

Program-Level Assessment: Annual Report

Program Name (no acronyms): Computer Information Systems Department: Systems

Degree or Certificate Level: Undergrad, Certificate College/School: School for Professional Studies

Date (Month/Year): May 2021 Primary Assessment Contact: John Buerck

In what year was the data upon which this report is based collected? Academic year 2020-2021

In what year was the program's assessment plan most recently reviewed/updated? 2020

1. Student Learning Outcomes

Which of the program's student learning outcomes were assessed in this annual assessment cycle? (Please list the actual learning outcome statements and not just numbers, e.g., Outcomes 1 and 2.)

An ability to analyze a problem, and to identify and define the computing requirements appropriate to its solution. (SLO1)

An ability to communicate effectively in a variety of professional contexts. (SLO3)

2. Assessment Methods: Artifacts of Student Learning

Which artifacts of student learning were used to determine if students achieved the outcome(s)? Please identify the course(s) in which these artifacts were collected. Clarify if any such courses were offered a) online, b) at the Madrid campus, or c) at any other off-campus location.

SLO1

CIS 1600 - Introduction to Programming – Final Term Project
CIS 3300 - Database Analysis and Design – Final Project
CIS 4600 - Cyber Threats and Defense – Final Paper

SLO3

CIS 2850 - Principles of Data Analysis – Final Exam
CIS 3250 - Cybersecurity Principles – Final Project
CIS 3850 - Analytics and Visualizations – Application Project

**All courses were taught 100% online

3. Assessment Methods: Evaluation Process

What process was used to evaluate the artifacts of student learning, and by whom? Please identify the tools(s) (e.g., a rubric) used in the process and include them in/with this report.

Instructors have outcomes set up and added to their artifact rubric vis Canvas outcomes. At the end of their courses, a Canvas Outcomes report was run to collect data about student performance and artifacts used to assess learning outcomes. Data was used to analyze and make changes as needed to assessment of learning outcomes.

4. Data/Results

What were the results of the assessment of the learning outcome(s)? Please be specific. Does achievement differ by teaching modality (e.g., online vs. face-to-face) or on-ground location (e.g., STL campus, Madrid campus, other off-campus site)?

The Canvas outcomes reported that many of the artifacts had properly assessed student learning outcomes for their specific courses, but some minor adjustments might be needed; which will be explained further in section 5 of this report. Most instructors used programming software and final projects as their assessment tool and felt it was appropriate for the type of students in these classes.

More specifically, we found the following for each LO:

SLO 1 – 64 total artifacts assessed

- Meets Standard - Considers the various options to utilize in solving a problem, and choose the most appropriate one and justify its selection. – 56 students met this level
- Approaches Standard - Selects an appropriate solution to a problem, verify its correctness and evaluate its effectiveness. – 8 students met this level
- Does Not Meet Standard - Provides some evidence that the computing requirements correctly solve the stated problem – 0 students met this level

SLO 3 – 82 total artifacts assessed

- Meets Standard - Student communicates technical information clearly *and* consistent with the supporting material. – 58 students met this level
- Approaches Standard - Student communicates technical information clearly and consistent, *but* without supporting material. – 16 students met this level
- Does Not Meet Standard - Student does *not* communicate technical information clearly and consistent with the supporting material. 8 students met this level

****All courses were taught online, so there is no difference in teaching modality to note****

5. Findings: Interpretations & Conclusions

What have you learned from these results? What does the data tell you?

As discussed in section 4, the data has largely supported that the learning outcomes have been supported by the artifacts chosen. However, there is always room for improvement. Some suggestions made by instructors about possible ways to strengthen learning outcomes are as follows:

- 1) Update rubrics for artifact assessment to be more specific with components being assessed.
- 2) Review software used in courses for updated versions or other competitor software for a variety of options.
- 3) Some courses need more breakdown of concepts for students to fully understand coding and/or technical information.

6. Closing the Loop: Dissemination and Use of Current Assessment Findings

A. When and how did your program faculty share and discuss these results and findings from this cycle of assessment?

Faculty are provided with opportunities to share quantitative and qualitative feedback at the end of the term (eight week terms) they taught the course.

B. How specifically have you decided to use these findings to improve teaching and learning in your program? For example, perhaps you've initiated one or more of the following:

Changes to the Curriculum or Pedagogies

- Course content
- Teaching techniques
- Improvements in technology
- Prerequisites

- Course sequence
- New courses
- Deletion of courses
- Changes in frequency or scheduling of course offerings

Changes to the Assessment Plan

- Student learning outcomes
- Artifacts of student learning
- Evaluation process

- Evaluation tools (e.g., rubrics)
- Data collection methods
- Frequency of data collection

Please describe the actions you are taking as a result of these findings.

