Millersville University
General Education 2013 Program Review
Final Report – 23 June 2014

I. Introduction

The newly adopted Millersville University mission statement declares, "Millersville University provides diverse, dynamic, meaningful experiences to inspire learners to grow both intellectually and personally to enable them to contribute positively to local and global communities." And we distinguish ourselves by, "Our value of the liberal arts and student-faculty relationship that appreciates the life of the mind in the University experience." In addition, our public mission states, "Through interdisciplinary learning, collaborative and cross-cultural experiences and a renewed focus on a liberal arts tradition, our students become well-prepared for meaningful participation in the broader society." Clearly the liberal arts remain a focus of the University. Currently, students at Millersville are required to take 60 credits within the general education program of which up to 15 credits may be taken within the major. Most students will take 45-48 credits of general education classes to complete their degree.

The General Education curriculum is broken into three distinct units: Foundations for Lifelong Learning (12 credits), Critical Thinking Across the Liberal Arts (27 credits), and Connections and Exploration Courses (9 credits). In addition, each student must complete a Cultural Diversity & Community (D) Course as well as three Writing Intensive (W) Courses that may be completed within the major course of study. The University continues to strive to define general education outcomes so that a more consistent program may be developed, implemented, assessed, and improved through time.

General education is currently administered through the Associate Provost's office. A Coordinator of General Education is a member of the faculty appointed by the Provost for a ½ time release and a 3 credit hour alternate workload assignment during the summer. The General Education Coordinator's primary responsibilities include a) providing leadership and direction for curriculum development and ongoing modification of the general education program b) administering comprehensive assessment of general education including the first-year experience, and c) planning faculty development opportunities associated with both first-year experience and general education outcomes. The General Education Coordinator works closely with both the Associate Provost and the Assistant Vice President of Institutional Assessment and Planning to coordinate these efforts. The Coordinator is assisted by two Faculty Senate Committees, the Academic Outcomes Assessment Committee (AOAC) which focuses on assessment of General Education and the General Education Review Committee (GERC) which focuses on curricular issues and necessary revision.

II. Composition of Review Team

- General Education Coordinator – Dr. L. Lynn Marquez, Professor of Geology
- Assistant Vice President of Institutional Assessment and Planning – Dr. Lisa Shibley
- General Education Review Committee Chair – Dr. Nazli Hardy, Assoc. Prof. of Computer Science
- Academic Outcomes Assessment Committee Chair – Dr. Lisa Schreiber, Asst. Prof of Speech Communication
- Former General Education Coordinator – Dr. Fred Foster Clark, Professor of Psychology
- Assistant Vice President of Student Affairs – Mr. Tom Richardson

III. Progress since Last Review:

A. Implementation and Monitoring of General Education Program Approved in 2008

1. Develop mechanisms to support the ongoing review of General Education Curriculum – Recommendation 1

The General Education Curriculum approved in 2008 called for recertification of courses every five years that carried a general education label (e.g. D, FYI, P, and W Courses). At the time of the 2009 program review, the process for recertification of courses had been implemented. The General Education Review Committee (GERC) and the Academic Policies Committee (APC) are working together to define the composition of UCPRC Subcommittees that review D, FYI, P, and W courses. In addition, GERC is considering the formation of Subcommittees to review G1, G2, and G3 courses when the need arises. In the last two years 78 courses have had their Gen Ed label(s) recertified through this process. The recertification process continues for the 2013 academic year.

Table 1. Number of Courses Recertified since 2011

Academic Year	D	P	D&P	W	FYI
2011-2012	4	7	2	24	n/a
2012-2013	2	5	1	33	n/a
2013-2014 (to date)	13 (final)	TBD	TBD	10	4 (final)

To better assess the General Education Curriculum, GERC and AOAC have both been working to define learning outcomes and develop ways to assess them. GERC has defined learning outcomes for all required General Education courses and courses that carry General Education labels (Appendix 1). These outcomes will be used in the coming years to create faculty development opportunities so that they may better understand the learning expectations of the course and design more effective course assignments that will help students meet these goals. Ultimately, this will lead to more effective assessments.

2. Better align assessment activities to recertification – Recommendation 1

GERC and AOAC work together to better align assessment to outcomes. However, the committees continue to face roadblocks regarding intentional alignment of assessment activities with recertification. While no formal proposal has been made to begin asking faculty to submit evidence that they are meeting General Education course expectations, informal conversations led by the General Education Coordinator at AOAC, GERC, and UCPRC show an unwillingness to add additional burdens to faculty to recertify courses. In fact, there has been a great deal of discussion about the need for extensive course re-certification documents and whether there may be a more stream-lined process that reduces extraneous work while still maintaining the integrity of labeled courses.

B. Expansion of UNIV 103 offerings to all students – Recommendation 2

The 2009 Program Review raised the concern that the planned expansion of UNIV 103 offerings had yet to materialize. At the time of that report only exploratory students were given the opportunity to enroll in a UNIV 103 course. Since 2008 the number of offerings has nearly tripled with expansion occurring primarily within the major. In the fall of 2013, 35 sections of UNIV 103 were offered for first semester students. All exploratory students (304) were enrolled in a UNIV 103 and 391 students with a declared major were enrolled in 19 major based sections of a UNIV 103. In the spring semester, fewer sections of UNIV103 are offered. However, some departments delay the UNIV103 experience to the spring and additional sections are offered for any first-time spring admits. In the spring of 2014, five sections of UNIV103 were offered.

Table 2. Growth of First-Year Experience at Millersville University

Fall 2001 to Fall 2004	Fall 2005 to Fall 2007	Fall 2008	Fall 2012	Fall 2013	Fall 2014
UNIV 101 (one credit)	UNIV 179 (three credits)	UNIV 103 (three credits)	UNIV 103	UNIV 103	UNIV 103
University Transition	Experimental Course	General Education Credit	Major Based Sections Added	Exploratory & Major Based	Goal: All First-Year Students
Started w/ 6 Sections	8-10 Sections	12 Sections	24 Sections (7 Major Based)	35 Sections (19 Major Based)	39 Sections (23 Major Based)

Since the fall of 2009, fifteen courses designed for exploratory students have been approved and eleven courses designed for the majors have been approved. Five new sections were approved in the spring 2014 semester.

Table 3. UNIV 103 Courses Approved or In Review since 2009

Exploratory Sections			*Major Based Sections*		
DEPT	**Course Title**	**Semester Approved**	**DEPT**	**Course Title**	**Semester Approved**
SPCM	Political Engagement, Citizenship & Communication	SU 2009	MATH	From pi to e through i	SP2012
EDFN	Facing Fear	SU 2009	EDUC	Orientation to Special Education	SP 2012
ENGL	The Story of Your Life	SU 2009	AEST	Learning by Doing	SP 2012
ENGL	Who Am I	SP 2010	BUAD	What Color is My Parachute?	SP 2012
PSYC	Food for Thought	SP 2010	CHEM	Chemists Have Solutions	FA 2012
SPCM	Convergence Culture	SP 2010	CSCI	What (and Who) are Computer Scientists	FA 2012
HIST	World of Ancient Greek	FA 2010	ESCI	Exploring the Earth System	SP 2013
PSYC	Why We Hate	FA 2010	HIST	Race, Representation, and Remembrance in US History	SP 2013
ESCI	Scientific Revolutions	SP 2011	MUSI	Seminar for Music Majors	SP 2013
EDUC	Call of Service	SP 2011	ENGL	English Majors Seminar	SP 2013
WSSD	Leadership Development through Sports	SP 2012	ART	Art Outspoken	SP 2013
GEOG	Making Sense of Place	SP 2012	ECON	Personal Finance	SP 2014
FORL	Books in Motion	FA 2012	ERCH	Fairy Tales	SP 2014
PHIL	Inside Out: Detective Fiction, Jazz, and Philsophy	SP 2013	HIST	Music from 1500-1800 Through the Eyes of Historians	SP 2014
HIST	Introduction to Human Rights	SP 2013	GOVT	Modern Politics through Film	SP 2014
NURS	Stress Management	SP 2014			

One of the recommendations from the last program review was to expand the release time for the FYE Director and clarify the roles of both the FYE Coordinator and the FYE Steering Committee. Instead of following these recommendations, the FYE Coordinator position was folded into the role of the General Education Coordinator. In addition, the FYE Steering Committee was dissolved. This situation is not sustainable given the increasing demands of the freshmen year experience program. If quality of the entire Freshmen Year Experience, not simply UNIV 103, is to be maintained then Millersville must begin to support the programs they highlight with both a budget and a faculty line. Presently, neither the faculty complement nor the general education budget exists as a line item in the permanent budget and continues to be funded through the Provost's discretionary funds.

C. Developing Guidelines for Critical Thinking Across the Liberal Arts - Recommendation 3

This has been a long-standing discussion at Millersville. The 2008 report recommended the development of guidelines for the general education "ways of knowing" blocks. Again, in the MU Transformation process, the General Education team spent a great deal of time discussing the meaning of general education and the meaning and purpose of the defined Humanities and Fine Arts, Science and Mathematics, and Social Sciences blocks. Discussions in GERC focused on the different ways of knowing and the fundamental ideas that all students should know by the time they complete their general education requirements. New language for the critical thinking disciplinary blocks were approved by

Faculty Senate during the summer 2014 meeting. The new descriptions of the critical thinking across the liberal arts are

- Courses in the arts and humanities (G1 category) challenge students to examine, analyze and critically evaluate artifacts of the human intellect and imagination to illuminate the complexity of the human experience. Through exposure to multiple voices, insights, objects, and other creative works, students explore and interpret questions of meaning, fact and value. Ultimately, this engagement expands knowledge, deepens empathy and encourages collaboration between diverse individuals and communities.
- Courses in the sciences (G2 category) develop students' understanding and knowledge of scientific reasoning and of strategies for logical problem solving. Students are challenged to recognize that scientific explanations offer falsifiable predictions, that claims are to be supported by evidence and logical reasoning, and that the nature of scientific discovery and knowledge is fluid. Courses emphasize that the scientific meaning of fact, theory, and law are not a hierarchy, and give students an appreciation of necessary creative aspect of scientific process and discovery.
- Courses in the social sciences (G3 category) focus on the intricate relationship between human behavior and social institutions. Through qualitative and/or quantitative methods of inquiry, students discover and ascertain how human beings behave and are expected to behave, within certain contexts. This interaction allows students to comprehend and articulate the relationship between behavior and context across people, cultures, time, and place.

D. Study capstone and transition issues for second year and transfer students – Recommendation 4 & 7

1. Capstone Experiences – Recommendation 4

As part of Millersville's Transformation study, the Enhanced Engaged Learning Experiences team reviewed high impact practices including capstone courses. While no specific plan for capstone courses was developed two ideas were generated and are being considered for implementation (Appendix 2). The first is the development of upper-level learning communities so that students may develop integrated learning and explore the various ways of both investigating and solving complex problems. The second recommendation was to develop a portfolio or capstone experience focused on a particular skill set directly applicable to contemporary societal needs. Potential ideas for portfolios included leadership, sustainability, and social entrepreneurship.

2. Transition Issues for Second-Year Natives and all Transfer Students – Recommendation 4 & 7

The curricular issues facing many transfer students and many second year exploratory students was thoroughly reviewed by GERC and resulted in four proposals to amend the General Education requirements to reduce the complexity of some requirements and reduce the overall number of requirements. The changes were voted on and approved by the faculty in summer 2009 and became effective immediately. The new revisions were

a) Within the Connections and Explorations Block, remove the restriction that Perspectives courses "cannot be used to also fulfill a major requirement." (86% voted in favor)
b) Within the Connections and Explorations Block, remove the open elective. (90% voted in favor)
c) Reduce the number of required Writing Intensive (W) courses from 4 to 3. (65% voted in favor)
d) Within the Critical Thinking Across the Liberal Arts from the General Guideline, remove "exactly two courses must be taken from at least one department within each G1, G2, and G3 block" and replace with "no more than two courses can be taken from one department within each G1, G2, and G2 block." (82% voted in favor)

E. Develop and execute a plan for facilitating conversations among faculty and between faculty and students - Recommendation 5

During the 2012-2013 Academic Year, the General Education Coordinator in conjunction with the Center of Academic Excellence (CAE) held a series of "General Education Conversations." The series began with a discussion with new faculty regarding regularly including deliberate and explicit conversations with students about the purpose and meaning of general education within their classes. The General Education Conversations included

- New Faculty Orientation: Talking with Students About the Value of General Education
- UNIV 103: Pedagogy, Competencies, and Approval
- Gen Ed Forum: Advanced Writing at MU
- Gen Ed Forum: A Liberal Arts Education in the 21st Century
- Living-Learning Communities at Millersville

In addition, the General Education Coordinator developed a series of spring workshops for faculty teaching UNIV 103. These workshops were designed to improve classroom experiences that are centered on general education foundations. These workshops included

- Generating Robust Classroom Discussion
- Reflective Writing Assignments
- Incorporating Service Learning
- Improving Information Literacy

While these conversations were robust, engaging, and informative; few faculty actually participated. At most, 10 faculty attended the CAE sessions. Clearly, other ways of approaching faculty to discuss the value of a liberal arts education in the 21st century must be considered. One bright spot in the faculty development calendar was the annual end of year UNIV 103 Workshop. This event includes lunch and runs from Noon-4 p.m. one afternoon during finals week. Peer Mentors, staff, and UNIV 103 Instructors all attend this event. In the spring of 2013, more than twenty faculty, 8 staff members, and twelve peer mentors attended this event.

F. Create information materials (print and web-based) for current and prospective students to educate them on the purpose, objectives, and curricular structure of the General Education Program – Recommendation 6.

During the 2012-2013 Academic Year the General Education and Freshmen Year Experience Websites were revamped to provide a better resource for faculty, students, and prospective students. The Freshmen Year Experience Website (http://www.millersville.edu/fye/) was rewritten to better explain the college experience, the role of faculty and advisors, as well as the meaning of the liberal arts and the first-year experience to prospective students and their parents. In addition, the General Education Coordinator has met with the Director of Admissions so that Freshmen Year Experience Initiatives can be highlighted in the recruiting phase. The General Education website (http://www.millersville.edu/gened/) was also rewritten in the 2012-2013 Academic Year. This page is primarily designed for faculty, but there are multiple quick links and resources for students as well: one of which is the general education curriculum guide. The General Education website is regularly updated with both internal and external resources for faculty to use in their classroom. The UNIV 103 Faculty Handbook is an especially valuable resource all faculty. Improving faculty awareness and use of this website would be an appropriate next step.

At this time, no new print resources have been developed for current and prospective students. Outside resources have been explored such as AACU's – *Why do I have to take this course?* or *What Is a Liberal Education?* and *Why is it important to my future?* These kinds of brochures could be used by faculty in the general education courses or by advisors during registration advising.

IV. Summary of Institutional Data

	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
Annualized FTES[1]	3,143.2	3,222.8	3,246.2	3,178.1	3,079.7
Cost[1]	$ 20,778,963.96	$ 20,497,667.06	$ 21,060,260.86	$ 21,416,261.65	$ 20,631,665.16
Cost/FTES	$ 6,610.85	$ 6,360.22	$ 6,487.57	$ 6,738.72	$ 6,699.35
FTE Faculty[1]	171.9	168.3	166.7	158.8	168.2
Fall UG Enrollment	7,216	7,359	7,604	7,644	7,424
Program Graduates	n/a	n/a	n/a	n/a	n/a

[1]Based on 40% of University Totals

V. Outcome Assessment Information

Internal assessment of General Education continues to be a challenge. While faculty regularly assess their own academic programs, there is little faculty buy-in to assess general education outcomes. The collection

of artifacts remains a challenge as does soliciting faculty participation to assess artifacts. Faculty regularly advocate for strong general education programs, yet there remains a lack of ownership of the general education curriculum.

A. Overview of Assessment Activities since 2008 General Education Reform

After the implementation of the new general education curriculum in fall 2008, the task to design a learning outcomes assessment plan for the revised curriculum fell to AOAC and the General Education Coordinator, with support from the Assistant Vice President for Institutional Assessment and Planning and the Associate Provost for Academic Administration. A planning cycle for the seven general education learning outcomes was created.

Table 4: Planning Cycle for Assessment of Student Learning Outcomes

	Fa 09	Sp 10	Fa 10	Sp 11	Fa 11	Sp 12	Fa 12	pS 13	Fa 14	Sp 15
Oral Communication	D	I	A	R	P		D	I	A	R
Written Communication	R	P		D	I	A	R	P		D
Scientific Reasoning			D	I	A	R	P		D	I
Quantitative Reasoning		D	I	A	R	P		D	I	A
Critical Reasoning	A	A	R	P		D	I	A	R	P
Technological Competency	R	P	D	I	A	R	P		D	I
Information Literacy	A	R	P		D	I	A	R	P	

Legend

D	DESIGN Assessment Strategy	R	REPORT on Assessment Data
I	IMPLEMENT Assessment	P	PLAN for change or CELEBRATE
A	ANALYZE and Interpret Results		

By spring 2009, the AOAC mapped general education outcomes with general education course requirements and shared the results at the annual Assessment Luncheon with faculty and administrators. At the luncheon, curricular mapping was introduced as a tool for faculty to map their courses to the general education outcomes. This initiative arose from attending an AACU summer institute with several faculty and administrators. The mapping experience led to an attempted content analysis of writing outcomes in course proposals or course syllabi. The content analysis was inconclusive due to inconsistencies in availability of course proposals or specification of course objectives in the documentation due to the age of the proposals. This attempt resulted in the decision to seek updated information from faculty through course curricular mapping and to investigate securing an online assessment data and management system.

