# Assessment Year: 2018-2019

## Master of Science in Radiologic Sciences

**College: Nursing and School of Allied Health**

**Assessment Year: 2018**

Prepared by: Dr. Tammy Curtis Date: March 14, 2019

Approved by: Dr. Dana Clawson, Dean Date: June 10, 2019

**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

**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.

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## Student Learning Outcomes.

<table>
<tr><th>Student Learning Outcome</th><th>Tool</th><th>Benchmark</th><th>Results</th></tr>
<tr><td>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>2018</th><th>2017</th><th>2016</th><th>2015</th><th>2014</th></tr>
<tr><td>N</td><td>3</td><td>8</td><td>8</td><td>6</td><td>4</td></tr>
<tr><td>Mean</td><td>79.6</td><td>83</td><td>82.5</td><td>87.8</td><td>86.2</td></tr>
<tr><td>Range</td><td>65-91</td><td>62-93</td><td>72-93</td><td>84-91</td><td>80-90</td></tr>
<tr><td>%</td><td>66</td><td>75</td><td>63</td><td>100</td><td>100</td></tr>
<tr><td># not met</td><td>1</td><td>2</td><td>3</td><td>0</td><td>0</td></tr>
</table>
</td></tr>
<tr><td></td><td>B. Critical Analysis Paper (RADS 5020)</td><td>100% of students will achieve an average of 85% or higher</td><td>
<table>
<tr><th></th><th>2018</th><th>2017</th><th>2016</th><th>2015</th><th>2014</th></tr>
<tr><td>N</td><td>11</td><td>10</td><td></td><td></td><td></td></tr>
<tr><td>Mean</td><td>90.7</td><td>83.6</td><td></td><td></td><td></td></tr>
<tr><td>Range</td><td>74-98</td><td>50-92</td><td></td><td></td><td></td></tr>
<tr><td>%</td><td>90</td><td>90</td><td></td><td></td><td></td></tr>
<tr><td># not met</td><td>1</td><td>1</td><td>Tool not used</td><td>Tool not used</td><td>Tool not used</td></tr>
</table>
</td></tr>
</table>

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

**Findings:**

**Measure A: Core Section of Comprehensive Exam**
2018: Unmet, only 66% of students achieved an 80% or higher.
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

**Measure B: RADS 5020 Critical Analysis Paper**
2018: Unmet, only 90% of students achieved an 85% or higher.
2017: Unmet, only 90% of students achieved an 85% or higher.
2016: Tool not used.
2015: Tool not used.
2014: Tool not used.

**Analysis:**
As a result of being unmet in 2017 assessment cycle, the tool used for measure A (comprehensive exam) was updated in 2018. The faculty coordinator compared syllabi, course objectives, and individual assignments in the courses to existing test questions. The faculty coordinator revised some existing questions for clarification, deleted some weak questions, and added new questions to test pool.

Moving forward, faculty discussed making sure the exam questions are in alignment with course and lesson objectives as well as relating to previous course assignments. An observation worth noting is the number of students who are eligible to take the exam in either Spring or Fall will fluctuate due to students entering program in different semesters. Another factor to consider is some students take one class (3 hours) in a semester instead of two (6 hours), which prolongs their graduation date. Therefore, the number of students taking the comprehensive exam in Spring of 2018 was less than previous years resulting in one out of three students who did not meet this benchmark. Measure B (critical analysis paper) is another tool to help measure student's critical thinking skills. Faculty do not want to solely measure their skills based on one tool. The lesson objectives for this paper supports SLO I.

For the 2018 assessment cycle, the students were not successful for the following reasons:

**Measure A: Core Section of the Comprehensive Exam:**
In 2018, one student did not score an 80 or higher on her first attempt. This student just had a baby and admitted that she did not study or prepare the way she should have prior to the test. Before taking the exam the second time, the faculty scheduled an advising session to help the student focus on how to better prepare for the exam.

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**Measure B: RADS 5020 Critical Analysis Paper:** In 2018, one student scored below the 85% benchmark. Taking a closer look at the student's grade on this assignment, the student mastered the understanding and content of the paper but lacked in APA format which caused the most points deducted on this assignment. While this measure was unmet due to one student, the mean score improved a good bit from last year showing some improvement in student performance on this measure.

