Assessment Cycle 2023 – 2024

MS in Computer Information Systems (MS-597)

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

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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.

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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)

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.

Acceptable Target: In each category, 50% or more of students will get at least one answer correct.

Ideal Target: In each category, 75% or more of students will get at least one answer correct.

Implementation Plan (timeline): This 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.

Key/Responsible Personnel: A faculty member is currently receiving an extra services contract to coordinate the graduate program and is responsible for this administration. Upon determination of a permanent coordinator of the program, that coordinator would be responsible for the administration of the baseline knowledge 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 2022-2023, the target was **<u>not</u>** met. The table below shows the results for the 2022-2023 assessment cycle for Measure 1.1.

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Table 1: AC 2022-2023 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	100%	0%	0%
Cyber Security	0%	100%	0%
Databases	100%	0%	0%
Data Analysis	100%	0%	0%
Project Management	100%	0%	0%

One student took the baseline knowledge exam so the analysis should be considered with this limited response. The acceptable and ideal targets were **met** in the areas of Programming, Software Applications, and Cyber Security. Neither target was met in Networking, Databases, Data Analysis, and Project Management. Thus, overall, the acceptable target was **not** met, and the ideal target was **not** met for all categories. Unfortunately, the third-year cohort did not improve compared to the second-year cohort.

Based on the analysis of the 2022-2023 results, the faculty implemented no changes in 2023-2024 to drive the cycle of improvement. While the scores did not increase in 2022-2023 as compared to 2021-2022, the scores also represented one student. This student also was the first student to take the entry exam based on the new questions in three of the categories. Also, this target continues to serve as a baseline against which to measure the results of the exit exam.

As a result of these changes, in 2023-2024, the target was **not met**. The table below shows the results for the 2023-2024 assessment cycle for Measure 1.1.

Table 2: 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 acceptable and ideal targets were met in the areas of Programming, Software Applications, and Cyber Security which was consistent with 2022-2023. The acceptable target was met in Networking and Databases which was an

improvement since 2022-2023. Neither target was met in Data Analysis and Project Management. Thus, overall, the acceptable target was not met and the ideal target was not met for all categories. The fourth-year cohort showed limited improvement over the third-year cohort.

Decision:

In 2023-2024, the target was not met. Based on the analysis of the 2023-2024 results, the faculty will implement no changes in 2024-2025 to drive the cycle of improvement. While the scores did increase in 2023-2024 as compared to 2022-2023, the scores still only represented two students. Finally, this target continues to serve as a baseline against which to measure the results of the exit exam.

Measure 1.2 (Direct – Exam; Exit Exam)

Details/Description: 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 each category, 75% of students will get all answers correct.

Ideal Target: In each category, 95% of students will get all answers correct.

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

Key/Responsible Personnel: The School of Business faculty teaching CIS 5950 will be responsible for administering the exam.

Finding: The acceptable target was **not met** in every category. The ideal target was **not met** in every category.

Analysis: In 2021-2022, the target was **not** met. The table below shows the results for the 2022-2023 assessment cycle for Measure 1.2.

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Table 3: AC 2022-2023 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%	50%	50%
Cyber Security	0%	0%	100%
Databases	0%	100%	0%
Data Analysis	0%	0%	100%
Project Management	0%	50%	50%

Two students completed the exit exam. The acceptable target and the ideal target were **met** for the categories of Programming, Software Application, Cyber Security, and Data Analysis. The acceptable target and the ideal target were **not** met for the remainder of the categories. As compared to the entry exam, students did the same or better in every category. 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 is an indicator of learning in the program.

Based on the analysis of the 2022-2023 results, the faculty implemented the following changes in 2023-2024 to drive the cycle of improvement. In Networking, the percentage correct understated how the students performed. Each student answered three questions, some with multiple components. To get 100% correct, each student would need to provide five correct answers. The two students provided nine of the ten correct answers. For Networking, we maintained our current strategies.

As with Networking, the percentage correct understated how students performed in the area of Project Management. Each student answered two questions, each with multiple components. In this case, the students got three of the four questions completely correct. For Project Management, we maintained our current strategies.

For the Database class, the students also performed better than the percentage indicated. However, some changes in the Database area were already underway. The CIS faculty teach CIS 2980 – Database Systems which is taken by all students pursuing a BS in Computer Information Systems regardless of concentration. The CIS faculty also teach CIS 4000 – Advanced Database Systems which is only taken by students in some concentrations. The CIS 4000 class is taught with the CIS 5200 – Strategic Data Management and Analysis class with extra topics and assignments for the CIS 5200 class. The CIS faculty teaching these classes revised the topics covered in these classes to better align with what needs to be learned in each area. These changes were effective Fall 2023. These changes improved the student's ability to demonstrate discipline-specific content knowledge thereby continuing to push the cycle of improvement forward.

