Assessment Cycle 2024 – 2025

MS in Computer Information Systems (597)

Division: School of Business, College of Business and Technology Prepared

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Approved by: Dr. Greg Handel, Provost **Date: July 2, 2025**

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

College of Business and Technology Mission. The College of Business and Technology provides a high quality – market responsive business and technology education, preparing our diverse student population for successful careers and enriched lives in the public, private and nonprofit sectors, and enhancing our students' academic experiences through our research and scholarly activities.

School of Business Mission. The mission of the School of Business is to provide our diverse student population with innovative skills in business and technology to prepare them for successful careers and responsible citizenship roles to have a positive societal impact in the world of business. (Adopted 2017-2018 – mission wording was revised to include "our diverse population"; Adopted 2020-2021 – mission wording was revised to reflect societal impact)

As such, NSU's School of Business is committed to …

Providing students with a business education. This means that we strive to provide students with opportunities to become effective communicators, critical thinkers, develop knowledge across business disciplines, and global perspective.

Preparing them for successful careers and citizenship roles. This means that we provide educational experience and opportunities.

…In the world of Business. This implies developing a global perspective that involves managing activities that foster the transfer of goods and services in organizations of all types wherever found.

Computer Information Systems Program Mission Statement: The mission of the MS in Computer Information Systems in the School of Business at Northwestern State is to prepare our diverse student populations for careers as

information systems and technology professionals in the public, private and nonprofit sectors, and/or for advancement into doctoral programs. This purpose will be met by providing quality online and face-to-face business and technology instruction and academic support with high academic standards, superior teaching, quality research, significant service, and effective use of technology for the citizens of our region. (Approved by CIS faculty on 6/9/2021).

Purpose: To prepare students for careers as business professionals in the public, private and nonprofit sectors, and/or for advancement into graduate programs.

Methodology: The assessment process for the School of Business includes:

(1) The MS in Computer Information Systems collects SLO data each year.

(2) A variety of assessment tools (quantitative, qualitative, direct and indirect) are used to collect data for analysis for each of the Student Learning Outcomes (SLOs).

(3) Data is collected and returned to the SLO Chairs.

(4) Summary results are analyzed to determine if students have achieved or "met" the measurable outcomes. When necessary, proposed action steps are created by each SLO chairman in collaboration with the SLO committee members, faculty teaching core courses, and the program coordinator.

(5) Following discussion and review by appropriate faculty, if needed, proposed recommended action steps, and recommended changes are implemented by the faculty responsible for teaching the courses tied to the SLO.

(6) Individual meetings are held with faculty and staff as required.

(7) In consultation with the staff and senior leadership, proposed changes to measurable outcomes, assessment tools for the next assessment period and, where needed, service changes will be recommended.

(8) These proposed recommended action steps and recommended changes are implemented by the faculty responsible for teaching the courses tied to the SLO.

Assessment Cycle 2024 – 2025

Student Learning Outcomes (SLOs):

SLO 1. <u>Demonstrate discipline-specific content knowledge</u>. Students should be able to demonstrate understanding of key concepts and theories in areas of CIS as well as demonstrate the ability to draw on knowledge and insights from a variety of disciplines when analyzing and formulating solutions to problems and opportunities.

Course Map (Tied to course syllabus objectives):

CIS 5950 – Research Project and/or Thesis

Measure 1.1 (Direct – Exam; Entrance Exam and Exit Exam)

Details/Description: The unit strives to give students the baseline knowledge exam prior to registration for their first semester. This exam covers key concepts and theories in Computer Information Systems. The exam included multiple choices questions as well as short answer questions. The questions are grouped into categories: Programming, Software Applications, Networking, Cyber Security, Databases, Data Analysis, and Project Management. The exam also includes questions related to analytical techniques and research questions.

In CIS 5950, students will again take the MS in Computer Information Systems knowledge exam. These students will be taking the exam in their last semester (or close to it) and their attempt should reflect the knowledge they have gained through the program.

