td>Paper</td><td>Pres</td><td>Paper</td></tr>
<tr><td>Mean</td><td>97</td><td>83.6</td><td>93</td><td>85.3</td></tr>
<tr><td>Range</td><td>90-100</td><td>64-97</td><td>70-100</td><td>69-96</td></tr>
<tr><td>%</td><td>100</td><td>60</td><td>89</td><td>75</td></tr>
<tr><td># not met</td><td>0</td><td>2</td><td>1</td><td>2</td></tr>
</table>
<table>
<tr><td></td><td colspan="2">2015</td><td>2014</td><td>2013</td></tr>
<tr><td>N</td><td colspan="2">6</td><td>4</td><td>9</td></tr>
<tr><td></td><td>Pres</td><td>Paper</td><td>P&P Combined</td><td>Pres only</td></tr>
<tr><td>Mean</td><td>97</td><td>78</td><td>91</td><td>91.5</td></tr>
<tr><td>Range</td><td>90-100</td><td>57- 91</td><td>91-93</td><td>80-100</td></tr>
<tr><td>%</td><td>100</td><td>67</td><td>100</td><td>89</td></tr>
<tr><td># not met</td><td>0</td><td>2</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td></td><td>2017</td><td>2016</td><td>2015</td><td>2014</td><td>2013</td></tr>
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</td>
<td>2014

2017</td>
<td>2017
2016
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2013</td>
</tr>
</table>

		average of 85% or higher	N	7	9	6	4	9		2016 2015 2014 2013	
			Mean	99	98	98	98	99			
			Range	95-100	94-100	95-100	96-100	96-100			
			%	100	100	100	99	100			
			# not met	0	0	0	0	0			

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

Findings:

Measure A: RADS 5110 Research paper and presentation.
2017: Unmet, only 60% of students achieved an 85% or higher on the research paper assignment.
2016: Unmet, only 75% of students achieved an 85% or higher on the research paper assignment.
2015: Unmet, only 67% of students achieved an 85% or higher on the research paper assignment.
2014: Met, 100% of students achieved an 85% or higher on combined scores.
2013: Unmet, 89% of students achieved an 85% or higher on presentation only.

Measure B: RADS 5030 Presentation
2017: Met, 100% of students achieved an 85% or higher.
2016: Met, 100% of students achieved an 85% or higher.
2015: Met, 100% of students achieved an 85% or higher.
2014: Met, 100% of students achieved an 85% or higher.
2013: Met, 100% of students achieved an 85% or higher.

Analysis:
The tool used for measure A (research paper and presentation) is a combination of both verbal and written communication. Students develop a presentation based on their written paper assignment, thus these two assignments are averaged as the benchmark. The presentation is shared with their classmates while promoting additional communication among their peers. During the 2016 and 2017 assessment cycles, there is a consistent trend of students

scoring higher on the presentation when compared with their paper. This is expected due to faculty providing feedback on the graded paper with expectations that students will correct and incorporate their edits as part of the presentation assignment.

For the 2017 assessment cycle, the students were not successful for the following reasons:

Measure A: RADS 5110 Research paper and presentation: The paper is a heavier weighted assignment than the presentation. Students have scored higher on their presentation due to editing their presentation based on feedback from faculty on their graded paper. The edits are expected to be completed and incorporated in their final presentation.

In looking at these results, there is a trend of students scoring higher on their presentations than their paper.

Based on the analysis of the results, in the 2016 assessment cycle, during the evaluation of this SLO, faculty discussed ways to help improve the student's writing skills for measure A. As a result, in 2017, free APA tutorial and resources were added for students to practice correct paper format. Faculty provided more feedback to students on their writing assignments in RADS 5010 Research I course which is a pre-requisite for RADS 5110. Moving forward in 2018, to continue the pattern of continuous improvement the faculty plan additional strategies to help strengthen the students writing skills beginning in RADS 5010 Research I course. Students will have the opportunity to submit a draft of their paper in RADS 5010, receive feedback, and complete revisions for their final draft. In addition, students will have the opportunity to submit their paper draft in RADS 5110, Research II course, receive feedback, and complete revisions before final grade. Faculty will better advise students on expectations of research assignments in all courses threaded throughout the curriculum. In addition, faculty have added a new resource center in Moodle for students to access material to help students improve their writing skills. Additional resources such as free asynchronous paper editing services, writing workshops, library search tutorials, how to find peer-reviewed resources, and APA tutorials and format tips will be posted in the courses and resource center to help support student learning. For measure B (presentation in RADS 5030), to help continue meeting this benchmark, faculty plan to post sample presentations to help students envision the expected quality of assignments.

