



Computer and Business Technology

2nd Assessment Cycle 2009-2012

Draft
Assessment Plan

General Education Competency:

Critical Thinking

Computer Competence

CIS101 – Introduction to Computers and Information Processing

Prepared By

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Background

- CIS 101 has been a very popular general education courses under the Interdisciplinary & Emerging Issues category.
- Number of Students Enrolled:1093 (Fall 2008 through Summer 2009)
- Successful Completion Rate:81% [881] (Fall 2008 through Summer 2009)
- The questions posed for students who successfully complete the course:
 - Are they computer competent? To what level?
 - Are they critical thinkers? To what level?
 - How can course content be improved to address these students' needs?
- The questions posed for students who did not successfully complete the course:
 - What percentages of students fail to complete the course because of course content?
 - How can course content be improved to address these students' needs?
- Computer Competence definition:
 - **Computer competency demonstrates a student's ability to perform college-level work using software utilities and an operating system, software applications, and demonstrates college-level understanding of computer terminology and sound practices.**
- Critical Thinking definition:
 - **'Critical Thinking is the process of drawing on knowledge and observation to make reasonable inferences leading to sound judgments and good decisions.'** (Adapted from the book, Think).

Methodology

This project will assess level of students' abilities to meet the following objectives for Computer Competence and Critical Thinking:

Computer Competence Objectives

1. Students will use software applications.
2. Students will use software utilities and an operating system.
3. Students will perform college level on-line research.
4. Students will demonstrate an understanding of computer terminology and sound practices.

Critical Thinking Objectives (Revised)

1. Students will differentiate among facts, opinions, and inferences.
2. Students will analyze information from various sources.
3. Students will recognize and develop alternative perspectives or solutions.
4. Students will evaluate alternatives to determine the optimal solution.

Student will learn computer competency and critical thinking objectives through lectures and/or discussions and a variety of hands-on activities that will lead students to complete assignments objectives and examination questions collected for assessment.

The outcomes will be assessed using two different techniques in an attempt to completely cover the requirements of this assessment project. (See appendices for examples.)

1. The first technique will consist of evaluating standardized grading rubrics for one computer software and integrated computer purchase assignments. Items from the grading rubrics will be cross referenced to the computer competency and critical thinking assessment tools. The grading rubrics will determine the level at which students:
 - differentiate among facts, opinions, and inferences,
 - analyze information from various sources,
 - recognize and develop alternative perspectives or solutions,
 - evaluate alternatives to assert the optimal solution,
 - use software applications,
 - use software utilities and an operating system,
 - perform college level on-line research, and
 - demonstrate an understanding of computer terminology and sound practices.

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2. The second technique will be to evaluate performance on select questions from a standardized objective examination that demonstrates students' computer competency and critical thinking abilities. The questions on this examination require critical thinking and not just memorization of terminology. Questions will relate to the students' abilities to:

- use several computer applications,
- use software utilities and operating systems,
- understand computer terminology,
- use sound practices,
- perform on-line research,
- differentiate among facts, opinions, and inferences,
- analyze information from various sources, and
- evaluate the alternatives in order to assert the optimal solution.

Rubrics and examination question results will be collected for students from a statistically significant pool that will be randomly selected by a computer program using only student id numbers of students who successfully completed the course. The finite sample size for approximately 1000 students with a confidence level of 95% and confidence interval of 5% was determined to be more than 121 students (i.e., ≥ 122).

Results will be collected from students who failed to complete the course (not including withdrawals) in order to consider ways to improve the course to meet their needs, but data from failing students will not be used to assess outcomes in terms computer competence or critical thinking. Students who fail to complete the course do not determine if the computer competence or critical thinking outcomes were achieved in the course because those students failed to complete course requirements.

Analysis of Data

These **Assessment Tools** (i.e., rubric or rating scale) will be used when evaluating students' levels of achievement in computer competence and critical thinking. The levels of achievement will be calculated by cross-referencing scores on relevant examination questions and grading rubrics (see addendum for grading rubrics and a sample exam question). The average for all of the students in the sample will be calculated to determine the level of achievement for the various objectives.