Acceptable Target: For the exit exam, in each category, 75% of students will get all answers correct.

Ideal Target: For the exit exam, in each category, 95% of students will get all answers correct.

Implementation Plan (timeline): The entrance exam measurement is completed as students are entering the program and registering for classes. Students can enter the program in the spring, summer, or fall semesters.

The exit exam measure should be completed each semester CIS 5950 is offered.

Key/Responsible Personnel: The MS in CIS Coordinator is responsible for the administration of the entrance exam. The School of Business faculty teaching CIS 5950 will be responsible for administering the exit exam.

Finding: The acceptable target was **<u>not met</u>** in every category. The ideal target was **<u>not met</u>** in every category.

Analysis: In AC 2023-2024, the target was **<u>not</u>** met. The table below shows the results for the 2023-2024 assessment cycle for Measure 1.1 (entrance exam).

Assessment Cycle 2024 – 2025

Table 1: AC 2023-2024 Baseline Knowledge Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Programming	0%	0%	100%
Software Applications	0%	50%	50%
Networking	50%	50%	0%
Cyber Security	0%	50%	50%
Databases	50%	50%	0%
Data Analysis	100%	0%	0%
Project Management	100%	0%	0%

Two students took the baseline knowledge exam so the analysis should be considered with this limited response. The table below shows the results for the 2024-2025 assessment cycle for Measure 1.1 (entrance exam).

Table 2: AC 2024-2025 Baseline Knowledge Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Programming	0%	0%	100%
Software Applications	0%	0%	100%
Networking	0%	100%	0%
Cyber Security	0%	50%	50%
Databases	100%	0%	0%
Data Analysis	100%	0%	0%
Project Management	50%	50%	0%

The table below shows the results for the 2023-2024 assessment cycle for measure 1.1 (exit exam).

Assessment Cycle 2024 – 2025

Table 3: AC 2023-2024 Exit Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Programming	0%	0%	100%
Software Applications	0%	0%	100%
Networking	0%	67%	33%
Cyber Security	0%	100%	0%
Databases	33%	33%	33%
Data Analysis	0%	100%	0%
Project Management	0%	67%	33%

Three students completed the exit exam. The acceptable target and the ideal target were **met** for the categories of Programming and Software Application. The acceptable target and the ideal target were **not** met for the remainder of the categories. As with previous years, some of the percentages require further explanation. In the areas of Networking, Cyber Security, Databases, and Data Analysis, some of the questions require multiple answers. Students are often answering part of these questions correct but not answering all components correctly. As compared to the entry exam, students did the same or better in every category except Cyber Security. While being cognizant of the small number of students represented by the results, the higher exit exam scores as compared to the lower entry exam scores are an indicator of learning in the program.

Based on the analysis of the 2023- 2024 results, the faculty implemented the following changes in 2024-2025 to drive the cycle of improvement. The faculty member teaching the Data Analysis course redesigned the course in Summer 2024 with the expectation of also using the revised course in Fall 2024. Additionally, while the Database course was updated in the AC 2023-2024, two of the three graduating students took it in a prior academic year. Thus, we were not able to see the full effect of the changes until a later time. Finally, on Networking and Cyber Security, the faculty member primarily responsible for these areas has offered lab times. While these lab times primarily served undergraduate students, graduate students were welcome to attend and ask questions as well. These changes helped improve the students' ability to demonstrate discipline-specific knowledge thereby continuing to push the cycle of improvement forward.

As a result of these changes, in 2024-2025, the target was **not met**. The table below shows the results for the 2024-2025 assessment cycle for Measure 1.1.

