

Annual Report for Assessment of Outcomes 2012-13

Subject Area Committee Name: **CIS**

For CTE: Degree Assessed: **CIS AAS**

Contact Person: Terry Foty

1. *Describe changes that have been implemented towards improving students' attainment of outcomes that resulted from recent outcome assessments. These may include but are not limited to changes to content, materials, instruction, pedagogy etc. Please be sure to describe the connection between the assessment results and the changes made.*

1. The course which assesses the outcome “Develop small programs” (CIS233J) has made content changes based on the results from the previous assessment done in 2011-2012 . That assessment showed *Unacceptable* and *Weak* scores for the topics of program *testing* and *code documentation*. In an attempt to reduce the number of *Unacceptable* and *Weak* scores, content material was added to the *Testing* and *Documentation* topics and the amount of class time spent on the topics was also increased.

2. The previous assessment found that there was a performance difference between the oral and written report capabilities of the students who were assessed. As a result, changes have been made in the content and teaching of the course to correct this.

3. The previous assessment found that one of the rubrics used was too complicated and unclear. As a result, the rubric was modified substantially to make it a more accurate assessment tool.

4. All of the rubrics used in the previous assessment were modified. Every attempt was made to standardize them, which was recommended by the reviewers of the previous assessment.

For each outcome assessed this year:

2. *Describe the assessment design (tool and processes) used. Include relevant information about:*
 - *The nature of the assessment (e.g., written work, project, portfolio, exam, survey, performance etc.) and if it is direct (assesses evidence mastery of outcomes) or indirect (student's perception of mastery). Please give rationale for indirect assessments (direct assessments are preferable).*
 - *The student sample assessed (including sample size relative to the targeted student population for the assessment activity) process and rationale for selection of the student sample. Why was this group of students and/or courses chosen?*
 - *Any rubrics, checklists, surveys or other tools that were used to evaluate the student work. (Please include with your report – OK to include in appendix). Where appropriate, identify benchmarks.*
 - *How you analyzed results, including steps taken to ensure that results are reliable (consistent from one evaluator to another).*

The SAC assessed all 12 Degree Outcomes for this report.

The Degree Outcomes are the following:

Outcome #1: Apply computer technology to address business information needs.

Outcome #2: Develop and evaluate system requirements.

Outcome #3: Design, implement and deploy systems.

Outcome #4: Evaluate, test, debug and troubleshoot systems.

Outcome #5: Create effective databases and user interfaces.

Outcome #6: Develop small programs.

Outcome #7: Use network concepts and terminology to communicate with vendors and users.

Outcome #8: Select appropriate technology tools by recognizing tool capabilities and limitations.

Outcome #9: Apply operational business knowledge in addressing information systems needs.

Outcome #10: Communicate effectively in both written and oral form.

Outcome #11: Work effectively in teams.

Outcome #12: Manage time tasks and projects.

Here is a mapping showing the *College Outcomes* and *Degree Outcomes* to the CIS courses used for the assessments, and the type of assessment that was used.

College Outcome	Degree Outcome	Course Used for Assessment	Type of Assessment
Process	Outcome #1	CIS275 Database	Lab
	Outcome #2	CIS244 Systems Analysis	Paper
	Outcome #3	CIS179	Lab
	Outcome #4	CIS140M	Lab
Technology	Outcome #5	CIS275	Lab
	Outcome #6	CIS233J	Programming assignment
	Outcome #7	CIS179	Lab
	Outcome #8	CIS244	Paper and Report
Information Systems in Business	Outcome #9	CIS244	Paper and Report
Personal and Interpersonal	Outcome #10	CIS244	Paper and Report
	Outcome #11	CIS244	Paper and Report
	Outcome #12	CIS244	Paper and Report

The *sample size for each assessment* consisted of all the students in the class who had submitted the assignment, paper or report. The size was chosen to give the greatest number of responses.

Every outcome was assessed using a rubric. Each rubric was consistent, using the same four categories:

- ▲ Strong
- ▲ Acceptable
- ▲ Unacceptable
- ▲ Weak

Each assignment was evaluated against the rubric and scored into one of the four categories. The percentage of assignments for each category was calculated and reported.

The results of the 2012-2013 assessment are shown in Section 3.