Decisions:
In terms of students' ability to demonstrate effective communication skills in professional settings to maintain collegial and collaborative relationships, evidence shows a decrease for the measures used to assess this SLO. The following actions will be implemented for 2018:

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- Provide more feedback on writing assignments by allowing students to submit their first draft and receive feedback before final draft in RADS 5010 and 5110.
- Incorporate more electronic resources for student learning in new resource center and individual courses.
- Better advise students of the expectations for both written and verbal communication assignments.
- Provide sample presentations as a guide.

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

<table>
<tr><th>Student Learning Outcome</th><th>Tool</th><th>Benchmark</th><th>Results</th><th>Met</th><th>Unmet</th></tr>
<tr>
<td>IV. Conduct research studies to contribute to and improve the practice of the radiologic sciences.</td>
<td>A. Applied research project (RADS 5910).</td>
<td>100% of students will receive a score of 85% or higher.</td>
<td>
<table>
<tr><th></th><th>2017</th><th>2016</th><th>2015</th><th>2014</th><th>2013</th></tr>
<tr><td>N</td><td>8</td><td>4</td><td>6</td><td>4</td><td>9</td></tr>
<tr><td>Mean</td><td></td><td>97</td><td>98</td><td>97</td><td>85</td></tr>
<tr><td>Range</td><td>79-100</td><td>89-100</td><td>93-100</td><td>89-100</td><td>79-100</td></tr>
<tr><td>%</td><td>94</td><td>100</td><td>100</td><td>100</td><td>89</td></tr>
<tr><td># not met</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
</table>
</td>
<td>2016
2015
2014</td>
<td>2017
2013</td>
</tr>
<tr>
<td></td>
<td>B. Survey development project (RADS 5123)</td>
<td>100% of students will receive a score</td>
<td>
<table>
<tr><th></th><th>2017</th><th>2016</th><th>2015</th><th>2014</th><th>2013</th></tr>
<tr><td>N</td><td>8</td><td>9</td><td>6</td><td>4</td><td></td></tr>
<tr><td>Mean</td><td>88.3</td><td>92.4</td><td>93.1</td><td>93.2</td><td></td></tr>
<tr><td>Range</td><td>69-100</td><td>76-98</td><td>90-96</td><td>91-94</td><td></td></tr>
<tr><td>%</td><td>87.5</td><td>89</td><td>100</td><td>100</td><td></td></tr>
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<td>2015
2014</td>
<td>2017
2016</td>
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</table>

Assessment Year: 2017

<table>
<tr>
<td></td>
<td>C. Research Paper (RADS 5110)</td>
<td>of 85% or higher.

100% of students will achieve an average of 80% or higher</td>
<td>
<table>
<tr><td># not met</td><td>1</td><td>1</td><td></td><td></td><td>Tool not used</td></tr>
</table>
<table>
<tr><th></th><th>2017</th><th>2016</th><th>2015</th><th>2014</th><th>2013</th></tr>
<tr><td>N</td><td>5</td><td>8</td><td>6</td><td></td><td></td></tr>
<tr><td>Mean</td><td>83.6</td><td>85.3</td><td>78</td><td></td><td></td></tr>
<tr><td>Range</td><td>64-97</td><td>69-96</td><td>57-91</td><td></td><td></td></tr>
<tr><td>%</td><td>60</td><td>75</td><td>67</td><td></td><td></td></tr>
<tr><td># not met</td><td>2</td><td>2</td><td>2</td><td>Tool not used</td><td>Tool not used</td></tr>
</table>
</td>
<td></td>
<td>2017
2016
2015</td>
</tr>
</table>

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

Findings:

Measure A: RADS 5910 Applied Research Project
2017: Unmet, 94% of students achieved an 85% or higher.
2016: Met, 100% of students achieved an 85% or higher.

2015: Met, 100% of students achieved an 85% or higher.
2014: Met, 100% of students achieved an 85% or higher.
2013: Unmet, 89% of students achieved an 85% or higher.

Measure B: RADS 5123 Survey Development Project
2017: Unmet, 87.5% of students achieved an 85% or higher.
2016: Unmet, 89% of students achieved an 85% or higher.
2015: Met, 100% of students achieved an 85% or higher.
2014: Met, 100% of students achieved an 85% or higher.
2013: Tool not used.