Assessment Cycle 2024 – 2025

Table 4: AC 2024-2025 Exit Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Programming	0%	33%	67%
Software Applications	33%	0%	67%
Networking	0%	67%	33%
Cyber Security	0%	33%	67%
Databases	33%	33%	33%
Data Analysis	33%	33%	33%
Project Management	33%	67%	0%

Three students completed the exit exam. The acceptable target and the ideal target were **not** met for any of the categories. As with previous years, some of the percentages require further explanation. In the areas of Networking, Cyber Security, Databases, and Data Analysis, some of the questions require multiple answers. Students are often answering part of these questions correctly but not answering all components correctly.

As compared to the entry exam, students did the same or better in Networking, Cyber Security, Databases, Data Analysis, and Project Management. While being cognizant of the small number of students represented by the results, the higher exit exam scores as compared to the lower entry exam scores are an indicator of learning in the program. Unfortunately, students did worse on Programming and Software Applications on the exit exam than they did on the entry exam.

Decision:

In 2024-2025, the target was **not met**.

Based on the analysis of the AC 2024- 2025 results, the faculty will implement the following changes in AC 2025-2026 to drive the cycle of improvement. In AC 2025-2026 year, a faculty member will review the course material to ensure that the topics being covered on the exit exam are still covered in those classes. The faculty member overseeing the Networking and Cyber Security classes will continue to offer synchronous online lab times to assist students in learning the material. As students have normally done well in the Programming and Software Applications categories, no changes will be made yet. One student is affecting the results so the results will be monitored in future years to ensure a new pattern is not developing.

These changes will help improve the students' ability to demonstrate discipline-specific knowledge thereby continuing to push the cycle of improvement forward.

Assessment Cycle 2024 – 2025

SLO 2. <u>Analytical Techniques</u>. Students must be able to apply appropriate analytical techniques to identify and frame problems, generate, and compare alternatives, use knowledge of analytic processes and reasoning skills to optimize organizational performance, and understand and use current organizational technologies.

Course Map: Tied to course syllabus objectives. CIS 5950 – Research Project and/or Thesis

Measure 2.1 (Direct – Exam; Entrance Exam and Exit Exam)

Details/Description: The unit strives to give students the baseline knowledge exam prior to registration for their first semester. This exam covers key concepts and theories in Computer Information Systems. The exam included multiple choices questions as well as short answer questions. The questions are grouped into categories: Programming, Software Applications, Networking, Cyber Security, Databases, Data Analysis, and Project Management. The exam also includes questions related to analytical techniques and research questions.

In CIS 5950, students will again take the MS in Computer Information Systems knowledge exam. These students will be taking the exam in their last semester (or close to it) and their attempt should reflect the knowledge they have gained through the program.

Acceptable Target: For the exit exam, in the Analytical Techniques category, 75% of students will get all answers correct.

Ideal Target: For the exit exam, in the Analytical Techniques category, 95% of students will get all answers correct.

Implementation Plan (timeline): The entrance exam measurement is completed as students are entering the program and registering for classes. Students can enter the program in the spring, summer, or fall semesters.

The exit exam measure should be completed each semester CIS 5950 is offered.

Key/Responsible Personnel: The MS in CIS Coordinator is responsible for the administration of the entrance exam. The School of Business faculty teaching CIS 5950 will be responsible for administering the exit exam.

Finding: The acceptable target was **<u>not met</u>**. The ideal target was **<u>not met</u>**.

Analysis: In AC 2023-2024, the target was **<u>not met</u>**. The table below shows the results for the 2023-2024 assessment cycle for Measure 2.1 (entrance exam).

Assessment Cycle 2024 – 2025

Table 5: AC 2023-2024 Baseline Knowledge Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Analytical Techniques	50%	50%	0%

Two students took the baseline knowledge exam so the analysis should be considered with this limited response. The fourth-year cohort did improve as compared to the third-year cohort.

The table below shows the results for the 2024-2025 assessment cycle for Measure 2.1 (entrance exam).

Table 6: AC 2024-2025 Baseline Knowledge Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Analytical Techniques	50%	0%	50%

Two students took the baseline knowledge exam so the analysis should be considered with this limited response. This cohort did slightly improve as compared to the previous year cohort.