**Action Plan:** In the 2018, faculty tried to better advise students in studying for the comprehensive exam. Faculty provided feedback for individual assignments and advised students to save the assignments and graded feedback to help them improve on learning the content. Faculty advised the students both individually and as a group on main topics discussed in courses. As far as APA, faculty provided free APA resources and referred students back to the resources as part of grading feedback. Moving forward in the 2019 assessment cycle, test content will be emphasized throughout the curriculum in various assignments. Faculty will thread reminders in weekly announcements for students to save their work and keep graded feedback. Students will be encouraged to use their completed assignments as a guide to help prepare for the comprehensive exam and create a portfolio type study guide. Faculty will schedule online advising sessions to help students prepare for the exam. Faculty are reviewing test questions and student answers for quality, and plan to create new questions for all sections of comprehensive exam.

To improve measure B in 2018, faculty focused on helping the students improve their writing skills and understand grading rubrics. Faculty 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, were added in individual courses and the new MSRS resource center to help support student learning. In addition, during advising, faculty targeted the student's personal wellbeing each semester. Faculty added the university's counseling services to the new resource center and inform students of the free counselling services. Faculty reached 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 contacted students when they missed assignment deadlines. Moving forward in 2019, to improve measure B, faculty are adding a "writing quality" component as part of the student's grade for all written assignments. This component will be added to all MSRS course assignment rubrics and described in the syllabi. The writing component will help make students accountable for the quality of writing throughout the program. The writing component will also make students aware of their level of writing each semester in hopes of encouraging them to improve as they progress throughout the program. Second, faculty are adding a plagiarism component (Turn-it-In) to all written assignments including discussion forums. Students will be responsible for checking for plagiarism before submitting their work. Students will receive an automatic zero for submitting assignments above 15% originality report. Third, faculty are

adopting Grammarly program to assist in grading student's papers for sentence structure, grammar, spelling, etc. This program will help faculty grade writing quality, so faculty can better focus on content. Fourth, the assignment deadline for the critical analysis paper is being moved to later date in the semester to allow students to get some feedback from instructors before submitting the assignment.

**Decisions:**
In terms of students' ability to utilize critical thinking skills to resolve issues in radiologic or healthcare related problems, evidence shows there is still a need to improve measures used to assess this SLO. The following actions will be implemented:

- Increase student's accountability for writing quality throughout program by adding a "writing quality" component as part of the student's grade for all written assignments.
- Adopt Grammarly program to assist in grading student's papers and providing student feedback.
- Require students to check for plagiarism by submitting all written assignments to Turn-it-In.
- Move measure B assignment due date to a later time thus allowing students to receive faculty feedback earlier in the semester.
- Advise students each semester to save their syllabi, graded assignments, and create study guide in preparation of comprehensive final.
- Schedule web advising sessions in preparation of comprehensive exam.
- Revise test questions in exam pool to align with course objectives, lesson objectives, individual assignments.
- Create new test questions in comprehensive exam pool.
- Incorporate current electronic resources for student learning in 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.

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

## Assessment Year: 2018-2019

<table>
<tr><th>Student Learning Outcome</th><th>Tool</th><th>Benchmark</th><th>Results</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 Section of the Comprehensive Exam<br><br>B. Evidence based practice project for education and administration RADS 5510/ 5530</td>
<td>90% of students will score an 80 or better on both sections for first attempt.<br><br>100% of students will score an 80 or higher on evidence based project</td>
<td>
<table>
<tr><th></th><th>2018</th><th>2017</th><th>2016</th><th colspan="2">2015</th><th colspan="2">2014</th></tr>
<tr><td>N</td><td>3</td><td>8</td><td>8</td><td colspan="2">6</td><td colspan="2">4</td></tr>
<tr><td></td><td>R/C</td><td>R/C</td><td>R/C</td><td>R</td><td>C</td><td>R</td><td>C</td></tr>
<tr><td>Mean</td><td>79.6</td><td>83</td><td>82.5</td><td>87.8</td><td>87.8</td><td>93.2</td><td>86.2</td></tr>
<tr><td>Range</td><td>65-91</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></tr>
<tr><td>%</td><td>66</td><td>75</td><td>62</td><td>100</td><td>100</td><td>100</td><td>100</td></tr>
<tr><td># not met</td><td>1</td><td>2</td><td>3</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
</table>
<table>
<tr><th></th><th>2018</th><th>2017</th><th>2016</th><th>2015</th><th>2014</th></tr>
<tr><td>N</td><td>4</td><td>4</td><td>12</td><td></td><td></td></tr>
<tr><td>Mean</td><td>91.25</td><td>92.2</td><td>93.1</td><td></td><td></td></tr>
<tr><td>Range</td><td>79-100</td><td>87-94</td><td>80-100</td><td></td><td></td></tr>
<tr><td>%</td><td>75</td><td>100</td><td>100</td><td></td><td></td></tr>
<tr><td># not met</td><td>1</td><td>0</td><td>0</td><td>Tool not used</td><td>Tool not used</td></tr>
</table>
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</tr>
</table>