Measure C: RADS 5110 Research Paper
2017: Unmet, only 60% of students achieved an 80% or higher.
2016: Unmet, only 75% of students achieved an 80% or higher.
2015: Unmet, only 67% of students achieved an 80% or higher.
2014: Tool not used.
2013: Tool not used.

Analysis:
The tool used for measure A (Applied Research Project) is a final graduate paper that students complete at the end of the program. This paper is submitted to the Graduate School for their approval for students to meet graduation requirements. Students are assigned a committee with a lead faculty who works closely with the student to help guide them in the writing process. The paper usually takes a minimum of two semesters to complete, but occasionally students take longer due to circumstances in their personal life that interfere with meeting assignment deadlines. The student identified in 2017 faced such struggles. The student struggled balancing work and school. Because of late submissions and weak writing skills, the student required more edits as compared other students.

The tool used for measure B (RADS 5123 Survey Development Project) challenges the student to develop a survey and test the validity of their original survey. For the students to be successful on this project, the students need to apply research skills they have learned. Because of this advanced level assignment, students are expected to seek help in areas of data collection, methods for presenting and communicating results and findings. The student identified in 2017 who did not meet the benchmark is the same student who was having personal family issues. The student lagged on submitting his assignments and the quality of his work declined. The student was considering quitting the program due to

stress. Near the end of the semester, however the family issues were resolved ant eh student was convinced to not quit the program.

The tool used for measure C (RADS 5110 Research Paper) challenges the student to conduct a literature review.

For the 2017 assessment cycle, the students were not successful for the following reasons:

Measure A: RADS 5910 Applied Research Project: 1, late submissions, incomplete submissions, weak submissions for various drafts at different stages and time frames in the course.

Measure B: RADS 5123 Survey Development Project: 1, late submission, did not meet all of assignment criteria.

Measure C: RADS 5110 Research Paper: The paper is a heavier-weighted assignment and a higher quality work is expected than papers submitted in prerequisite research I course. The two students identified in 2017 submitted papers with incomplete and missing components in their paper that caused points to be deducted. The paper with the lowest score had additional points deducted due to quality of references.

In looking at these results, all tools are advanced level assignments; therefore, faculty can help better prepare students by providing additional resources, tutorials, and advising to meet lesson objectives.

In 2016-2017 assessment cycle, during the evaluation of this SLO, faculty discussed ways to help improve the student's writing skills for conducting research studies to contribute to and improve the practice of the radiologic sciences.

Measure A: Based on the analysis of the results from 2016, in 2017, for RADS 5910, faculty redesigned the course to help students stay on track and submit smaller portions of their paper at different time periods. The students start out by submitting a proposed timeline which also incorporates assignment deadlines and graduate school deadlines. Students are prompted to submit smaller sections of their paper throughout the course, receive feedback, and then move forward with their writing. Students are accountable for communicating with the faculty more often and accountable for submitting more drafts of their paper as to help reduce the number of repetitive mistakes. Moving forward in 2018, to continue the pattern of continuous improvement faculty will continue requiring frequent sections of final paper to be submitted in the course. In addition, faculty plan to offer one on one writing sessions both on campus and via live webcam. Students come prepared to write for a block of time while faculty help guide them as the get stuck or have questions. Faculty help with resources and direction in completing sections of their final paper. Another valuable resource is directing students to the

college's statistician for specific guidance on conducting research, data collection related to research questions, methods for analyzing the data collected, and methods for presenting and communicating results and findings.

Measure B: For RADS 5123, in 2017, the college hired a statistician. Faculty invited the statistician to help serve as a tutor for this course. Moving forward in 2018, the statistician will help team teach the course and guide students in the survey development project as well as continue to serve as tutor. Faculty have added online resources to help students complete steps in developing and implementing surveys.

Measure C: In 2016 assessment cycle, during the evaluation of this SLO, faculty discussed ways to help improve the student's writing skills. Based on the analysis of the results, in 2017, free APA tutorial and resources were added for students to practice correct paper format. Faculty provided more feedback to students on their writing assignments in RADS 5010 Research I course which is a pre-requisite for RADS 5110. Based on the analysis of results from the 2017 AY, faculty plan additional strategies to help strengthen the students writing skills beginning in RADS 5010 Research I course. Students will have the opportunity to submit a draft of their paper in RADS 5010, receive feedback, and complete revisions for their final draft. In addition, students will have the opportunity to submit their paper draft in RADS 5110, Research II course, receive feedback, and complete revisions before final grade. Faculty will better advise students on expectations of research assignments in all courses threaded throughout the curriculum. In addition, faculty have added a new resource center in moodle for students to access material to help students improve their writing skills. Additional resources such as free asynchronous paper editing services, writing workshops, library search tutorials, how to find peer-reviewed resources, and APA tutorials and format tips will be posted in the courses and resource center to help support student learning. Another valuable resource is directing students to the college's statistician for specific guidance on conducting research.