The table below shows the results for the 2023-2024 assessment cycle for Measure 2.1 (exit exam).

Table 7: AC 2023-2024 Knowledge Exit Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Analytical Techniques	0%	33%	67%

Three students took the knowledge exit exam. The acceptable target was **not met**. The ideal target was also **not met**. The scores show a slight decline from the previous year. However, in a more detailed analysis of the questions, the scores have not substantially changed. The responses went from 4 out of 4 correct in 2022-2023 to 5 out of 6 correct in 2023-2024.

In comparison to the baseline knowledge entry exam results, the scores have still improved. This improvement in scores is likely a reflection of learning in the CIS 5900 and CIS 5950 classes

Based on the analysis of the AC 2023-2024 results, the faculty implemented the following changes in AC 2024-2025 to drive the cycle of improvement. The faculty member teaching CIS 5900 emphasized the importance of retaining this knowledge as the students moved towards working on their research project, thesis, or paper in-lieu-of-thesis.

As a result of these changes, in 2024-2025, the target was **not met**. The table below shows the results for the 2024-2025 assessment cycle for Measure 2.1 (exit exam).

Table 8: AC 2024-2025 Knowledge Exit Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Analytical Techniques	0%	33%	67%

Three students took the knowledge exit exam. The acceptable target was **not met**. The ideal target was also **not met**. The scores remained the same as the previous year.

In comparison to the baseline knowledge entry exam results, the scores have still improved. This improvement in scores is likely a reflection of learning in the CIS 5900 and CIS 5950 classes.

Decision:

In 2024-2025, the target was **not met**.

Based on the analysis of the AC 2024-2025 results, the faculty will implement the following changes in AC 2025-2026 to drive the cycle of improvement. The faculty member teaching CIS 5900 and will incorporate additional resources regarding statistical techniques and their application to research problems. Specifically, the faculty members plan to find (or alternately record) videos explaining a research problem and why a particular statistical technique would be appropriate for that research problem.

Additionally, the CIS faculty members are planning a change which will eventually allow for more time to be spent on different aspects of research. Currently, students take CIS 5900 which provides a research foundation and then take CIS 5950 to complete a research project, research paper, or thesis. However, students struggle to complete their CIS 5950 work during one semester. Thus, the CIS faculty will incorporate an additional research class into the curriculum. This inclusion will necessitate other changes that must be taken to the Curriculum Review Committee and Graduate Council during the 2025-2026 academic year. Once the changes are made, the faculty members teaching those classes can split out the various research components into three classes which will allow for more time to conduct the research as well as more time to review important aspects of the research.

These changes will improve the students' ability to apply appropriate analytical techniques to identify and frame problems and generate and compare alternatives thereby continuing to push the cycle of improvement forward.

Measure 2.2 (Direct – Student Artifact; CIS 5900 Analytical Assignment)

Details/Description: In CIS 5900, students will identify and apply appropriate analytical techniques to achieve the aim of the student. Analytical techniques include independent samples t-test, multivariate regression, and two chosen from paired sample t-test, ANOVA, Wilcoxon signed-rank test, Pearson correlation, Kruskal Willis test, and Spearman's

correlation coefficient. The instructor of the class will utilize a rubric to determine the extent to which the students are able to apply appropriate analytical techniques.

Acceptable Target: Based on the rubric, 75% of students will score at the highest level for applying appropriate analytical techniques.

Ideal Target: Based on the rubric, 90% of students will score at the highest level for applying appropriate analytical techniques.

Implementation Plan (timeline): This measure should be completed each semester CIS 5950 is offered.

Key/Responsible Personnel: The School of Business faculty teaching CIS 5900 will be responsible for administering the exam.

Finding: Acceptable target was **not met**. Ideal target was **not met**.