The rubrics and raw data for the 2012-2013 assessment are provided as Appendices.

3. Provide information about the results (i.e., what did you learn about how well students are meeting the outcomes)?

- If scored (e.g., if a rubric or other scaled tool is used), please report the data, and relate to any appropriate benchmarks.
- Results should be broken down in a way that is meaningful and useful for making improvements to teaching/learning. Please show those specific results.

Results:

The raw data for each of the outcomes is shown below.

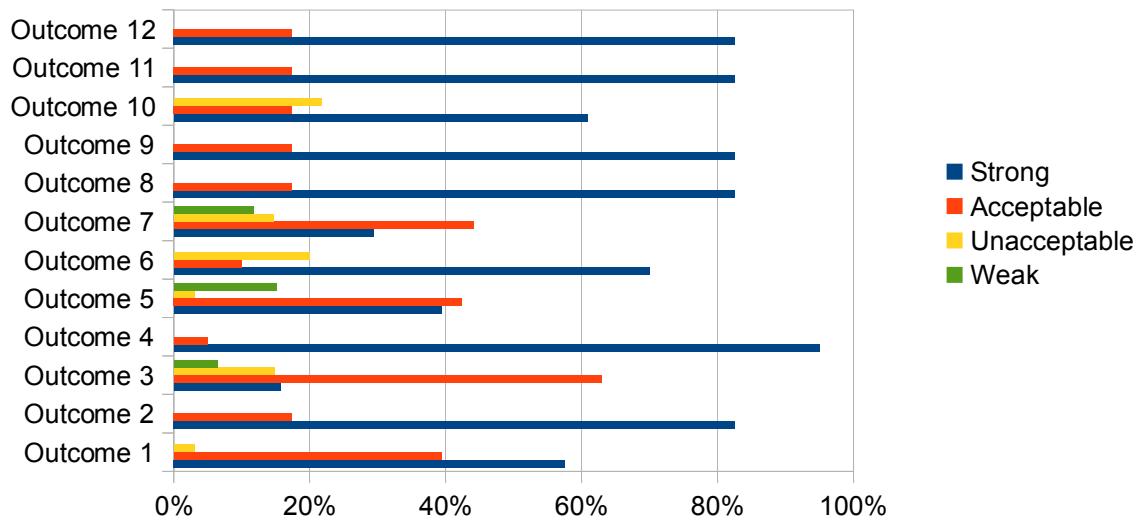
	Strong	Acceptable	Unacceptable	Weak	Total
Outcome 1	19	13	1	0	33
Outcome 2	19	4	0	0	23
Outcome 3	17	68	16	7	108
Outcome 4	38	2	0	0	40
Outcome 5	13	14	1	5	33
Outcome 6	14	2	4	0	20
Outcome 7	30	45	15	12	102
Outcome 8	19	4	0	0	23
Outcome 9	19	4	0	0	23
Outcome 10	14	4	5	0	23
Outcome 11	19	4	0	0	23
Outcome 12	19	4	0	0	23

The data shown by *percentages*.