Decisions:
In terms of students' ability to conduct research studies to contribute to and improve the practice of the radiologic sciences, evidence shows one or two students who did not meet the three benchmarks set for this SLO. Based on the analysis of results from the 2017 AY, the following actions will be implemented in 2018:

- In, RADS 5910, require students to submit paper drafts more often and receive feedback for moving forward.
- Schedule facilitated one on one writing sessions.
- Advise students to meet with statistician for final paper.
- Strengthen writing skills in pre-requisite courses.
- Allow students to submit paper draft and receive feedback before submitting final draft in RADS 5110.

Assessment Year: 2017

- Continue to have statistician team teach RADS 5123.
- Direct students to new resource center shell in moodle.

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

<table>
<tr><th>Outcome</th><th>Tool</th><th>Benchmark</th><th>Results</th><th>Met</th><th>Unmet</th></tr>
<tr>
<td>V. Evaluate ethical standards in practice as a radiologic sciences educator or administrator.</td>
<td>A. Core and Concentration Sections of the Comprehensive Exam.</td>
<td>90% of students will score 80% or better on both sections for first attempt.</td>
<td>
<table>
<tr><th></th><th colspan="2">2017</th><th colspan="2">2016</th><th colspan="2">2015</th></tr>
<tr><td></td><td>Core</td><td>Conc</td><td>Core</td><td>Conc</td><td>Core</td><td>Conc</td></tr>
<tr><td>N</td><td colspan="2">8</td><td>8</td><td>8</td><td>6</td><td>6</td></tr>
<tr><td>Mean</td><td>83</td><td>80</td><td>82.5</td><td>85</td><td>87.8</td><td>62.8</td></tr>
<tr><td>Range</td><td>70-93</td><td>40-95</td><td>72-93</td><td>73-98</td><td>84-91</td><td>61-98</td></tr>
<tr><td>%</td><td>75</td><td>88</td><td>62.5</td><td>88</td><td>100</td><td>67</td></tr>
<tr><td># not met</td><td>2</td><td>1</td><td>3</td><td>1</td><td>0</td><td>2</td></tr>
</table>
<table>
<tr><th colspan="2">2014</th><th colspan="2">2013</th></tr>
<tr><td>Core</td><td>Conc</td><td>Core</td><td>Conc</td></tr>
<tr><td>4</td><td>4</td><td>9</td><td>9</td></tr>
<tr><td>86.2</td><td>87</td><td>80</td><td>76.2</td></tr>
<tr><td>80-90</td><td>84-90</td><td>5-98</td><td>66-94</td></tr>
<tr><td>100</td><td>100</td><td>77</td><td>89</td></tr>
<tr><td>0</td><td>0</td><td>2</td><td>1</td></tr>
</table>
</td>
<td>2014</td>
<td>2017
2016
2015
2013</td>
</tr>
<tr>
<td></td>
<td>B. Legal and Ethical presentation (RADS 5030)</td>
<td>100% of students will achieve an average of 85% or higher</td>
<td>
<table>
<tr><th></th><th>2017</th><th>2016</th><th>2015</th><th>2014</th><th>2013</th></tr>
<tr><td>N</td><td>7</td><td>9</td><td></td><td></td><td></td></tr>
<tr><td>Mean</td><td>99</td><td>98</td><td></td><td></td><td></td></tr>
</table>
</td>
<td>2017
2016</td>
<td></td>
</tr>
</table>

			Range	95-100	94-100						
			%	0	0						
			# not met	0	0	Tool not used	Tool not used	Tool not used			

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

Findings:

Measure A: Core and Concentration Sections of Comprehensive Exam
2017: Unmet, only 75% of students achieved an 80% or higher on Core section. Only 88% of students achieved an 80% or higher on Concentration section.
2016: Unmet, only 62% of students achieved an 80% or higher on Core section. Only 88% of students achieved an 80% or higher on Concentration section.
2015: Unmet, only 67% of students achieved an 80% or higher on Concentration section. Met, 100% of students achieved an 80% or higher on Core section.
2014: Met, 100% of students achieved an 80% or higher on Core and Concentration sections.
2013: Unmet, only 77% of students achieved an 80% or higher on Core section. Only 89% of students achieved an 80% or higher on Concentration section.

