Information Systems Program

Evidence of Student Learning

Use of Evidence of Student Learning

2016-17

Assessment Data Mathematical, Information and Computer Sciences

Learning Outcome: Students will be able to write correct and robust software.

Outcome Measure: Annual: CSC254 Signature Assignment

Criteria for Success: 80% of the students should have an average score of at least 2 in each of the major areas.

Aligned with DQP Learning Areas (circle one or more):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

	Percentage of Class at 2 or Higher					
	2011	**2012**	**2013**	**2014**	**2015**	**2016**
Compilation	100%	100%	92%	75%	100%	94%
Runtime Correctness	86%	58%	85%	100%	62%	72%
Problem Solving	100%	100%	100%	75%	92%	83%

Conclusions Drawn from Data:
The students find the run-time correctness the most challenging. This is because this is the area of programming that is the most detailed oriented.

Changes to be Made Based on Data:
Continue to emphasize the need to carefully de-bug computer code during development.

CSC 254 Signature assignment

	Unsatisfactory (1)	Satisfactory (2)	Good (3)	Excellent (4)
Compilation	• Compiles with errors	• Compiles with no errors, but has linking errors	• Compiles with no syntax errors or linking errors, but has warnings.	• Compiles and links with no errors
Runtime correctness	• No correct response to any test case from the sample data provided.	• Executes correctly on at least one test case from the sample data provided.	• Executes correctly on the given sample data, but not accepted by the online judge (no need to look at source code in this case)	• Accepted by the online judge, indicating that it has passed numerous independent test cases unknown to the student.
Problem solving	• Analysis of program source code indicates that program is NOT close to working, and could NOT easily be modified to work given additional time.	• Analysis of program source code indicates that the student partially understands the problem solution.	• Analysis of program source code indicates that program is close to working, and could be modified to work given additional time.	• Accepted by judge

Criterion: 80% of students will average 2 in Runtime correctness and Problem solving.

Assessment Data Mathematical, Information and Computer Sciences

Learning Outcome: Students will analyze the interaction between hardware and software.

Outcome Measure:
Annual (CS and IS): CSC314 Signature Assignment

Annual (CS): ETS CS Exam Computer Organization, Architecture and Operating Systems Subscore.

Criteria for Success:
CSC314 Assignment: 80% of the students should have an average score of at least 7.

ETS: The department subscore will be at the 65th percentile or higher.

Aligned with DQP Learning Areas (circle one or more):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

	Percentage of Class at 7 or Higher					
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
Hardware/software interaction understanding	85%	89%	82%	92%	88%	75%

ETS Subscore:
Here are the most recent 10 years of data:

Year	Percentile
2007-08	44
2008-09	95
2009-10	90
2010-11	65
2011-12	89
2012-13	*
2013-14	82
2014-15	94
2015-16	86
2016-17	61

* Sample size too small to be given indicator scores.
ETS changed the CS exam in 2011-12.

Conclusions Drawn from Data:
Students have been able to successfully master the material in the CSC314 assessment.

This data from the ETS subscore is a challenge to interpret for several reasons: some years our sample size is too small for ETS to provide the subscore and in all years our sample size is sufficiently small that the standard deviation is relatively large. We have been hitting our target most years

Changes to be Made Based on Data:
Continue to require operating systems (CSC314) of all CS and IS students.

We need to evaluate the ETS test questions to determine if this remains a valid measurement tool that is aligned with our curriculum. We have noticed that there may be a correlation between this data and our curricular cycle. We teach several key classes in alternating years and it appears that students are more successful in an alternating year cycle. We need to investigate this further as part of our upcoming program review. We will be also be evaluating whether or not the ETS MFT is the best way to measure this learning objective.

Rubric Used (CSC314)
The scoring for this assignment is purely points based.

	Unsatisfactory (1)	**Satisfactory (2)**	**Good (3)**	**Excellent (4)**
Points gained by showing understanding of software/hardware interaction in answering question	6 and below	7	8	9-10

Rubric Used (ETS)
Scoring done by ETS on the Major Field Test.

Fermanian School of Business
PLO #1 Assessment
2016-2017

Learning Outcome:
PLO #1: Demonstrate general knowledge of theories and practices in the core areas of business.

Outcome Measure:
Peregrine Comprehensive Exit Exam Results – implemented Fall 2015

Criteria for Success:
Score at or above the following:

Peregrine Undergraduate Comprehensive Exit Exam Criteria for Success	
Disciplinary Area	**Score**
Undergraduate Total	50
Accounting	50
Business Ethics	50
Business Finance	45
Strategic Management	55
Business Leadership	50
Economics (Macro/Micro)	50
Global Dimensions of Business	45
Information Mgt Systems	50
Legal Enviornment of Business	50
Management (OPS, HR, OB)	55
Marketing	50
Quantitative Techniques/Stats	45

Aligned with DQP Learning Areas (circle one or more but not all five):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

	Undergraduate Total	Accounting	Business Ethics	Business Finance	Strategic Management	Business Leadership	Economics (Macro/Micro)	Global Dimensions of Business	Information Mgt Systems	Legal Environment of Business	Management (OPS, HR, OB)	Marketing	Quantitative Techniques/Stats
Criteria for Success	**50**	**50**	**50**	**45**	**55**	**50**	**50**	**45**	**50**	**50**	**55**	**50**	**45**
2015-2016	50.9	57.2	48.5	49.8	56.3	49.0	55.1	46.0	54.0	49.2	52.6	48.8	44.6
2016-2017	50.2	54.6	48.3	48.5	54.9	47.9	52.2	44.8	53.6	49.1	51.0	49.6	47.1

Conclusions Drawn from Data:
It is important to note that PLNU's methodology of administering the Peregrine Comprehensive Exam is delivered in a face-to-face format, proctored and students are given a two-hour time limit to complete the test. According to Peregrine, a majority of the schools who administer the Peregrine Comprehensive Exam do so in an un-proctored online format with time limits higher than two hours. Therefore, criteria for success were determined considering: (a) average total score and average disciplinary area scores of national ACBSP schools, and (b) strengths and weaknesses of the FSB's undergraduate curriculum.