As a result, the University decided to subscribe to WEAVEOnline and AOAC began investing in a vision to encourage faculty to embed outcomes assessment in the classroom and share their data. The course-embedded outcomes assessment initiative also resulted from discussions of Wabash results and findings from other nationally-normed or standardized instruments or surveys (CLA, CAAP, and NSSE). These institution-level, standardized instruments helped us to identify how well our students performed compared to others. We could interpret whether or not we were satisfied with the performance, but because the results were institution-level, they lacked specificity in which to identify potential areas of improvement. Recruiting randomly selected first year or seniors to voluntarily participate in the national assessments proved challenging as well. The Assessment Luncheon in spring 2010 thus focused on teaching with learning outcomes, with four faculty presenting examples of their work and how they embedded assessment within their courses to better understand and improve student learning. Essential to all of these discussions was how to enhance sharing the findings with faculty. AOAC designed assessment briefs and summaries, by competency (Appendix 3).

Embedding outcomes assessment at the course level became the focus of AOAC work – resulting in the StARs project initiative. AOAC piloted the use of AACU Values Rubrics on written communication, information literacy, and critical thinking. When sharing the findings from the pilot of the rubrics with GERC, GERC members expressed concern with how to interpret the findings. Two major concerns included the small number of artifacts used in the pilot (n=30) and the application of the findings to how we define the three competencies. This feedback contributed to enhancements in the definitions of our competencies and enhanced efforts by AOAC to determine how to scale-up the use of rubrics to have enhanced representation of student learning through systematic course-embedded assessment. The AACU Values rubrics were discussed as course-embedded assessment tools. AOAC determined that it needed enhanced curricular mapping to understand where to assess student learning.

The discussions of curricular mapping led to improvements in the course proposal form to include the level of general education competencies expected to be attained in the proposed course. Whether a general education course or a course in the major is being changed or proposed, the faculty submitting the proposal complete the general education competencies alignment section. This information enhances our ability to explore coherence of general education competencies with program curriculum and outcomes.

To support the general education outcomes assessment plan, Communication and Theatre faculty designed and tested the psychometric properties of a public speaking competency rubric for use in COMM 100 courses and by faculty in other disciplines. Since that time, the rubric was shared in several CAE workshops with faculty. Faculty may use the tool as a formative or summative assessment technique. The lead designer of the rubric uses it as a teaching tool, specifically for peer review of student speeches.

AOAC continued to follow its assessment grid to collect information on technological competencies and quantitative reasoning. The EDUCAUSE sponsored ECAR survey and elements from NSSE were used to explore student perceptions of their technological competency. AOAC members explored how to define and assess technological competency and identified the VALUES rubric to use for quantitative reasoning. Student papers were collected for artifacts during 2011-12. Members of the assessment committee attempted to apply the rubrics to the artifacts but due to changes in leadership and the timing of the

quantitative reasoning assessment project, the artifacts were not analyzed. The lack of success in this effort reinforced the need for faculty support for course-embedded assessment, and sharing that information with AOAC for reflection and discussion of implications for student learning with regards to the general education competencies.

Upgrades to our learning management system (LMS) led to AOAC's year-long exploration, with the support of an instructional technology support staff member, to use D2L to scale-up the collection of course embedded assessment from faculty. The Planning, Assessment and Analysis (PAA) staff made the rubrics available through an online survey software system. Limitations with compatibility of the LMS with other products to export information collected on the rubric and identification of courses from which to collect artifacts created a setback in the project.

In an attempt to accelerate the implementation of the StARs project, the AOAC chair introduced a general education curricular mapping survey request at Faculty Senate in spring 2013. Senators discouraged the project, and suggested that existing program curricular maps first be used to identify overlap with general education competencies. PAA staff conducted the mapping at the faculty request with the information provided for the 2010 MSCHE Decennial reaccreditation process and forwarded the results to department chairs to review and update as part of their 2013-14 student learning outcomes assessment report. This information will be updated in WEAVEOnline in fall 2014 and will be summarized for AOAC to ascertain where general education learning occurs and at what levels.

Assessment information is collected through a variety of mechanisms. Millersville continues to administer national assessments including the National Survey of Student Engagement (NSSE), the Collegiate Learning Assessment (CLA), and the Wabash Study of the Liberal Arts (Wabash). In addition, to these national assessments, AOAC has worked to develop rubrics modeled after the AACU rubrics to effectively assess oral communication, written communication, critical thinking, and information literacy.

B. Assessment Results

1. National Surveys

The National Survey of Student Engagement (NSSE). NSSE allows students to self-report on the amount of time spent on or quantity of the activities during a given academic year. The NSSE instrument includes oral communication (2 questions), written communication (6 questions), quantitative problems (1 question), critical reasoning (5 questions), and technology (3 questions). In addition, NSSE asks students about participation in extra- and co-curricular activities. Results from 2010 and 2012 administrations of NSSE are summarized below. Data is available in Appendix 4.

Millersville students report that MU has contributed to acquiring a broad general education at both the first-year (3.10) and senior (3.29) level in 2012 with 3 equal to quite a bit and 4 equivalent to very much. All differences are statistically significant.

Oral Communication

- Millersville freshmen report giving more presentations in classes than freshmen at other Carnegie class institutions. (Question 1b)
- Millersville seniors consistently report giving more presentations in classes than Millersville freshmen. Millersville seniors also report that they give more presentations than seniors at other Carnegie class institutions. (Question 1b)
- *Millersville freshmen report that MU has contributed to their ability to speak clearly and effectively with mean scores of 3.04 (first year) and 3.05 (senior) in 2012.*

Written Communication

- Millersville freshmen report writing fewer papers with multiple drafts than students at peer institutions. Seniors in 2010 also reported writing fewer papers with multiple drafts. However, seniors in 2012 reported numbers roughly equivalent to peer institutions. (Question 1c)
- Millersville seniors report more instances of integrating various sources into their papers than Millersville freshmen. These values are consistent with or slightly below (first-year)values reported at other Carnegie class institutions. (Question 1d)
- Millersville freshmen report writing fewer papers than students from other Carnegie class institutions (Questions 3c, 3d, and 3e)
- Millersville seniors report writing more papers longer than five pages than seniors at peer institutions. (Questions 3c and 3d)
- *Millersville students report that MU has contributed to their ability to write clearly and effectively with mean scores of 2.92 (first-year) and 3.12 (senior) in 2012. (on a 4-point scale, with 3="Quite a bit"). However, these means are below peer institutions. (Question 11c)*

Quantitative Skills

- Millersville seniors report that MU has helped them analyze quantitative problems more effectively than Millersville freshmen. (Question 11f)
- *Millersville students report that MU has contributed to their ability to analyze quantitative problems with mean scores of 2.90 (first-year) and 3.00 (senior)in 2012. (on a 4-point scale, with 3="Quite a bit"). However, these means are below peer institutions. (Question 11f)*

Critical Reasoning

- Millersville seniors consistently report greater opportunities to synthesize, make judgments, and apply theories than Millersville freshmen. (Questions 1i, 2c, 2d, 2e)
- *Millersville students report that MU has contributed to their ability to think critically and analytically with mean scores of 3.16 (first-year) and 3.34 (senior) (on a 4-point scale, with 3="Quite a bit") reported in 2012. These values are consistent with Carnegie peer institutions. (Question 11e)*

Technological Competency

- Millersville first-year students tend to report less emphasis on use of computers in academic work than students at peer institutions. Millersville seniors report similar emphasis on use of computers in academic work as students at peer institutions. (Question 10g)
- *Millersville seniors report that MU has contributed to their ability to use computing and information technology with mean scores of 3.25 and 3.24 reported in 2005 and 2008*

respectively. The values for Millersville seniors continues to trend downward with reports of 3.19 and 3.14 in 2010 and 2012 respectively. (Question 11g)

Extra- and Co-curricular Activities

- Millersville students report sometimes attending an art exhibit, play, dance, music, theater or other performance with mean scores of 2.05 (first-year) and 1.96 (senior) reported in 2012. These means are similar to means calculated at other Carnegie class institutions. (Question 6a)
- Millersville first-year students (2.18) report participating in more co-curricular activities than Millersville seniors (2.13). Two represents 1-5 hours/week whereas 3 is equivalent to 6-10 hours/week. These means are similar to means determined at other Carnegie class institutions. (Questions 9d)
- Millersville students report that MU emphasizes attending campus events and activities some (2) to quite a bit (3). Mean values for first-year students were 2.78 and 2.59 for seniors in 2012.

2. Millersville University Based Assessment

Rubric Development: Critical Thinking, Information Literacy, and Writing

The Academic Outcomes Assessment Committee has spent the last year developing rubrics for critical thinking, information literacy, and writing. The Department of Communication, led by Dr. Lisa Schreiber, developed the first rubric for public speaking competence. Success with this process led to further work regarding other general education outcomes. This year, AOAC, also led by Dr. Lisa Schreiber began reviewing published rubrics, most especially AAC&U Values Rubrics, and then revising and refining rubrics to meet the needs of Millersville University. The Department of English was instrumental in developing the rubric for writing. The rubrics have been applied by AOAC members to a random selection of student artifacts and the first round of intra-class correlations and inter-rater reliability scores have resulted in need for enhancements to the rubrics and continued improvements in the training of raters. Once these rubrics have been refined they will be applied to sample artifacts collected in English composition classes as well as upper level general education courses. Once the rubrics have been tested and validated a series of CAE events will be organized for the 2014 academic year to enhance their use across the University. Rubrics are attached in Appendix 5.

UNIV 103 Assessment:

The number of students participating in the Freshmen Year Experience, most especially UNIV 103, has more than doubled in the last three years. Thirty-nine sections of UNIV 103 are scheduled for the fall of 2014. To identify strengths and weaknesses in the program a comprehensive assessment plan has been developed and administered for the last three years. Assessment includes three primary components: 1) surveys of both students enrolled in the course and faculty teaching the course 2) focus groups of both students and faculty associated with UNIV 103 and 3) institutional retention statistics.

a) Student Surveys and Focus Groups: A student survey was developed to assess how well UNIV 103 was meeting the course objectives as stated in the original course proposal. Questions focused on writing outcomes, information literacy, and time spent discussing academic and social transition issues. These surveys indicate that overall UNIV 103 is meeting the course objectives with regards to academic topics. However, UNIV103 courses continue to fall short with discussion of social transition issues.

Table 5: UNIV 103 student responses regarding course objectives.

Compare your UNIV 103 experiences to other courses this semester. Please indicate How much you agree or disagree with the following statements. In my UNIV 103 course,					
	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
I spent more time writing	15 / 14	31 / 25	27 / 19	21 / 28	6 / 15
I spent more time in class discussion.	39 / 23	30 / 46	15 /19	12 / 8	4 / 4
I spent more time considering different points of view.	30 / 20	38 / 32	19 / 26	11 / 15	2 / 6
I spent more time considering how knowledge from different disciplines helps inform opinion.	28 / 14	29 / 34	30 / 28	8 / 18	5 / 6
I had a greater sense of community with my classmates.	39 / 24	34 / 36	17 / 24	4 / 12	6 / 4
I felt my instructor was there to help me.	43 / 35	28 / 28	14 / 16	4 / 7	11 / 13

%Responding for each category Fall 2012/Fall2013

Table 6: UNIV 103 student responses regarding transition topics.

Please rate how often these topics were emphasized/discussed in your UNIV 103 course?				
	Very Often	**Often**	**Sometimes**	**Never**
AOD	3 / 5	9 / 10	27 / 31	60 / 54
Campus Safety	5 / 6	14 / 12	40 / 34	41 / 49
Co-curricular Activities	12 / 22	30 / 38	34 / 27	23 / 13
Counseling Center	6 / 5	15 / 18	42 / 40	37 / 38

Extra-curricular Activities	6 / 15	24 / 24	40 / 39	30 / 21
Financial Aid	3 / 3	11 / 10	26 / 35	59 / 52
Financial Planning	2 / 5	14 / 11	26 / 32	58 / 52
Mental Health Awareness	5 / 5	13 / 11	27 / 27	56 / 56
Sexual Health	3 / 4	7 / 9	23 / 19	68 / 69
Stress Management	4 / 10	16 / 19	37 / 31	43 / 39
Time Management	10 / 21	27 / 24	35 / 31	28 / 24

%Responding for each category Fall 2012/Fall2013

Students also reported on writing and information literacy outcomes. Sixty-four percent of students reported that they were required to write more than six pages in their UNIV 103 course over the semester. Only 44% of students reported being required to write a research paper and only 8% of those students reported that their paper was required to be longer than five pages. These results would indicate that UNIV 103 instructors must take the writing component of their courses more seriously. Information literacy outcomes were slightly better. Forty-six percent of students reported spending more than one class period learning to use the library. Thirty-eight percent of students reported spending most of that time on basic information literacy, whereas fifty-seven percent of students reported that the time was spent on research fundamentals. As a result of their UNIV103 course experience, forty-seven percent of students reported being better able to gather information.

Student focus groups indicate that students are generally pleased with the course: students enjoy the sense of community that the UNIV 103 living-learning community enhances and they enjoy having a faculty member of whom they can ask questions and seek advice. One area of consistent disconnect for students is the academic rigor and expectations of a seminar. Many students report that the course is an easy A because all they do is talk. Other students report frustration that not all students come to class prepared. Students are unclear as to how seminars are graded and the worth of informed opinion. A misconception exists that all students are graded equally as long as they talk regardless of what the student says.

b) Faculty Surveys & Focus Groups: Faculty surveys largely corroborate information reported by students. There is a greater emphasis on academic topics as opposed to social transition issues in all UNIV 103 sections. However, there does appear to be a greater emphasis on social transition topics in exploratory sections of UNIV 103 than in major based sections.

Table 7: UNIV 103 faculty responses regarding emphasis of social transition topics.

Please rate how often these social transition topics were emphasized/discussed in your UNIV 103 course.				
	More than one class period	**One class period**	**Less than one class period**	**Did not discuss***
Alcohol and other drug use/abuse	2	5	3	5 / 5
Campus Safety		4	6	5 / 4
Counseling Center	1	6	7	1 / 1
Extra-curricular Activities	6	4	3	2 / 2
Financial Planning		4	4	7 / 5
Mental Health Awareness	1	4	3	7 / 5
Sexual Health	1	1	6	7 / 6
Stress Management	5	3	6	1 / 1
Time Management	9	4	2	

# of faculty responding n=15

*Total Respondents / Major Based Respondents

Faculty focus groups indicated two primary difficulties 1) faculty were unprepared for just how unprepared first-year students were to effectively engage in the academic experience especially classroom discussion and 2) faculty expressed feeling "schizophrenic" trying to incorporate social transition topics.

c) Retention Data: Retention rates for Millersville University consistently remain higher than peer institutions; however, we have seen declines in persistence in recent years. A comparison of those students enrolled in UNIV 103 versus those students not enrolled in UNIV 103 are problematic for two reasons: 1) those students enrolled in UNIV103 traditionally have been students without a declared major and are therefore at greater risk for leaving the University and 2) composite SAT scores are significantly lower for those students enrolled in UNIV 103. Nevertheless, second semester retention rates remain the same in both cohorts. After the third semester, retention rates of the UNIV 103 cohort are lower by 3-6% points than the non-UNIV103 cohort.

d) Use of Assessment Results: Given the described assessment results, a number of initiatives have been undertaken to improve the UNIV 103 course. Last spring a series of workshops were held that focused on areas of concern or interest for faculty. Unfortunately, these particular workshops were poorly attended. Clearly, we must find another way to reach faculty to improve learning outcomes in UNIV 103. With respect to social transition topics, the General Education Coordinator and Student Affairs

continue to explore ways to incorporate social transition topics into the classroom. In addition to the workshops listed above, another two workshops were held to discuss improving social learning outcomes

- Working with Peer Mentors
- Use of a Common Book in UNIV 103 to Help Support Student Transition to University Life

A common book focusing on transition topics was adopted by twelve faculty last fall. Discussion with students and faculty who used this text found it to be worthwhile and useful, but difficult to incorporate. In essence, it was little used in most classes. Students found the information valuable but were understandably angry about spending fifty dollars on a text used only a few times. Given faculty comments and survey results, new initiatives to better incorporate social transition topics by more effectively using peer mentors are being discussed with student affairs. In addition, all UNIV 103 faculty were given a questionnaire that asked what departments/student affairs professionals they would like to have contact them about coming in to their course in the fall. It is hoped that this will require less work on the part of the faculty and thereby increase discussion of critical social transition topics.

VI. Criteria for Review of Areas of Focus Selected

The following three focal questions were developed to help guide both the internal and external review processes:

A. Liberal Arts Culture – How do we develop a University culture where faculty, staff, and students understand the value of a liberal arts education and regularly communicate that value through coursework, informal discussion, and advising?
B. Assessment Culture – How do we develop a culture where faculty embrace and support assessment of general education through both meaningful review of general education courses as well as implementation of change based upon assessment?
C. Effective Living-Learning Communities in FYE – How do we take advantage of new residence hall space to develop meaningful living-learning community experiences for our first-year students?

VII. Department Review of Selected Criteria

The first two focal questions have been at the forefront of discussions among general education leadership including AOAC and GERC. In fact, these issues were tangentially raised in the 2009 program review as well. Students and faculty alike consistently speak about “gen-eds” as if they are mere boxes to check off. Anecdotally, it would seem that discussions regarding the meaning or value of a liberal arts education are rare. As we move into an era where information is readily accessible, how do we more effectively communicate the liberal arts value to students and faculty alike so that discussions aren’t about checking off boxes, but are instead focused on ways of knowing? This may require a significant shift in thinking in

some common general education classes from mere content delivery to critically thinking about problems within a discipline.

The second question stems from the first to some extent. Presently, departments are more tied to their major curriculum. They appreciate, value, and regularly asses their major curriculum. However, the same sense of ownership does not exist for the general education curriculum; and therefor, assessment becomes problematic. Even those faculty who value the core ideas associated with a liberal education may not value the assessment necessary to consistently improve our curriculum. This may stem from the University's long history of the liberal arts or it may simply stem from viewing liberal arts as secondary to the major. How can we better blend the value of the liberal arts with the value of the major, recognizing that the two have complementary outcomes? And how do we better assess the liberal arts outcomes?