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

## Assessment Year: 2018-2019

**Findings:**

**Measure A: Core and Research Sections of Comprehensive Exam**
2018: Unmet, only 66% of students achieved an 80% or higher.
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

**Measure B: RADS 5510/5530 Evidence Based Practice Project for Education and Administration**
2018: Unmet, 75%, of students scored an 80% or higher.
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.

**Analysis:**
Measure A (comprehensive exam) includes questions from RADS 5010 – Research I and RADS 5110 – Research II which are core courses within the curriculum. As a result of being unmet in 2017 assessment cycle, the tool used for measure A (comprehensive exam) was updated. The faculty coordinator compared syllabi, course objectives, and individual assignments in the courses to existing test questions. The faculty coordinator revised some existing questions for clarification, deleted some weak questions, and added new questions to test pool. Moving forward in 2019, faculty discussed making sure the exam questions are in alignment with course and lesson objectives as well as relating to previous course assignments. New questions are being added to the test pool.

Measure B (Evidence Based Practice [EBP] Project for Education and Administration) is another tool used to help measure student's application of research and evidence skills in their career setting. Measure B is a new project implemented 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 course was redesigned in 2018 to better accommodate students having difficulty securing an external site to complete their practicum practice. While measure B was unmet, one student scored a 79 which is one point below the benchmark of an 80. The student's weak area was lack of support for her project plan. However, since this is a fairly new tool in 2018, faculty have identified

revising the assignment and adding more micro steps to help guide students during the process. Students will be 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 2018 assessment cycle, the students were not successful for the following reasons:

**Measure A: Core Section of the Comprehensive Exam:** As previously mentioned, in 2018, one student did not score an 80 or higher on her first attempt. This student just had a baby and admitted that she did not study or prepare the way she should have prior to the test. Before taking the exam the second time, the faculty scheduled an advising session to help the student focus on how to better prepare for the exam. An observation worth noting is the number of students who are eligible to take the exam in either Spring or Fall will fluctuate due to students entering program in different semesters. Another factor to consider is some students take one class (3 hours) in a semester instead of two (6 hours), which prolongs their graduation date. Therefore, the number of students taking the comprehensive exam in Spring of 2018 was less than previous years resulting in one out of three students who did not meet this benchmark.

**Measure B (Evidence Based Practice [EBP] Project for Education and Administration):** While measure B was unmet, one student scored a 79 which is one point below the benchmark of an 80. The student's weak area was lack of support for her project plan.

**Action Plan:** Faculty scheduled online web sessions to better advise students in how to prepare for the comprehensive exam. Test content was better emphasized throughout the curriculum in various assignments. Students were 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. Moving forward in the 2019 assessment cycle, test content will be emphasized throughout the curriculum in various assignments. Faculty will thread reminders in weekly announcements for students to save their work and keep graded feedback. Students will be encouraged to use their completed assignments as a guide to help prepare for the comprehensive exam and create a portfolio type study guide. Faculty will schedule online advising sessions to help students prepare for the exam. Faculty are reviewing test questions and student answers for quality, and plan to create new questions for all sections of comprehensive exam.

Keeping in mind that measure B is a fairly new tool, in 2018, faculty identified areas of improvement for assignments by adding more detailed steps to help guide students during the process, have students submit smaller more frequent sections of the project and make students more accountable throughout the semester. In 2019, for measure B

(EBP project), faculty are revising the course assignments and due dates. Faculty are adding more deadlines for EBP assignments in multiple stages making students more focused and accountable. Faculty will check student's progress and give feedback before their next steps. Students will make decisions concerning their EBP the first week of class. The Graduate coordinator is advising students the semester before in selecting an external mentor ahead of time and submitting a letter of intent to work with mentor the first week of class.