The first implementation of the Peregrine Comprehensive Exam was during Fall 2015. Prior to AY 15-16, The ETS exam was administered. The initial results on the Peregrine Comprehensive Exam from AY15-16 and AY16-17 allow for a baseline measurement.

During AY15-16, FSB's undergraduate average total score exceeded the criteria for success. Additionally, the criteria for success were exceeded for six of the twelve disciplinary areas. The area of Quantitative Techniques and Statistics fell slightly below (within 0.4 points) the criteria for success. The remaining five areas fell below the criteria for success, including Business Ethics, Business Leadership, Legal Environment of Business, Management and Marketing as indicated in the table above.

During AY16-17, FSB's undergraduate average total score exceeded the criteria for success. Additionally, the criteria for success were exceeded for five of the twelve disciplinary areas. The areas of Strategic Management and Global Dimensions of Business fell slightly below (within 0.2 points) the criteria for success. The remaining five areas fell below the criteria for success, including Business Ethics, Business Leadership, Legal Environment of Business, Management and Marketing as indicated in the table above.

Changes to be Made Based on Data:
Since undergoing a major curriculum change in AY13-14, new and/or revised lower and upper division courses are being offered. As the professors continue to refine these courses, an increase in learning and thus, an increase in the scores is anticipated on the Peregrine exam in the major discipline areas moving forward.

One area that needs improvement (as noted above) is Business Ethics. In order to provide a stronger foundation to build upon throughout our entire business core, we will be adding additional ethics

content to MGT 212 Principles of Management. Specifically, beginning Fall 2017, we will be adding course content relating to the study of various ethical models.

Historically, MGT212 Principles of Management has emphasized organizational behavior and human resources, with minimal content devoted to leadership and operations management. Beginning Fall 2017, this course will be redesigned to include emphasis on all four areas. Due to these curriculum changes, an increase in scores in the areas of Business Leadership and Management is expected in the next two to three years.

Beginning Fall 2017, MKT332 Principles of Marketing will be redesigned to improve content. Due to these curriculum changes, an increase in the score in the area of Marketing is expected in the next two years.

The average scores in the area of Legal Environment of Business were within 0.9 points of the criteria success for both periods; therefore, scores for this area will be closely monitored over the next several academic years to determine if curricular changes are needed.

Fermanian School of Business
PLO #2 Assessment
2016-2017

Learning Outcome:
PLO #2: Critically analyze and apply business knowledge to solve complex business situations.

Outcome Measure:
The CAPSIM COMP-XM Management Simulation provides comparative data on how each student (and class) performs against all other students taking the simulation and exam at the same time nationally. Two results are used:

1. CAPSIM COMP-XM Balanced Score Card Results – Application-based
2. CAPSIM COMP-XM Simulation Board Query Results – Knowledge-based

This summative and direct data for the School of Business Assessment of PLO #2 is gathered in BUS488 – Strategic Management in both the Fall and Spring semesters.

Criteria for Success:

1. Average score of all students will be above 70th percentile on the national COMP-XM Balanced Score Card Results
2. Average score of all students will be above 55th percentile on the national COMP-XM Board Query Results

Aligned with DQP Learning Areas (circle one or more but not all five):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

Semester	N[1]	Balanced Score Card Results	Board Query Results
Fall 2013	53	66	63
Spring 2014	47	65	51
Fall 2014	55	26	25
Spring 2015	31	52	47
Fall 2015	51	82	70
Spring 2016	59	71	60
Fall 2016	60	80	86
Spring 2017	68	80	71

Conclusions Drawn from Data:
For Fall 2013 and Spring 2014, the average scores on the national COMP-XM Balanced Score Card results fell slightly below the criteria for success (above the 70th percentile). For Fall 2014 and Spring 2015, scores were below the criteria for success at 26 and 52, respectively. These low scores may have been due to the absence of the professor who typically sets up the simulation and the expectations, as this professor was on sabbatical. Beginning in Fall 2015 and continuing through Spring 2017, scores exceeded the criteria for success, ranging from 71 to 82.

For Fall 2013, the average score on the national COMP-XM Board Query results were above the criteria for success (above the 55th percentile); however, scores dropped slightly below the criteria for success in Spring 2014. In Fall 2014 and Spring 2015, scores were below the criteria for success at 25 and 47, respectively. Similarly to the COMP-XM Balanced Score Card results, these low scores may have been due to the absence of the professor who typically sets up the simulation. Beginning in Fall 2015 and continuing through Spring 2017, scores exceeded the criteria for success, ranging from 60 to 86.

The improvement in scores over the last two academic years for both the COMP-XM Balanced Score Card and Board Query results may be attributed to two items: (a) the return of the professor who sets up the simulation, and (b) the implementation of new curriculum in AY 13-14. Seniors completing the COMP-XM Simulation in Fall 2016 and Spring 2017 were the first class to enroll under the new curriculum.

Changes to be Made Based on Data:
At this time, no changes are recommended, as the change in curriculum and the return of the professor has resulted in scores consistently above the criteria for success. Additionally, the professor's approach to running the simulation will continue to be institutionalized so that other professors can effectively use the simulation in the future.

Assessment Data Mathematical, Information and Computer Sciences

Learning Outcome: Students will be able to apply their technical knowledge and critical thinking to solve problems.

Outcome Measure:
Alternating Year**:** ISS414 Signature Assignment using data bases.

ETS Proficiency Profile: Critical Thinking/Reading Portion

Criteria for Success:

80% of the students should have an average score of at least 2.5 in each of the major areas.

ETS PP: 85% of the students will be marginal or proficient at Level 2 Reading/Critical Thinking.