Finally, the third question has been an active issue at Millersville since the inception of the First-Year Experience. Our first-year students enrolled in UNIV103 as well as some majors have consistently been housed together, but there have been no intentional activities within the residence halls that focus on the learning going on in the classroom. Student Services Inc. is building four new residence halls, the first of which will open in the fall of 2014. This seems like an appropriate time to begin to formalize living-learning communities. We can begin with theme based housing for first-year students and also create new living-learning communities for upper-class students.

VIII. Reports of External Reviewers

Dr. Debra Humphreys, Vice President for Policy and Public Engagement at American Association of Colleges and Universities, served as our external reviewer. She visited campus on Monday April 7th and met with the General Education Program Review Team, Vilas Prabhu (Provost), Jeff Adams (Associate Provost), Lisa Shibley (Assistant Vice President of Assessment), members of GERC and AOAC, as well as students. In addition to these meetings, Dr. Humphreys gave a luncheon keynote speech to faculty and staff entitled, *Communicating the Value of a Liberal Education in an Age of Disruption*. Dr. Humphreys' report is included as Appendix 6.

IX. Program Weaknesses and Strengths

A. Weaknesses

It is interesting and important to note that the General Education Program has moved beyond the details of reform into larger questions of value and meaning of a liberal arts education in a society where information is readily and easily accessible, where the society and culture is increasingly more diverse, and innovation continues to be critical for success. Three primary areas of weakness have been identified by the General Education Program Review Team. First and foremost, Millersville must be more consistent and intentional as to how it communicates the meaning and intent of a liberal education. Second, we must work with faculty so that they begin to take ownership of general education. And third, Millersville must provide more consistent and meaningful funding for the Coordinator of General Education especially given the expanded roles and responsibilities with the First Year Experience.

1. Inconsistent Messaging

The first identified area of weakness is an inconsistent message regarding general education. It was noted by our external reviewer that the University uses the terms liberal arts, liberal education, and general education interchangeably. In addition, these terms are not well defined in any University documents. Information available on our websites and official documents focus on the general education curriculum requirements as opposed to the value and purpose of a liberal education. This lack of clear purpose carries through in many general education courses that do not contain language in the syllabus and/or do not discuss with students the purpose or meaning of general education courses. Many faculty believe that implicit messages delivered through course content are understood by students. Finally, many departments view general education as an "add on" as opposed to an integrated critical component of a comprehensive education. Not surprisingly, most departmental websites fail to address general education. This mindset may also lead to inadvertent deficiencies in advising when students are instructed to take any "G1, G2, or G3 course," without meaningful discussion of how the humanities differ from the social sciences or the sciences and why these differences matter.

2. Faculty Ownership of General Education

The second identified area of weakness is the faculty's lack of ownership of general education. Millersville faculty overwhelmingly esteem the liberal arts; however, they typically identify with their academic discipline. This is most clearly evident with regards to assessment of general education which to many faculty seems to be an additional workload not directly related to their discipline. Challenges remain with respect to collecting artifacts, assessing artifacts, and implementing change. This lack of ownership may be another reason why explicit assignments and messages associated with general education are not developed within the major. Another significant issue in this regard is the governance structure associated with general education. Faculty are elected by the Senate to serve on general education committees. While many faculty are dedicated and competent, a significant number fail to attend meetings or do the necessary work. This structure inhibits progress and increases the workload of those invested in the program.

3. Funding

It was noted in the 2009 program review that the roles and responsibilities of the FYE Coordinator should be clarified and that, "the FYE Coordinator's release time should be expanded to be commensurate with the increased size and visibility of this component of General Education." Instead of expanding the release time for the FYE Coordinator, the position was folded into the roles and responsibilities of the General Education Coordinator while removing no responsibilities. In addition, the General Education Office at one time had a full-time GA as well as a student worker. Presently, the General Education Office has a ¾ time GA. In the last three years, the First-Year experience has nearly tripled in size which requires greater resources (financial and otherwise), greater coordination among multiple departments and offices across campus, and greater faculty development for those new to teaching first-year seminars. The addition of FYE responsibilities to the General Education Coordinator

position means that not all things are done as well as they could be and that some things simply do not get done.

It is also exceptionally important to engage faculty in national conferences and workshops so that they may better understand the role of general education. Faculty participation at national conferences such as First Year Experience Conference, AACU Liberal Education Conferences, or assessment conferences could motivate some to attempt new pedagogy or assessments that improve the educational climate at the University. Increased funding for these types of activities as well as increased funding for incentives to create new assignments or change pedagogy would be helpful as we attempt to instill a liberal arts value at Millersville.

B. Strengths

While Millersville continues to be challenged by inconsistent messaging and inappropriate funding, we have continued to move forward and have had a great number of successes in the last five years. While assessment is a challenge it is also strength. Significant progress has been made in the last two years in defining general education outcomes, creating and testing rubrics associated with those outcomes, and building collaborative relationships with key departments. Communication among the key entities across campus is another strength. Finally, the First-Year Experience Program has begun to meet its potential nearly tripling its growth in the last three years.

1. Assessment of General Education

As mentioned above, a lack of faculty ownership makes assessment of general education a challenge. However, in the last two years the groundwork for effective assessment has been laid to more effectively assess general education. Both GERC and AOAC have made significant progress with regards to general education outcomes. A sufficient momentum has been achieved to propel us through the next phase of assessment planning. Additionally, assessment of UNIV103 has improved with new instruments to measure learning outcomes for the seminar.

GERC articulated the meaning of general education humanities, social sciences, and sciences categories. GERC also defined outcomes of most of the required General Education Courses (Appendix 1). These two accomplishments not only aid the assessment process by having well defined and articulated outcomes, but it also allows new opportunities for faculty development regarding these outcomes. AOAC also made significant strides setting the stage for improved assessment. AOAC developed rubrics on writing, critical thinking, and information literacy. These rubrics are presently under review and will be implemented in the coming year.

Since the last review, assessment of UNIV 103 has improved. Two years ago, the General Education Coordinator implemented a student survey of all students enrolled in UNIV103 to supplement student focus groups and NSSE data. Faculty are also surveyed to determine whether students and faculty have similar perceptions about classroom pedagogy, assignments, and goals. These results have been and are used to design both faculty development and new student learning modules that supplement classroom instruction.

2. Communication Among General Education Entities

Another strength of the current general education program is the effective communication among the various entities that coordinate and assess general education. Communication between GERC and AOAC has been improved significantly by the efforts of the AOAC Chair who has scheduled joint meetings between the two committees. Improved communication has led to a process where the groups are working in tandem on developing the outcomes and discussing ways of assessment.

An important result of GERC and AOAC's work has been the improved relationship with departments that have a large percentage of a general education load. The Department of English has been instrumental in developing outcomes for both ENGL 110 (still in progress) and Advanced Writing Courses. The Department of English also wrote the writing rubric that is currently being validated by AOAC.

Coordination with Student Affairs has led to greater opportunities in student learning and leadership. Surveys and focus groups of UNIV103 students and faculty indicated that peer mentors were not being utilized well and that social transition topics were often cursorily presented in UNIV103. Discussions with student affairs led to the development of a new peer instruction model that focuses on peer instruction of social transition topics such as stress management and time management. This new model better utilizes time and skills of the peer mentor and supplements areas of potential weakness for classroom instruction.

The communication between the various entities critical to the success of a liberal education has created robust discussions that have improved general education learning outcomes, assessment instruments, and learning opportunities for our students.

3. Implementation of UNIV103

The First-Year Seminar, UNIV103, adopted in 2007 was designed as the cornerstone of the Millersville education. The seminar meets general education requirements and is intended for all incoming first-year students. As of the last program review less than 25% of all incoming first-year students were enrolled in a first-year seminar. In the fall of 2014, 61% of all incoming first-year students will be enrolled in a seminar. All but five departments have a first-year seminar for their majors. The process for enrolling first-year students in their seminar has become streamlined with an electronic survey that asks exploratory students to select their seminar. Prior to implementation of the survey less than 30% of students responded; now more than 60% respond to the survey. And finally, as mentioned above, the General Education Coordinator continues to work with Student Affairs to implement high-quality programming regarding social transition topics whether this occurs through residence-halls or classroom experiences.

X. Recommendations

A. *Develop a consistent language regarding general education.* This would require defining what a liberal education means at Millersville and then implementing this language across all curricular documents and web pages.
B. *Involve academic departments in the General Education Mission.* Discuss with academic departments capacities and competencies needed by their majors that can be better developed through the general education curriculum.
C. *Create a targeted assessment plan* that focuses on the most commonly taken courses within the general education curriculum. Use this subgroup to implement general education learning outcomes and create a robust assessment plan.
D. *Pilot living-learning communities* associated with themes in popular first-year experience courses. Living-learning communities are an opportunity to better engage students in co-curricular opportunities that enhance leadership skills and civic engagement.
E. *Clarify the roles and responsibilities of the General Education Coordinator* especially with regards to expectations regarding the First-Year Experience. The release time and support positions should be expanded to be commensurate with the increased role.

XI. Action Plan

A. GERC, the Department of Academic and Student Development, and other interested faculty and/or administrators shall work on defining what a liberal education means at Millersville and shall identify appropriate language to be used throughout University communications. The MU Website should be audited and revised as appropriate to ensure consistency in language and to emphasize the value of a liberal education. Departmental webpages should also be considered as a logical place to highlight the value of a liberal education.
B. The General Education Coordinator shall spearhead discussions with academic departments to a) identify appropriate general education courses for their majors b) create talking points for faculty regarding explicit messaging of a liberal arts value and c) identify appropriate embedded assessment of general education outcomes.
C. AOAC, the Vice President of Institutional Assessment, and the General Education Coordinator shall create an assessment plan that can be effectively undertaken. The assessment plan will consider those courses most commonly taken within the general education curriculum and work with faculty teaching those courses to develop a common language for syllabi and assessment items. The assessment plan should include opportunities for faculty development that may offer incentives such as small grants to use for classroom instruction or travel to attend workshops and conferences.
D. The General Education Coordinator, the Assistant Vice-President of Student Affairs, and other interested faculty and/or staff will develop an implementation plan for living-learning communities. And then, pilot the living-learning communities. The implementation plan would include a) potential themes for the living-learning community, b) a process for recruiting faculty and staff to participate, c) a list of minimum expectation for curricular, co-curricular, and extra-curricular, activities, d) a process

for enrolling interested first-year students, and e) a means of involving upper-class students in the living-learning experience.

E. The General Education Coordinator and Associate Provost should review job descriptions of First-Year Experience Directors. This information should be used to clarify the role of the Director at Millersville and consider appropriate release time and staff support.

Appendix 1: General Education Learning Outcomes & Disciplinary Ways of Knowing Descriptions

Competencies – ENGL 110 (in progress)

Competencies – MATH (in progress)

Competencies – COMM 100 (approved)

i. Creatively research, analyze, organize and synthesize a variety of reliable source materials into effective individual presentations and/or successfully collaborative group presentations.
ii. Demonstrate ethical responsibility and cultural sensitivity toward their audience in regard to issues of diversity, as well as demonstrate an ability to negotiate with other differences of opinion, belief, or value.
iii. Utilize critical thinking and evaluative skills, as both speakers and listeners, to assess the appropriateness and effectiveness of presentational strategies (especially with regard to persuasion and argumentation).
iv. Overcome any speech anxieties and fears and, thus, enhance their self-image and project a sense of self-confidence.
v. Adapt their delivery and messages to a variety of contexts, occasions, and audiences.
vi. Conceive, develop, and deliver effective, articulate, and engaging presentations. This includes mastering all facets of speech writing, demonstrating skill in verbal and nonverbal delivery, and making effective use of language, evidence, and forms of expression.
vii. Demonstrate adequate knowledge of various communication theories/concepts and processes.

Competencies – WELL 175 (approved)

i. Specify and demonstrate benefits of a comprehensive wellness lifestyle including the various dimensions of wellness: emotional, environmental, intellectual, interpersonal, physical and spiritual.
ii. Identify potential barriers to wellness and produce a plan to overcome those barriers.
iii. Illustrate the health related components of physical fitness and explain the importance of each to the student's overall fitness and health.
iv. Develop and implement a personalized fitness program.
v. Explain and critique the influences that impact wellness on both a personal and global scale.
vi. Provide evidence-based approaches that address and potentially remedy identified influences.

Competencies - "D" courses (approved)

i. Demonstrate awareness of our own cultural rules and biases.
ii. Demonstrate understanding of the complexity of cultural elements through various lenses such as history, values, politics, communication styles, gender, economy, or beliefs and practices.
iii. Demonstrate the ability to interpret events and/or actions in a manner that recognizes the worldview of oneself and other cultural groups.

Competencies - "P" courses (approved)

i. Demonstrate awareness of multiple disciplinary rules, practices (methods of investigations) and biases.
ii. Demonstrate understanding of how members of different disciplines raise questions, examine questions, and evaluate conclusions.
iii. Demonstrate an ability to suspend judgment and explore similarities and differences across disciplines.

iv. Articulate how knowledge of other disciplines informs your own disciplinary interpretation.
v. Participate in speaking and listening roles.

Competencies – "W" courses (approved)

i. Articulate ideas clearly in writing.
ii. Demonstrate the ability to find, evaluate and integrate appropriate sources into formal written work.
iii. Apply inferences or causalities to informal written works.
iv. Use appropriate critical reasoning strategies in developing content.

Competencies – "AW" courses (approved)

i. Demonstrate flexibility in applying the writing process to a variety of communication contexts.
ii. Understand rhetorical situations and multicultural contexts and respond to the demands of both in the preparation of texts.
iii. Demonstrate enhanced fluency and distinctiveness in writing style.
iv. Apply rhetorical principles to real-world situations in the academy, at work, and in the community.
v. Effectively employ technologies to create and support texts.

Disciplinary Ways of Knowing Descriptions (approved)

Courses in the arts and humanities (G1 category) challenge students to examine, analyze and critically evaluate artifacts of the human intellect and imagination to illuminate the complexity of the human experience. Through exposure to multiple voices, insights, objects, and other creative works, students explore and interpret questions of meaning, fact and value. Ultimately, this engagement expands knowledge, deepens empathy and encourages collaboration between diverse individuals and communities.

Courses in sciences (G2 category) develop students' understanding and knowledge of scientific reasoning and of strategies for logical problem solving. Students are challenged to recognize that scientific explanations offer falsifiable predictions, that claims are to be supported by evidence and logical reasoning, and that the nature of scientific discovery and knowledge is fluid. Courses emphasize that the scientific meaning of fact, theory, and law are not a hierarchy, and give students an appreciation of necessary creative aspect of scientific process and discovery.

Courses in the social sciences (G3 category) focus on the intricate relationship between human behavior and social institutions. Through qualitative and/or quantitative methods of inquiry, students discover and ascertain how human beings behave and are expected to behave, within certain contexts. This interaction allows students to comprehend and articulate the relationship between behavior and context across people, cultures, time, and place.

Appendix 2: Enhanced Engaged Learning Experiences Transformation Team Report

Action Idea: Portfolios/Badges/Certificates/Endorsements* (recommended)

Description: A portfolio would comprise three major elements: classroom instruction across at least two disciplines, a supervised practical experience in a laboratory or real-world setting, preferably involving a service learning approach, and a substantive self-reflective paper or critical thinking project. Portfolios would be in areas that speak to the contemporary needs of society. In this way, they can be viewed as a practical application of a liberal arts education. This type of credentialing system would provide an added qualification for our graduates.

Potential ideas for portfolios include:

- Portfolio in Leadership (possibly involving Government, Political Science, and Business departments in conjunction with Student Affairs)
- Portfolio in Sustainability (possibly involving Earth Sciences, Biology, and Applied Engineering Safety and Technology departments in conjunction with Student Affairs)
- Portfolio in Social Entrepreneurship (possibly involving Business, Social Work, and Sociology/Anthropology departments in conjunction with Finance and Administration)
- Portfolio in Labor Issues (possibly involving Business, Economics, and Sociology departments in conjunction with Human Resources in Finance and Administration)
- Portfolio in Aging (possibly involving Nursing, Sociology, and Social Work departments in conjunction with the Center for Counseling and Human Development and Health Services within Student Affairs)
- Portfolio in Poverty Studies (possibly involving Economics, Government, and Social Work departments in conjunction with Social Equity as well as Campus Ministries and Multicultural Affairs within Student Affairs)

Evidence in Support of Idea: The concept of concentrations in particular expertise has been met with enthusiasm in a number of venues. The PA State System has a Letter of Completion designation for academic records that is designed for concentrations of courses between 12 and 30 credit hours. In addition, other universities including Purdue University have begun implementing a badging system. This system has gained the greatest momentum for military veterans. A "digital badge," can be awarded based upon military experience and then used in resumes or on social networking sites such as LinkedIn.

Resources Required/Utilized: The registrar's office would need to be involved to ensure that portfolio completion is including on a student's transcript. Coordination between departments as well as University and community organizations to support the practicum experience would be necessary.

Funding Considerations: Portfolios could be developed with existing departments and classes. Significant effort would be required to initially create the practical experience for students. Providing release time for faculty in the initial year of development would help offset time required for development. In addition, funds would be required to support independent study in the cases where the experiences occurred on campus.

Action Idea: Upper-Level Learning Communities

Description: Learning communities are in place for many first-year students. However, Millersville does not appear to be intentional about developing learning communities for upper level students. The experiences and information gained during the first years of college, make upper level learning communities a potent opportunity for deep integrated learning. One area of focus could be development of learning communities associated with Advanced Writing (AW) courses. Intentional alignment of major based course sequences with AW would better prepare students to be successful in major based courses that require extensive writing. Alternatively, intentional learning communities focused on one current issue but investigated through various lenses would provide a deeper more integrative understanding of complex societal problems. For example, students may focus on water resource management and take courses in hydrology as well as environmental policy concurrently. Integrated learning-community projects could require students to apply their understanding of hydrologic principles to better understand or develop policy decisions for a region.