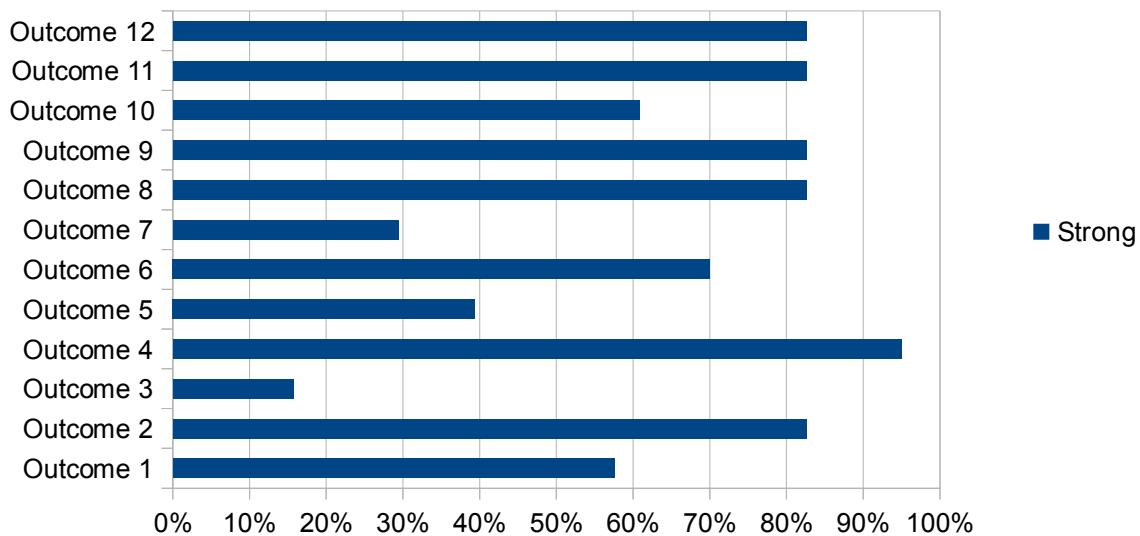
	Strong	Acceptable	Unacceptable	Weak	Total
Outcome 1	58%	39%	3%	0%	100.00%
Outcome 2	83%	17%	0%	0%	100.00%
Outcome 3	16%	63%	15%	6%	100.00%
Outcome 4	95%	5%	0%	0%	100.00%
Outcome 5	39%	42%	3%	15%	100.00%
Outcome 6	70%	10%	20%	0%	100.00%
Outcome 7	29%	44%	15%	12%	100.00%
Outcome 8	83%	17%	0%	0%	100.00%
Outcome 9	83%	17%	0%	0%	100.00%
Outcome 10	61%	17%	22%	0%	100.00%
Outcome 11	83%	17%	0%	0%	100.00%
Outcome 12	83%	17%	0%	0%	100.00%

The data is depicted *graphically* below.

All Outcomes: All Results



All Outcomes: Strong Result



From 15% to 95% of the results scored in the Strong category. Only outcome 3 scored very low (15%).

Outcome 4 scored above 90%.

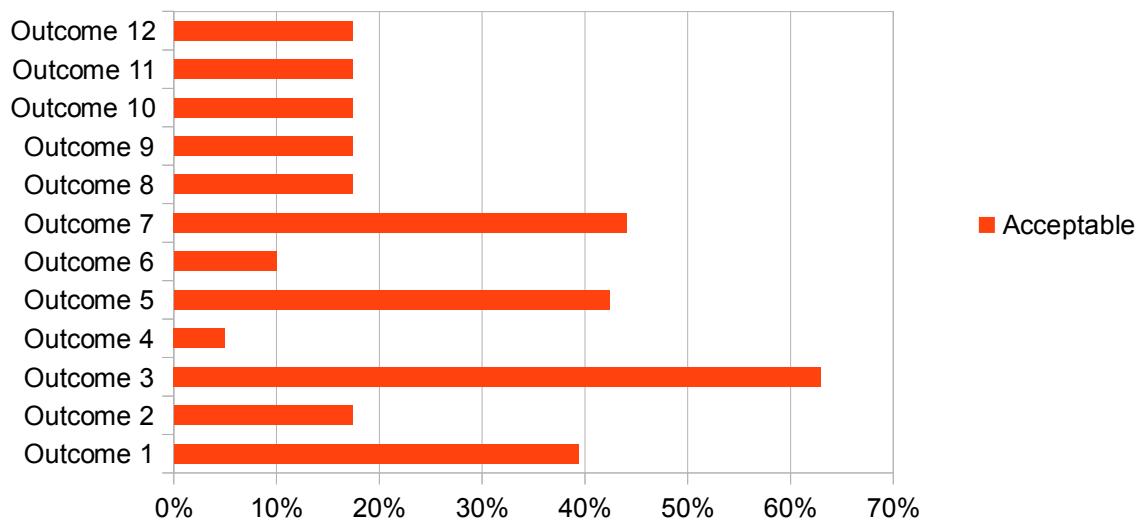
Outcomes 2, 8 ,9, 11 and 12 scored above 80%.

Outcome 6 scored 70%.