Aligned with DQP Learning Areas (circle one or more):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

	Percentage of Class at 2.5 or Higher		
	2011-12	**2013-14**	**2015-16**
Relevant Information Chosen	100%	100%	88%
Query Correctness	25%	100%	48%

ETS:

	Percentage of Students Marginal or Proficient				
	2012-13	2013-14	2014-15	2015-16	2016-17
ETS Proficiency Profile Level 2 Critical Thinking	80.0%	92.3%	100.0%	84.2%	91.7%

*ETS is for the full department.

Conclusions Drawn from Data:
ISS414 Assignment: The 2012 class was relatively small and that led to a fairly large standard deviation. 75% of the class would have passed query correctness if the benchmark had been 2.3. We once again saw some problems with query correctness in 2015-16.

ETS: The students are hitting our benchmark in this area.

Changes to be Made Based on Data:
Spend more time in class emphasizing queries. This class is being revised in light of some new curricular changes. In 2015-16 the class was changed significantly. It focused on both data bases and website construction. Less time is being spend on data bases. We need to review this signature assignment in light of the changed course content.

Rubric Used

	Unsatisfactory (1)	Satisfactory (2)	Good (3)	Excellent (4)
Recognition of relevant information	3 errors (an error is defined as missing a relevant database field or listing an irrelevant field)	2 errors (an error is defined as missing a relevant database field or listing an irrelevant field)	1 error (an error is defined as missing a relevant database field or listing an irrelevant field)	All relevant database fields are listed and no irrelevant fields are listed for both queries
Query correctness	3 mistakes in the 2 queries	2 mistakes in the 2 queries	1 mistake in the 2 queries	No mistakes in the two queries

Assessment Data Mathematical, Information and Computer Sciences

Learning Outcome: Students will be able to speak about their work with precision, clarity and organization (Oral Communication).

Outcome Measure: Annual: Each student will be required to give an oral presentation on a topic in their field as a part of their participation in the Senior Seminar. The audience for this talk will include department faculty, fellow students and possibly some alumni. The students will be given the evaluation criteria in advance of their presentation and will be rated by the faculty using a rubric with a scale of 4 (outstanding) to 1 (unsatisfactory) in the following areas:

- Command of background material
- Organization
- Oral presentation skills (added as part of the new rubric in the spring of 2010)
- Use of presentation tools
- Ability to field questions from the audience

Note that the department has a mapping between its rubric and the AAC&U Oral Communication Value Rubric.

Criteria for Success: 80% of the students should have an average score of at least 2.5 in each of the major areas in the department rubric. This translates to 80% of the students being above a 3.5 in the AAC&U rubric.

Our translation from our data to the AAC&U is included. Our department continues to provide the students with our departmental rubric because it has been developed over many years and works effectively with our majors.

Aligned with DQP Learning Areas (circle one or more):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

Oral Presentation	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Background	94%	88%	100%	95%	100%	100%	92%	100%	95%	100%
Organization	94%	94%	100%	85%	100%	100%	100%	100%	100%	92%
Oral presetnation skills (2010)			100%	90%	100%	100%	92%	100%	95%	100%
Presentation Tools	88%	94%	100%	100%	100%	100%	100%	100%	100%	100%
Ability to field questions	81%	100%	100%	100%	83%	100%	100%	89%	100%	100%

AAC&U "translation" (we have only done this for the years that PLNU has been making use of the DQP)

Oral AAC&U	2012-13	2013-14	2014-15	2015-16	2016-17
Organization	100%	100%	100%	100%	92%
Language	100%	92%	100%	100%	100%
Delivery	100%	92%	100%	95%	100%
Supporting Material	100%	100%	100%	100%	100%
Central Message	100%	100%	89%	100%	100%

Conclusions Drawn from Data:
In general, the students have been performing reasonably well in the area of giving oral presentations. We attribute this to the fact that we intentionally have students presenting technical material in front of others starting in their freshman year.

Changes to be Made Based on Data:
Over time we have increased our standards and expanded the rubric to increase clarity for students and to push them to speak at a professional level. Looking at the scores, it is possible to see the times when alterations have been made:

- 2008-09 Standards tightened
- 2009-10 Rubric expanded to include more detailed instructions

Oral Presentation Rubric Update (4/12/17)

Criteria	Outstanding	High Satisfactory	Low Satisfactory	Unsatisfactory
Command of background material	☐ Clearly knows material and key facts by memory	☐ Clearly knows key facts with a few memory slips	☐ Reads some information; knows some facts from memory	☐ Reads sentences from slides
	☐ Expands on PPT slides	☐ Some expansion on PPT slides	☐ No expansion of PPT slide content	☐ Dependent on notes
	☐ Content appropriate for audience	☐ Partial audience adaptation of content	☐ Little audience adaptation of content	☐ Lacks audience adaptation of content
Organization	☐ Clear and concise outline	☐ Clear outline	☐ Some sense of outline	☐ No clear outline
	☐ Relevant graphics and key text items on slides	☐ Too much information on slides (not concise)	☐ Too much detailed information on slides	☐ Slides are in paragraphed; too much detailed information on one slide
	☐ Presentation is between 10-15 minutes	☐ Presentation 1 minute outside of the range (10-15 minutes)	☐ Presentation 2 minutes outside of the range (10-15 minutes)	☐ Presentation 3 minutes outside of the range (10-15 minutes)
Oral Presentation skills	☐ Clearly has practiced several times; smooth transitions	☐ Has practiced but transitions are not smooth	☐ Has practiced presentation but cannot verbally make transitions between slides	☐ Clearly did not practice presentation; Does not anticipate content of next slide
	☐ Engages audience in content multiple time and engagement is well connected to talk (questions, examples, etc)	☐ Engages audience at least twice in content (questions, examples, etc.)	☐ Audience engagement at least once with content (questions, examples, etc.)	☐ No audience involvement
	☐ Free of disfluencies (ah, uhm)	☐ A few disfluencies (ah, umh, er)	☐ Many disfluencies (ah, umh, er)	☐ Disfluencies (ah, umh, er) detract from presentation
	☐ Is clearly heard in the room and makes an uses inflection for emphasis	☐ Can be understood most of the time and uses some inflection	☐ Can sometimes be understood and uses little inflection	☐ Can not be heard and/or speaks in a monotone
	☐ Engaged audience through eye contact	☐ Some engagement of audience through eye contact	☐ Infrequent eye contact	☐ Little audience awareness or eye contact
	☐ Engaged audience through gestures	☐ Some engagement of audience through gestures	☐ Distracting gestures or mannerisms	☐ Frequent distracting gestures or mannerisms
Use of Presentation Tools	☐ PPT background is matched to content, legible font, seamless transitions	☐ Appropriate PPT slide backgrounds, transitions & font	☐ Distracting PPT slide backgrounds and transitions, font hard to read	☐ No attention given to PPT slide backgrounds and transitions, font illegible
	☐ Graphics imbedded and matched to topic, necessary hyperlinks work	☐ Most graphics imbedded and matched to topic, most necessary hyperlinks work	☐ Some inappropriate graphics or use of PPT embellishments, necessary hyperlinks don't work	☐ Distracting use of embellishments, graphics not connected to topic
Ability to field questions	☐ Able to answer questions clearly and without hesitation and prepared material to answer anticipated questions	☐ Can answer all questions with some hesitation	☐ Able to answer half of the questions with hesitation	☐ Unable to answer any questions