**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, the following actions will be implemented:

- Increase student's accountability for writing quality throughout program by adding a "writing quality" component as part of the student's grade for all written assignments.
- Adopt Grammarly program to assist in grading student's papers and providing student feedback.
- Require students to check for plagiarism by submitting all written assignments to Turn-it-In.
- 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 assignments earlier, submit assignments more frequently, submit assignments in smaller increments, and receive more feedback before progressing.

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></tr>
<tr>
<td>III. Demonstrate effective communication skills in professional settings to maintain collegial and collaborative relationships.<br><br>2019: Revised Demonstrate effective communication skills in professional settings to maintain collegial, collaborative, and interdisciplinary relationships.</td>
<td>A. Research paper and presentation (RADS 5110).<br><br>2019: Add Group Presentation 5110.<br><br>B. Presentation (RADS 5030)</td>
<td>100% of students will achieve an average of 85% or higher on the two assignments combined.<br><br>100% of students will achieve an average of 85% or higher</td>
<td>
<table>
<tr><th></th><th colspan="2">2018</th><th colspan="2">2017</th><th colspan="2">2016</th></tr>
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<tr><td></td><td>Pres</td><td>Paper</td><td>Pres</td><td>Paper</td><td>Pres</td><td>Paper</td></tr>
<tr><td>Mean</td><td>92.8</td><td>69.8</td><td>97</td><td>83.6</td><td>93</td><td>85.3</td></tr>
<tr><td>Range</td><td>84-98</td><td>44-90</td><td>90-100</td><td>64-97</td><td>70-100</td><td>69-96</td></tr>
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<tr><th></th><th colspan="2">2015</th><th>2014</th></tr>
<tr><td>N</td><td colspan="2">6</td><td>4</td></tr>
<tr><td></td><td>Pres</td><td>Paper</td><td>P&P Combined</td></tr>
<tr><td>Mean</td><td>97</td><td>78</td><td>91</td></tr>
<tr><td>Range</td><td>90-100</td><td>57- 91</td><td>91-93</td></tr>
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</table>
<table>
<tr><th></th><th>2018</th><th>2017</th><th>2016</th><th>2015</th><th>2014</th></tr>
<tr><td>N</td><td>9</td><td>7</td><td>9</td><td>6</td><td>4</td></tr>
<tr><td>Mean</td><td>95.3</td><td>99</td><td>98</td><td>98</td><td>98</td></tr>
<tr><td>Range</td><td>80-100</td><td>95-100</td><td>94-100</td><td>95-100</td><td>96-100</td></tr>
</table>
</td>
</tr>
</table>

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | % | 100 | 100 | 100 | 100 | 99 |
| | | | # 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.**
2018: Unmet, only 42% of students achieved an 85% or higher on the research paper assignment. 100% met for presentation.
2017: Unmet, only 60% of students achieved an 85% or higher on the research paper assignment. 100% met for presentation.
2016: Unmet, only 75% of students achieved an 85% or higher on the research paper assignment. Unmet, 87% achieved an 85% or higher for presentation.
2015: Unmet, only 67% of students achieved an 85% or higher on the research paper assignment. 100% met for presentation.
2014: Met, 100% of students achieved an 85% or higher on combined scores.

**Measure B: RADS 5030 Presentation**
2018: Met, 100% of students achieved an 85% or higher.
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.

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**Analysis:**
The tool used for measure A (research paper and presentation) is a combination of both verbal and written communication. Students developed a presentation based on their written paper assignment; thus these two assignments are averaged as the benchmark. The presentation was shared with their classmates while promoting additional communication among their peers. During the 2016, 2017, 2018 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 2018 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.

**Action Plan:** In 2018 assessment cycle, faculty planned additional strategies to help strengthen the students writing skills beginning in RADS 5010 Research I course. Students were given the opportunity to submit a draft of their paper in RADS 5010, receive feedback, and complete revisions for their final draft. In addition, students had the opportunity to submit their paper draft in RADS 5110, Research II course, receive feedback, and complete revisions before final grade. Faculty tried to better advise students on expectations of research assignments in all courses threaded throughout the curriculum. In addition, faculty 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 were 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 posted sample presentations to help students envision the expected quality of assignments. Moving forward in 2019, to improve SLO III, faculty discussed adding a new measurement tool to help better measure collegial and collaborative communication, in particular, a group presentation assignment in RADS 5110. Students collaborate in developing and presenting as a group with their peers. Upon further discussion, faculty want to help equip future radiology leaders to facilitate team communication to include the various imaging modalities in our profession. With this in mind, faculty would like to revise the SLO to include an interdisciplinary team communication approach which would involve team members with different specialized training to work collaboratively to reach a common purpose, to set goals, to

make decisions, and to share resources and responsibilities. As a result, faculty would like to add "interdisciplinary" relationship to the existing SLO. To measure the revised SLO in 2019, faculty decided to use the three separate presentation assignments to measure SLO III: (1) group presentation in RADS 5110, (2) individual presentation in RADS 5110, and (3) individual presentation in RADS 5030. Faculty are implementing several strategies to improve student's writing throughout the program and will use writing assignments as benchmarks for other SLOs.