As a result of these changes, in 2023-2024, the target was **not met**. The table below

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shows the results for the 2023-2024 assessment cycle for Measure 1.2.

Table 4: 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.

Decision: In 2023-2024, the target was **not met**. Based on the analysis of the 2023-2024 results, the faculty will implement the following changes in 2024-2025 to drive the cycle of improvement. The faculty member teaching the Data Analysis course is redesigning 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 will not be able to see the full effect of the changes until a future graduating class. Finally, on Networking and Cyber Security, the faculty member primarily responsible for these areas has discussed offering lab times. While these lab times would primarily serve undergraduate students, graduate students would be welcome to attend and ask questions as well. The logistics of how to offer lab times in conjunction with the required office hour policy is being considered by the Dean of the College of Business and Technology. These changes will help improve the students' ability to demonstrate discipline-specific knowledge thereby continuing to push the cycle of improvement forward.

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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)

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.

Acceptable Target: In the Analytical Techniques category, 50% or more of students will get at least one answer correct.

Ideal Target: In the Analytical Techniques category, 75% or more of students will get at least one answer correct.

Implementation Plan (timeline): This 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.

Key/Responsible Personnel: A faculty member is currently receiving an extra services contract to coordinate the graduate program and is responsible for this administration. Upon determination of a permanent coordinator of the program, that coordinator would be responsible for the administration of the baseline knowledge exam.

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

Analysis: In AC 2022-2023, the ideal target was **<u>not met</u>**. The table below shows the results for the 2022-2023 assessment cycle for Measure 2.1.

Table 5: AC 2022-2023 Baseline Knowledge Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Analytical Techniques	100%	0%	0%

One student took the baseline knowledge exam so the analysis should be considered with this limited response. The acceptable and ideal targets were **<u>not</u> met** in the area of Analytical Techniques. Unfortunately, the third-year cohort did not improve compared to the second-year cohort.

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Based on the analysis of the 2022-2023 results, the faculty did not implement any changes in 2023-2024 to drive the cycle of improvement. The measurement continued to serve as a baseline measurement against which to compare the growth at the end of the program.

As there were no changes made in 2022-2023, in 2023-2024, the acceptable target was **met** while the ideal target was **not met**. The table below shows the results for the 2023-2024 assessment cycle for Measure 2.1.

Table 6: 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 acceptable target was met while the ideal target was not met. The fourth-year cohort did improve as compared to the third-year cohort.

Decision:

In 2023-2024, the target was **not met**. Based on the analysis of the 2023-2024 results, the faculty will implement no changes in 2024-2025 to drive the cycle of improvement. This measurement continued to serve as a baseline measurement against which to compare the growth at the end of the program.

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 **met**. Ideal target was **met**.

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Analysis: In the 2022-2023 assessment cycle, the target was **met**. In CIS 5900, two students earned 18 out of 18 points on the rubric by correctly identifying and applying 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.

Based on the analysis of the 2022-2023 results, the faculty implemented the following changes in 2023-2024 to drive the cycle of improvement. The changes from 2022-2023 appear to have assisted in enhancing learning in the analytical techniques category. A new faculty member taught the CIS 5900 class in Fal 2023, but still utilized much of the same materials from the previous faculty member. These changes improved the student's ability to apply appropriate analytical techniques thereby continuing to push the cycle of improvement forward.

As a result of these changes, in AC 2023-2024, 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.

Decision: In 2023-2024, the target was met. Based on the analysis of the 2023-2024 results, the faculty will implement the following changes in 2024-2025 to drive the cycle of improvement. The faculty member teaching CIS 5900 will change for 2024-2025 again. However, the faculty member will continue to utilize primarily the same materials as the students have performed well on the analytical assignment. However, the faculty member will emphasize the importance of retaining this knowledge as the students move towards working on their research project, thesis, or paper in-lieu-of-thesis. The faculty member will push the students to reflect on how they can use these statistical tests in their 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 2.3 (Direct – Exam; Exit Exam)

Details/Description: 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 each category, 75% of students will get all answers correct.

Ideal Target: In each category, 95% of students will get all answers correct.

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

Key/Responsible Personnel: The School of Business faculty teaching CIS 5950 will be

responsible for administering the exam.

Finding: The acceptable target was **not met**. The ideal target was **not met**.

Analysis: In 2022-2023, the target was **met**. The table below shows the results for the 2022-2023 assessment cycle for Measure 2.3.

Table 7: AC 2022-2023 Knowledge Exit Exam Results

Area	% with No Answers Correct	% with Some Answers Correct	% with All Answers Correct
Analytical Techniques	0%	0%	100%

Two students took the knowledge exit exam. The acceptable target was **met** for the knowledge exit exam. The ideal target was **met** for the knowledge exit exam. In comparison to the baseline knowledge entry exam results, the scores have improved. This increase in scores is likely a reflection of the changes made in the CIS 5900 and CIS 5950 classes.