Measure B: RADS 5030 Legal and Ethical Presentation
2017: Met, 100% of students achieved an 80% or higher.
2016: Met, 100% of students achieved an 80% or higher.
2015: Tool not used.
2014: Tool not used.
2013: Tool not used.

Assessment Year: 2017

Analysis:

The tool used for measure A (comprehensive exam) was revised to multiple choice with justification questions in 2017. In 2016, the test questions consisted of short answer, fill in the blank, and few multiple-choice. Faculty felt the grading for the test was more subjective, and the grading was divided among the faculty who taught the content. Faculty discussed practicing more consistent grading and making sure the content of the questions is asking the student what we really want them to know to meet program objectives. As a result, faculty revised the questions to all multiple choice in which students will provide examples, support, and explanation of their chosen answer.

Measure B (RADS 5530 Legal and Ethical Presentation) was identified as another tool to help measure student's ability to evaluate ethical standards in practice as a radiologic sciences educator or administrator. Faculty did not want to solely measure their skills based on one tool. Measure B is an audio presentation in which student's research ethical and legal dilemmas most commonly faced in healthcare. Students share their audio presentation with one another and answer a set of questions per presentation for a grade. Many ethical topics are discussed.

For the 2017 assessment cycle, the students were not successful for the following reasons:

Measure A: Core and Concentration Sections of the Comprehensive Exam: As previously mentioned, two students were identified who experienced added stress and challenges during the time they took the comprehensive exam.

In looking at these results, a possible common thread is personal circumstances that occurred during the time the students were completing the targeted assignments. Two students expressed personal challenges that added stress.

Measure A: 2017 assessment cycle, during the evaluation of this SLO for measure A, faculty discussed taking into consideration the range of scores for the number of students who met, but also had the lowest scores on both assignments. Faculty made notes on the strength of justification answers for comprehensive final and better advised students in providing examples for testing. Moving forward in 2018, faculty are scheduling online web sessions to better advise students in how to prepare for the comprehensive exam the core and concentration sections. Test content is better emphasized throughout the curriculum in various assignments. Students are reminded of course objectives and advised to develop a portfolio as a study guide and add content each semester in preparation of the comprehensive exam. Prior to the exam, faculty will reach out to students early and advise them on how to best prepare for the exam and discuss what's going on in their life to make sure they are ready to schedule and take the exam.

Assessment Year: 2017

For measure B (presentation in RADS 5030) faculty plan to post sample presentations to help students envision the expected quality of assignments.

Decisions:
In terms of students' ability to evaluate ethical standards in practice as a radiologic sciences educator or administrator, evidence shows a decrease for Measure A used to assess this SLO. However, much of the decrease is possible due to personal issues student encountered during the assessment cycle, but there is still room for improvement. The following actions will be implemented:

- Advise students each semester to save their syllabi, graded assignments, and add to their portfolio study guide in preparation of comprehensive final.
- Increase test pool for comprehensive exam with consistent test question format.
- Incorporate more electronic resources for student learning in new resource center and individual courses.
- Identify interventions that may help at-risk students to help prepare for comprehensive exam.
- Post sample presentations

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

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

As always, continuous improvement is a focus for the program. With the focus of continuous improvement 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 2017 assessment cycle related to the student learning outcomes for the MSRS program:

- SLO 1: Utilize critical thinking skills to resolve issues in radiologic or healthcare related problems.
    - Comprehensive exam was revised to multiple choice with justification questions
    - Critical analysis paper was identified as another tool to help measure student's critical thinking skills

Assessment Year: 2017

- SLO 2: Apply research evidence and skills in the practice setting as an educator or administrator in the radiologic sciences to improve practice.
    - The “research” section of comprehensive exam was moved to the core section of the exam along with formatting test questions
    - The practicum portfolio assignment was evaluated to better accommodate students during their practicum experiences and faculty decided to create the Evidence Based Practice Project for Education and Administration for 2018

- SLO 3: Demonstrate effective communication skills in professional settings to maintain collegial and collaborative relationships.
    - Free APA tutorial and resources were added for students to practice correct paper format
    - Faculty provided more feedback to students on their writing assignments