**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 measure A used to assess this SLO. The following actions will be implemented:

- Add a new group presentation assignment tool from RADS 5110
- Revise the SLO to include team communication in support of interdisciplinary relationships
- Keep individual prestation assignments for RADS 5030 and RADS 5110 as measurement tools
- Remove RADS 5110 paper assignment

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></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>2018</th><th>2017</th><th>2016</th><th>2015</th><th>2014</th></tr>
<tr><td>N</td><td>3</td><td>8</td><td>4</td><td>6</td><td>4</td></tr>
<tr><td>Mean</td><td>96</td><td>97</td><td>97</td><td>98</td><td>97</td></tr>
<tr><td>Range</td><td>89-100</td><td>79-100</td><td>89-100</td><td>93-100</td><td>89-100</td></tr>
<tr><td>%</td><td>100</td><td>94</td><td>100</td><td>100</td><td>100</td></tr>
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</td></tr>
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## Assessment Year: 2018-2019

<table>
<tr>
<td></td>
<td>B. Survey development project (RADS 5123)</td>
<td>100% of students will receive a score of 85% or higher.</td>
<td>
<table>
<tr><th></th><th>2018</th><th>2017</th><th>2016</th><th>2015</th><th>2014</th></tr>
<tr><td>N</td><td>8</td><td>8</td><td>9</td><td>6</td><td>4</td></tr>
<tr><td>Mean</td><td>93.1</td><td>88.3</td><td>92.4</td><td>93.1</td><td>93.2</td></tr>
<tr><td>Range</td><td>86-100</td><td>69-100</td><td>76-98</td><td>90-96</td><td>91-94</td></tr>
<tr><td>%</td><td>100</td><td>87.5</td><td>89</td><td>100</td><td>100</td></tr>
<tr><td># not met</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td></tr>
</table>
</td>
</tr>
<tr>
<td></td>
<td>C. Research Paper (RADS 5110)</td>
<td>100% of students will achieve an average of 80% or higher</td>
<td>
<table>
<tr><th></th><th>2018</th><th>2017</th><th>2016</th><th>2015</th><th>2014</th></tr>
<tr><td>N</td><td>7</td><td>5</td><td>8</td><td>6</td><td></td></tr>
<tr><td>Mean</td><td>69.8</td><td>83.6</td><td>85.3</td><td>78</td><td></td></tr>
<tr><td>Range</td><td>44-90</td><td>64-97</td><td>69-96</td><td>57-91</td><td></td></tr>
<tr><td>%</td><td>42</td><td>60</td><td>75</td><td>67</td><td></td></tr>
<tr><td># not met</td><td>4</td><td>2</td><td>2</td><td>2</td><td>Tool not used</td></tr>
</table>
</td>
</tr>
</table>

## Assessment Year: 2018-2019

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

**Findings:**

**Measure A: RADS 5910 Applied Research Project**
2018: Met, 100% of students achieved an 85% or higher.
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.

**Measure B: RADS 5123 Survey Development Project**
2018: Met, 100% of students achieved an 85% or higher.
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.

**Measure C: RADS 5110 Research Paper**
2018, Unmet, only 42% of students achieved an 80% or higher.
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.

**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. While this measure was met in 2018, there is room for improvement concerning strengthening student's writing and research skills.

## Assessment Year: 2018-2019

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. As a result of this advanced level assignment, students are expected to seek help in areas of data collection, methods for presenting and communicating results and findings. While this benchmark was met in 2018, there is room for improvement for developing survey questions and analyzing data.

The tool used for measure C (RADS 5110 Research Paper) challenges the student to conduct a literature review. The literature review paper precedes the final research paper in RADS 5910.

For the 2018 assessment cycle, the students were not successful for the following reasons:

**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. Students struggled with grammar, APA format, synthesizing multiple sources and organizing main thoughts to answer their research questions.