Analysis: In the 2023-2024 assessment cycle, the target was **met**. In CIS 5900, three students all received a grade of 100% on the rubric associated with identifying and applying appropriate analytical techniques to achieve the aim of the student. The students continued to identify and apply analytical techniques including independent samples t-test, multivariate regression, and two techniques chosen from paired-sample t-test, ANOVA, Wilcoxon signed-rank test, Pearson correlation, Kruskal-Willis test, and Spearman's correlation coefficient.

Based on the analysis of the AC 2023-2024 results, the faculty implemented the following changes in AC 2024-2025 to drive the cycle of improvement. The faculty member teaching CIS 5900 continued to utilize primarily the same materials as the students had performed well on the analytical assignment. However, the faculty member pushed the students to reflect on how they can use these statistical tests in their research.

As a result of these changes, in AC 2024-2025, the target was **not met**. In CIS 5900, three students all received a grade of 100% on the rubric associated with identifying and applying appropriate analytical techniques to achieve the aim of the student. However, four students did not receive a grade of 100% with grades varying from 82% to 90% for these students. The students continued to try to identify and apply analytical techniques including independent samples t-test, multivariate regression, and two techniques chosen from paired-sample t-test, ANOVA, Wilcoxon signed-rank test, Pearson correlation, Kruskal-Willis test, and Spearman's correlation coefficient.

Students were generally successful in being able to describe the statistical techniques. However, students had more issues with choosing the correct statistical technique for a research problem and applying the chosen statistical technique appropriately.

Decision: In 2024-2025, the target was not met.

Based on the analysis of the AC 2024-2025 results, the faculty will implement the following changes in AC 2025-2026 to drive the cycle of improvement. The faculty member teaching CIS 5900 will incorporate additional resources regarding statistical techniques and their application to research problems. Specifically, the faculty members plan to find (or alternately record) videos explaining a research problem and why a

particular statistical technique would be appropriate for that research problem.

Additionally, the CIS faculty members are planning a change which will eventually allow for more time to be spent on different aspects of research. Currently, students take CIS 5900 which provides a research foundation and then take CIS 5950 to complete a research project, research paper, or thesis. However, students struggle to complete their CIS 5950 work during one semester. Thus, the CIS faculty will incorporate an additional research class into the curriculum. This inclusion will necessitate other changes that must be taken to the Curriculum Review Committee and Graduate Council during the 2025-2026 academic year. Once the changes are made, the faculty members teaching those classes can split out the various research components into three classes which will allow for more time to conduct the research as well as more time to review important aspects of the research.

These changes will improve the students' ability to apply appropriate analytical techniques to identify and frame problems and generate and compare alternatives thereby continuing to push the cycle of improvement forward.

SLO 3. Research Proficiency. Students will demonstrate proficiency in evaluating and analyzing CIS research and being able to frame their own research questions.

Course Map: Tied to course syllabus objectives.

CIS 5900 – Research Methods in Computer Information Systems CIS

5950 – Research Project and/or Thesis

Measure 3.1 (Direct – Exam; Entrance Exam and Exit Exam)

Details/Description: The unit strives to give students the baseline knowledge exam prior to registration for their first semester. This exam covers key concepts and theories in Computer Information Systems. The exam included multiple choices questions as well as short answer questions. The questions are grouped into categories: Programming, Software Applications, Networking, Cyber Security, Databases, Data Analysis, and Project Management. The exam also includes questions related to analytical techniques and research questions.

In CIS 5950, students will again take the MS in Computer Information Systems knowledge exam. These students will be taking the exam in their last semester (or close to it) and their attempt should reflect the knowledge they have gained through the program.

Acceptable Target: In the Research category on the exit exam, 75% of students will get all answers correct.

Ideal Target: In the Research category on the exit exam, 95% of students will get all answers correct.
Implementation Plan (timeline): The entrance exam measurement is completed as students are entering the program and registering for classes. Students can enter the program in the spring, summer, or fall semesters.

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The exit exam measure should be completed each semester CIS 5950 is offered.