- SLO 4: Conduct research studies to contribute to and improve the practice of the radiologic sciences.
    - Redesigned RADS 5910 to help students stay on track and submit smaller portions of their paper at different time periods
    - Recommended statistician to help serve as a tutor
    - Added free APA tutorial and resources
    - Faculty provided more feedback to students on their writing assignments
- SLO 5: Evaluate ethical standards in practice as a radiologic sciences educator or administrator
    - Added presentation in RADS 5030 as an additional tool
    - Revised comprehensive exam question format

Plan of Action Moving Forward. Based on the analysis of evidence provided from the 2017 assessment plan, the MSRS program will make the following changes for continuous program improvement in the 2018 AY:

- SLO 1: Utilize critical thinking skills to resolve issues in radiologic or healthcare related problems.
    - Advise students each semester to save their syllabi, graded assignments, and create a portfolio study guide in preparation of comprehensive final.
    - Schedule web advising sessions in preparation of comprehensive exam
    - Increase test pool for comprehensive exam with consistent test question format
    - Incorporate more electronic resources for student learning in new resource center and individual courses

- Include free editing services provided by the Academic Success Center in the resource center
- Inform students of free counseling services
- Provide detailed feedback on writing assignments so students can improve on their mistakes
- Reach out to students early who are falling behind in submitting assignments and find out why they are struggling and encourage them to complete their work
- Identify students who exhibit behavior or academic performance that puts them at risk of dropping out of the program.
- Identify interventions that may help at-risk students get back on track to graduate.

- SLO 2: Apply research evidence and skills in the practice setting as an educator or administrator in the radiologic sciences to improve practice.
  - Advise students each semester to save their syllabi, graded assignments, and add to their portfolio study guide in preparation of comprehensive final
  - Increase test pool for comprehensive exam with consistent test question format
  - Incorporate more electronic resources for student learning in new resource center and individual courses
  - Revise measure B for students to submit more frequent portions, in smaller increments, and receive feedback
  - Reach out to students early who are falling behind in submitting assignments and find out why they are struggling and encourage them to complete their work
  - Identify students who exhibit behavior or academic performance that puts them at risk of dropping out of the program
  - Identify interventions that may help at-risk students get back on track to graduate

- SLO 3: Demonstrate effective communication skills in professional settings to maintain collegial and collaborative relationships.
  - Provide more feedback on writing assignments by allowing students to submit their first draft and receive feedback before final draft in RADS 5010 and 5110
  - Incorporate more electronic resources for student learning in new resource center and individual courses
  - Better advise students of the expectations for both written and verbal communication assignments
  - Provide sample presentations as a guide

- SLO 4: Conduct research studies to contribute to and improve the practice of the radiologic sciences.
  - In, RADS 5910, require students to submit paper drafts more often and receive feedback for moving forward

- Schedule writing sessions
- Advise students to meet with statistician for final paper
- One on one writing sessions to help guide students as they prepare to write for a pre-determined time
- Strengthen writing skills in pre-requisite courses
- Allow students to submit paper draft and receive feedback before submitting final draft in RADS 5110
- Continue to have statistician team teach RADS 5123
- Direct students to new resource center shell in Moodle

- SLO 5: Evaluate ethical standards in practice as a radiologic sciences educator or administrator.
  - Advise students each semester to save their syllabi, graded assignments, and add to their portfolio study guide in preparation of comprehensive final
  - Increase test pool for comprehensive exam with consistent test question format
  - Incorporate more electronic resources for student learning in new resource center and individual courses
  - Identify interventions that may help at-risk students to help prepare for comprehensive exam
  - Post sample presentations

Summary of 2016-2017 Assessment for the Master of Science in Radiologic Sciences (MSRS) program.
The assessment of the student learning outcomes for the MSRS program revealed some useful results. There was a combination of benchmarks that decreased while others remained the same for the 5 SLOs. However, faculty have action plans to improve all 5 SLOs. Some changes were implemented in the program during the 2016 assessment cycle. First, faculty identified additional tools to assess student learning outcomes. Second, faculty decided to revise the format of the comprehensive exam tool for more consistent grading and assessment of content. Third, faculty added supplemental resources in courses to help improve student's writing skills. Fourth, faculty decided to have students submit sections of their final paper more often to receive feedback and make students more accountable for working on their paper. Lastly, the faculty directed students to work with statistician in 2017. The MSRS assessment committee decided to reexamine the benchmarks for the SLOs for the next assessment plan cycle. Faculty discussed separating the benchmarks for students meeting two assignments and measure the assignments individually where the assignment best matches the SLO.