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.

**Action Plan:** In 2018 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: Faculty redesigned the course to help students stay on track and submit smaller portions of their paper at different time periods. The students started out by submitting a proposed timeline which also incorporated assignment deadlines and graduate school deadlines. Students were prompted to submit smaller sections of their paper throughout the course, receive feedback, and then move forward with their writing. Students were accountable for communicating with the faculty more often and accountable for submitting more drafts of their paper to help reduce the number of repetitive mistakes. Moving forward in 2019, students will work with their assigned lead faculty to guide them in completion of their final research paper. Faculty will encourage students to stay on track, meet realistic deadlines, and complete edits in a timely manner. Faculty will set conference calls to make sure students understand the direction of their papers. Faculty will reach out to students frequently and remind students that by delaying their paper submissions, this will most likely cause them to not graduate during the current semester.

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Measure B: For RADS 5123, in 2018, faculty invited the statistician to help serve as a tutor for this course. The statistician also helped team teach this course and the research courses. Moving forward in 2019, the statistician will continue to help team teach the assigned courses and guide students in the survey development project as well as continue to serve as tutor. Faculty will provide students guidance and resources to be successful in completing the survey development project.

Measure C: In 2018 assessment cycle, during the evaluation of this SLO, faculty discussed ways to help improve the student's writing skills. Faculty provided more feedback to students on their writing assignments in RADS 5010 Research I course which is a pre-requisite for RADS 5110. Students had the opportunity to submit a draft of their paper in RADS 5010, receive feedback, and complete revisions for their final draft. In addition, students were given the opportunity to submit their paper draft in RADS 5110, Research II course, receive feedback, and complete revisions before final grade. Faculty advised students on expectations of research assignments in all courses threaded throughout the curriculum. In addition, faculty referred students to the 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 were posted in the courses and resource center to help support student learning. Faculty directed students to the college's statistician for specific guidance on conducting research. Moving forward in 2019, to improve measure C, faculty are adding a "writing quality" component as part of the student's grade for all written assignments. This component will be added to all MSRS course assignment rubrics and described in the syllabi. The writing component will help make students accountable throughout the program. The writing component will also make students aware of their level of writing each semester in hopes of encouraging them to improve over the course of the program. Second, faculty are adding a plagiarism component (Turn-it-In) to all written assignments including discussion forums. Students will be responsible for checking for plagiarism before submitting their work. Students will receive an automatic zero for submitting assignments above 15% originality report. Third, faculty are adopting Grammarly program to assist in grading student's papers for sentence structure, grammar, spelling, etc. This program will help faculty grade writing quality, so faculty can better focus on content.

**Decisions:**
In terms of students' ability to conduct research studies to contribute to and improve the practice of the radiologic sciences, evidence shows that students met measures A and B, but several students did not meet measure C for this SLO. The following actions will be implemented:

- Increase student's accountability for writing quality throughout program by adding a "writing quality" component as part of the student's grade for all written assignments.

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- Adopt Grammarly program to assist in grading student's papers and providing student feedback.
- Require students to check for plagiarism by submitting all written assignments to Turn-it-In.
- In, RADS 5910, require students to submit paper drafts more often and receive feedback for moving forward.
- Schedule facilitated one on one writing sessions.
- Frequently remind students of meeting paper deadlines to graduate on time.
- 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.
- Continue to have statistician team teach RADS 5123.
- Direct students 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></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">2018</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><td>Core</td><td>Conc</td></tr>
<tr><td>N</td><td colspan="2">3</td><td colspan="2">8</td><td>8</td><td>8</td><td>6</td><td>6</td></tr>
<tr><td>Mean</td><td>79.6</td><td>78.6</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>65-91</td><td>66-85</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>66</td><td>66</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>1</td><td>1</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></tr>
<tr><td>Core</td><td>Conc</td></tr>
<tr><td>4</td><td>4</td></tr>
<tr><td>86.2</td><td>87</td></tr>
<tr><td>80-90</td><td>84-90</td></tr>
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</tr>
</table>

| | | | |
|---|---|---|---|
| | B. Legal and Ethical presentation (RADS 5030) | 100% of students will achieve an average of 85% or higher | 100 / 100<br>0 / 0<br><br>**2018**: N 9; Mean 95.3; Range 80-100; % 100; # not met 0<br>**2017**: N 7; Mean 99; Range 95-100; % 0; # not met 0<br>**2016**: N 9; Mean 98; Range 94-100; % 0; # not met 0<br>**2015**: Tool not used<br>**2014**: 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**
2018; Unmet, only 66% of students achieved an 80% or higher on Core section. Only 66% of students achieved an 80% or higher on Concentration section.
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.