Translation between MICS and AAC&U Rubric

MICS Category	MICS Item Position in Rubric	AAC&U Category
Clear and concise outline	4	Organization
Relevant graphics and key text items on slides	5	Organization
Presentation length is +/- 30 seconds of time limit	6	Organization
Expands on PPT slides	2	Language
Content appropriate for audience	3	Language
Engages audience	8	Language
Transitions	7	Delivery
Free of disfluencies (ah, uhm)	9	Delivery
Is clearly heard in the room and uses inflection for emphasis	10	Delivery
Engaged audience through eye contact	11	Delivery
Engaged audience through gestures	12	Delivery
PPT background is matched to content, legible font, seamless transitions	13	Delivery
Relevant graphics and key text items on slides	5	Supporting
Graphics imbedded and matched to topic, necessary hyperlinks work	14	Supporting
Clearly knows material and key facts by memory	1	Central Message
Able to answer questions clearly and without hesitation	15	Central Message

AAC&U Value Rubric

	Capstone 4	Milestones 3	Milestones 2	Benchmark 1
Organization	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable and is skillful and makes the content of the presentation cohesive.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable within the presentation.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is intermittently observable within the presentation.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is not observable within the presentation.
Language	Language choices are imaginative, memorable, and compelling, and enhance the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are thoughtful and generally support the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are mundane and commonplace and partially support the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are unclear and minimally support the effectiveness of the presentation. Language in presentation is not appropriate to audience.
Delivery	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation compelling, and speaker appears polished and confident.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation interesting, and speaker appears comfortable.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation understandable, and speaker appears tentative.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) detract from the understandability of the presentation, and speaker appears uncomfortable.
Supporting Material	A variety of types of supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that significantly supports the presentation or establishes the presenter's credibility/authority on the topic.	Supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that generally supports the presentation or establishes the presenter's credibility/authority on the topic.	Supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that partially supports the presentation or establishes the presenter's credibility/authority on the topic.	Insufficient supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make reference to information or analysis that minimally supports the presentation or establishes the presenter's credibility/authority on the topic.
Central Message	Central message is compelling (precisely stated, appropriately repeated, memorable, and strongly supported.)	Central message is clear and consistent with the supporting material.	Central message is basically understandable but is not often repeated and is not memorable.	Central message can be deduced, but is not explicitly stated in the presentation.

Assessment Data Mathematical, Information and Computer Sciences

Learning Outcome: Students will be able to write about their work with precision, clarity and organization (Written Communication).

Outcome Measure:
Annual: Each student will be required to write a paper on a topic in their field as a part of their participation in the Senior Seminar. The audience for this talk will include department faculty, fellow students and possibly some alumni. The students will be given the evaluation criteria in advance of their presentation and will be rated by the faculty using a rubric with a scale of 4 (outstanding) to 1 (unsatisfactory) in the following areas:

- Bibliography and other supporting documentation
- Organization
- Grammar and spelling
- Depth of information
- Clarity of writing

Note that the department has a mapping between its rubric and the AAC&U Written Communication Value Rubric.

Annual: ETS Proficiency Profile.

Criteria for Success: 80% of the students should have an average score of at least 2.5 in each of the major areas in the department rubric. This translates to 80% of the students being above a 3.5 in the AAC&U rubric.

ETS: 85% of our students will be marginal or proficient on the Level 2 Writing test.

Our translation from our data to the AAC&U is included. Our department continues to provide the students with our departmental rubric because it has been developed over many years and works effectively with our majors

Aligned with DQP Learning Areas (circle one or more):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

Written Report	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Bibliography and support	69%	75%	88%	55%	93%	100%	100%	100%	89%	100%
Organization	100%	88%	63%	65%	93%	100%	100%	100%	100%	92%
Grammar and Spelling	94%	75%	81%	60%	79%	100%	92%	89%	84%	100%
Depth of Information	81%	88%	88%	50%	93%	91%	77%	78%	89%	85%
Clarity of Writing	94%	69%	81%	70%	79%	91%	77%	78%	89%	85%

AAC&U "translation" (we have only done this for the years that PLNU has been making use of the DQP)

Written AAC&U	2012-13	2013-14	2014-15	2015-16	2016-17
Organization	100%	100%	100%	89%	92%
Language	100%	92%	100%	89%	85%
Delivery	100%	92%	100%	100%	85%
Supporting Material	100%	100%	100%	89%	100%
Central Message	100%	100%	89%	84%	85%

	Percentage of Students Marginal or Proficient				
	2012-13	2013-14	2014-15	2015-16	2016-17
ETS Proficiency Profile Level 2 Writing	60.0%	84.6%	100.0%	89.5%	83.3%

Conclusions Drawn from Data:
In general, the students have been performing reasonably well in writing technical reports. We still some weaknesses in the quality of their writing and the use of their source material. The sample size for ETS in the first year was extremely small so we are not particularly concerned about the fact that the score was below the benchmark. The balance of the ETS scores are at or near benchmark (due to small sample sizes, the difference can often be a single person).