Key/Responsible Personnel: The MS in CIS Coordinator is responsible for the administration of the entrance exam. The School of Business faculty teaching CIS 5950 will be responsible for administering the exit exam.

Finding: Acceptable target was **not met**. Ideal target was **not met**.

Analysis: In AC 2023-2024, the ideal target was not met. The table below shows the results for the 2023-2024 assessment cycle for Measure 3.1 (entrance exam).

Table 9: AC 2023-2024 Baseline Knowledge Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Research	0	100%	0%

Two students took the baseline knowledge exam so the analysis should be considered with this limited response. The fourth-year cohort did improve compared to the third-year cohort.

The table below shows the results for the 2024-2025 assessment cycle for Measure 3.1 (entrance exam).

Table 10: AC 2024-2025 Baseline Knowledge Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Research	0%	100%	0%

Two students took the baseline knowledge exam so the analysis should be considered with this limited response. This cohort maintained the results from the previous year cohort.

The table below shows the results for the 2023-2024 assessment cycle for Measure 3.1 (exit exam).

Table 11: AC 2023-2024 Knowledge Exit Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Research	0%	33%	67%

Three students took the exit exam. Two students got both answers correct while one student got one answer correct. While the 2023-2024 results represent a decrease since 2022-2023 and means the target was not met, the change is not as large as it may appear.

The one student got one answer correct. On the other question, the student just needed to add a little more information to have it correct. The percentages still represent an increase from the entry exam results.

Based on the analysis of the AC 2023-2024 results, the faculty implemented the following changes in AC 2024-2025 to drive the cycle of improvement. The faculty member teaching CIS 5900 utilized the same materials as in previous years but emphasized the importance of defining a problem statement, purpose, and research questions in preparation for the students' future research.

As a result of these changes, in AC 2024-2025, the target was **not met**. The table below shows the results for the 2024-2025 assessment cycle for Measure 3.1 (exit exam).

Table 12: AC 2024-2025 Knowledge Exit Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Research	0%	33%	67%

Three students took the exit exam. Two students got both answers correct while one student got one answer correct. The 2024-2025 results mirror the AC 2023-2024 results and mean the target was not met. However, the students were not far from meeting the targets. The one student got one answer correct. On the other question, the student needed to clearly define a quantitative research question. The percentages still represent an increase from the entry exam results.

Decision:

In 2024-2025, the target was **not met**.

Based on the analysis of the AC 2024-2025 results, the faculty will implement the following changes in AC 2025-2026 to drive the cycle of improvement. The faculty member teaching the CIS 5900 class will find or develop additional resources specifically focused on the problem statement and the development of research questions. These resources can help guide students in the creation of their research questions. Additionally, the planned change regarding the creation of a new research class will eventually allow for more in-depth study on research questions.

These changes will improve the student's ability to demonstrate proficiency in evaluating and analyzing CIS research and being able to frame their own research questions thereby continuing to push the cycle of improvement forward.

Measure 3.2 (Direct – Student Artifact; CIS 5900 Research Proficiency/Alignment Assignment)

Details/Description: In CIS 5900, students will complete an assignment related to various aspects of the research process. The instructor of the class will utilize a rubric to determine the extent to which the students are proficient in the following areas: research questions, problem statement, background of the problem, purpose statement,

conceptual framework, significance of the study, and synthesis of knowledge.

Acceptable Target: Based on the rubric, students will score at an average level of 75% or higher on the rubric related to research proficiency and alignment.

Ideal Target: Based on the rubric, student will score at an average level of 90% or higher on the rubric related to research proficiency and alignment.

Implementation Plan (timeline): This measure should be completed each semester CIS 5900 is offered.

Key/Responsible Personnel: The School of Business faculty teaching CIS 5900 will be responsible for administering the exam.

Finding: Acceptable target was **met**. Ideal target was **not met**.

Analysis: In the AC 2023-2024 assessment cycle, the acceptable target was met. However, the ideal target was not met. Two of the three students scored above the 90% ideal target while one student scored below the 75% acceptable target. The overall average was 75% which was an increase from the 55% average in 2022-2023.