**Measure B: RADS 5030 Legal and Ethical Presentation**
2018: Met, 100% of students achieved an 80% or higher.
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.

**Analysis:**

As a result of being unmet in 2017 assessment cycle, the tool used for measure A (comprehensive exam) was updated in 2018. The faculty coordinator compared syllabi, course objectives, and individual assignments in the courses to existing test questions. The faculty coordinator revised some existing questions for clarification, deleted some weak questions, and added new questions to test pool. Moving forward in 2019, faculty discussed making sure the exam questions are in alignment with course and lesson objectives as well as relating to previous course assignments. New questions will be added to the test pool.

Measure B (RADS 5530 Legal and Ethical Presentation) 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 2018 assessment cycle, the students were not successful for the following reasons:

**Measure A: Core and Concentration Sections of the Comprehensive Exam:** As previously mentioned, in 2018, one student did not score an 80 or higher on her first attempt. This student just had a baby and admitted that she did not study or prepare the way she should have prior to taking the test. As a result, this one student did not meet the benchmark for both the core and concentration sections of the exam. Before taking the exam the second time, the faculty scheduled an advising session to help the student focus on how to better prepare for the exam. An observation worth noting is the number of students who are eligible to take the exam in either Spring or Fall will fluctuate due to students entering program in different semesters. Another factor is some students take one class which prolongs their graduation date. Therefore, the number of students taking the comprehensive exam in Spring of 2018 was less than previous years resulting in one out of three students who did not meet this benchmark.

**Action Plan:**
Measure A: In 2018 assessment cycle, during the evaluation of this SLO for measure A, faculty reviewed student's justification answers for comprehensive final and based on these observations, faculty better advised students in providing examples for preparing for the comprehensive sections of the exam. Test taking strategies were communicated in individual courses as well as online web sessions. Test content was emphasized throughout the curriculum in various

assignments. Students were 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 reached out to students early and advised 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. Moving forward in the 2019, assessment cycle, test content will be emphasized throughout the curriculum in various assignments. Faculty will thread reminders in weekly announcements for students to save their work and keep graded feedback. Students will be encouraged to use their graded assignments as a guide to help prepare for the comprehensive exam and create a portfolio type study guide. Faculty will schedule online advising sessions to help students prepare for the exam. Faculty will review test questions and student answers for quality, and plan to create new questions for all sections of comprehensive exam.

For measure B (presentation in RADS 5030) faculty posted 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 possibly due to one student not fully preparing to take the exam. Also, there were fewer students taking the exam in 2018 when compared to 2017. The following actions will be implemented:

- Revise test questions in exam pool to align with course objectives, lesson objectives, individual assignments.
- Create new test questions in comprehensive exam pool.
- Advise students each semester to save their syllabi, graded assignments, and add to their portfolio study guide in preparation of comprehensive final.
- 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.

**Summary of 2018 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 2018 assessment cycle. First

the quality of the comprehensive exam test questions were examined and compared to student answers. Exam questions were revised for clarification. Faculty threaded advising in preparing for the comprehensive exam in each course. Faculty had students submit sections of their evidence-based project and final paper more often to receive feedback and make students accountable for working on their assignments in a timely manner. Faculty directed students to work with statistician for guidance on research projects. The MSRS assessment committee decided to reexamine the benchmarks for the SLOs for the next assessment plan cycle. Faculty decided to revise SLO III to support more team communication and add a new tool for measuring collaboration. The focus for 2019 is to improve student's writing skills throughout the program. Faculty will incorporate teaching strategies to help students be more accountable for their writing quality. These strategies include requiring students to check for originality for written assignments by using Turn-it-In plagiarism check. Faculty are also adopted Grammarly service to help grade grammar and spelling for all assignments. The feedback from Grammarly reports will to passed on to the students for revisions. In order to improve scores on the comprehensive final, faculty are reviewing syllabi, current assignments, course objectives and lesson objectives and making sure exam questions reflect content taught in the courses.