Evidence in Support of Idea: Upper-level learning communities incorporate a number of high-impact practices, as defined by Kuh (2008), including common intellectual experiences, collaborative assignments and projects, diversity/global learning, and learning communities themselves. And these practices are all part of the essential learning outcomes defined by the AACU in achieving the goals of a liberal education. If Millersville indeed prides itself on being a liberal arts institution, we must do a better job of encouraging and fostering multiple ways of investigating problems.

Resources Required/Utilized: Learning communities can be established from courses currently on record. However, to develop robust learning communities faculty must work collaboratively to develop common themes and experiences. Faculty time would be a significant component of resources required.

Funding Considerations: Budgetary considerations might include a faculty development workshop where faculty are provided a stipend to attend. In a short intensive experience faculty can develop their common theme and ways to investigate their question through different lenses. In addition, to further encourage faculty participation, a promise of keeping class size limited to 24 during the first offering of the learning community would be beneficial. To further enhance the living component of the living-learning community additional resources would be required to fund outside speakers, field experiences, performances, or to purchase common outside texts for discussion.

Assessment Brief DRAFT
Critical Thinking—AAC&U Values Rubric Findings
Prepared for AOAC, Fall 2011

Part I: Executive Summary

A. **General Education Outcome**

Students will demonstrate foundational knowledge of the important ideas and methods of different ways of knowing. The focus of this brief will be on the critical thinking component of general education.

B. **Background**

C. **Major Findings**

- Cronbach's Alpha and the IntraClass Correlation Coefficient could only be calculated for three of the five critical thinking constructs: "Evidence", "Student's Position" and "Conclusions and Related Outcomes" because not enough students were graded by **all three** raters within the area of critical thinking. In many cases, only one or two of the graders were assigned to one particular student. For Cronbach's Alpha to be calculated, enough data needs to be present from all of the raters to observe the consistency (or variance) among the scores given by each rater on the same papers.

D. **Conclusions**

- To observe consistency among the raters, the only component/outcome with enough satisfactory observations from all three raters to calculate Cronbach's Alpha and the IntraClass Correlation Coefficient is the new Quantitative Literacy component.

Part II: Assessment Brief

A. **Introduction**

1. Background

One of the Objectives for General Education at Millersville University is critical thinking competence. In this component, students are expected to "analyze and interpret," "investigate, evaluate, and apply," and "develop the necessary tools of critical thinking, inquiry, and diplomacy."

2. Problem Statement

The AOAC

3. Justification

i. Assessing

B. **Information Source**

In order to test the Critical Thinking rubric, written papers were collected from sections of Biology, Business, Chemistry, Communications, Economics, Mathematics, and Psychology classes in the spring semester of 2011.

C. Major Findings

1. Data Summary

Intraclass Correlation Coefficient and Cronbach's Alpha levels for the rubric were only able to be tested and calculated for three of the five critical thinking constructs: "Evidence", "Student's Position" and "Conclusions and Related Outcomes." These values as well as the number of observed scores and the mean scores are included in the table below for each construct. The second table includes a comparison of mean scores among construct and course level as identified by the course number from which the work was done. The third shows the changes in mean scores for each increase in course level, examining if the constructs change over the students' progression through their program.

Table 1: Critical Thinking Mean Scores by Construct

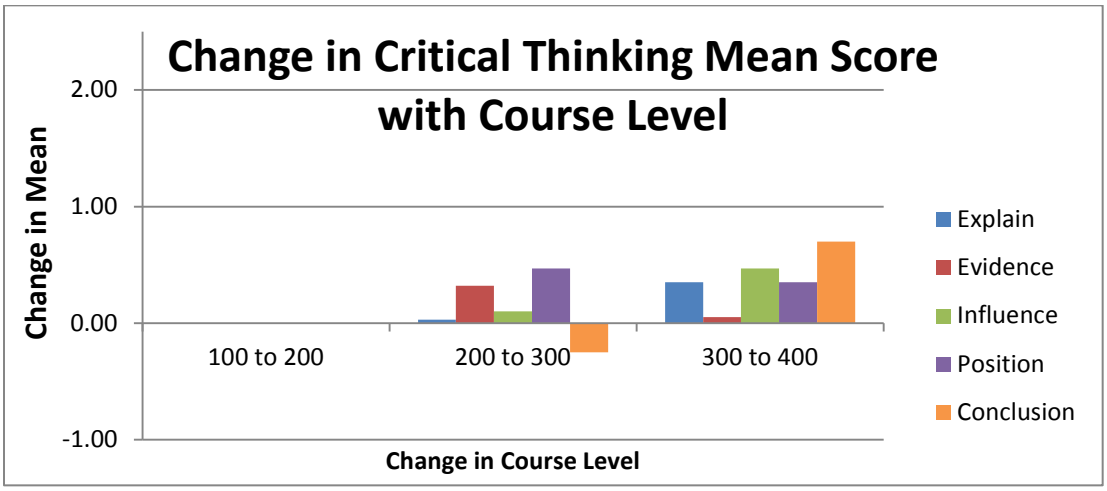
	Number of Scores	Mean Score	Intraclass Correlation	Cronbach's Alpha
Explanation of Issues	43	2.65	Cannot be calculated	Cannot be calculated
Selecting and Using Evidence	43	2.16	.571	.727
Influence of Context	43	1.81	Cannot be calculated	Cannot be calculated
Student's Position	43	2.00	.267	.421
Conclusions and Related Outcomes	43	2.16	.087	.222
Overall	**215**	**2.16**	**.073**	**.541**

Table 2: Critical Thinking Mean Scores by Course Level and Construct

	Course Level			
	100	**200**	**300**	**400**
Explanation	n/a	2.47	2.50	2.85
Evidence	n/a	1.93	2.25	2.30
Influence	n/a	1.53	1.63	2.10
Position	n/a	1.53	2.00	2.35
Conclusions	n/a	2.00	1.75	2.45
Overall	**n/a**	**1.89**	**2.03**	**2.41**

	Number of Courses Used at Each Course Level within Critical Thinking			
	100	**200**	**300**	**400**
# of courses	**0**	**1 (PSYC 212)**	**1 (COMM 301)**	**1 (ECON 488)**

Table 3: Changes in Critical Thinking Mean Scores with Increasing Course Level



**Note that there were no courses under Critical Thinking classified as a 100 level course*

2. Discussion

- A Cronbach's Alpha reliability coefficient of .80 or higher is considered "good" in most social science research situations; this value is "used to rate the internal consistency (homogeneity) or the correlation of the items in a test." The intraclass correlation coefficient is "used to measure inter-rater reliability for two or more raters," and a value greater than .60 is considered "acceptable" (a value just greater than .50 is sometimes considered "barely acceptable"). In using and testing this rubric, the inter-rater reliability scores within critical thinking for the

three raters are not all strong enough to claim that the raters achieved respectable reliability levels or that the rubric is sound. The high variance within the inter-rater correlations is due in large part to the small applicable sample size. Again, most of the students did not have all three raters grading their work in the area of critical thinking and so strong conclusions cannot be made from the comparisons among the raters. If more than one rater was grading each student's work, these comparisons would be stronger.

- Since all of the reliability coefficients are not reliable due to low sample sizes, it might be helpful to revise the matrix of how students are assigned to graders so that more graders are grading each individual student on the same paper so that comparisons can be made on rater reliability. It may also be helpful to address the clarity of what is being assessed and greater distinction between the levels of scoring.

- "Evidence" did have a Cronbach's Alpha of .727 which is acceptable. But "Student's Position" had a Cronbach's Alpha of .421 and "Conclusions and Related Outcomes" only produced a .222 which is far under acceptable. Again, sample size is a major factor in the strength of this test and is definitely affecting the reliability scores in this case.

- The mean scores which quantify the level of students' critical thinking skills would be most helpful if there were goals and clearer meaning to the numeric result. If the rubric will be used for actual assessment in courses, it is recommended that the numerical scores be associated with levels of competence that have relevant meaning.

3. Conclusion

- If this rubric is intended for usage in the university, it is suggested that certain constructs be clarified and that stronger connections be made between numeric scores and course-specific meaning.

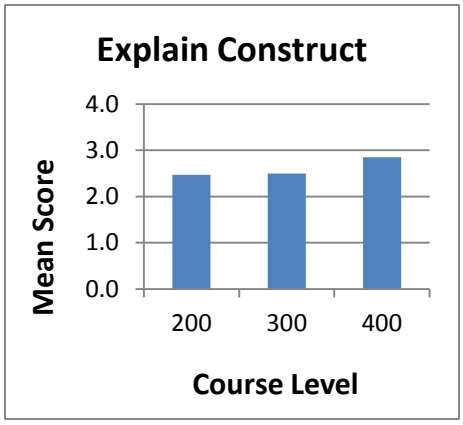
- Once the final version of this rubric is complete, it should be available to interested faculty to be used for critical thinking assessment beyond the courses examined here, and faculty should be trained how to use the rubric

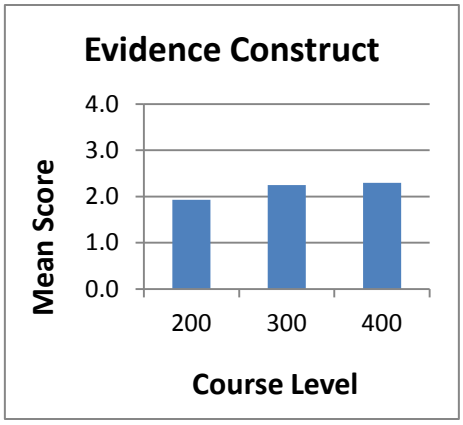
Part III: Appendices

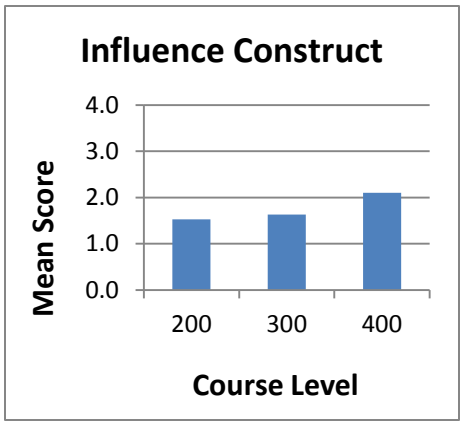
CRITICAL THINKING RUBRIC FOR ASSESSMENT OF STUDENT WORK

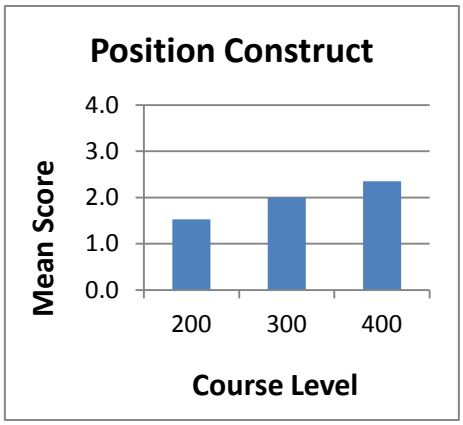
	Capstone 4	Milestones 3	 2	Benchmark 1
Explanation of issues	Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.	Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue/problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown.	Issue/problem to be considered critically is stated without clarification or description.
Evidence *Selecting and using information to investigate a point of view or conclusion*	Information is taken from source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.	Information is taken from source(s) with enough interpretation/evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning.	Information is taken from source(s) with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis. Viewpoints of experts are taken as mostly fact, with little questioning.	Information is taken from source(s) without any interpretation/evaluation. Viewpoints of experts are taken as fact, without question.
Influence of context and assumptions	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.
Student's position (perspective, thesis/hypothesis)	Specific position (perspective, thesis/hypothesis) is imaginative, taking into account the complexities of an issue. Limits of position (perspective, thesis/hypothesis) are acknowledged. Others' points of view are synthesized within position (perspective, thesis/hypothesis).	Specific position (perspective, thesis/hypothesis) takes into account the complexities of an issue. Others' points of view are acknowledged within position (perspective, thesis/hypothesis).	Specific position (perspective, thesis/hypothesis) acknowledges different sides of an issue.	Specific position (perspective, thesis/hypothesis) is stated, but is simplistic and obvious.
Conclusions and related outcomes (implications and consequences)	Conclusions and related outcomes (consequences and implications) are logical and reflect student's informed evaluation and ability to place evidence and perspectives discussed in priority order.	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.	Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and implications) are identified clearly.	Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.

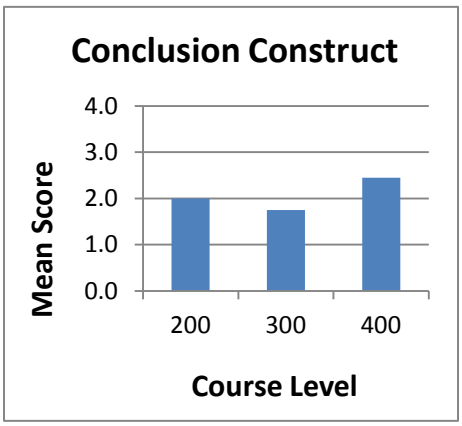
Figures 1-5: Scores for Critical Thinking Constructs by Course Level











**Note that there were no courses classified as a 100 level course*

Table 4: Critical Thinking Score Statistics by Construct

	Explanation of Issues	Evidence	Influence of Context	Student's Position	Conclusion and Outcomes	Overall
Number of Scores	43	43	43	43	43	**215**
Mean Score	2.65	2.16	1.81	2.00	2.16	**2.16**
Standard Error of Mean	.099	.099	.121	.137	.129	**.056**
Standard Deviation	.650	.652	.794	.900	.843	**.816**

Glossary of Statistical Terms

Mean – the average score

Variance – a measurement of how much (far) the scores vary around the mean score

Standard Deviation – the square root of the variance

- Measures the same thing as variance: how far scores are from the mean score

Standard Error of the Mean – a measurement of how much the group mean scores vary around the total mean score (the standard deviation of the group means)

Interrater Reliability/Agreement

- A measure of consistency and usefulness of the rubric
- The extent to which independent raters agree on a rubric score and to which rubric scores are consistent across raters
- In this assessment, measured by Intraclass Correlation Coefficient and Cronbach's Alpha

Intraclass Correlation Coefficient (ICC)

- A measure of interrater reliability that describes how strongly scores from the same rater resemble each other. It is a value from 0 (no rater reliability) to 1 (complete rater reliability).
- Mathematically, it's the proportion of the total variance that's due to variability between raters
- Can also be interpreted as a measure of between group differences or within group similarity

Cronbach's Alpha

- A specific type of ICC that is test of internal consistency (ranges on same scale as ICC)
- Measures how well a set of raters measure a single, latent (covert) construct
- Estimates how strongly the score obtained from the actual panel of the raters correlates with the score that would have been obtained from another random sample of raters

Assessment Brief DRAFT
Information Literacy—AAC&U Values Rubric Findings
Prepared for AOAC, Fall 2011

Part I: Executive Summary

A. **General Education Outcome**

Students will be able to demonstrate effective information literacy appropriate to any academic discipline. The focus of this brief will be on the information literacy component of Foundations for Lifelong Learning.

B. **Background**

C. **Major Findings**

- Cronbach's Alpha and the IntraClass Correlation Coefficient could not be calculated for all of the constructs within information literacy because not enough students were graded by **all three** raters within the area of information literacy. In many cases, only one or two of the graders were assigned to one particular student. For Cronbach's Alpha to be calculated, enough data needs to be present from all of the raters to observe the consistency (or variance) among the scores given by each rater on the same paper.

D. **Conclusions**

- To observe consistency among the raters, the only component with enough satisfactory observations from all three raters to calculate Cronbach's Alpha and the IntraClass Coefficient is the new Quantitative Literacy component.

Part II: Assessment Brief

A. **Introduction**

1. Background

One of the Objectives for General Education at Millersville University is to create and strengthen foundations for lifelong learning. One of the components of this objective is information literacy in students, which is evidenced by "the ability to find appropriate sources of information, evaluate that information, and integrate that information into a final product."

2. Problem Statement

The AOAC

3. Justification

i. Assessing

B. Information Source

In order to test the Information Literacy rubric, written papers were collected from sections of Communications, Economics, and Psychology classes in the spring semester of 2011.

C. Major Findings

1. Data Summary

The number of observed scores and the mean score are included in the table below for each construct. The second table includes a comparison of means scores among construct and course level as identified by the course number from which the work was done. The third shows the changes of means scores for each increase of course level, examining if the constructs change over students' progression through their program.