The rubric consisted of analysis based on research questions, problem statement, background of the problem, purpose statement, conceptual framework, significance of the study, and synthesis of knowledge. Two students received deductions on the conceptual framework while one student received deductions in every category.

While the CIS 5900 faculty member utilized the same materials for the class as previously used, the faculty member placed a stronger emphasis on how the various research areas work together in the formulation of a thesis or paper in-lieu-of-thesis.

As a result of these changes, in AC 2024-2025 the acceptable target was met. However, the ideal target was not met. Four of the seven students scored at or above the 90% ideal target while one student scored below the 75% acceptable target. The overall average was 88% which was an increase from the 75% average in 2023-2024.

The rubric consisted of analysis based on research questions, problem statement, background of the problem, purpose statement, conceptual framework, significance of the study, and synthesis of knowledge. In contrast to last year, no students received deductions for the conceptual framework. However, three students received deductions related to synthesis of knowledge. Two deductions also occurred in the research questions, background of the problem, and purpose statement categories while one deduction occurred in the significance of the study and problem statement categories.

Decision: In AC 2024-2025, the acceptable target was **met** while the ideal target was **not met**.

Based on the analysis of the AC 2024-2025 results, the faculty will implement the following changes in AC 2025-2026 to drive the cycle of improvement. The faculty member teaching CIS 5900 will incorporate additional resources regarding the various aspects of a research paper. Additionally, the aforementioned changes regarding an additional research class will eventually allow for more in-depth study on the various

components of a research paper.

These changes will improve the student's ability to demonstrate proficiency in evaluating and analyzing CIS research thereby continuing to push the cycle of improvement forward.

Measure 3.3 (Direct – Student Artifact; CIS 5900 Research Question Assignment)

Details/Description: In CIS 5900, students will complete an assignment related to their proficiency in being able to create appropriate research questions. The instructor of the class will utilize a rubric to determine the extent to which the students are able to design their own research questions.

Acceptable Target: Based on the rubric, students will score at an average level of 75% or higher on the rubric related to designing their research questions.

Ideal Target: Based on the rubric, student will score at an average level of 90% or higher on the rubric related to designing their research questions.

Implementation Plan (timeline): This measure should be completed each semester CIS 5900 is offered.

Key/Responsible Personnel: The School of Business faculty teaching CIS 5900 will be responsible for administering the exam.

Finding: Acceptable target was **met**. Ideal target was **met**.

Analysis: In the AC 2023-2024 assessment cycle, the target was met. Three students took the CIS 5900 class and completed this assignment. All three students earned 50 out of 50 points on the assignment. Thus, the overall average was 100%.

Based on the analysis of the AC 2023-2024 results, the faculty implemented the following changes in AC 2024-2025 to drive the cycle of improvement. As the students were doing well on the formulation of research questions, the CIS 5900 faculty member did not make major changes in this area. However, the faculty member emphasized the importance of ensuring the students understood the use of the research questions on their thesis or paper in-lieu-of-thesis.

As a result of these changes, in AC 2024-2025, the acceptable target was **met**. The ideal target was also **met**.

Seven students took the CIS 5900 class and completed this assignment. Three students earned 50 out of 50 points on the assignment. Two additional students scored a 94% while the remaining two students scored 70% and 82%. Thus, the overall average was 91%.

While this average was high enough to meet the targets, the average was a decrease from last year. Students had deductions related to three main areas. First, some research questions were phrased to have a "yes" or "no" answer. Other research questions needed to be rephrased so they were clearly quantitative or qualitative. Finally, some research questions were too broad and needed to be broken into multiple research questions.

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Decision: In 2024-2025, the target was **met**.

Based on the analysis of the AC 2024-2025 results, the faculty will implement the following changes in AC 2025-2026 to drive the cycle of improvement. The faculty member teaching the CIS 5900 class will find or develop additional resources specifically focused on the three areas noted in the analysis. These resources can help guide students in the creation of their research questions. Additionally, the planned change regarding the creation of a new research class will eventually allow for more in-depth study on research questions.