Computer Competence Assessment Tool

Computer Competence Objectives	Levels of Achievement			
	4 – Accomplished	3 – Competent	2 – Developing	1 – Not Evident
Demonstrates the ability to use software applications.	Consistently demonstrates the ability to use software applications.	Frequently demonstrates the ability to use software applications.	Occasionally demonstrates the ability to use software applications.	Rarely demonstrates the ability to use software applications.
Demonstrates the ability to use software utilities and an operating system.	Consistently demonstrates the ability to use software utilities and an operating system.	Frequently demonstrates the ability to use software utilities and an operating system.	Occasionally demonstrates the ability to use software utilities and an operating system.	Rarely demonstrates the ability to use software utilities and an operating system.
Demonstrates the ability to perform college level on-line research.	Consistently demonstrates the ability to perform college level on-line research.	Frequently demonstrates the ability to perform college level on-line research.	Occasionally demonstrates the ability to perform college level on-line research.	Rarely demonstrates the ability to perform college level on-line research.
Demonstrates an understanding of computer terminology and sound practices	Consistently demonstrates an understanding of computer terminology and sound practices.	Frequently demonstrates an understanding of computer terminology and sound practices.	Occasionally demonstrates an understanding of computer terminology and sound practices.	Rarely demonstrates an understanding of computer terminology and sound practices.

Critical Thinking Assessment Tool

Critical Thinking Objectives	Levels of Achievement			
	4 – Accomplished	3 – Competent	2 – Developing	1 – Not Evident
Differentiates among facts, opinions, and inferences	Consistently differentiates among facts, opinions, and inferences.	Frequently differentiates among facts, opinions, and inferences.	Occasionally differentiates among facts, opinions, and inferences.	Rarely differentiates among facts, opinions, and inferences.
Analyzes information from various sources	Consistently analyzes information from various sources	Frequently analyzes information from various sources	Occasionally analyzes information from various sources	Rarely analyzes information from various sources.
Recognizes and develops alternative perspectives or solutions	Consistently recognizes and develops alternative perspectives or solutions	Frequently recognizes and develops alternative perspectives or solutions	Occasionally recognizes and develops alternative perspectives or solutions	Rarely recognizes and develops alternative perspectives or solutions
Evaluates alternatives to determine the	Consistently evaluates alternatives to determine the optimal	Frequently evaluates alternatives to determine the optimal	Occasionally evaluates alternatives to determine the optimal	Rarely evaluates alternatives to determine the optimal

optimal solution	solution	solution	solution.	solution.
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Recommendations

Pilot (baseline) data will be collected in the spring of 2010. During the summer of 2010, the baseline data will be used to revise topics, activities and assignments to advance student outcomes success. The revisions may include the following:

- Review assignments in CIS 101.
- Review core learning outcomes in CIS 101.
- Compare the above to the definition of computer competency.
- Revise the CIS 101 content and syllabus to improve how it reflects the computer competence definition.
- Reanalyze the new CIS 101 class fall 2010.
- Determine methods to increase successful completion of CIS 101.
- Determine methods to increase NEW student enrollment in CIS 101.

New sample data will be collected and assessed during each of the fall 2010, spring 2011 and fall 2011 semesters after each and any revisions to the CIS101 course. The data will be analyzed to determine if the revisions were successful and the final analysis will be completed by the spring 2012.