We will be reviewing the course offerings and update frequency as necessary.
Add instructor feedback section to canvas outcomes where data is collected.
Review program-level learning outcomes in courses to assess changes that might be necessary.

If no changes are being made, please explain why.

NA

7. Closing the Loop: Review of Previous Assessment Findings and Changes

A. What is at least one change your program has implemented in recent years as a result of assessment data?

The CIS program was redesigned in 2019, thus only one set of modifications have been to be implemented – A review of rubrics for specific assignments in specific courses.

B. How has this change/have these changes been assessed?

A select set of rubrics have been modified to provide clearer artifact assessment by the faculty.

C. What were the findings of the assessment?

Some rubrics needed more detailed assessment wording.

D. How do you plan to (continue to) use this information moving forward?

Yes

**IMPORTANT: Please submit any assessment tools (e.g., rubrics) with this report.
Rubrics attached below**

SLO1

CIS1600 - Introduction to Programming – Final Term Project

Criteria	Ratings			Pts
This criterion is linked to a Learning Outcome Runtime Errors	10 pts Excellent Program runs to completion with no runtime errors.	0 pts Below Expectations Runtime errors encountered.	10 pts	
This criterion is linked to a Learning Outcome Input	10 pts Excellent Prompts user for single letter with appropriate data validation. Accepts both uppercase and lowercase, converting the latter to uppercase.	5 pts Needs Improvement Input processing contains minor omissions or flaws.	0 pts Below Expectations Input processing contains major flaws.	10 pts
This criterion is linked to a Learning Outcome Output	10 pts Excellent All required outputs displayed in a clear, easily readable style.	5 pts Needs Improvement Output processing contains minor flaws.	0 pts Below Expectations Output processing contains major flaws.	10 pts
This criterion is linked to a Learning Outcome Functions	10 pts Excellent Appropriate use of functions, including the ones provided. Correct arguments are used to call the functions. Return values are used correctly.	5 pts Needs Improvement Minor flaws in the use of functions.	0 pts Below Expectations Major flaws in the use of functions.	10 pts
This criterion is linked to a Learning Outcome Word Mask	10 pts Excellent Word to guess is correctly masked with the appropriate number and positions of dashes. Logic is correctly packaged in a function.	5 pts Needs Improvement Word mask logic contains minor flaws.	0 pts Below Expectations Word mask logic contains major flaws.	10 pts

Criteria	Ratings			Pts
This criterion is linked to a Learning Outcome Guesses	10 pts Excellent Keeps track of guesses, warning user if a guess has been repeated.	5 pts Needs Improvement Guesses logic contains minor flaws.	0 pts Below Expectations Guesses logic contains major flaws.	10 pts
This criterion is linked to a Learning Outcome Rules	20 to >19.0 pts Excellent Follows the rules of the game with the correct action taken at each turn and correct determination of whether the player wins or loses.	19 to >10.0 pts Needs Improvement Rules logic contains minor flaws.	10 to >0 pts No validation Rules logic contains major flaws.	20 pts
This criterion is linked to a Learning Outcome Documentation and Readability	20 to >19.0 pts Excellent Docstring supplied with student name, date, and a brief description of the program. Docstring provided for each function. Additional comments provided, as needed. Program adheres to style guidelines for readability, including appropriate names for all variables.	19 to >10.0 pts Needs Improvement Minor omissions or flaws with documentation and/or readability.	10 to >0 pts Below Expectations Major omissions or flaws with documentation and/or readability.	20 pts

CIS 3300 - Database Analysis and Design – Final Project

CIS3300_FinalProject_Rubric

You've already rated students with this rubric. Any major changes could affect their assessment results.

CIS3300_FinalProject_Rubric

Criteria	Ratings			Pts
<p>This criterion is linked to a Learning Outcome Logical Design Tables</p>	<p>20 pts Excellent Between 7 to 10 tables including linking tables with proper table names designed with Visio</p>	<p>10 pts Average Between 4 to 6 tables with proper table names designed with Visio</p>	<p>0 pts Poor Less than 4 tables designed with Visio</p>	20 pts
<p>This criterion is linked to a Learning Outcome Logical Design Primary Key</p>	<p>16 pts Excellent Every table has primary key with proper names</p>	<p>8 pts Average Between 5 to 7 tables with primary key</p>	<p>0 pts Poor Less than 5 tables with primary keys or no primary keys on tables</p>	
<p>This criterion is linked to a Learning Outcome Logical Design Foreign Key</p>	<p>14 pts Excellent Foreign key(s) on related child table</p>	<p>7 pts Average Foreign key on some child related table but not all child tables</p>	<p>0 pts Poor No foreign key(s) on related child tables</p>	14 pts
<p>This criterion is linked to a Learning Outcome Logical Design Line Relationship</p>	<p>6 pts Excellent Proper line relationship symbols between related tables</p>	<p>3 pts Average Improper line relationship symbols</p>	<p>0 pts Poor No line relationship symbols between related tables</p>	
<p>This criterion is linked to a Learning Outcome Logical Design Data type</p>	<p>6 pts Excellent Proper data types on all fields. e.g int for numeric field, varchar for name/description fields.</p>	<p>3 pts Average Improper datatypes for some fields</p>	<p>0 pts Poor No data type on fields</p>	6 pts