Based on the analysis of the 2022-2023 results, the faculty implemented the following changes in 2023-2024 to drive the cycle of improvement. The changes from 2022-2023 appeared to have assisted in enhancing learning in the analytical techniques category. A new faculty member taught the CIS 5900 class in Fal 2023, but still utilized much of the same materials from the previous faculty member. These changes improved the student's ability to apply appropriate analytical techniques thereby continuing to push the cycle of improvement forward.

As a result of these changes, in 2023-2024, the target was **not met**. The table below shows the results for the 2023-2024 assessment cycle for Measure 2.3.

Table 8: 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.

Decision: In 2023-2024, the target was **not met**. Based on the analysis of the 2023-2024 results, the faculty will implement the following changes in 2024-2025 to drive the cycle of improvement. The faculty member teaching CIS 5900 will change for 2024-2025

again. However, the faculty member will continue to utilize primarily the same materials. Again, the faculty member will emphasize the importance of retaining this knowledge as the students move towards working on their research project, thesis, or paper in-lieu-of-thesis. The faculty member will push the students to reflect on how they can use these statistical tests in their 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)

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.

Acceptable Target: In the Research category, 50% or more of students will get at least one answer correct.

Ideal Target: In the Research category, 75% or more of students will get at least one answer correct.

Implementation Plan (timeline): This 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.

Key/Responsible Personnel: A faculty member is currently receiving an extra services contract to coordinate the graduate program and is responsible for this administration. Upon determination of a permanent coordinator of the program, that coordinator would be responsible for the administration of the baseline knowledge exam.

Finding: The acceptable target was **met** in the Research category. The ideal target was **met** in the Research category.

Analysis: In AC 2022-2023, the ideal target was **not** met. The table below shows the results for the 2022-2023 assessment cycle for Measure 3.1.

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Table 9: AC 2022-2023 Baseline Knowledge Exam Results

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

One student took the baseline knowledge exam so the analysis should be considered with this limited response. The acceptable and ideal targets were **not** met in the area of Research. Unfortunately, the third-year cohort did not improve compared to the second-year cohort.

Based on the analysis of the 2022-2023 results, the faculty implemented no changes in 2023-2024 to drive the cycle of improvement. While the scores did not increase in 2022-2023 as compared to 2021-2022, the scores also represented one student.

As there were no changes made in 2022-2023, in 2023-2024, the target was **met**. The table below shows the results for the 2023-2024 assessment cycle for Measure 2.1.

Table 10: 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 acceptable and ideal targets were **met** in the area of Research. The fourth-year cohort did improve compared to the third-year cohort.

Decision:

In 2023-2024, the target was **met**. Based on the analysis of the 2023-2024 results, the faculty will implement no changes in 2024-2025 to drive the cycle of improvement. This measurement continued to serve as a baseline measurement against which to compare the growth at the end of the program.

Measure 3.2a (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 2022-2023 assessment cycle, the target was not met. Two students took the CIS 5900 class and completed this assignment. One student earned 25 out of 40 points on the assignment while the second student earned 19 out of 40 points on the assignment. Thus, the overall average was 55%.

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. Unfortunately, students received deductions in every

category except the problem statement. The largest deductions occurred in the areas of the research questions, the purpose statement, and the significance of the study.

Based on the analysis of the 2022-2023 results, the faculty implemented the following changes in 2023-2024 to drive the cycle of improvement. While further refinement of the course was necessary, the original faculty member teaching the course resigned about a month before the semester began. A new faculty member taught the CIS 5900 class in Fal 2023, but still utilized much of the same materials from the previous faculty member.

As a result of these changes, in AC 2023-2024 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 7% 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.

Decision: In 2023-2024, the acceptable target was **met** while the ideal target was **not met**. Based on the analysis of the 2023-2024 results, the faculty will implement the following changes in 2024-2025 to drive the cycle of improvement. A new faculty member will teach the class in 2024-2025. While the faculty member will utilize the same materials for the class, the faculty member will place a stronger emphasis on how the various research areas work together in the formulation of a thesis or paper in-lieu-of-thesis. 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 3.2b (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 2022-2023 assessment cycle, the target was met. Two students took the CIS 5900 class and completed this assignment. Both students earned 50 out of 50 points on the assignment. Thus, the overall average was 100%.

Based on the analysis of the 2022-2023 results, the faculty implemented the following changes in 2023-2024 to drive the cycle of improvement. While further refinement of the course was necessary, the original faculty member teaching the course resigned about a month before the semester began. A new faculty member taught the CIS 5900 class in Fal 2023, but still utilized much of the same materials from the previous faculty member.

As a result of these changes, in AC 2023-2024, the acceptable target was **met**. The ideal target was also **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%.