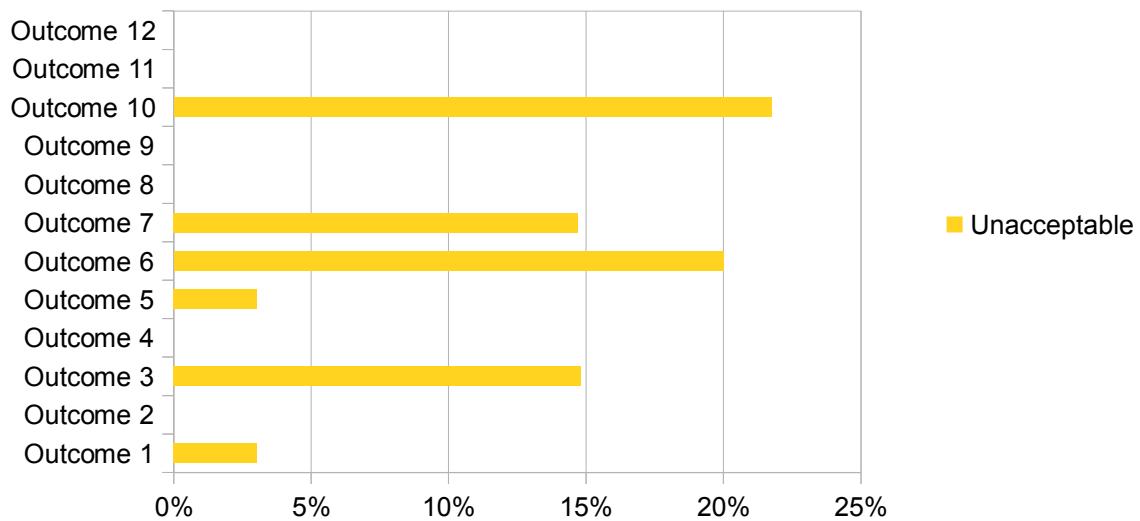
Outcomes 1, 3, 5 and 7 scored below 60%.

Recommendation: Outcomes 1, 3, 5 and 7 should be examined. There are too many scores below 60%. The instructor should look at the assessment tool used and determine if the course needs to have its content modified to help get these outcomes above 60%.

All Outcomes: Acceptable Result



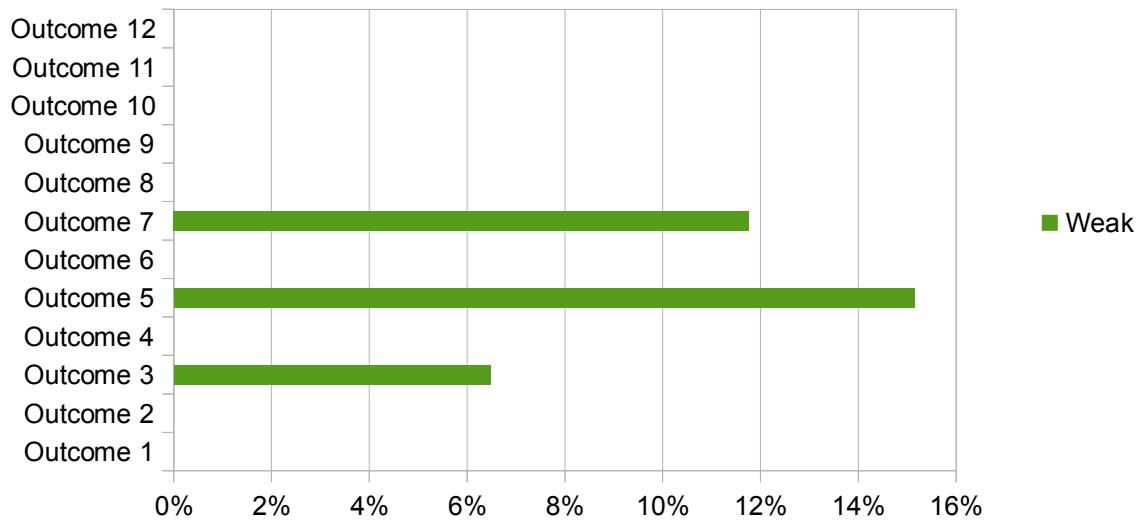
All Outcomes: Unacceptable Result



Half of the outcomes did not have any unacceptable results.

The other six had unacceptable 2% to 22%.

All Outcomes: Weak Result



Nine of the outcomes did not report any Weak results.