Changes to be Made Based on Data:
Over time we have increased our standards and expanded the rubric to increase clarity for students and to push them to speak at a professional level. Looking at the scores, it is possible to see the times when alterations have been made:

- 2008-09 Standards tightened
- 2009-10 Rubric expanded to include more detailed instructions
- In 2014-15 we instituted a literature review assignment to strengthen the students' capacity for using resources and identifying why the resources are relevant. This assignment needs to be adjusted, but seems to have helped students to understand their work.

In addition, the university has just changed general education requirements so that students will take an upper division literature class. We hope that this further exposure to formal writing later in their academic career will help to strengthen our students' writing.

MICS Written Presentation Rubric

Criteria	Outstanding	High Satisfactory	Low Satisfactory	Unsatisfactory
Bibliography and supporting documents	☐ Multiple references from distinct reputable sources	☐ Most references from distinct reputable sources	☐ Some references from reputable sources	☐ No bibliography or all references from untrusted sites on the internet
	☐ References cited in the body of the document	☐ Some citation of references in the body of the document	☐ Limited citation of references in the body of the document	☐ No citation of references in the body of the document
Organization	☐ Conveys a central theme with all ideas connected, arrangement of ideas clearly related to topic	☐ Conveys a central idea or topic with some ideas connected to the topic	☐ Attempts to focus on an idea or topic with many ideas not connected to the topic	☐ Has little or no focus on central idea or topic
	☐ Clear introduction, body (with sections), and conclusion includes summary and closure	☐ Includes introduction, body and conclusion	☐ Introduction, body, conclusion detectable but not clear	☐ Introduction, body or conclusion absent
	☐ Includes both an abstract and table of contents	☐ Includes abstract and table of contents (one partial and one complete)	☐ Includes partial abstract and partial table of contents	☐ No abstract or table of contents
Grammar and spelling	☐ No use of first- person tense	☐ Few uses of the first-person tense	☐ Several uses of the first- person tense	☐ Written in first-person tense
	☐ No grammatical or spelling errors	☐ Few grammatical and spelling errors	☐ Some grammatical and spelling errors	☐ Many grammatical and spelling errors
Depth of information	☐ Appropriately synthesizes information from multiple distinct sources	☐ Synthesis of information from at least three distinct sources	☐ Synthesis of information from at least two distinct sources	☐ Summary reporting of information without synthesis
	☐ Draws conclusions and personal insights from synthesis	☐ At least two personal insights or conclusions stated	☐ At least one personal insight or conclusion stated	☐ No personal insights
	☐ Has the minimum number of pages including penalty pages; subject coverage is excellent	☐ Has the minimum number of pages including penalty pages; subject coverage is good	☐ Has the minimum number of pages including penalty pages; subject coverage is adequate	☐ Does not have the minimum number of pages including penalty pages
Clarity of writing	☐ Sentences flow	☐ Good sentence structure	☐ Occasional poor sentence structure	☐ Frequent poor sentence structure
	☐ Smooth transitions between paragraphs	☐ Adequate transitions between paragraphs	☐ Transitions between paragraphs unclear	☐ Lacked transitions between paragraphs
	☐ Any and all terms and acronyms are defined	☐ Most terms and acronyms are defined	☐ Some terms and acronyms are defined	☐ Many terms and acronyms are undefined
	☐ Provides evidence to support points	☐ Lacks support for some points	☐ Provides minimal support for points	☐ Ideas not supported

Translation between MICS and AAC&U Rubric

MICS Category	MICS Item Position in Rubric	AAC&U Category
Conveys a central theme with all ideas connected, arrangement of ideas clearly related to topic	3	Purpose
Appropriately synthesizes information from multiple distinct sources	8	Development
Draws conclusions and personal insights from synthesis	9	Development
Has the minimum number of pages including penalty pages; subject coverage is excellent	10	Development
Provides evidence to support points	14	Development
Clear introduction, body (with sections), and conclusion includes summary and closure	4	Genre
Includes both an abstract and table of contents	5	Genre
Multiple references from distinct reputable sources	1	Source
References cited in the body of the document	2	Source
No use of first- person tense	6	Syntax
No grammatical or spelling errors	7	Syntax
Sentences flow	11	Syntax
Smooth transitions between paragraphs	12	Syntax
Any and all terms and acronyms are defined	13	Syntax

AAC&U Written Communication Value Rubric

	Capstone 4	Milestones 3	Milestones 2	Benchmark 1
Context of and Purpose for Writing *Includes considerations of audience, purpose, and the circumstances surrounding the writing task(s).*	Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.	Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context).	Demonstrates awareness of context, audience, purpose, and to the assigned tasks(s) (e.g., begins to show awareness of audience's perceptions and assumptions).	Demonstrates minimal attention to context, audience, purpose, and to the assigned tasks(s) (e.g., expectation of instructor or self as audience).
Content Development	Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and shaping the whole work.	Uses appropriate, relevant, and compelling content to explore ideas within the context of the discipline and shape the whole work.	Uses appropriate and relevant content to develop and explore ideas through most of the work.	Uses appropriate and relevant content to develop simple ideas in some parts of the work.
Genre and Disciplinary Conventions *Formal and informal rules inherent in the expectations for writing in particular forms and/or academic fields (please see glossary).*	Demonstrates detailed attention to and successful execution of a wide range of conventions particular to a specific discipline and/or writing task (s) including organization, content, presentation, formatting, and stylistic choices	Demonstrates consistent use of important conventions particular to a specific discipline and/or writing task(s), including organization, content, presentation, and stylistic choices	Follows expectations appropriate to a specific discipline and/or writing task(s) for basic organization, content, and presentation	Attempts to use a consistent system for basic organization and presentation.
Sources and Evidence	Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing	Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing.	Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline and genre of the writing.	Demonstrates an attempt to use sources to support ideas in the writing.
Control of Syntax and Mechanics	Uses graceful language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error-free.	Uses straightforward language that generally conveys meaning to readers. The language in the portfolio has few errors.	Uses language that generally conveys meaning to readers with clarity, although writing may include some errors.	Uses language that sometimes impedes meaning because of errors in usage.