Table 1: Information Literacy Mean Scores and Reliability by Construct

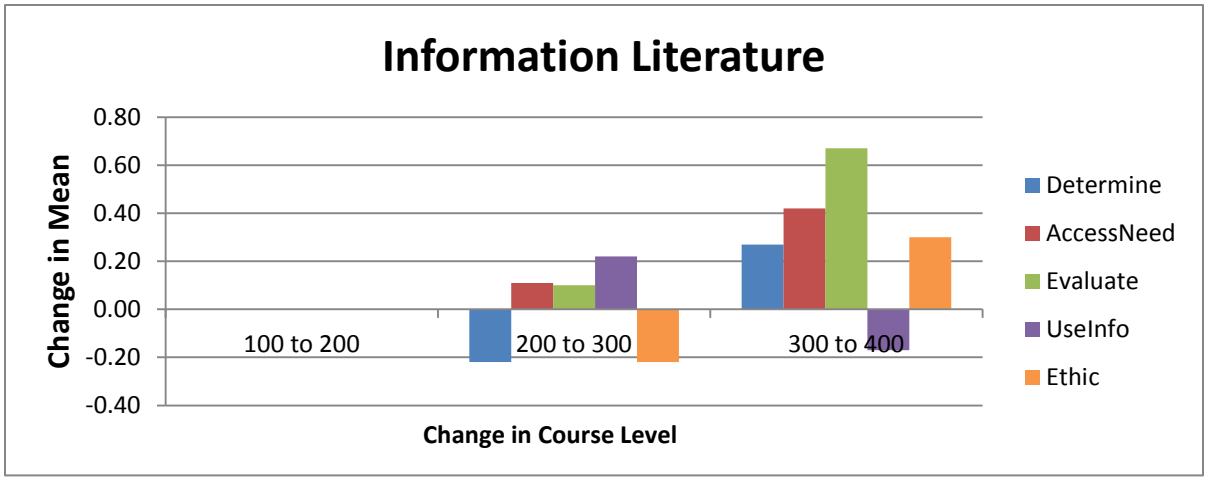
	Number of Scores	Mean Score	Intraclass Correlation	Cronbach's Alpha
Determine Extent of Information Needed	43	2.58	-.300	-2.25
Access the Needed Information	43	2.53	.727	.889
Evaluate Information and its Sources Critically	43	1.91	.727	.842
Use Information Effectively to Accomplish a Specific Purpose	43	2.47	-.364	-4.00
Access and Use Information Ethically and Legally	43	2.47	.267	.421
Overall	**215**	**2.0**	**.072**	**.502**

Table 2: Information Literacy Mean Scores by Course Level and Construct

	Course Level			
	100	**200**	**300**	**400**
Determine	n/a	2.6	2.4	2.7
Access	n/a	2.3	2.4	2.8
Evaluate	n/a	1.5	1.6	2.3
Use Effectively	n/a	2.4	2.6	2.5
Ethically	n/a	2.5	2.3	2.6
Overall	**n/a**	**2.3**	**2.3**	**2.6**

	Number of Courses Used at Each Course Level within Information Literacy			
	100	**200**	**300**	**400**
# of courses	**0**	**1 (PSYC 212)**	**1 (COMM 301)**	**1 (ECON 488)**

Table 3: Changes in Information Literacy Mean Scores with Increasing Course Level



**Note that no courses were classified as a 100 level course*

2. Discussion

- A Cronbach's Alpha reliability coefficient of .80 or higher is considered "good" in most social science research situations; this value is "used to rate the internal consistency (homogeneity) or the correlation of the items in a test." The intraclass correlation coefficient is "used to measure inter-rater reliability for two or more

raters," and a value greater than .60 is considered "acceptable" (a value just greater than .50 is sometimes considered "barely acceptable"). In using and testing this rubric, the inter-rater reliability scores within information literacy for the three raters are not all strong enough to claim that the raters achieved respectable reliability levels or that the rubric is sound. The high variance within the inter-rater correlations is due in large part to the small applicable sample size. Again, most of the students did not have all three raters grading their work in the area of information literacy and so strong conclusions cannot be made from the comparisons among the raters. If more than one rater was grading each student's work, these comparisons would be stronger.

- Since all of the reliability coefficients are not reliable due to low sample sizes, it might be helpful to revise the matrix of how students are assigned to graders so that more graders are grading each individual student on the same paper so that comparisons can be made on rater reliability. It may also be helpful to address the clarity of what is being assessed and greater distinction between the levels of scoring.

- The mean scores which quantify the level of students' information literacy skills would be most helpful if there were goals and clearer meaning to the numeric result. If the rubric will be used for actual assessment in courses, it is recommended that the numerical scores be associated with levels of competence that have relevant meaning.

3. Conclusion

- If this rubric is intended for usage in the university, it is suggested that certain constructs be clarified and that stronger connections be made between numeric scores and course-specific meaning.

- Once the final version of this rubric is complete, it should be available to interested faculty to be used for information literacy assessment beyond the courses examined here, and faculty should be trained how to use the rubric.

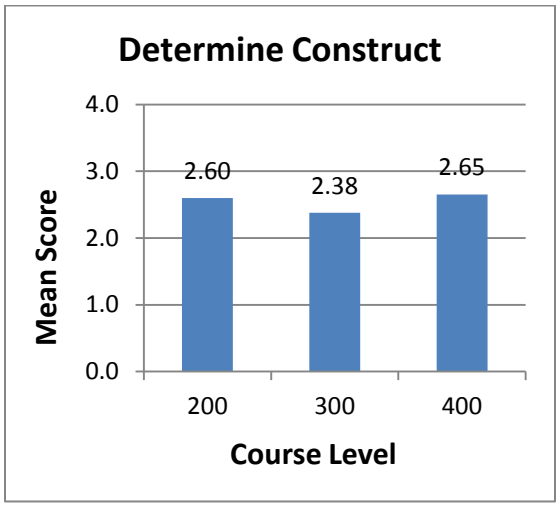
- Asd

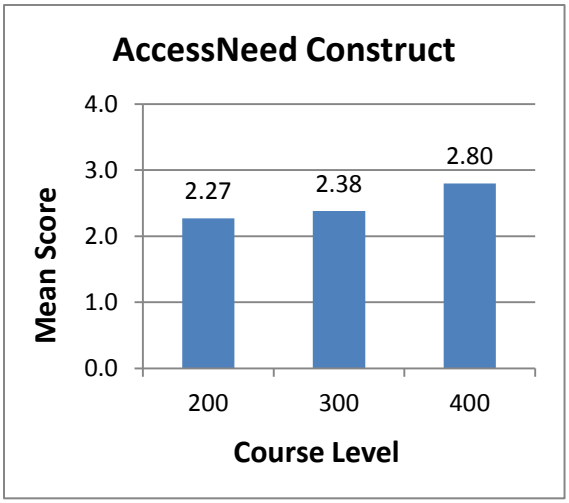
Part III: Appendices

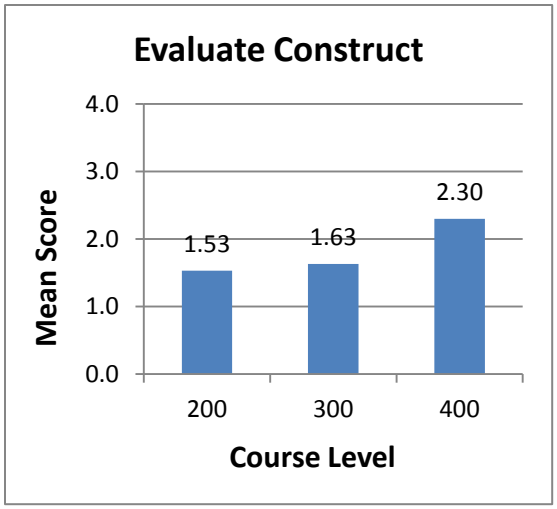
INFORMATION LITERACY RUBRIC FOR ASSESSMENT OF STUDENT WORK

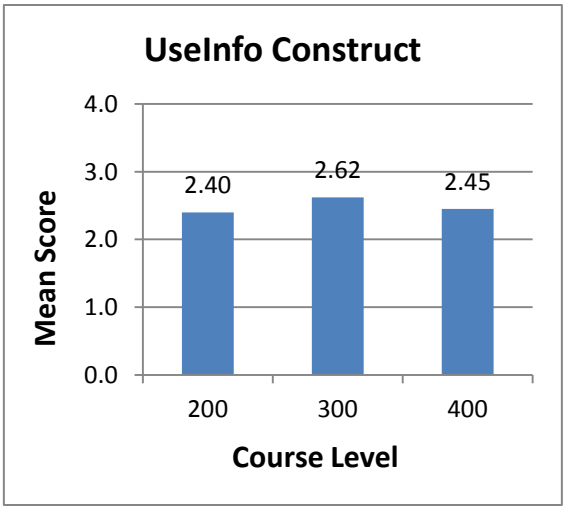
	Capstone 4	Milestones 3	 2	Benchmark 1
Determine the Extent of Information Needed	Effectively defines the scope of the research question or thesis. Effectively determines key concepts. Types of information (sources) selected directly relate to concepts or answer research question.	Defines the scope of the research question or thesis completely. Can determine key concepts. Types of information (sources) selected relate to concepts or answer research question.	Defines the scope of the research question or thesis incompletely (parts are missing, remains too broad or too narrow, etc.). Can determine key concepts. Types of information (sources) selected partially relate to concepts or answer research question.	Has difficulty defining the scope of the research question or thesis. Has difficulty determining key concepts. Types of information (sources) selected do not relate to concepts or answer research question.
Access the Needed Information	Accesses information using effective, well-designed search strategies and most appropriate information sources.	Accesses information using variety of search strategies and some relevant information sources. Demonstrates ability to refine search.	Accesses information using simple search strategies, retrieves information from limited and similar sources.	Accesses information randomly, retrieves information that lacks relevance and quality.
Evaluate Information and its Sources Critically	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.
Use Information Effectively to Accomplish a Specific Purpose	Communicates, organizes and synthesizes information from sources to fully achieve a specific purpose, with clarity and depth	Communicates, organizes and synthesizes information from sources. Intended purpose is achieved.	Communicates and organizes information from sources. The information is not yet synthesized, so the intended purpose is not fully achieved.	Communicates information from sources. The information is fragmented and/or used inappropriately (misquoted, taken out of context, or incorrectly paraphrased, etc.), so the intended purpose is not achieved.
Access and Use Information Ethically and Legally	Students use correctly all of the following information use strategies (use of citations and references; choice of paraphrasing, summary, or quoting; using information in ways that are true to original context; distinguishing between common knowledge and ideas requiring attribution) and demonstrate a full understanding of the ethical and legal restrictions on the use of published, confidential, and/or proprietary information.	Students use correctly three of the following information use strategies (use of citations and references; choice of paraphrasing, summary, or quoting; using information in ways that are true to original context; distinguishing between common knowledge and ideas requiring attribution) and demonstrates a full understanding of the ethical and legal restrictions on the use of published, confidential, and/or proprietary information.	Students use correctly two of the following information use strategies (use of citations and references; choice of paraphrasing, summary, or quoting; using information in ways that are true to original context; distinguishing between common knowledge and ideas requiring attribution) and demonstrates a full understanding of the ethical and legal restrictions on the use of published, confidential, and/or proprietary information.	Students use correctly one of the following information use strategies (use of citations and references; choice of paraphrasing, summary, or quoting; using information in ways that are true to original context; distinguishing between common knowledge and ideas requiring attribution) and demonstrates a full understanding of the ethical and legal restrictions on the use of published, confidential, and/or proprietary information.

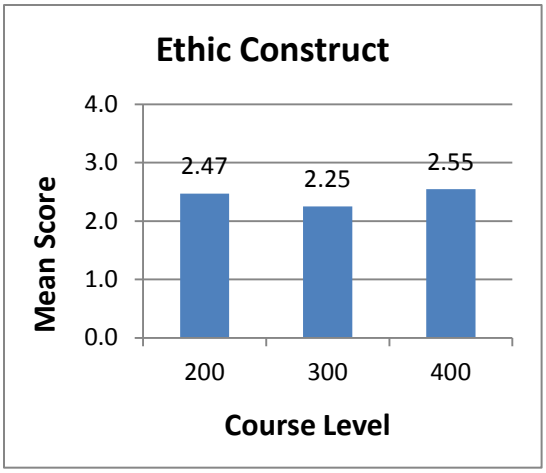
Figures 1-5: Scores for Information Literacy Constructs by Course Level











**Note that no courses were classified as a 100-level course.*

Table 4: Information Literacy Score Statistics by Construct

	Determine Extent of Information	Access Needed Information	Evaluate Information	Use Information Effectively	Use Information Ethically	Overall
Number of Scores	43	43	43	43	43	**215**
Mean Score	2.58	2.53	1.91	2.47	2.47	**2.39**
Standard Error of Mean	.101	.102	.124	.102	0.090	**0.049**
Standard Deviation	.663	.667	.811	.667	.592	**0.721**
Intra-Class Correlation	-.300	.727	.727	.364	.267	**.072**
Cronbach's Alpha	-2.25	.889	.842	-4.00	.421	**.502**

Glossary of Statistical Terms

Mean – the average score

Variance – a measurement of how much (far) the scores vary around the mean score

Standard Deviation – the square root of the variance

- Measures the same thing as variance: how far scores are from the mean score

Standard Error of the Mean – a measurement of how much the group mean scores vary around the total mean score (the standard deviation of the group means)

Interrater Reliability/Agreement

- A measure of consistency and usefulness of the rubric
- The extent to which independent raters agree on a rubric score and to which rubric scores are consistent across raters
- In this assessment, measured by Intraclass Correlation Coefficient and Cronbach's Alpha

Intraclass Correlation Coefficient (ICC)

- A measure of interrater reliability that describes how strongly scores from the same rater resemble each other. It is a value from 0 (no rater reliability) to 1 (complete rater reliability).
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Cronbach's Alpha

- A specific type of ICC that is test of internal consistency (ranges on same scale as ICC)
- Measures how well a set of raters measure a single, latent (covert) construct
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Quantitative Literacy—AAC&U Values Rubric Findings
Prepared for AOAC, Fall 2012

Part I: Executive Summary

A. **General Education Outcome**

Students will demonstrate foundational knowledge of the important ideas and methods of different ways of knowing. The focus of this brief will be on the quantitative literacy component of general education.

B. **Background**

C. **Major Findings**

- Cronbach's Alpha and the IntraClass Correlation Coefficient were calculated for all of the constructs within quantitative literacy as a result of the sufficient number of students that were graded by **all three** raters within the area of quantitative literacy; In contrast, there was a lack of students that were graded by all three graders within the areas of critical thinking, information literacy, and written communication. For Cronbach's Alpha to be calculated, enough data needs to be present from all of the raters to observe the consistency (or variance) among the scores given by each rater on the same paper. This was only achieved for the quantitative literacy component.

D. **Conclusions**

- Observing consistency among the raters is of great importance. The quantitative literacy component was the only component with enough satisfactory observations from all three raters to calculate Cronbach's Alpha and the IntraClass Coefficient.

Part II: Assessment Brief

A. **Introduction**

1. Background

One of the Objectives for General Education at Millersville University is the quantitative literacy competence. In this component, students are expected to show quality "interpretation," "representation", "calculation", "application/analysis", "assumptions", and have clarity in "communication"

2. Problem Statement

The AOAC

3. Justification

i. Assessing

B. **Information Source**

In order to test the Quantitative Literacy rubric, written papers were collected from sections of Biology, Business, Chemistry, Communications, and Economics, Mathematics, and Psychology classes in the spring semester of 2011.

C. Major Findings

1. Data Summary

The number of observed scores and the mean score are included in the table below for each construct. The second table includes a comparison of means scores among construct and course level as identified by the course number from which the work was done. The third shows the changes of means scores for each increase of course level, examining if the constructs change over students' progression through their program.

Table 1: Quantitative Literacy Mean Scores by Construct

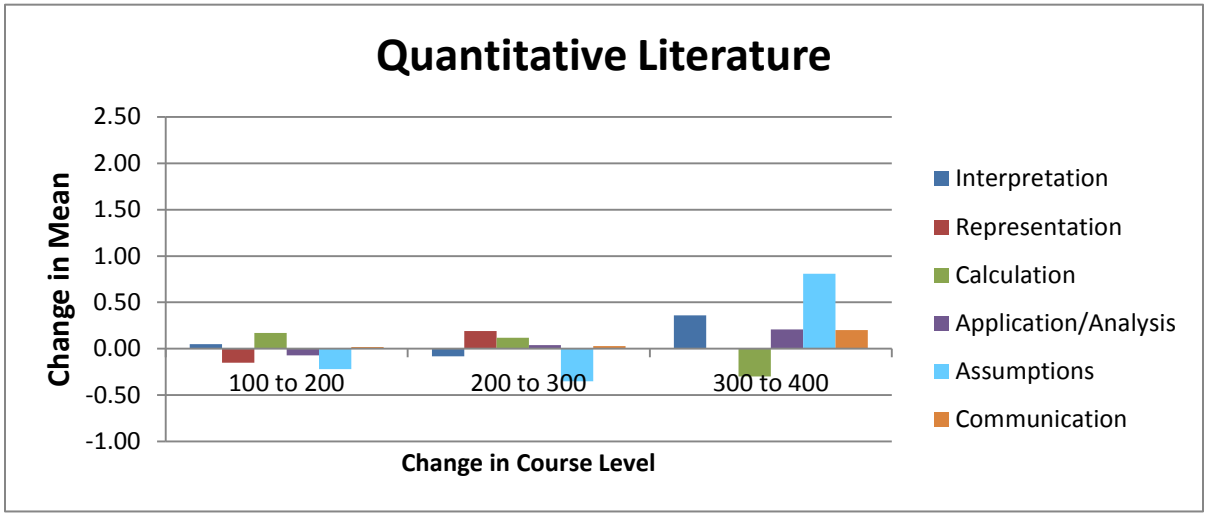
	Number of Scores	Mean Score	Intraclass Correlation	Cronbach's Alpha
Interpretation	194	2.46	.146	.340
Representation	203	2.51	-.224	-1.216
Calculation	198	2.60	-.140	-.583
Application/Analysis	211	2.26	.329	.595
Assumptions	178	1.50	.134	.318
Communication	205	2.30	.328	.594
Overall	**1189**	**2.28**	**.254**	**.860**

Table 2: Quantitative Literacy Mean Scores by Course Level and Construct

	Course Level			
	100	**200**	**300**	**400**
Interpretation	2.43	2.48	2.40	2.76
Representation	2.53	2.38	2.57	2.57
Calculation	2.43	2.60	2.72	2.42
Appl/Analy	2.27	2.20	2.24	2.45
Assumptions	1.81	1.59	1.24	2.05
Communication	2.25	2.27	2.30	2.50
Overall	**2.29**	**2.25**	**2.25**	**2.46**

	Number of Courses Used at Each Course Level Within Quantitative Literacy			
	100	**200**	**300**	**400**
# of courses	**2**	**4**	**3**	**4**

Table 3: Changes in Quantitative Literacy Mean Scores with Increasing Course Level



**Note that there were two courses classified as a 100 level course within Quantitative Literacy*

2. Discussion

- A Cronbach's Alpha reliability coefficient of .80 or higher is considered "good" in most social science research situations; this value is "used to rate the internal consistency (homogeneity) or the correlation of the items in a test." The intraclass correlation coefficient is "used to measure inter-rater reliability for two or more raters," and a value greater than .60 is considered "acceptable" (a value just greater than .50 is sometimes considered "barely acceptable").