4. *Identify any changes that should, as a result of this assessment, be implemented to help improve students' attainment of outcomes. (These may include, but are not limited to, changes in curriculum, content, materials, instruction, pedagogy etc).*

1. Add a capstone course to the AAS degree. The CIS department is in the process of making changes to the AAS degree and one of them is add a capstone course. As part of this, we are looking at the degree outcomes to see if they need to be changed.

2. Specifically for this year, the assessment shows that some changes should be made in individual courses. The instructors for these courses should look at the tools they use for the assessment and determine how to improve. The instructor should determine if changes should be made to the content and make any changes.

3. Outcome 3, “Design, implement and deploy systems”, has a 63% Acceptable result and only a 16% Strong result. An attempt should be made to improve here.

5. Reflect on the effectiveness of this assessment tool and assessment process. Please describe any changes to assessment methodology that would lead to more meaningful results if this assessment were to be repeated (or adapted to another outcome). Is there a different kind of assessment tool or process that the SAC would like to use for this outcome in the future? If the assessment tool and processes does not need to be revised, please indicate this.

Recommendations:

- 1. The SAC recommends implementation of a capstone course to the CIS AAS Degree. Right now, 5 different courses are used for the assessments. We feel this is too many. We would like to reduce the number of different courses used to assess. We feel the capstone would allow this. We would move as many of the outcomes to the capstone course as possible, eliminating them from other courses.**
- 2. The outcomes should be measured for more than one term during the year. We recommend 2 terms per year, if the course if offered.**
- 3. If there are multiple sections of a course, the outcome should be measured in all sections.**

Appendices

Combined Rubrics

Degree Outcome	Strong	Acceptable	Unacceptable	Weak
Apply computer technology to address business information needs.	All entities, attributes, relationships, cardinalities present and correct. Normalized to 3NF and 4NF.	Most entities, attributes, relationships and cardinalities are present and correct. Normalized to 3NF.	Many entities, attributes, relationships or cardinalities missing. First normal form.	Most entities, attributes, relationships and cardinalities are missing or incorrect. No normalization performed.
Develop and evaluate system requirements.	Shows a thorough understanding of the business and IT needs	Shows an adequate understanding of the business and IT needs	Misses some very key points about the business and IT needs	Completely misunderstands the business and IT needs
Design, implement and deploy systems.	Understands all system scenarios and follows the data flow with no errors	Understands most system scenarios and follows the data flow with only minor errors	Limited ability to understand system scenarios and shows major errors in understanding the data flow.	Does not understand system scenarios or data flow.
Evaluate, test, debug and troubleshoot systems.	All system performance data gathered. All data evaluated correctly. All system bottlenecks identified. All system adjustments made correctly.	Most system performance data gathered. Most data evaluated correctly. Most system bottlenecks identified. Most system adjustments made correctly.	Insufficient system performance data gathered. Major problems evaluating data. Only a few system bottlenecks identified. Only a few system adjustments made.	No system data gathered. No evaluation performed. No system bottlenecks identified. No system adjustments made.
Create effective databases and user interfaces.	SQL follows rules and standards. SQL executes without errors. SQL returns requested data. SQL is efficient.	SQL has minor errors with rules and standards. SQL executes with minor errors. SQL returns mostly correct data. SQL has minor efficiency problems.	SQL has major errors with rules and standards. SQL does not execute and has major errors. SQL executes but does not return requested data.	SQL does not follow rules and standards. SQL does not execute and has serious errors. SQL has major efficiency problems.
Develop small programs	Code is correct and complete. Testing is complete. Documentation is complete	Code is correct and complete. Testing is incomplete. Documentation is incomplete	Code contains one major error or omission. Testing is incomplete. Documentation is incomplete.	Code contains multiple errors and omissions. Testing missing. Documentation missing.
Use network concepts and terminology to communicate with vendors and users.	Uses concepts accurately. Finds relevant news sources. Communicates effectively with vendors and users.	Uses most concepts accurately. Minor problem finding relevant news sources. Some minor problems communicating with vendors and users.	Uses only a few concepts accurately. Major problems finding relevant news sources. Major problems communicating with vendor and user.	Unable to use network concepts adequately. Does not find news sources. Unable to communicate with vendor and user.
Select appropriate technology tools by recognizing tool capabilities and limitations.	Has a strong knowledge of the technological tools that are available and can present clear arguments the pros and cons of the tools in the current system	Has an adequate knowledge of the technological tools that are available and can present only one or two pros and cons of the tools in the current system	Has a weak knowledge of the technological tools that are available or can present only one or two pros and cons of the tools in the current system	Has little to no knowledge of the technological tools that are available or can present nothing or one on the pros and cons of the tools in the current system
Apply operational business knowledge in addressing information systems needs.	Thoroughly understands how a business operates and applies that knowledge to the business's information systems	Adequately understands how a business operates and applies that knowledge to the business's information systems	Misunderstand one or two common business practices or is unable to apply that knowledge to the business's information systems	Doesn't understand common business practices or is unable to apply that knowledge to the business's information systems
Communicate effectively in written and oral form	Presentation to the class is well prepared and presented.	Presentation is generally well organized with a good set of slides that cover the main points; the presentation is generally effective with minimal distractions	Presentation is boring although it does cover most of the major topics. Delivery causes audience to be distracted	Organization is very poor with no logical thread tying it together. Slides and/or delivery are inconsistent
	Writing is professional, well organized, logical with no spelling or grammar mistakes	Most ideas are well organized, the key points are present, but the argument is not thorough. There are no grammar or spelling mistakes	Some ideas are well organized, while others lack organization or there are many grammar or spelling mistakes	Writing is disorganized and unprofessional with many spelling or grammar mistakes
Work effectively in teams.	Greatly contributes to the success of the team. The team itself works well together	Somewhat contributes to the success of the team or the team has a few minor problems	Works independently from the team or the team has major disagreements	Doesn't contribute to the success of the team or the team is completely dysfunctional
Manage time, tasks and projects.	All projects are turned in on time. Projects are thoroughly done	Most projects are turned in on time. Projects are done well.	Few projects are turned in on time or the work that is done is missing vital steps	No projects are turned in on time or the work that is done is extremely incomplete