Assessment Data Mathematical, Information and Computer Sciences

Learning Outcome: Students will be able to identify, locate, evaluate, and effectively and responsibly use and cite information for the task at hand (Information Literacy).

Outcome Measure: Annual: Each student will be required to write a paper on a topic in their field as a part of their participation in the Senior Seminar. The audience for this talk will include department faculty, fellow students and possibly some alumni. The students will be given the evaluation criteria in advance and their paper will be rated by the faculty using a rubric with a scale of 4 (capstone) to 1 (benchmark) in the following areas:

- References: Multiple references from distinct reputable sources
- Citation: References cited in the body of the document
- Synthesis: Appropriately synthesizes information from multiple distinct sources.

Criteria for Success: 80% of the students should have an average score of at least 3 in each of the major areas.

Aligned with DQP Learning Areas (circle one or more):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

	Percentage of Students at 2.5 or Higher				
Information Literacy	2012-13	2013-14	2014-15	2015-16	2016-17
References				95%	100%
Citation				84%	92%
Synthesis				84%	85%
Determine the Extent of Information Needed	100%	62%	78%		
Access the Needed Information	91%	69%	100%		
Evaluate Information and its Sources Critically (carefully explains the reasons for the choice of source) (added 2014-15)			33%		
Use Information Effectively to Accomplish a Specific Purpose	91%	85%	89%		
Access and Use Information Ethically and Legally	91%	77%	100%		

Note that in 2015-16 we returned to gathering information literacy data from our writing rubric. The AAC&U rubric was not working well for our purposes.

Conclusions Drawn from Data:
The students are meeting our expectations. For the first two years we applied the AAC&U rubric to the student's final senior paper to measure their use of information. The quality of the use of information was uneven and we had not made our expectations clear. The students much more clearly understand the expectations regarding information literacy that are embedded in our writing rubric.

Changes to be Made Based on Data:
We have tried a variety of approaches, using the AAC&U IL rubric and expanding on that rubric. After looking at the AAC&U results in parallel with the departmental writing rubric, it was clear that the difference in results were insignificant. It is a great deal less work for the department and clearer for the students to simply use the departmental writing rubrics IL components to assess students' IL.

Rubric
Next Page

Bibliography and supporting documents	☐ Multiple references from distinct reputable sources ☐ References cited in the body of the document	☐ Most references from distinct reputable sources ☐ Some citation of references in the body of the document	☐ Some references from reputable sources ☐ Limited citation of references in the body of the document	☐ No bibliography or all references from untrusted sites on the internet ☐ No citation of references in the body of the document
Organization	☐ Conveys a central theme with all ideas connected, arrangement of ideas clearly related to topic ☐ Clear introduction, body (with sections), and conclusion includes summary and closure ☐ Includes both an abstract and table of contents	☐ Conveys a central idea or topic with some ideas connected to the topic ☐ Includes introduction, body and conclusion ☐ Includes abstract and table of contents (one partial and one complete)	☐ Attempts to focus on an idea or topic with many ideas not connected to the topic ☐ Introduction, body, conclusion detectable but not clear ☐ Includes partial abstract and partial table of contents	☐ Has little or no focus on central idea or topic ☐ Introduction, body or conclusion absent ☐ No abstract or table of contents
Grammar and spelling	☐ No use of first- person tense ☐ No grammatical or spelling errors	☐ Few uses of the first-person tense ☐ Few grammatical and spelling errors	☐ Several uses of the first- person tense ☐ Some grammatical and spelling errors	☐ Written in first-person tense ☐ Many grammatical and spelling errors
Depth of information	☐ Appropriately synthesizes information from multiple distinct sources ☐ Draws conclusions and personal insights from synthesis ☐ Has the minimum number of pages including penalty pages; subject coverage is excellent	☐ Synthesis of information from at least three distinct sources ☐ At least two personal insights or conclusions stated ☐ Has the minimum number of pages including penalty pages; subject coverage is good	☐ Synthesis of information from at least two distinct sources ☐ At least one personal insight or conclusion stated ☐ Has the minimum number of pages including penalty pages; subject coverage is adequate	☐ Summary reporting of information without synthesis ☐ No personal insights ☐ Does not have the minimum number of pages including penalty pages
Clarity of writing	☐ Sentences flow ☐ Smooth transitions between paragraphs ☐ Any and all terms and acronyms are defined ☐ Provides evidence to support points	☐ Good sentence structure ☐ Adequate transitions between paragraphs ☐ Most terms and acronyms are defined ☐ Lacks support for some points	☐ Occasional poor sentence structure ☐ Transitions between paragraphs unclear ☐ Some terms and acronyms are defined ☐ Provides minimal support for points	☐ Frequent poor sentence structure ☐ Lacked transitions between paragraphs ☐ Many terms and acronyms are undefined ☐ Ideas not supported

Assessment Data Mathematical, Information and Computer Sciences

Learning Outcome: Students will collaborate effectively in teams.

Outcome Measure:
Annual: CSC324 Signature Assignment – evaluation of group while working on a project (before 2015-16) and ISS342 Project Management – evaluation of group while working on a project (2016-17 and beyond)
Annual: MTH352 Signature Assignment – evaluation of group while working on a project

Criteria for Success: 80% of the students should have an average score of at least 2.5 in each of the major areas.