- The mean scores which quantify the level of students' quantitative literacy skills would be most helpful if there were goals and clearer meaning to the numeric result. If the rubric will be used for actual assessment in courses, it is recommended that the numerical scores be associated with levels of competence that have relevant meaning.

3. Conclusion

- If this rubric is intended for usage in the university, it is suggested that certain constructs be clarified and that stronger connections be made between numeric scores and course-specific meaning.

- Once the final version of this rubric is complete, it should be available to interested faculty to be used for quantitative literacy assessment beyond the courses examined here, and faculty should be trained on how to use the rubric.

Part III: Appendices

CRITICAL THINKING RUBRIC FOR ASSESSMENT OF STUDENT WORK

	Capstone 4	Milestones 3	 2	Benchmark 1
Explanation of issues	Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.	Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue/problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown.	Issue/problem to be considered critically is stated without clarification or description.
Evidence *Selecting and using information to investigate a point of view or conclusion*	Information is taken from source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.	Information is taken from source(s) with enough interpretation/evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning.	Information is taken from source(s) with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis. Viewpoints of experts are taken as mostly fact, with little questioning.	Information is taken from source(s) without any interpretation/evaluation. Viewpoints of experts are taken as fact, without question.
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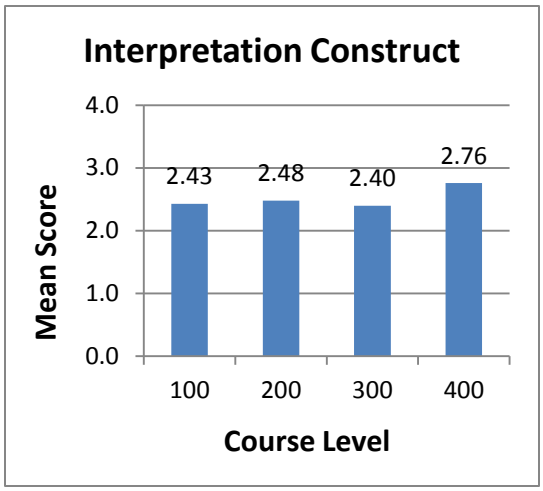
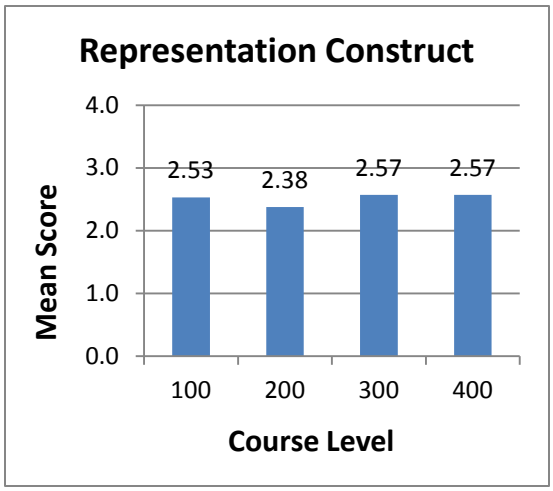
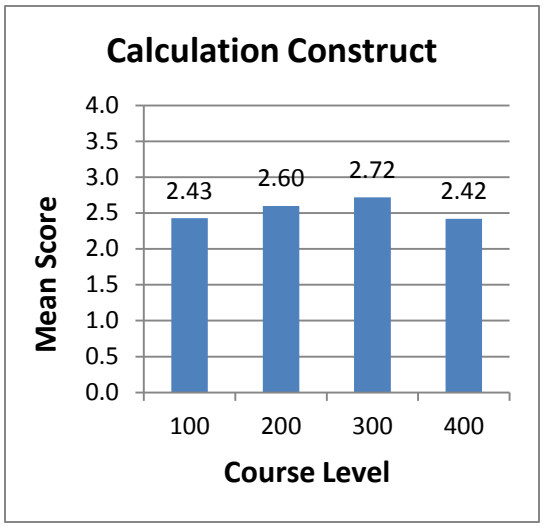
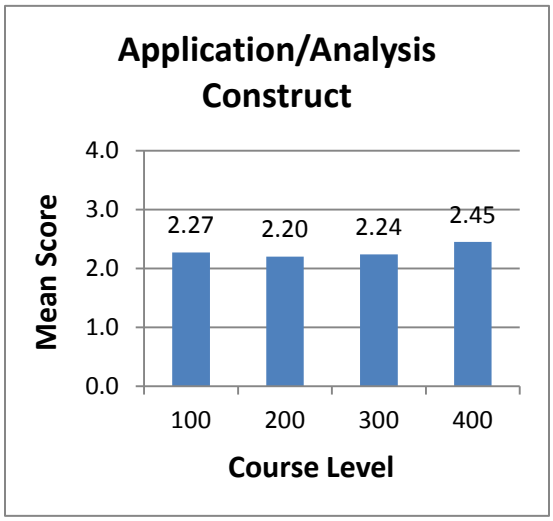
Conclusions and related outcomes (implications and consequences)	Conclusions and related outcomes (consequences and implications) are logical and reflect student's informed evaluation and ability to place evidence and perspectives discussed in priority order.	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.	Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and implications) are identified clearly.	Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.

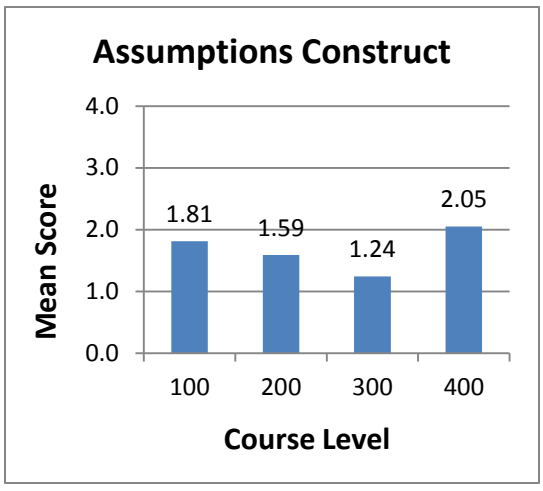
Figures 1-5: Scores for Critical Thinking Constructs by Course Level

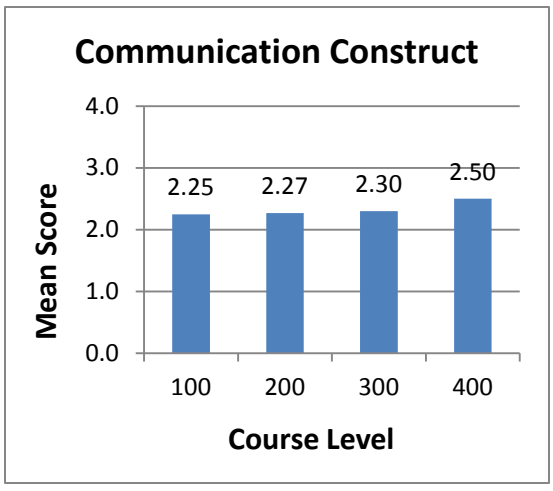












**Note that there were no courses classified as a 100 level course*

Table 4: Quantitative Literacy Score Statistics by Construct

	Interpretation	Representation	Calculation	Appl/Analy	Assumptions	Communication	Overall
Number of Scores	194	203	198	211	178	205	**1189**
Mean Score	2.46	2.51	2.60	2.26	1.50	2.30	**2.28**
Standard Error of Mean	.058	.052	.052	.052	.069	.066	**.026**
Standard Deviation	.802	.740	.732	.756	.916	.943	**.887**

Glossary of Statistical Terms

Mean – the average score

Variance – a measurement of how much (far) the scores vary around the mean score

Standard Deviation – the square root of the variance

- Measures the same thing as variance: how far scores are from the mean score

Standard Error of the Mean – a measurement of how much the group mean scores vary around the total mean score (the standard deviation of the group means)

Interrater Reliability/Agreement

- A measure of consistency and usefulness of the rubric
- The extent to which independent raters agree on a rubric score and to which rubric scores are consistent across raters
- In this assessment, measured by Intraclass Correlation Coefficient and Cronbach's Alpha

Intraclass Correlation Coefficient (ICC)

- A measure of interrater reliability that describes how strongly scores from the same rater resemble each other. It is a value from 0 (no rater reliability) to 1 (complete rater reliability).
- Mathematically, it's the proportion of the total variance that's due to variability between raters
- Can also be interpreted as a measure of between group differences or within group similarity

Cronbach's Alpha

- A specific type of ICC that is test of internal consistency (ranges on same scale as ICC)
- Measures how well a set of raters measure a single, latent (covert) construct
- Estimates how strongly the score obtained from the actual panel of the raters correlates with the score that would have been obtained from another random sample of raters

Assessment Brief: Written Communication
Date, 2010
Name

Part I: Executive Summary

A. **General Education Outcome**

Students will be able to demonstrate effective written communication skills appropriate to any academic discipline. The focus of this brief will be on the written communication component of foundations for lifelong learning.

B. **Background**

C. **Major Findings**

- Intraclass correlation coefficient and Cronbach's Alpha levels for the rubric for written communication were -.040 and -1.339 respectively. These negative values are due to a negative average covariance among the observations, and they violate normal reliability model assumptions. Out of 126 possible cases (students graded for written communication), only 4 were valid by being graded by all three graders in all the written communication constructs. This explains why the Cronbach's Alpha score and the intraclass correlation coefficient are negative and not reliable. There are too few observations to calculate reliable and accurate coefficients.

D. **Conclusions**

- A respectable level of interrater reliability and rater consistency were not achieved based on the calculated coefficients, but that does not necessarily mean that the model was inaccurate or the rubric unsound. There just were not enough of the students who were graded within the area of written communication by all of the raters to make sound comparisons *between* raters.

Part II: Assessment Brief

A. **Introduction**

1. Background

One of the Objectives for General Education at Millersville University is to create and strengthen foundations for lifelong learning. One of the components of this objective is written communication skills in students, which is evidenced by "the ability to find appropriate sources of information," "a clear presentation of ideas" in written form, and the "use of effective communication."

2. Problem Statement

The AOAC

3. Justification

i. Assessing

B. Information Source

In order to test the Written Communication rubric, written papers were collected from sections of Communication, Economics, and Psychology in the spring semester of 2011.

C. Major Findings

1. Data Summary

Intraclass Correlation Coefficient and Cronbach's Alpha levels for the rubric were tested on each of the five constructs for the written papers. The number of observed scores and the mean score are also included in the table below for each construct. The second table includes a comparison of means scores among construct and course level as identified by the course number from which the work was done. The third shows the changes of means scores for each increase of course level, examining if the constructs change over students' progression through their program.

Table 1: Written Communication Mean Scores and Reliability by Construct

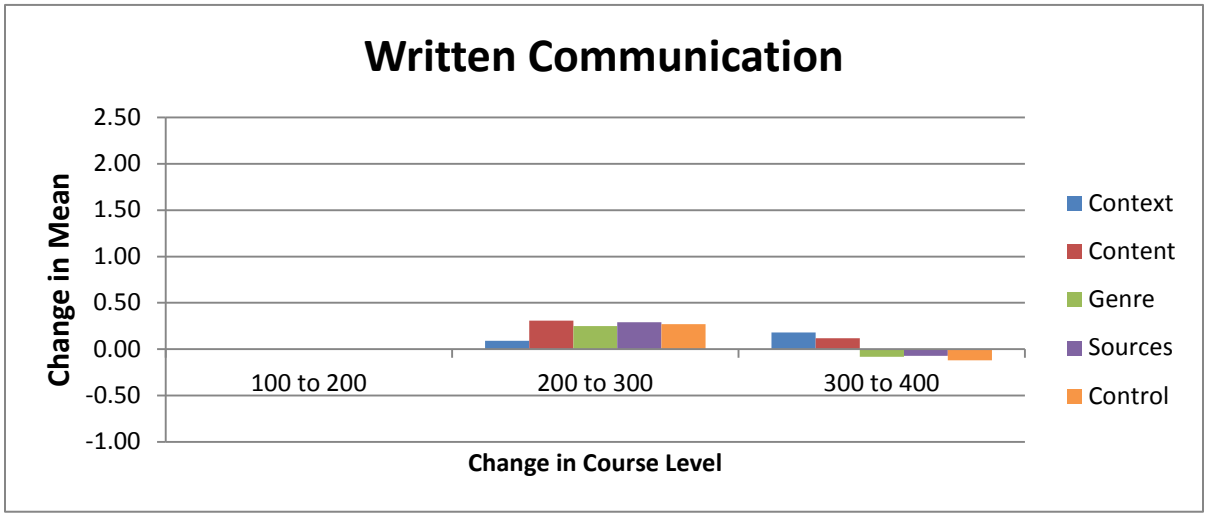
	Number of Scores	Mean Score	Intraclass Correlation	Cronbach's Alpha
Context of and Purpose for Writing	43	2.67	.610	.890
Content Development	43	2.33	0.00	.000
Genre and Disciplinary Conventions	43	2.26	-.667	-4.00
Sources and Evidence	43	2.49	-.333	-3.00
Control of Syntax and Mechanics	43	2.72	-.300	-2.25
Overall	**215**	**2.49**	**-.040**	**-1.339**

Table 2: Written Communication Mean Scores by Course Level and Construct

	Course Level			
	100	**200**	**300**	**400**
Context	n/a	2.53	2.62	2.80
Content	n/a	2.30	2.38	2.50
Genre	n/a	2.13	2.38	2.30
Sources	n/a	2.33	2.62	2.55
Control	n/a	2.60	2.87	2.75
Overall	**n/a**	**2.33**	**2.57**	**2.58**

	Number of Courses Used at Each Course Level within Written Communication			
	100	**200**	**300**	**400**
# of courses	**0**	**1 (PSYC 212)**	**1 (COMM 301)**	**1 (ECON 488)**

Table 3: Changes in Written Communication Mean Scores with Increasing Course Level



**Note that no classes were classified as a 100 level course*

2. Discussion

- A Cronbach's Alpha reliability coefficient of .80 or higher is considered "good" in most social science research situations; this value is "used to rate the internal consistency (homogeneity) or the correlation of the items in a test." The intraclass correlation coefficient is "used to measure inter-rater reliability for two or more raters," and a value greater than .60 is considered "acceptable." (A value just

greater than .50 is sometimes considered "barely acceptable"). In using and testing this rubric, the inter-rater reliability scores within written communication for the three raters are not all strong enough to claim that the raters achieved respectable reliability levels or that the rubric is sound. The high variance within the inter-rater correlations is due in large part to the small applicable sample size. Again, most of the students did not have all three raters grading their work in the area of written communication and so strong conclusions cannot be made from the comparisons among the raters. If more than one rater was grading each student's work, these comparisons would be stronger.

- Since all of the reliability coefficients are not reliable due to low sample sizes, it might be helpful to revise the matrix of how students are assigned to graders so that more graders are grading each individual student on the same paper so that comparisons can be made on rater reliability. It may also be helpful to address the clarity of what is being assessed and greater distinction between the levels of scoring.

- The mean scores which quantify the level of students' written communication skills would be most helpful if there were goals and clearer meaning to the numeric result. If the rubric will be used for actual assessment in courses, it is recommended that the numerical scores be associated with levels of competence that have relevant meaning.

3. Conclusion

- If this rubric is intended for usage in the university, it is suggested that certain constructs be clarified and that stronger connections be made between numeric scores and course-specific meaning.

- Once the final version of this rubric is complete, it should be available to interested faculty to be used for written communication assessment beyond the courses examined here, and faculty should be trained how to use the rubric.