CIS3300_FinalProject_Rubric

Criteria	Ratings			Pts
<p>This criterion is linked to a Learning Outcome Physical Tables</p>	<p>20 pts Excellent Between 8 to 10 tables with proper table names created in SQL server management studio</p>	<p>10 pts Average Between 5 to 7 tables with proper table names created in SQL server management studio</p>	<p>0 pts Poor Less than 5 tables created in SQL server management studio</p>	<p>20 pts</p>
<p>This criterion is linked to a Learning Outcome Physical table Primary Key</p>	<p>16 pts Excellent Every table has primary key with proper names</p>	<p>8 pts Average Between 5 to 7 tables with primary key</p>	<p>0 pts Poor Less than 5 tables with primary keys or no primary keys on tables</p>	<p>16 pts</p>
<p>This criterion is linked to a Learning table Foreign Key relationship</p>	<p>14 pts Excellent Foreign key(s) on child table for tables related</p>	<p>7 pts Average Foreign key on some child related table but not all child tables</p>	<p>0 pts Poor No foreign key on related child table</p>	<p>14 pts</p>
<p>This criterion is linked to a Learning Outcome Physical table data type</p>	<p>8 pts Excellent Proper data types on all fields. e.g int for numeric field, varchar for name/description fields.</p>	<p>4 pts Average Improper datatypes for some fields</p>	<p>0 pts Poor No data type on fields</p>	<p>8 pts</p>

Final Project Rubric

You've already rated students with this rubric. Any major changes could affect their assessment results.

Final Project Rubric

Criteria	Ratings				Pts
This criterion is linked to a Learning Outcome Executive Summary	5 pts Full Marks		0 pts No Marks		5 pts
This criterion is linked to a Learning Outcome Assessment of current weakness	5 to >0.0 pts Full Marks		0 pts No Marks		5 pts
This criterion is linked to a Learning Outcome Scope of the plan	5 to >0.0 pts Full Marks		0 pts No Marks		5 pts
This criterion is linked to a Learning Outcome Implementation plan	20 to >15.0 pts Fully meets expectations	15 to >10.0 pts Partially Meets Expectations	10 to >5.0 pts Does not meet expectation	5 to >0 pts No Marks	20 pts
This criterion is linked to a Learning Outcome Plan measurement	10 to >0.0 pts Full Marks		0 pts No Marks		10 pts
This criterion is linked to a Learning Outcome Project Charter	15 to >10.0 pts Full Marks	10 to >5.0 pts Partially meets expectations	5 to >0 pts Partial Credit		15 pts

Final Project Rubric

Criteria	Ratings				Pts
This criterion is linked to a Learning Outcome Training Aids	20 to >15.0 pts Full Marks	15 to >10.0 pts Partially meets expectations	10 to >5.0 pts Developing - Insufficient or missing detail	5 to >0 pts No Marks	20 pts
This criterion is linked to a Learning Outcome Readability, Grammar & Formatting	15 to >10.0 pts Full Marks	10 to >5.0 pts Partially meets expectations		5 to >0 pts No Marks	15 pts
This criterion is linked to a Learning Outcome Ongoing Maintenance	5 to >0.0 pts Full Marks		0 pts No Marks		5 pts

SLO3

CIS 2850 - Principles of Data Analysis – Final Exam

CIS2850 Final Exam Rubric

You've already rated students with this rubric. Any major changes could affect their assessment results.

CIS2850 Final Exam Rubric

Criteria	Ratings				Pts
<p>This criterion is linked to a Learning Outcome Graphs</p>	<p>3 pts Excellent Correct pie chart and bar chart created for player nationalities. Appropriate graph created for player ages.</p>	<p>2 pts Most Expectations Met 2 of the required graphs are correct.</p>	<p>1 pts Few Expectations Met 1 of the required graphs is correct.</p>	<p>0 pts No Marks</p>	3 pts
<p>This criterion is linked to a Learning Outcome Graph Preferences</p>	<p>2 pts Excellent Graph preference to represent player nationalities and player ages fully explained.</p>	<p>1 pts Needs Improvement Graph preferences only partially explained.</p>	<p>0 pts No Marks</p>	2 pts	
<p>This criterion is linked to a Learning Outcome Boxplots</p>	<p>2 pts Excellent Horizontal boxplots created for player salaries and player weights with marker added for mean.</p>	<p>1 pts Needs Improvement Minor error with boxplots, or only 1 boxplot created.</p>	<p>0 pts No Marks</p>	2 pts	
<p>This criterion is linked to a Learning Outcome Summary Statistics</p>	<p>1 pts Excellent Summary statistics for all measures of center and spread supplies for both player salaries and player weights.</p>	<p>0.5 pts Needs Improvement Summary statistics incomplete.</p>	<p>0 pts No Marks</p>	1 pts	
<p>This criterion is linked to a Learning Outcome Distributions</p>	<p>2 pts Excellent Complete, correct discussion of each distribution's shape, center, and spread. Unusual features are noted.</p>	<p>1 pts Needs Improvement Distribution descriptions are incomplete.</p>	<p>0 pts No Marks</p>	2 pts	