Aligned with DQP Learning Areas (circle one or more):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

	Percent of students with average at least 3.0		
	Fall 2012 CSC324	**Fall 2014 CSC324**	**Fall 2016 ISS342***
Contributes to team meetings	86%	80%	90%
Encourages team members	93%	84%	N/A
Contributes individually outside of team meetings	93%	88%	86%
Attitude	100%	96%	N/A
Fosters constructive team climate	100%	92%	N/A
Responds to conflict	100%	100%	90%

*Note that the full group work rubric will be used in future years.

	MTH352 Percent of students with average at least 3.0		
	Spring 2013	**Spring 2015**	**Spring 2017**
Contributes to team meetings	91%	86%	100%
Encourages team members	91%	93%	100%
Contributes individually outside of team meetings	82%	93%	100%
Attitude	100%	100%	100%
Fosters constructive team climate	91%	100%	100%
Responds to conflict	91%	100%	100%

Conclusions Drawn from Data:
The students are performing well as member of teams.

Changes to be Made Based on Data:
Continue to make use of group activities throughout the curriculum.

MICS Teamwork Rubric

Definition

Teamwork is behaviors under the control of individual team members (effort they put into team tasks, their manner of interacting with others on team, and the quantity and quality of contributions they make to team discussions.)

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet unsatisfactory (cell one) level performance.

The purpose of this is to evaluate individual team members. Although no team member will ever see your evaluation of them, please take it seriously.

Directions:

- **Do not put your own name anywhere on this form, the evaluations are to be anonymous.**
- **Please write the name of the person you are evaluating here ……._____**
- **Please fill out one copy of this form for every person who was on your team, including one for yourself.**
- **For each row, place a checkmark in the box that best describes your teammate's performance.**

	Outstanding	High Satisfactory	Low Satisfactory	Unsatisfactory
Contributes to team meetings	☐ Helps the team move forward by articulating the merits of alternative ideas or proposals.	☐ Offers new suggestions to advance the work of the group.	☐ Shares ideas but does not advance the work of the group.	☐ Sits quietly in team meetings and does not contribute
Encourages members of the team	☐ Actively seeks to find opportunities to encourage all members of the team.	☐ Offers encouragement to all members of the team	☐ Offers words of encouragement to friends	☐ Does not offer word of encouragement to anyone
Individual contributions outside of team meetings	☐ Completes all assigned tasks by deadline; work accomplished is thorough. Proactively helps other team members complete their assigned tasks.	☐ Completes all assigned tasks by deadline; work accomplished is thorough.	☐ Completes all assigned tasks by deadline.	☐ Does not complete all assigned tasks by deadline.
Attitude	☐ Demonstrates (comments, facial expressions, etc.) a negative attitude **rarely** and helps others to become more positive.	☐ Demonstrates (comments, facial expressions, etc.) a negative attitude **rarely**.	☐ Demonstrates (comments, facial expressions, etc.) a negative attitude **less** often than a positive attitude.	☐ Demonstrates (comments, facial expressions, etc.) a negative attitude **more** often than a positive attitude.

Fosters constructive team climate	☐ Supports a constructive team climate by doing **all** of the following: • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it.	☐ Supports a constructive team climate by doing any **two** of the following: • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it.	☐ Supports a constructive team climate by doing any **one** of the following: • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it.	☐ Supports a constructive team climate by doing **none** of the following: • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it.
Responds to conflict	☐ Identifies and acknowledges conflict and acknowledges that relationships can be damaged. Seeks to restore relationships.	☐ Identifies and acknowledges conflict and acknowledges that relationships can be damaged.	☐ Identifies and acknowledges conflict but will not acknowledge that relationships can be damaged.	☐ Will not acknowledge that conflict has occurred or that relationships can be damaged.

Assessment Data Mathematical, Information and Computer Sciences

Learning Outcome: Students will be able to understand and create arguments supported by quantitative evidence, and they can clearly communicate those arguments in a variety of formats (Quantitative Reasoning).

Outcome Measure: Annual: Each student will participate in the ETS Proficiency Profile exam.

Criteria for Success: 90% of the students will be Marginal or Proficient at Level 2. Note that we dropped the criteria of success so that it is possible for the department to pass even if a single student misses the criteria.

Aligned with DQP Learning Areas (circle one or more):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

	Percentage of Students Marginal or Proficient				
	2012-13	2013-14	2014-15	2015-16	2016-17
ETS Proficiency Profile Level 2 Math	100.0%	100.0%	100.0%	100.0%	91.7%

Conclusions Drawn from Data:
Students are in general meeting our criteria.

Changes to be Made Based on Data:
None at this time. We will continue to monitor the results.

Rubrics
ETS Proficiency Profile (no rubric involved)

Fermanian School of Business
PLO #4 Assessment
2016-2017

Learning Outcome:
PLO #4: Formulate decisions informed by ethical attitudes and values.

Outcome Measure:
The CAPSIM COMP-XM Management Ethics Simulation provides comparative data on how each student (and class) performs against all other students in the nation taking the simulation and exam at the same time. This summative and direct data for the School of Business Assessment of PLO #4 is gathered in MGT488 – Strategic Management in both the Fall and Spring semesters, beginning in the Spring of 2016.

Criteria for Success:
Average score of all students will be above the 55th percentile on the national COMP-XM Ethics Module Results

Aligned with DQP Learning Areas (circle one or more but not all five):
1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

Semester	N[1]	Ethics Module Results
Spring 2016	59	54
Fall 2016	60	80
Spring 2017	68	83

Conclusions Drawn from Data:
The COMP-XM Ethics Module was implemented in Spring 2016. With an average score in the 54th percentile, the criterion for success was set at the 55th percentile moving forward. Results indicate that students far exceeded the criteria for success, as the average score for Fall 2016 was in the 80th percentile and the average score for Spring 2017 was in the 83rd percentile.

Changes to be Made Based on Data:
Based on the data, the criteria for success will be raised to the 70th percentile for the COMP-XM Ethics Module. In light of students' scores to date, this is believed to be a reasonable target moving forward. As stated in the AY15-16 reports, implementation of new curriculum addressing various ethical models will still occur in MGT212 Principles of Management. This addition to the curriculum could further increase scores on the COMP-XM Ethics Module in future years.