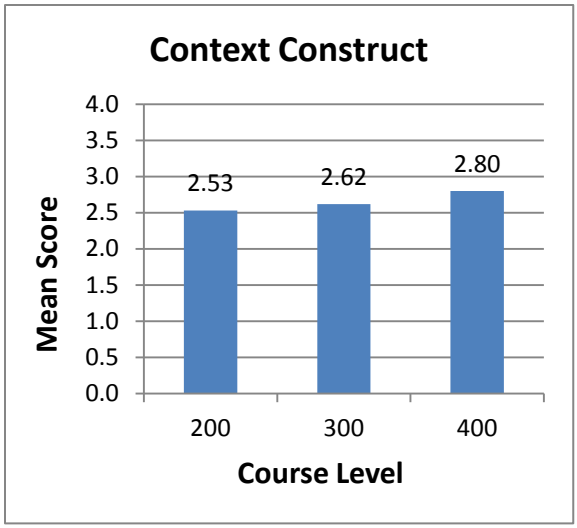
- Asd

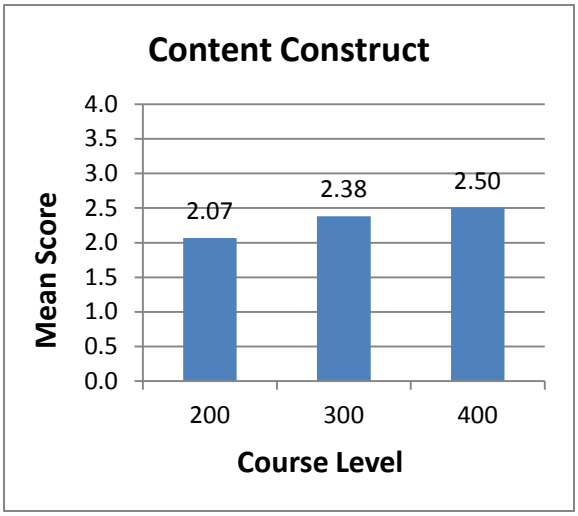
Part III: Appendices

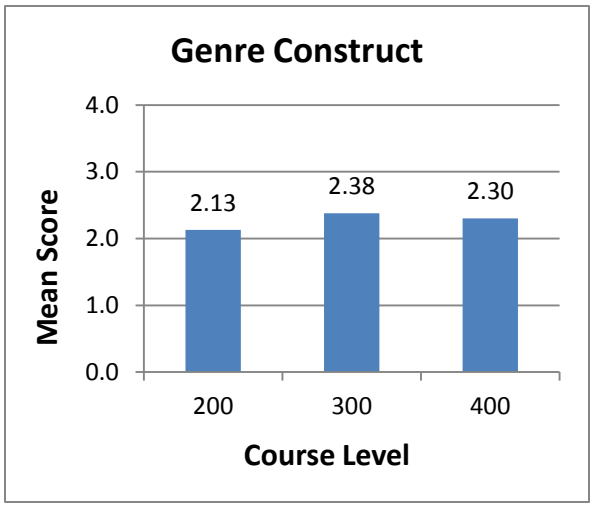
WRITTEN COMMUNICATION RUBRIC FOR ASSESSMENT OF STUDENT WORK

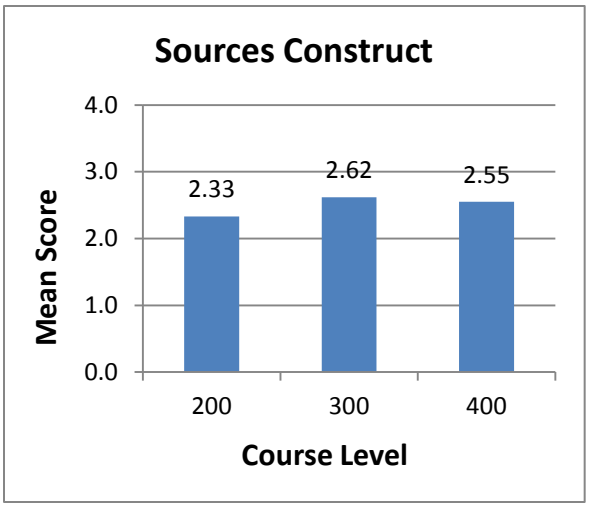
	Capstone 4	**Milestones** 3	 2	**Benchmark** 1
Context of and Purpose for Writing *Includes considerations of audience, purpose, and the circumstances surrounding the writing task(s).*	Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and 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.

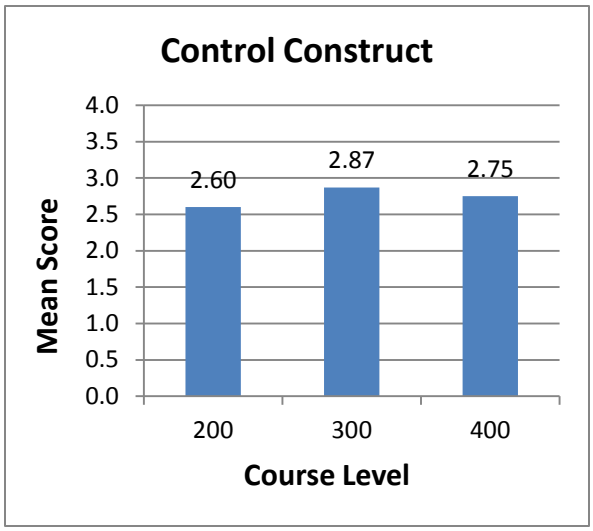
Figures 1-5: Scores for Written Communication Constructs by Course Level











**Note that no courses were classified as a 100 level course*

Table 4: Written Communication Score Statistics by Construct

	Context and Purpose	Content Develop-ment	Genre Convent-ions	Sources & Evidence	Control of Syntax & Mechanics	Overall
Number of Scores	43	43	43	43	43	**215**
Mean Score	2.67	2.33	2.26	2.49	2.72	**2.49**
Standard Error of Mean	0.092	0.114	0.116	0.112	0.107	**0.050**
Standard Deviation	0.606	0.747	0.759	0.736	0.701	**0.729**
Intra-Class Correlation	0.610	.000	-.667	-.333	-.300	**-.040**
Cronbach's Alpha	0.89	0.00	-4.00	-3.00	-2.25	**-1.34**

Glossary of Statistical Terms

Mean – the average score

Variance – a measurement of how much (far) the scores vary around the mean score

Standard Deviation – the square root of the variance

- Measures the same thing as variance: how far scores are from the mean score

Standard Error of the Mean – a measurement of how much the group mean scores vary around the total mean score (the standard deviation of the group means)

Interrater Reliability/Agreement

- A measure of consistency and usefulness of the rubric
- The extent to which independent raters agree on a rubric score and to which rubric scores are consistent across raters
- In this assessment, measured by Intraclass Correlation Coefficient and Cronbach's Alpha

Intraclass Correlation Coefficient (ICC)

- A measure of interrater reliability that describes how strongly scores from the same rater resemble each other. It is a value from 0 (no rater reliability) to 1 (complete rater reliability).
- Mathematically, it's the proportion of the total variance that's due to variability between raters
- Can also be interpreted as a measure of between group differences or within group similarity

Cronbach's Alpha

- A specific type of ICC that is test of internal consistency (ranges on same scale as ICC)
- Measures how well a set of raters measure a single, latent (covert) construct
- Estimates how strongly the score obtained from the actual panel of the raters correlates with the score that would have been obtained from another random sample of raters

NSSE 2013 Special Report

	Question	First-Year						Senior					
		2010	2012	2013	2010	2012	2013	2010	2012	2013	2010	2012	2013
		Millersville Mean			Carnegie Class Mean			Millersville Mean			Carnegie Class Mean		
	In your experience at your institution during the current school year, about how often have you done each of the following? 1=Never, 2=Sometimes, 3=Often, 4=Very Often												
1b	Made/Gave a class presentation	**2.48**	**2.48**	**2.51**	2.32	2.35	2.21	**3**	**3**	**2.86**	2.86	2.88	2.6
1c	Prepared 2 or more drafts of a paper or assignment before turning it in	**2.65**	**2.55**	**2.3**	2.77	2.73	2.63	**2.4**	2.54	**2.39**	2.57	2.55	2.53
1d	Worked on a paper or project that required integrating ideas or information from various sources	3.12	**3.06**	—	3.12	3.14	—	3.38	3.42	—	3.36	3.39	—
1i	Put together ideas or concepts from different courses when completing assignments or during class discussions	2.64	2.66	—	2.63	2.65	—	**3**	2.99	—	2.93	2.98	—
2a	Combined ideas from different courses when completing assignments	—	—	2.69	—	—	2.68	—	—	3.05	—	—	2.99
	During the current school year, how much has your coursework emphasized the following mental activities? 1=Very Little, 2=Some, 3=Quite a bit, 4=Very Much												
2c	Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships.	**2.82**	**2.81**	—	2.91	2.95	—	3.06	3.11	—	3.07	3.12	—
4e	Forming a new idea or understanding from various pieces of information	—	—	2.87	—	—	2.94	—	—	**2.96**	—	—	3.03
2d	Making judgements about the value of information, arguments, or methods such as examining how others gathered and interpreted data and assessing the soundness of their conclusions	**2.85**	**2.85**	—	2.95	2.96	—	2.99	**3**	—	3.05	3.09	—
4d	Evaluating a point of view, decision, or information source	—	—	2.91	—	—	2.97	—	—	**2.92**	—	—	3.04
2e	Applying facts, theories, methods or concepts to practical problems or in new situations	3.09	3.04	2.96	3.06	3.07	2.98	**3.32**	3.29	3.2	3.24	3.27	3.16
	During the current school year, about how much reading and writing have you done? 1=None, 2=1-4, 3=5-10, 4=11-120, 5= More than 20												
3c	Number of written papers or reports of 20 pages or more	**1.23**	**1.2**	—	1.33	1.29	—	**1.74**	1.69	—	1.64	1.63	—
3d	Number of written papers or reports between 5 and 19 pages	**2.13**	**2.04**	—	2.23	2.23	—	**2.61**	2.59	—	2.52	2.57	—
3e	Number of written papers or reports of fewer than 5 pages	**2.91**	**2.77**	—	3.03	2.99	—	**3.09**	3.05	—	2.96	3.01	—
	During the current school year, about how many papers, reports, or other writing tasks of the following length have you been assigned? (Include those not yet completed.) 0=None, 1.5=1-2, 4=3-5, 8=6-10, 13=11-15, 18=16-20, 23=More than 20 (Means represent estimated number of papers.)												
7c	Number of papers or reports of 11 pages or more	—	—	0.86	—	—	0.78	—	—	**1.54**	—	—	1.97
7b	Number of papers or reports between 6 and 10 pages	—	—	1.99	—	—	2.03	—	—	**3.15**	—	—	3.63
7a	Number of papers or reports up to 5 pages	—	—	**6.03**	—	—	6.77	—	—	7.84	—	—	7.88
	During the current school year, about how often have you done each of the following? 1=Never, 2=Sometimes, 3=Often, 4=Very Often												
6a	Attended an art exhibit, play, dance, music, theater or other performance	2.14	2.05	1.91	2.17	2.13	1.98	2	1.96	1.83	1.97	1.97	1.81
	Which of the following have you done or do you plan to do before you graduate from your institution? (Recoded: 0=Have not decided, Do not plan to do, Plan to do; 1=Done. Thus, the mean is the proportion resopnding Done among all valid responses.)												
7b	Community service or volunteer work	0.37	0.35	—	0.36	0.38	—	**0.61**	0.63	—	0.56	0.59	—
	About how many hours do you spend in a typical 7-day week doing each of the following? 1=0hrs/wk, 2=1-5 hrs/wk, 3=6-10 hrs/wk, 4=11-15 hrs/wk, 5=16-20 hrs/wk, 6=21-25 hrs/wk, 7=26-30 hrs/wk, 8=More than 30 hrs/wk												
9d	Participating in co-curricular activities (organizations, campus publications, student governement, fraternity etc.)	2.31	2.18	—	2.2	2.22	—	**2.22**	2.13	—	1.99	2.07	—

Good	Bad
p<0.05	p<0.05
p<0.01	p<0.01
p<0.001	p<0.001

NSSE 2013 Special Report

Question		First-Year						Senior					
		2010	2012	2013	2010	2012	2013	2010	2012	2013	2010	2012	2013
		Millersville Mean			Carnegie Class Mean			Millersville Mean			Carnegie Class Mean		
About how many hours do you spend in a typical 7-day week doing each of the following? 0=0 hrs/wk, 3=1-5 hrs/wk, 8=6-10 hrs/wk, 13=11-15 hrs/wk, 18=16-20 hrs/wk, 23=21-25 hrs/wk, 28=26-30 hrs/wk, 33= More than 30 hrs/wk (Means represent estimated number of hours per week)													
15e	Community service or volunteer work	—	—	2.09	—	—	2.51	—	—	3.37	—	—	3.28
15b	Participating in co-curricular activities (organizations, campus publications, student governement, fraternity etc.)	—	—	5.49	—	—	4.82	—	—	**4.51**	—	—	3.83
To what extent does your institution emphasize each of the following? 1=Very Little, 2=Some, 3=Quite a bit, 4=Very much													
10f	Attending campus events and activities (performing arts, special speakers, cultural performances, athletic events etc.)	2.91	2.78	2.8	3.32	2.83	2.84	**3.43**	2.59	2.59	3.44	2.62	2.57
10g	Using computers in academic work	3.29	**3.17**	—	3.32	3.28	—	3.43	3.33	—	3.44	3.42	—
To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas? 1=Very little, 2=Some, 3=Quite a bit, 4=Very much													
11a	Acquiring a broad general education	3.22	**3.10**	—	3.18	3.18	—	**3.31**	3.29	—	3.25	3.26	—
11c	Writing clearly and effectively	**2.98**	**2.92**	**2.76**	3.08	3.07	2.98	3.16	3.12	3.03	3.13	3.16	3.10
11d	Speaking clearly and effectively	**3.06**	3.04	**2.95**	2.94	2.94	2.79	3.09	3.05	2.90	3.05	3.08	2.97
11e	Thinking critically and analytically	3.22	3.16	3.07	3.22	3.24	3.13	3.37	3.34	3.30	3.34	3.38	3.32
11f	Analyzing quantitative problems (numerical and statistical information)	**2.88**	2.90	2.54	2.96	2.99	2.61	3.04	**3.00**	2.8	3.09	3.11	2.78
11g	Using computing and information technology	**2.96**	**2.90**	—	3.07	3.03	—	3.19	3.14	—	3.22	3.19	—

Note: Due to survey design changes from 2012 to 2013, some items were deleted, added, or modified in the 2013 survey. Entries not applicable in a given year are denoted "—".

Performance Standard	Critical Thinking Rubric Evaluation Criteria				
Outcome	**4**	**3**	**2**	**1**	**0**
1. Identifies and explains the issue (question/ problem)	The issue (question/problem) is clearly and eloquently defined; the scope of the issue and compelling rationale for addressing it are articulated clearly and comprehensively; all integral or implicit components necessary o understand the issue are identified.	The issue (question/problem) is clearly defined; the scope of the issue and the rationale for addressing it are reasonably articulated; many of the integral or implicit components necessary to understand the issue are identified.	The issue (question/problem) is generally defined; the scope of the issue and the rationale for addressing it are present but not well articulated; some of the integral or implicit components necessary to understand the issue are identified.	The issue (question/problem) is poorly defined; the scope of the issue and the rationale for addressing it are inarticulate or not logically linked; none of the integral or implicit components necessary to understand the issue are identified.	A statement of the issue (question/problem) is not present or cannot be identified.
2. Gathers relevant evidence needed to address the question ᔓ As relevant for artifact or assignment	Evidence gathered from a diverse array of recent, relevant and credible sources Correctly identifies all of the empirical and/or theoretical content related to the issue Presents a variety of perspectives in a systematic and insightful manner ᔓ A robust sampling plan is identified and collects all data necessary to appropriately address the question	Evidence gathered from a range of recent, relevant and credible sources. Identifies some of the empirical and/or theoretical content related to the issue Presents several perspectives in an accurate and thoughtful manner. A sampling plan is identified that collects data necessary to appropriately address the question	Evidence gathered from a variety of sources, but some information may be dated and/or lacking in relevance or credibility Presented empirical and theoretical content but not all of it is clearly linked to the issue Presents other perspectives on the issue in a cursory manner A sampling plan is identified; data collected is relevant but not comprehensive	Evidence gathered from predominantly unreliable sources; information is presented but lacks quality and relevance to the issue at hand. Presented scant empirical and/or theoretical content with no attention to its relationship to the issue Misrepresents or ignores others' perspectives. A rudimentary sampling plan is identified but data collected is not comprehensive or relevant to the issue	Artifact lacks evidence and content to address the issue Missing relevant empirical and/or theoretical content Fails to present other perspectives No sampling plan present.

3. Considers and analyzes the evidence and others' perspectives on the issue	The work demonstrates a sophisticated consideration and analysis of evidence, including underlying assumptions, context, and relevance to the problem being considered. Discusses the merits of both supporting and competing perspectives with skill and sensitivity. Bias in sources is acknowledged and addressed.	The work demonstrates a sufficient consideration and analysis of evidence, including underlying assumptions, context, and relevance to the problem. Discusses the merit of both supporting and competing perspectives. Bias in sources is acknowledged.	The work demonstrates a basic consideration and analysis of evidence by summarizing and beginning to identify the underlying assumptions, context, and relevance to the problem. Includes others' perspectives without discussion of merit or comparisons among various viewpoints. Bias in sources is not acknowledged.	The work demonstrates poor consideration of evidence by failing to identify underlying assumptions or context; hastily dismisses others' viewpoints; bias in sources is not acknowledged.	Fails to analyze evidence.
5. Identifies and supports one's own position on the issue	Takes clear position that captures the complexity of the issue; supports position with sound, well-articulated arguments; acknowledges limits of the position	Takes a clear position that generally addresses the complexity of the issue; offers good arguments to support the position; begins to address the limits of the position	Takes a simplified position on the issue; arguments offered; hints at but does not directly address the limits of the issue.	Position articulated is unoriginal or incoherent; arguments offered to support position are inconsistent or flawed; no discussion of limits of position	No clear statement of personal position.
6. Articulates the conclusions (solutions / insights)	Innovative conclusions are clearly stated. Solution is reasonable, effective, and/or feasible. The conclusion provides a coherent synthesis of the work; one's own assumptions are qualified.	Conclusions are clearly stated. The conclusion is reasonable and effective. Conclusion provides a synthesis of the work. One's own assumptions are listed.	Conclusions are stated. The reasonableness or effectiveness of the conclusion is questionable. The conclusion summarizes the work. One's own assumptions are not explicit.	Conclusions are not clearly stated and are incomplete. Conclusion is not reasonable or effective. Absence of summary. Conclusions and one's assumptions attributed to external authority.	Conclusions are not stated.

7. Discusses the implications of the conclusions (solutions / insights)	Provides a thorough review of all likely consequences or implications, including the advantages and disadvantages of each scenario; objections to the preferred solution are directly stated and overcome with sound evidence and reasoning	Reviews many potential consequences or implications along with some advantages and disadvantages of each scenario; obvious objections to the preferred solution are addressed with evidence and reasoning.	Partially reviews some potential consequences or implications; limited discussion of advantages or disadvantages; Objections to the preferred solution are present.	Review of consequences and/or implications is superficial or misguided; objections to proposed conclusions are glossed over and are not addressed by evidence.	Consequences and implications are not addressed.