Data for Each Outcome

CIS179						
Degree Outcome	Strong	Acceptable	Unacceptable	Weak		
Design, implement and deploy systems.	Understands all system scenarios and follows the data flow with no errors.	Understands most system scenarios and follows the data flow with only minor errors.	Limited ability to understand system scenarios and shows major errors in understanding the data flow.	Does not understand system scenarios or data flow.		
Term 1	14	40	9	2	65	
Term 2	3	28	7	5	43	
Count	17	68	16	7	108	
Percent	15.7%	63.0%	14.8%	6.5%	100.0%	
Use network concepts and terminology to communicate with vendors and users.	Uses concepts accurately. Finds relevant news sources. Communicates effectively with vendors and users.	Uses most concepts accurately. Minor problem finding relevant news sources. Some minor problems communicating with vendors and users.	Uses only a few concepts accurately. Major problems finding relevant news sources. Major problems communicating with vendor and user.	Unable to use network concepts adequately. Does not find news sources. Unable to communicate with vendor and user.		
Term 1	22	25	8	7	62	
Term 2	8	20	7	5	40	
Count	30	45	15	12	102	
Percent	29.4%	44.1%	14.7%	11.8%	100.0%	

CIS244						
	Strong	Acceptable	Unacceptable	Weak		
Develop and evaluate system requirements.	Shows a thorough understanding of the business and IT needs	Shows an adequate understanding of the business and IT needs	Misses some very key points about the business and IT needs	Completely misunderstands the business and IT needs		
Count	19	4	0	0	23	
Percent	82.61%	17.39%	0.00%	0.00%	100.00%	
Select appropriate technology tools by recognizing tool capabilities and limitations.	Has a strong knowledge of the technological tools that are available and can present clear arguments on the pros and cons of the tools in the current system	Has an adequate knowledge of the technological tools that are available and can present some of the pros and cons of the tools in the current system	Has a weak knowledge of the technological tools that are available or are present only one or two pros and cons of the tools in the current system	Has little to no knowledge of the technological tools that are available or can present no arguments on the pros and cons of the tools in the current system		
Count	19	4	0	0	23	
Percent	82.61%	17.39%	0.00%	0.00%	100.00%	
Apply operational business knowledge in addressing information systems needs.	Thoroughly understands how a business operates and applies that knowledge to the business's information systems	Adequately understands how a business operates and applies that knowledge to the business's information systems	Misunderstand one or two common business practices or is unable to apply that knowledge to the business's information systems	Doesn't understand common business practices or is unable to apply that knowledge to the business's information systems		
Count	19	4	0	0	23	
Percent	82.61%	17.39%	0.00%	0.00%	100.00%	
Communicate effectively in oral form	Presentation to the class is well prepared and presented.	Presentation is generally well organized with a good set of slides that cover the main points; the presentation is generally effective with minimal distractions	Presentation is boring although it does cover most of the major topics. Delivery causes audience to be distracted	Organization is very poor with no logical thread tying it together. Slides and/or delivery are inconsistent		
Count	14	4	5	0	23	
Percent	60.87%	17.39%	21.74%	0.00%	100.00%	