Assessment Data Mathematical, Information and Computer Sciences

Learning Outcome: Information Systems graduates will be adequately prepared for entry into graduate school or jobs in the computing profession.

Outcome Measure:
Annual: Require students to take the ETS Major Field Test in Computer Science as the mid-term exam for the capstone course, Computer Science 481, Senior Seminar in Computer Science (note that we are planning on changing this to the Peregrin test in IS in 2017-18).

Annual: Internship supervisor evaluations

Every 5 Years: Alumni will be surveyed every five years. They will be asked at least the following questions:

1. If you have a job in Computer Science: On a scale of 1 to 5, 1 being outstanding and 5 being poor, how well do you think that the undergraduate Computer Science curriculum at PLNU prepared you for your work in the field?
2. If you are going to graduate school or went to graduate school: On a scale of 1 to 5, 1 being outstanding and 5 being poor, how well do you think that the undergraduate Computer Science curriculum at PLNU prepared you for graduate school?

Criteria for Success:
MFT: 50% of our students achieve above the 25th percentile on the exam.

Internship Supervisor Evaluation: 80% of the students will score an average score of 4 or more in the following areas:

- Ability to learn
- Ability to problem solve
- Quality of work
- Initiative
- Responsibility
- Ability to work with others
- Relations with others
- Ability to use computing to solve problems

Alumni: An average response of 2 for each question.

Aligned with DQP Learning Areas (circle one or more):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

ETS Major Field Test:
Most recent 10 years of data.

	Overall Benchmark
Year	
2007-08	N
2008-09	Y
2009-10	N
2010-11	Y
2011-12	N
2012-13	N
2013-14	Y
2014-15	N/A
2015-16	N
2016-17	Y

* Sample size too small to be given indicator scores.
ETS changed the CS exam in 2011-12.

Internship Supervisor Evaluation:

	2016-17
Percentage of students with an average of 4 or more	100%

Alumni Data:
In the spring of 2010, the department surveyed alumni who had graduated in the last 15 years. The response rate on the survey was 31.7% with the majority (80.9%) of the respondents having graduated in the last decade. A detailed summary analysis of the data can be found in Appendix: 2010 Alumni Survey Results Summary of our department's Program Review. Below are the components of the survey relevant to our assessment plan.

How well did the undergraduate curriculum prepare you for:

	Well or higher	OK	Poorly
Work in the field (if went into the field)	85.2%	14.8%	0.0%
Graduate school	76.5%	5.9%	17.6%
Teaching	80.0%	20.0%	0.0%

Conclusions Drawn from Data:
ETS Results:
We continue to evaluate if the ETS exam in computer science is the best measure or ability for computer information systems/information systems students. We are considering moving to the Peregrine exam in Business for these students since our newly adopted IS curriculum has a

larger business component and Peregrine will work with us to design IS questions. We hope to have the Peregrine exam designed by the spring of 2018.

Internship Supervisor Survey:

Alumni Survey:
Overall, our alumni believe that they were well prepared. Further investigation indicates that the students (3) who said that they were "poorly" prepared for graduate school are all mathematics majors who are employed as teachers and appear to be getting education-related masters degrees while working full-time. The hypothesis is that the "lack of preparation" may be in education coursework and not mathematics. We will be conducting another survey in 2016-17 as part of program review preparation.

Changes to be Made Based on Data:
ETS Results:
We have made curricular changes in the last few years to update our department coursework to align with new standards from the Association of Computing Machinery as well as to respond to assessment data. As part of this process we did a compute overhaul in the curriculum in this area. Starting in 2015-16 we will be launching a newer IS curriculum in partnership with the School of Business. This will increase the amount of business course work completed by these majors. We will need to evaluate if the CS MFT test is reasonable to use or our IS majors, or if the MFT in business is more suitable, or if we should use a different measure. See our APC proposals for the specific descriptions of curricular changes made.

Survey:
In 2005 our department instituted three changes that seem to have had an impact on developing critical skills in our graduates:

- Increasing the expectations for written and oral presentations in senior seminar (this is in addition to the writing and oral presentations that are threaded throughout our curriculum)
- Requiring all seniors in our department to take the senior seminar class
- Requiring an “integrative experience” (internship, year-long service learning project or year-long honor research project) of all of our majors.

This has a direct impact on five skills listed in the table below. The question on the survey is listed above the table.

Please tell us if your departmental course work enhanced your abilities in the listed areas:

		Very much enhanced	Much enhanced	Enhanced	Not enhanced and N/A
Think analytically and logically	2000-2004	53.8%	26.9%	15.4%	3.8%
	2005-2009	64.0%	36.0%	0.0%	0.0%
Write effectively in the discipline	2000-2004	11.5%	23.1%	42.3%	23.1%
	2005-2009	16.0%	36.0%	36.0%	12.0%
Effective oral communication	2000-2004	3.8%	23.1%	46.2%	26.9%
	2005-2009	12.0%	12.0%	60.0%	16.0%
Solve problems using	2000-2004	19.2%	46.2%	26.9%	7.7%

technology	2005-2009	32.0%	56.0%	8.0%	4.0%
Integrate knowledge from different sources	2000-2004	15.4%	34.6%	38.5%	11.5%
	2005-2009	8.0%	52.0%	32.0%	8.0%

Data from the Alumni Survey says that our graduates believe that their coursework in our department has also enhanced:

- Their ability to write effectively (88% for those who graduated in 2005-09, 77% for those who graduated in 2000-04)
- Their ability to communicate orally in the discipline (84% for those who graduated in 2005-09, 73% for those who graduated in 2000-04)
- Their ability to solve problems using technology (96% for those who graduated in 2005-09, 92% for those who graduated in 2000-04)

Rubric:

ETS:
The ETS provides the data.

Internship Supervisor Evaluation:
This is a survey instrument so there is no rubric.

Alumni Survey:
This is not rubric scored, but the data is tabulated.