**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 2018 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.
    - Advised students each semester to save their syllabi, graded assignments, and add to their portfolio study guide in preparation of comprehensive final.
    - Scheduled web advising sessions in preparation of comprehensive exam.
    - Increased test pool for comprehensive exam with consistent test question format.
    - Incorporated more electronic resources for student learning in new resource center and individual courses.
    - Included free editing services provided by the Academic Success Center in the resource center.
    - Informed students of free counseling services.
    - Provided detailed feedback on writing assignments so students can improve on their mistakes.
    - Reached 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.
    - Identified students who exhibit behavior or academic performance that puts them at risk of dropping out of the program.

- Identified 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.
  - Advised students each semester to save their syllabi, graded assignments, and add to their portfolio study guide in preparation of comprehensive final.
  - Increased test pool for comprehensive exam with consistent test question format.
  - Incorporated more electronic resources for student learning in new resource center and individual courses.
  - Revised measure B for students to submit more frequent portions, in smaller increments, and receive feedback.
  - Reached 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.
  - Identified students who exhibit behavior or academic performance that puts them at risk of dropping out of the program.
  - Identified 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.
  - Provided more feedback on writing assignments by allowing students to submit their first draft and receive feedback before final draft in RADS 5010 and 5110.
  - Incorporated more electronic resources for student learning in new resource center and individual courses.
  - Better advised students of the expectations for both written and verbal communication assignments.
  - Provided sample presentations as a guide.

- SLO 4: Conduct research studies to contribute to and improve the practice of the radiologic sciences.
  - In, RADS 5910, required students to submit paper drafts more often and receive feedback for moving forward.
  - Scheduled facilitated one on one writing sessions.
  - Advised students to meet with statistician for final paper.
  - Strengthened writing skills in pre-requisite courses.
  - Allowed students to submit paper draft and receive feedback before submitting final draft in RADS 5110.
  - Continued to have statistician team teach RADS 5123.
  - Directed students to new resource center shell in moodle.

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

## Plan of Action Moving Forward

Based on the evidence provided from the 2018-2019 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.

    - Increase student's accountability for writing quality throughout program by adding a "writing quality" component as part of the student's grade for all written assignments.
    - Adopt Grammarly program to assist in grading student's papers and providing student feedback.
    - Require students to check for plagiarism by submitting all written assignments to Turn-it-In.
    - Move measure B assignment due date to a later time thus allowing students to receive faculty feedback earlier in the semester
    - Advise students each semester to save their syllabi, graded assignments, and create study guide in preparation of comprehensive final.
    - Schedule web advising sessions in preparation of comprehensive exam.
    - Revise test questions in exam pool to align with course objectives, lesson objectives, individual assignments.
    - Create new test questions in comprehensive exam pool.
    - Incorporate current electronic resources for student learning in 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.

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

- Increase student's accountability for writing quality throughout program by adding a "writing quality" component as part of the student's grade for all written assignments.
- Adopt Grammarly program to assist in grading student's papers and providing student feedback.
- Require students to check for plagiarism by submitting all written assignments to Turn-it-In.
- 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 assignments earlier, submit assignments more frequently, submit assignments in smaller increments, and receive more feedback before progressing.

- SLO 3: Demonstrate effective communication skills in professional settings to maintain collegial, collaborative, and interdisciplinary relationships.
  - Add a new group presentation assignment tool from RADS 5110.
  - Revise the SLO to include team communication in support of interdisciplinary relationships.
  - Keep individual prestation assignments for RADS 5030 and RADS 5110 as measurement tools.

- SLO 4: Conduct research studies to contribute to and improve the practice of the radiologic sciences.
  - Increase student's accountability for writing quality throughout program by adding a "writing quality" component as part of the student's grade for all written assignments.
  - Adopt Grammarly program to assist in grading student's papers and providing student feedback.
  - Require students to check for plagiarism by submitting all written assignments to Turn-it-In.
  - In, RADS 5910, require students to submit paper drafts more often and receive feedback for moving forward.
  - Schedule facilitated one on one writing sessions.
  - Frequently remind students of meeting paper deadlines to graduate on time.
  - 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.
  - Continue to have statistician team teach RADS 5123.
  - Direct students resource center shell in moodle.

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

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- Revise test questions in exam pool to align with course objectives, lesson objectives, individual assignments.
- Create new test questions in comprehensive exam pool.
- Advise students each semester to save their syllabi, graded assignments, and add to their portfolio study guide in preparation of comprehensive final.
- 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.