Decision: In 2023-2024, the target was **met**. Based on the analysis of the 2023-2024 results, the faculty will implement the following changes in 2024-2025 to drive the cycle of improvement. A new faculty member will teach the CIS 5900 course in 2024-2025. As the students are doing well on the formulation of research questions, the faculty members will not make major changes in this area. However, the new faculty member will emphasize the importance of ensuring the students understand the use of the research questions on their thesis or paper in-lieu-of-thesis. These changes will improve the students' ability to frame their own research questions thereby continuing to push the cycle of improvement forward.

Measure 3.3 (Direct – Exam; Exit Exam)

Details/Description: 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.

Assessment Cycle 2023 – 2024

Acceptable Target: In each category, 75% of students will get all answers correct.

Ideal Target: In each category, 95% of students will get all answers correct.

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

Key/Responsible Personnel: The School of Business faculty teaching CIS 5950 will be responsible for administering the exam.

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

Analysis: In 2022-2023, the target was **met**. The table below shows the results for the 2022-2023 assessment cycle for Measure 3.3.

Table 11: AC 2022-2023 Knowledge Exit Exam Results

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

Two students took the knowledge exit exam. The acceptable target was **met** for the knowledge exit exam. The ideal target was **met** for the knowledge exit exam. In comparison to the baseline knowledge entry exam results, the scores have improved. This increase in scores is likely a reflection of the changes made in the CIS 5900 and CIS 5950 classes.

Based on the analysis of the 2022-2023 results, the faculty implemented the following changes in 2023-2024 to drive the cycle of improvement. While further refinement of the course was necessary, the original faculty member teaching the course resigned about a month before the semester began. A new faculty member taught the CIS 5900 class in Fal 2023, but still utilized much of the same materials from the previous faculty member.

As a result of these changes, in 2023-2024, the target was **not met**. The table below shows the results for the 2023-2024 assessment cycle for Measure 2.3.

Table 12: 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 is 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.

Assessment Cycle 2023 – 2024

Decision: In 2023-2024, the target was **not met**. Based on the analysis of the 2023-2024 results, the faculty will implement the following changes in 2024-2025 to drive the cycle of improvement. A new faculty member will be teaching CIS 5900 in 2024-2025. The new faculty member will utilize the same materials but emphasize the importance of defining a problem statement, purpose, and research questions in preparation for the students' future research. 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.

Comprehensive Summary of Key evidence of improvement based on the analysis of results. The following reflects all the changes implemented to drive the continuous process of seeking improvement in AC 2023-2024. These changes are based on the knowledge gained through the analysis of the AC 2022-2023 results.

The 2023-2024 year was the fourth year of offering the MS in Computer Information Systems. Data collection occurred for the third time under the revised CIS 5900 and CIS 5950 classes. Both classes were taught by a new instructor.

In CIS 5900, students completed three assignments. These assignments related to the choice of applying appropriate analytical techniques, research proficiency, and formulating appropriate research questions. On two of those assignments, the students maintained a 100% passage rate. On the research proficiency assignment, students increased their average score from 55% to 75%.

Unfortunately, this maintenance and increase of scores was not reflected on the students' performance on the exit exam regarding analytical techniques and research as both areas experienced a slight decrease from AC 2022-2023 to AC 2023-2024.

However, based on the comparison of entrance exams and exit exams, students are increasing their knowledge in the areas of research proficiency and analytical techniques.

The area has collected data from two students for the baseline knowledge exam. In three of the categories, the students **met** the acceptable and ideal targets. In two of the categories, the students **met** the acceptable target but did **not meet** the ideal target. In two of the categories, the students did **not** meet either target. These results were better than the 2022-2023 year.

The area has also collected data from three students for the exit exam. In two of the categories, the students met the acceptable and ideal targets. In the remaining categories, the students were meeting neither target. This change represented a decline from last year.

Plan of Action moving forward.

Based on analysis of the 2023-2024 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. These changes will start being reflected in future

graduation classes.

Additionally, the faculty are making changes to CIS 4070 – Data Analysis and CIS 5840 – Decision Support Systems. These changes could lead to higher scores in the Data Analytics area. In the Cyber Security and Networking areas, the addition of lab availability will enhance the opportunity for students to ask questions and get further guidance in these areas.

Additionally, one faculty member plans to teach CIS 5900 and CIS 5950 and will provide more resources and guidance on the areas in which students struggled the most. The faculty member will also attempt to emphasize the importance of the material covered in CIS 5900 in preparing the research required in CIS 5950.

While not directly related to the 2023-2024 student learning outcomes, the CIS faculty completed a 4+1 agreement to allow students in the BS in CIS program to concurrently pursue the MS in CIS. Additionally, another concentration in the Scholars' College area entered into a 4+1 agreement with the MS in CIS.