Communicate effectively in written form.	Writing is professional, well organized, logical with no spelling or grammar mistakes	Most ideas are well organized, the key points are presented, but the treatment is not thorough. However, there are no grammar or spelling mistakes	Some ideas are well organized, while others lack organization or there are many grammar or spelling mistakes	Writing is disorganized and unprofessional with many spelling or grammar mistakes		
Work effectively in teams.	Greatly contributes to the success of the team. The team itself works well together	Somewhat contributes to the success of the team or the team has a few minor problems	Works independently from the team or the team has major disagreements	Doesn't contribute to the success of the team or the team is completely dysfunctional		
Count	19	4	0	0	23	
Percent	82.61%	17.39%	0.00%	0.00%	100.00%	
Manage time, tasks and projects.	All projects are turned in on time. Projects are thoroughly done	Most projects are turned in on time. Projects are done well.	Few projects are turned in on time or the work that is done is missing vital steps	No projects are turned in on time or the work that is done is extremely incomplete		
Count	19	4	0	0	23	
Percent	82.61%	17.39%	0.00%	0.00%	100.00%	

CIS275				
Degree Outcome	Strong	Acceptable	Unacceptable	Weak
Apply computer technology to address business information needs.	All entities, attributes, relationships, cardinalities present and correct. Normalized to 3NF and 4NF.	Most entities, attributes, relationships and cardinalities are present and correct. Normalized to 3NF.	Many entities, attributes, relationships or cardinalities missing. First normal form.	Most entities, attributes, relationships and cardinalities are missing or incorrect. No normalization performed.
Count	19	13	1	0
Percent	57.58%	39.39%	3.03%	0.00%
Create effective databases and user interfaces.	SQL follows rules and standards. SQL executes without errors. SQL returns requested data. SQL is efficient.	SQL has minor errors with rules and standards. SQL executes with minor errors. SQL returns mostly correct data. SQL has minor efficiency problems.	SQL has major errors with rules and standards. SQL does not execute and has major errors. SQL executes but does not return requested data.	SQL does not follow rules and standards. SQL does not execute and has serious errors. SQL has major efficiency problems.
Count	13	14	1	5
Percent	39.39%	42.42%	3.03%	15.15%

CIS140M				
Degree Outcome	Strong	Acceptable	Unacceptable	Weak
Evaluate, test, debug and troubleshoot systems.	All system performance data gathered. All data evaluated correctly. All system bottlenecks identified. All system adjustments made correctly.	Most system performance data gathered. Most data evaluated correctly. Most system bottlenecks identified. Most system adjustments made correctly.	Insufficient system performance data gathered. Major problems evaluating data. Only a few system bottlenecks identified. Only a few system adjustments made.	No system data gathered. No data evaluation performed. No system bottlenecks identified. No system adjustments made.
Count	38	2	0	0
Percent	95.00%	5.00%	0.00%	0.00%
				40
				100.00%

CIS233J					
Degree Outcome	Strong	Acceptable	Unacceptable	Weak	
Develop small programs	Code is correct and complete. Testing and documentation are complete.	Code is correct and complete. Testing or documentation are incomplete.	Code contains <u>one</u> major error or omission.	Code contains <u>multiple</u> errors or omissions or testing and documentation are completely missing.	
Count	14	2	4	0	20
Percent	70.00%	10.00%	20.00%	0.00%	100.00%