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Assessment Timeline

<u>Semester</u>	<u>Assessment Objectives</u>
Fall 2009	<ol style="list-style-type: none"> 1. Design and present a plan to OAC. 2. Deploy initial <u>Pilot Assessment</u>. 3. Design, Research and Implement an effective assessment tool. 4. <u>Collectdata</u>.
Spring 2010	<ol style="list-style-type: none"> 1. Deploy <u>PilotAssessment</u> if not completed in the fall. 2. <u>Analyze</u> initial Pilot Data. 3. Implement instructional and organizational strategies to improve the assessment project. 4. <u>Reassess</u> students and <u>collectdata</u>.
Fall 2010	<ol style="list-style-type: none"> 1. <u>Analyze</u> Pilot Data. 2. Develop strategies based on that data to help improve student learning. 3. <u>Begin1st Assessment</u>. 4. <u>Collectdata</u>.
Spring 2011	<ol style="list-style-type: none"> 1. <u>Analyze</u> Assessment Data. 2. Develop strategies based on that data to help improve student learning. 3. <u>Reassessstudents</u>. 4. <u>Collectdata</u>. 5. Present a <u>progress report</u> to the OAC.
Fall 2011	<ol style="list-style-type: none"> 1. <u>Analyze</u> Assessment Data. 2. Develop final strategies based on lessons learned over the course of the assessment. 3. <u>ConductFinalAssessment</u>. 4. <u>Collect Data</u>.
Spring 2012	<ol style="list-style-type: none"> 1. <u>Analyze</u> Data Collected over the course of the entire assessment. 2. <u>PrepareFinalAssessmentReport</u>.

ADDENDUM

Appendix A – Sample Grading Rubrics

These rubric results for each student will be cross referenced to the appropriate assessment tools for computer competence and critical thinking.

Grading Rubric for CIS 101 Computer Software Assignment							
Name/ID:	Instructors place an 'X' in the box in front of the selected score for each row.						
	Objective Area	0	0.5	1	Points		
1.	Career Specific Application	Neither application was career specific	Only one application was career specific	Both applications were career specific	0		
2.	Office Suite	Didn't include an appropriate office suite	Included an appropriate office suite	n/a	0		
3.	Operating System	Didn't include an appropriate OS	Included an appropriate OS	n/a	0		
4.	Anti-Virus Utility	Didn't include an anti-virus utilities	Included an anti-virus utility	n/a	0		
5.	Document Format	Did not use anything resembling the required format.	Format was missing requirements or layout was not correct.	Used the required format.	0		
6.	Software Table Items	Software table did not include most of the requirements	Software table was missing some of the requirements	Software table contained all of the requirements.	0		
7.	Software Table Location	Software table was not in the appropriate section	Software table was in the appropriate section	n/a	0		
8.	Explanation Clarity for Career Specific Application #1	Explanation did not exist.	Explanation lack clarity or appropriate specificity	Explanation was clear and appropriate.	0		
9.	Explanation Clarity for Career Specific Application #2	Explanation did not exist.	Explanation lack clarity or appropriate specificity	Explanation was clear and appropriate.	0		
10.	Facts -v- Opinions for Career Specific Application #1	Did not differentiate among facts and opinions/inferences.	Clearly differentiated among facts and opinions/inferences.	n/a	0		
11.	Facts -v- Opinions for Career Specific Application #2	Did not differentiate among facts and opinions/inferences.	Clearly differentiated among facts and opinions/inferences.	n/a	0		
12.	Correct Spelling & Grammar.	Missed spelling or grammar check.	Spelling and grammar checked but not proofread.	Paper was proofread and error free.	0		
13.	Multiple Sources	Student only used one source for career application software	Student used multiple sources	n/a	0		
14.	Evaluation of Alternatives to select Optimal Software	Did not justify the selection of the more critical career software.	Justified the selection of the more critical career software.	n/a	0		
					Subtotal	0	
					Late Penalty		
					Total Points	0	

APPENDIX 6.e.