These changes will improve the students' ability to frame their own research questions thereby continuing to push the cycle of improvement forward.

Comprehensive Summary of Key evidence of improvement based on the analysis of results. The following reflects the changes implemented to drive the continuous process of seeking improvement in AC 2024-2025. These changes are based on the knowledge gained through the analysis of the AC 2023-2024 results.

Based on the 2023-2024 results, the CIS faculty made several changes as follows:

- A faculty member redesigned the Data Analytics courses with the revised course first being offered in Fall 2024. A redesigned Database course was also offered in Spring 2025.
- A faculty member in the Networking and Cyber Security area is offering additional lab times for students to attend and ask questions regarding the material.
- The faculty member teaching CIS 5900 emphasized the importance of students retaining specific knowledge from CIS 5900 (understanding of analytical techniques, use of statistical techniques in their research, defining a problem statement and purpose, defining research questions, alignment of research, etc.) as they moved closer to completing a research project, thesis, or paper-in-lieu-of-thesis in CIS 5950.

These changes have produced mixed results in the AC 2024-2025. The table below shows the results of the measurements in 2024-2025.

Table 12: Summary of Measurements in 2024-2025

Measurement	Acceptable Target	Actual Result	Met/ Not Met
Measure 1.1 – Entrance Exam and Exit Exam (Discipline Specific Content Knowledge)	75% All Answers Correct	67% Programming 67% Software Application 33% Networking 67% Cyber Security 33% Databases 33% Data Analysis 0% Project Management	Not Met
Measure 2.1 – Entrance Exam and Exit Exam	75% All Answers Correct	67% All Answers Correct	Not Met

(Analytical Techniques)			
Measure 2.2 – CIS 5900 Analytical Assignment	75% Score at Highest Level	43% Score at Highest Level	Not Met
Measure 3.1 – Entrance Exam and Exit Exam (Research)	75% All Answers Correct	67% All Answers Correct	Not Met
Measure 3.2 – Research Proficiency/Alignment Assignment	Average Score of 75% or Higher	Average score of 88%	Met
Measure 3.3 – Research Question Assignment	Average Score of 75% or Higher	Average score of 91%	Met

For some measurements, the results may just be delayed. For example, some of the students who completed the exit exam in AC 2024-2025 took the Data Analytics and/or the Database course under the previous design. In other areas, we will continue to monitor results due to the low enrollment in the program as well as to see the hopeful improvement made as the CIS faculty implement the changes outlined in the plan of action moving forward.

Plan of Action moving forward.

Based on analysis of the AC 2024-2025 results, the Computer Information Systems area has made decisions to improve student learning and success.

The faculty members have revised the topics covered in CIS 2980 – Database Systems, CIS 4000 – Advanced Database Systems, and CIS 5200 – Strategic Data Management and Analysis. Additionally, the faculty made changes to CIS 4070 – Data Analytics and CIS 5840 – Decision Support Systems. These changes will start being reflected in future graduation classes. Additionally, the faculty members teaching some of these classes will ensure the classes are covering the material noted on the exit exam.

In the Cyber Security and Networking areas, the continued addition of lab availability will enhance the opportunity for students to ask questions and get further guidance in these areas.

Additionally, the faculty member teaching CIS 5900 will work to provide more resources (videos, text, etc.) to improve the creation of research questions, the applicability of statistical techniques to research problems, and the creation of various research components. The faculty member will also continue to emphasize the importance of the material covered in CIS 5900 in preparing the research required in CIS 5950.

A curriculum change will also be put forth for a vote in 2025-2026 for implementation in 2026-2027. The faculty will vote on adding an additional research class into the MS in CIS curriculum allowing for more time to study and understand the various research components as well as completing the research paper, thesis, or research project.