CIS2850 Final Exam Rubric

Criteria	Ratings			Pts	
This criterion is linked to a Learning Outcome Regression Statistics	2 pts Excellent Correct scatterplot and correlation coefficient (rounded to hundredths) are given.	1 pts Needs Improvement Minor error with scatterplot or correlation coefficient, or only 1 is supplied.	0 pts No Marks	2 pts	
This criterion is linked to a Learning Outcome Association	3 pts Excellent Complete, correct description of the trend, shape, and strength of the association between player salaries and player RBIs, with valid rationale given for each.	2 pts Most Expectations Met 2 of the required descriptions (trend, shape, strength) are accurate with valid rationale given.	1 pts Few Expectations Met 1 of the required descriptions (trend, shape, strength) is accurate with valid rationale given.	0 pts No Marks	3 pts
This criterion is linked to a Learning Outcome Prediction	1 pts Excellent Correct RBI prediction, rounded to the nearest whole number.		0.5 pts Needs Improvement Rounding error.	0 pts No Marks	1 pts
This criterion is linked to a Learning Outcome Comparison	1 pts Excellent The weaker association is correctly identified and supported with statistics.		0.5 pts Needs Improvement Comparison is incomplete.	0 pts No Marks	1 pts
This criterion is linked to a Learning Outcome Confidence Interval	2 pts Excellent Correct confidence interval given.	1 pts Needs Improvement Confidence interval is only partially correct.	0 pts No Marks	2 pts	

CIS2850 Final Exam Rubric

Criteria	Ratings			Pts
This criterion is linked to a Learning Outcome Plausibility	1 pts Excellent Correct, complete explanation of the plausibility of the player's assertion.	0.5 pts Needs Improvement Incomplete explanation.	0 pts No Marks	1 pts
This criterion is linked to a Learning Outcome Formatting	2 pts Excellent Document has a polished, easy-to-read format. Student's name is at the top. Each section is clearly titled.	1 pts Needs Improvement Document formatting is incomplete.	0 pts No Marks	2 pts
This criterion is linked to a Learning Outcome Clarity	3 pts Excellent Ideas are clearly stated. No errors with writing style or mechanics.	1.5 pts Needs Improvement Writing style, grammar, and/or spelling errors make the writing unclear.	0 pts No Marks	3 pts

CIS 3250 - Cybersecurity Principles – Final Project

Final Project

Final Project

Criteria	Ratings			Pts
This criterion is linked to a Learning Outcome Completeness	30 pts Excellent Fully answers all questions, demonstrating master the concepts of cybersecurity	19.98 pts Needs Improvement Answers most questions, but only on a superficial level.	0 pts Below Expectations Minimal or no connection to topic.	30 pts

Final Project

Criteria	Ratings			Pts
This criterion is linked to a Learning Outcome Readability	10 pts Excellent Recommendations clearly stated. No errors with writing style or mechanics.	5 pts Needs Improvement Ideas are clearly stated, but grammar, spelling, and/or punctuation errors are distracting.	0 pts Below Expectations Difficult to understand due to grammar, spelling, and/or writing style.	10 pts

CIS 3850 - Analytics and Visualizations – Application Project

Final Assignment Rubric

You've already rated students with this rubric. Any major changes could affect their assessment results.

Final Assignment Rubric

Criteria	Ratings				Pts
This criterion is linked to a Learning Outcome Munged the data using R Screen shot of the execution of the R code	5 pts Full Marks		0 pts No Marks		5 pts
This criterion is linked to a Learning Outcome Analysis is thorough Student looked at the data and found a reasonable correlation and subsequent idea of how the problem might have occurred	8 pts Full marks	5 pts uses the data not completely thought through	2 pts a suggestion, but didnt use the data	0 pts No Marks	8 pts

Final Assignment Rubric

Criteria	Ratings				Pts
This criterion is linked to a Learning Outcome Results presented effectively in table Results presented effectively in table	8 pts Full marks Comments throughout, and story points to guide the audience	5 pts Didn't use story points	2 pts only a basic information without any context or comments	0 pts No Marks	8 pts