Grading Rubric for CIS 101 Integrated Computer Purchase Assignment						
Name/ID:	Instructors place an 'X' in the box in front of the selected score for each row.					
	Objective Area	0	0.5	1	Points	
1.	Career Specific System	None of the systems were career specific	Only one system was career specific	All three systems were career specific	0	
2.	Included URLs for Sources	Not included.	Included.	n/a	0	
3.	Purchases included an Appropriate Operating System	Not included.	Included and appropriate.	n/a	0	
4.	Purchases included an Anti-Virus Utility	Not included.	Included and appropriate.	n/a	0	
5.	Purchases included an Office Application	Not included.	Included and appropriate.	n/a	0	
6.	Purchase included Career Specific Application	Not included.	Included and appropriate.	n/a	0	
7.	Purchase included a printer	Not included.	Included.	n/a	0	
8.	Purchase included UPS	Not included.	Included.	n/a	0	
9.	Purchase included a career specific Peripheral	Not included.	Included.	n/a	0	
10.	Document Format	Did not use anything resembling the required format.	Format was missing requirements or layout was not correct.	Used the required format.	0	
11.	Description Clarity for System #1	Description did not exist.	Description lack clarity or appropriate specificity	Description was clear and appropriate.	0	
12.	Description Clarity for System #2	Description did not exist.	Description lack clarity or appropriate specificity	Description was clear and appropriate.	0	
13.	Description Clarity for System #3	Description did not exist.	Description lack clarity or appropriate specificity	Description was clear and appropriate.	0	
14.	Facts -v. Opinions for System #1	Did not differentiate among facts and opinions/inferences.	Differentiated among some facts and opinions/inferences.	Clearly differentiated among all facts and opinions/inferences.	0	
15.	Facts -v. Opinions for System #2	Did not differentiate among facts and opinions/inferences.	Differentiated among some facts and opinions/inferences.	Clearly differentiated among all facts and opinions/inferences.	0	
16.	Facts -v. Opinions for System #3	Did not differentiate among facts and opinions/inferences.	Differentiated among some facts and opinions/inferences.	Clearly differentiated among all facts and opinions/inferences.	0	
17.	Explanation of System Choice	Explanation did not exist.	Explanation lack clarity or appropriate specificity	Explanation was clear and appropriate.	0	
18.	Explanation of Career Usage.	Explanation did not exist.	Explanation was clear and appropriate.	n/a	0	
19.	Explanation of desktop -v- laptop	Explanation did not exist.	Explanation was clear and appropriate.	n/a	0	
20.	Explanation of specific peripheral	Explanation did not exist.	Explanation was clear and appropriate.	n/a	0	
21.	Explanation clearly differentiate among facts, opinions, and inferences	Did not differentiate among facts and opinions/inferences.	Clearly differentiated among facts and opinions/inferences.	n/a	0	
22.	Evaluation of Alternatives to select Optimal System	Did not justify the selection of the optimal system.	Justified the selection of the optimal system.	n/a	0	
23.	Used Multiple Sources to research and select system.	Student only used one source for the systems	Student used multiple sources	n/a	0	
24.	Correct Spelling & Grammar.	Missed spelling or grammar check.	Spelling and grammar checked but not proofread.	Paper was proofread and error free.	0	
25.	Spreadsheet	Missing spreadsheet	Spreadsheet formatting OR content missing	Included an appropriate spreadsheet of 3 systems	0	
26.	Linked Excel Spreadsheet	Spreadsheet was not linked	Spreadsheet was linked (OLE).	n/a	0	
27.	Column Chart with Discussion	Column Chart and Discussion missing	Inappropriate or missing Column Chart OR discussion	Included Column Chart and Discussion	0	
28.	Linked Excel Column Chart	Chart was not linked	Chart was linked (OLE).	n/a	0	

Appendix B – Sample Examination Question

The final test consists of 20 multiple choice questions and should take about 45 to 60 minutes. The questions are design to elicit more critical thinking than memorizing topics. Questions are related to your experience in this course. A sample question would be something like the following:

1. You work for a company that makes soft drinks. Your employer is looking at purchasing a company that produces a complementary product, pizza. Your manager has asked you to perform an analysis of various pizza companies that may be available for purchase. What software will you first employ to start the research in order to perform this analysis?

- A. Spreadsheet
- B. Web Browser
- C. Word Processor
- D. Tax Software

(Sample Answer) B. Web Browser - While Spreadsheet and Word Processing software will likely be used eventually, research typically starts with on-line investigation and that is facilitated using a Web Browser.

NOTE: This sample question demonstrates the students' critical thinking abilities and computer competence. A student who correctly answers this question would recognize and develop alternative perspectives or solutions and evaluate the alternatives to determine the optimal solution. This sample question also demonstrates the students' knowledge of the use of applications software.

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