Information Literacy Rubric
(Almost Done!)
1/2/14

Performance Standard	Evaluation Criteria				
Outcome	**4**	**3**	**2**	**1**	**0**
Defines Research Question / Thesis	Defines and justifies the research question/ objective/thesis in a way that fits the scope of the assignment, using unambiguous language appropriate to the context.	Defines the research question/thesis in a way that fits the scope of the assignment.	Defines the research question/thesis, but the scope is too broad or too narrow.	Defines the research topic, but not a clear research question/thesis.	Does not define research question/thesis or topic.
Identifies relevant information sources	Utilizes discipline appropriate information sources that are timely, relevant to the research need, and of suitable complexity for the student's level of expertise.	Utilizes discipline appropriate information sources, however the sources may not be timely, relevant to the research need/assignment, and/or of suitable complexity for the student's level of expertise.	Utilizes information sources that are somewhat applicable to the discipline, but may not be timely, relevant to the research need/assignment, and/or of suitable complexity for the student's level of expertise.	Does not utilize discipline appropriate information sources. The sources included in the paper are not relevant to the research topic, timely, and/or appropriate for the student's level of expertise.	Does not utilize outside information sources.
Uses Information Effectively to Accomplish a Specific Purpose	Communicates, organizes, and synthesizes information from sources to fully achieve a specific purpose, displaying clarity, depth and insight.	Communicates, organizes, and synthesizes information from sources. Intended purpose is achieved.	Communicates and organizes information from sources. The information is not yet synthesized—not meaningfully connected to the student's ideas--so the intended purpose is not fully achieved.	The information is limited, fragmented, inappropriate to the student's task, and/or used inappropriately (misquoted, taken out of context, or incorrectly paraphrased, etc.), so the intended purpose is not achieved.	No evidence of a link between the information used and the purpose of the artifact.

Evaluates the content for credibility and applicability.	A superior, discipline specific analysis of resources; provides an articulate assessment of the quality, accuracy, credibility and/or relevance of source materials; discusses soundness of arguments and reveals instances of bias and manipulation.	An appropriate analysis of the majority of resources; demonstrates the ability to assess the quality, accuracy, credibility and/or relevance of sources materials; includes some discussion of source logic and bias.	An evaluation of the quality and soundness of some sources is present, but analysis lacks depth and focus.	Appropriate sources are present but are cited without comment or evaluation.	Use of irrelevant sources and no evidence of critical evaluation in artifact.
Examines the legal and ethical use of the information. Information use strategies: • uses citations and references • paraphrases, summarizes, and quotes correctly • uses information in context • identifies ideas requiring attribution	The student uses correctly all of the information use strategies, and demonstrates a full understanding of the ethical and legal restrictions on the use of published, confidential, and/or proprietary information.	The student uses correctly three of the information use strategies, and demonstrates a full understanding of the ethical and legal restrictions on the use of published, confidential, and/or proprietary information.	The student uses correctly two of the information use strategies, and demonstrates an understanding of the ethical and legal restrictions on the use of published, confidential, and/or proprietary information.	The student uses correctly one of the information use strategies, and demonstrates a lack of understanding of the ethical and legal restrictions on the use of published, confidential, and/or proprietary information.	The student uses correctly none of the information use strategies.

Appendix 6:

Millersville University
General Education 2013-14 Program Review

External Review

Debra Humphreys, Vice President for Policy and Public Engagement
Association of American Colleges and Universities

Introduction

Debra Humphreys reviewed information online (e.g. mission statement, general education information, advising materials, strategic plan, vision and goals, promotion and tenure criteria, etc.) and internal Millersville documents in advance of a site visit on April 7, 2014. Humphreys also reviewed the preliminary report prepared by the internal General Education Program Review Committee.

As part of her site visit on April 7th, Humphreys met with the entire General Education Program Review Team as well as with Jeff Adams, Associate Provost, Lisa Shibley, Assistant VP of Assessment, a group of students from a wide array of departments, selected members of the GERC and AOAC committees, and Vilas Prabu, Provost. Humphreys also delivered a luncheon address to a group of faculty and administrators on the topic of "Communicating Effectively—and Delivering on the Promise of—General and Liberal Education."

As part of her review, Humphreys discussed with constituents their perceptions of the program and its effectiveness in order to provide feedback on three specific questions:

1) How can Millersville develop a "liberal arts culture" where the liberal arts are not only valued, but effectively communicated to faculty, students, and the community?
2) How can Millersville develop a culture of assessment where faculty buy-in to the process, participate, and use assessment to improve practices?
3) How can Millersville develop effective living-learning communities that enhance the liberal arts mission of the institution?

Developing a Liberal Arts Culture

Millersville University has begun the process of building commitment to the liberal arts with its new mission statement and strategic plan. For example, the mission statement makes clear a commitment to several very important components of a 21st century liberal education. It commits the institution to providing "diverse, dynamic, meaningful experiences to inspire learners to grow both intellectually and personally to enable them to contribute positively to local and global communities." It also articulates its commitment to the "value of the liberal arts," "student-faculty relationships," and "interdisciplinary learning, collaborative and cross cultural experiences" in order to ensure that students "become well=-prepared for meaningful participation in the broader society."

AAC&U has developed—and tested—a definition of 21st century liberal education that includes some of the same elements as Millersville includes in its mission and its articulation of purpose for general education.

AAC&U defines liberal education as:

"Liberal Education is an approach to learning that empowers individuals and prepares them to deal with complexity, diversity, and change. It provides students with broad knowledge of the wider world (e.g. science, culture, and society) as well as in-depth study in a specific area of interest. A liberal education helps students develop a sense of social responsibility, as well as strong and transferable intellectual and practical skills such as communication, analytical and problem-solving skills, and a demonstrated ability to apply knowledge and skills in real-world settings. The broad goals of liberal education have been enduring even as the courses and requirements that comprise a liberal education have changed over the years. Today, a liberal education usually includes a general education curriculum that provides broad learning in multiple disciplines and ways of knowing, along with more in-depth study in a major."

While Millersville's documents and Web site include much well-developed rhetoric about the institution's commitment to liberal education and the liberal arts, building a culture of commitment—and increased understanding among students and faculty about the value of a 21st century engaged liberal education may require additional communications, campus actions, and research. In general, I think the overall "will" is there on campus, but in some cases there is a mismatch between the design (of curricular requirements, committee structures, incentive structures, advising structures) and the outcomes Millersville is seeking in terms of student learning and in terms of coherent, integrated institutional cultures.

Recommendations:

Web site and Communicating with Students

The Web site includes language in a variety of locations that isn't always consistent. For example, the terms "liberal arts," "liberal education," and "general education" appear frequently, but may need more precise definitions clarified on the site and in official documents. Based on research AAC&U has done with students and business leaders, we have found that there is much confusion about the various terms one uses to describe a liberal or general education. I recommend that Millersville do an audit of its Web site to identify how the various terms are used—and, most importantly, how each is associated with a key set of learning outcomes and student experiences. **The more specific one can be about defining what it means to be committed to liberal education or the liberal arts, the better in terms of communication.**

Through its various committees, Millersville is already working hard on more precisely defining the outcomes of its general education program. As it continues that process, the general education oversight team can continue to refine how the program is described on the Web and in official documents.

As part of this process, I also recommend that one or more of the various oversight committees consider working directly with individual departments to ensure that their own departmental Web pages and advising materials consistently articulate the outcomes of a Millersville education, including both the specific competencies developed in general education as well as those developed in majors. Where appropriate, I also recommend each department create language about the specific connections across general education and majors that can be featured on departmental Web pages.

I also recommend that, once the competencies for the different general education course requirements and clusters are fully developed, a Web page just for explaining the program to students should be developed that consolidates the various pages that currently exist describing different aspects of the program.

Since the research clearly demonstrates—and my interviews with Millersville students affirmed—that students are first and foremost concerned about how their college educational experiences contribute to preparing them for professional success, I recommend connecting any outcomes and competency lists or rhetoric about the value of general education to specific economic data and/or quotes from business leaders demonstrating how important select general education outcomes are for success in today's workplace. (See attached slides with economic data and some select business leader quotes that can be cited.)

Finally, AAC&U and Millersville both clearly believe that an engaged liberal education and an effective general education program provide students with outcomes essential to responsible citizenship. The point can be made online, in University 103, on syllabi, and in documents/brochures that the same outcomes valued in the workplace are also important to citizenship—a core outcome of a quality undergraduate education. (See attached slides that make the "civic case" for liberal education.)

Faculty Culture and Commitment to Liberal Arts and General Education

It is clear that faculty members at Millersville are committed to the broad values of liberal education and to providing students an effective general education experience. However, faculty members are clearly more identified with their disciplines and with the major programs they offer. To strengthen their commitment and to help them "see" how the general education program can and should reinforce the development of competence within disciplines, I recommend a series of potential strategies that "meet faculty where they are" and "incentivize greater engagement with the development and assessment of general education outcomes."

The most important creator of faculty culture may be department chairs—especially in terms of the roles they play in hiring and in tenure and promotion management. **I recommend considering the creation of talking points or resources specifically for department chairs to use as they interview and hire new faculty members—to introduce them to precisely what it means to teach in the Millersville general education program.** See below for additional recommendations regarding assessment capacity of faculty.

The GERC committee is in a position to influence faculty culture, but because of how it is constituted, it needs more support and guidance to be really constructive. **One recommendation could be for the committee to work with the Gen Ed Director to develop a Web library of resources of good articles that are effective in explaining general education and "making the case" to students.** (See attached AAC&U resources to assist.)

The General Education Director would also likely have greater visibility and effectiveness in promoting a more integrated organizational culture committed to general education were s/he to have an elevated title, more administrative support, and regular budgetary funding/authority. Whether or not her or his budget is large, the symbolism of a more formal and substantive "office" would send a strong message of support for her/his role on campus—and the role of general education in advancing student success goals. Given that, s/he could provide more capacity-building to committees with a greater degree of

administrative support, I recommend the provost consider how this position is described online and in official documents and what authority, responsibilities, and support it has.

The General Education Director has already developed very useful resources, including workshops for faculty to improve teaching, learning and assessment practices in general education. In addition to these resources, I recommend that the General Education Director and/or committees consider **applying for outside funding and/or requesting from the Provost a designated small pool of discretionary budget to support the following activities:**

1) **Small grants offered to faculty members who want to improve general education courses or develop new courses that specifically address one or more core general education competency. These grants could be competitive and require faculty to do a number of activities: attend pedagogical workshops; develop specific approaches to embedded assessment within courses; work with colleagues across departments to connect course content and/or to scaffold specific assignments to build competence among students over time. Faculty who apply for and receive these small stipends could also be given travel support to present on the work at various conferences.**
2) **Outside funding could also be obtained to develop specific new features of the evolving general education program (e.g. the expansion of University 103 to a more robust first-year set of experiences organized as learning communities or with specific experiential learning activities and reflection opportunities as well as creation of e-portfolios for students interested in documenting their learning in new ways.)**
3) **Formation of faculty cluster committees to recommend different general education pathways into particular clusters of majors. (See Utah State University as an example of this approach to improving intentionality of general education and building faculty understanding and support for the program.)**

Advising as Key Communications Vehicle

In addition to the Web site, one of the most important vehicles for communicating about liberal and general education is advising. From my interviews, it is clear that some students are receiving excellent advising that helps them organize their curricular choices and make decisions about majors. However, the quality of advising is inconsistent and it seems wise to consider **creating some new advising tools and resources (e.g. using some of AAC&U's brochures and booklets designed for students) and/or developing a new required training module (offered either in person or online or both) for all those advising students.**

Toward a Culture of Assessment for Improvement of Learning

All colleges and universities are struggling to improve their assessment of student learning outcomes and the move from a culture of assessment focused on accountability to a culture of assessment focused on the use of data to improve learning. The leadership team at Millersville clearly understands this imperative and the challenges inherent in moving in this direction. Moreover, they understand clearly that they need to deepen faculty engagement with assessment and expand the circle of faculty with greater expertise in deploying the latest assessment techniques.

Given the culture of Millersville, it seems essential for assessment as well as curricular design to "meet faculty where they live." I think that means in this case, engaging faculty in discussion about their own

"major" students and what capacities and competencies they lack that can be developed through general education requirements. Once that conversation is launched, it opens the door for a conversation about collecting better assessment data through which they and others can assess what students know at different stages of their educational journeys—including at the crucial moment when students are making the transition into formal major declaration (or when they choose to switch majors).

Meeting faculty where they are and engaging them with questions of intrinsic interest they might have about students' capacities will, of course, only accomplish so much. To really deepen involvement, it is essential to build faculty capacity to do effective assessment and make use of the data. To get the ball rolling, **I do recommend some incentivizing for getting "willing" faculty to learn how to effectively use curriculum-embedded assessment approaches**. For example, external funding or a targeted pool of temporary internal funding could be applied to a program whereby faculty apply to receive stipends and/or release time to work on design of assignments within general education courses along with coordinated work on curriculum-embedded assessment in consultation with colleagues. Faculty could also be incentivized to work on revising and using rubric and/or attending calibration sessions on the use of rubrics. Finally, in order to expand the pool of faculty interest, an event could be organized after these faculty receiving stipends had completed their work that featured the data from their assessment with an open faculty discussion about how these faculty and others interpret the data. What does it mean? How do they interpret its implications? These kinds of more open-ended discussions often result in faculty wanting more and better data. It encourages them to want to do more assessment themselves.

Millersville might also be well-served to do a curricular audit of which courses are most commonly taken to fulfill general education requirements and then target an assessment project toward faculty teaching those courses. Such an audit would also be highly useful to efforts to regularize the language used on syllabi and in advising to reach the most students with common messages about the value and outcomes of the general education program.

Developing Effective Living-Learning Communities

Developing pathways through the general education program that entail common cohorts of students pursuing a common thread of courses together organized around themes is an excellent way to bring coherence to the general education experience. I think that Millersville would be well positioned to pilot some options with living/learning communities building on the most successful of the University 103 courses. In my interviews with students and faculty on committees, it became clear that University 103 courses are highly successful, but this one 3-credit course may be carrying too heavy a burden in terms of outcomes. It is the ideal place for students to be introduced to the idea of liberal education and the purposes of general education, but that task might also be served in an attached reflective seminar that might be added and might be used to amplify students' introductory level skills in areas identified as lacking.

Millersville might also be in an excellent position at this point in the development of the program to introduce the idea of an integrated capstone experience either within majors or in general education, but, in either case, that required students to bring to bear on a problem what they have learned both in general education and majors. This program too could be built initially as a pilot building on the departments best positioned to rethink their existing capstone experiences in light of the goal of more

integration across departments and with general education. (See attached for resources on both learning communities and capstones.)

Conclusion

Overall, Millersville has set a very useful and appropriate goal of creating a general education program that is "concise, orderly and rational". Unfortunately, within the existing requirements, there may be so much choice for the student that it becomes difficult to be sure that any individual student's pathway to fulfilling their general education goals is, in fact, orderly and rational. The question of how much choice is too much is a challenging one—and differs depending on any institution's own culture—but it is a question worth asking in general education committees on a regular basis.

Finally, the emerging discussions among the general education review committee about how students are documenting their portfolio of skills are right on target with where many in higher education are. There is some excellent work emerging about the use of portfolios both as learning tools and as vehicles through which students can achieve greater understanding of their own skills and knowledge. (See attached for resources on portfolios should the committee decide to pursue a portfolio project.)

Student Perspectives

While on campus, the external reviewer met with about 10 students from a wide array of departments and at different stages of their educational careers. It was very clear that, like many other students, they are very focused on their major course of study and on how their college education is setting them up for professional success. That said, they also are somewhat aware that the pathway from college into and through careers may not be a straight line. More explicit advising and faculty discussion in the classroom about how important specific outcomes of their college curricular choices relate to success in a volatile economic environment would definitely help these students make good educational choices and understand why they are required to take specific general education courses.

When asked about which learning experiences have been most valuable, two themes emerged. Anything that was more experiential (e.g. internships) and/or any course where they could clearly see connections to their career aspirations were most valued. In addition, however, they were quite insightful about effective teaching—teaching that demanded a lot of them, but also was well organized, exhibited passion for the subject being taught, and that provided them with enough guidance and support. They clearly can tell when they are taking a course that is satisfying a general education requirement, but that is being taught in a way that presumes everyone is being education to become a Ph.D. in the subject. That disconnect is clear to them. This affirms the direction of the General Education Review Team in prioritizing both faculty development/culture and communicating more effectively with students.

A few specific suggestions they made seem reasonable. They seem very unsatisfied with the "health/wellness" requirement which they feel is highly redundant with what they have done in high school and not adding much value to their overall educational or campus experience. They also feel strongly that they and their peers need opportunities to develop more pragmatic life skills, including financial literacy. They didn't necessarily recommend this as part of general education, but it could be useful in redesigning the University 103 course should that first-year program be expanded in terms of focus and/or credits.

Additional Resources

Peer Review. Capstones and Integrative Learning (Fall 2013): http://www.aacu.org/peerreview/index.cfm

Peer Review. Toward Intentionality and Integration (Fall 2008): http://www.aacu.org/peerreview/pr-fa08/pr-fa08_index.cfm

LEAP Campus Toolkit: Learning Communities Resources: http://leap.aacu.org/toolkit/tag/learning-communities

E-Portfolios book: https://secure.aacu.org/imis/ItemDetail?iProductCode=VALEPORT

See attached excerpts from *Five High-Impact Practices* for more on living-learning communities:

Five High-Impact Practices: Research on Learning Outcomes, Completion, and Quality

https://secure.aacu.org/imis/ItemDetail?iProductCode=FIVEHI

See attached for data to support messaging about value of liberal and general education:

The Economic Value of Liberal Education (LEAP slide deck—see attached) http://www.aacu.org/leap/index.cfm

How Liberal Arts and Sciences Majors Fare in Employment (see attached slide deck) http://www.aacu.org/leap/nchems/index.cfm

The Civic Case for Liberal Education (LEAP slide deck—see attached) http://www.aacu.org/leap/index.cfm