



University of Maryland University College

# INSTITUTIONAL PLAN FOR THE ASSESSMENT OF STUDENT LEARNING OUTCOMES

**Approved – January 2010**

Revised/Updated – Dec. 2004; Dec. 2005; Dec. 2006; Dec. 2007; Jan. 2010



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University of Maryland University College (UMUC) is the largest public university in the United States. As one of the 11 degree-granting institutions of the University System of Maryland, this global university specializes in high-quality academic programs tailored to working adults.

UMUC has earned a worldwide reputation for excellence as a comprehensive virtual university and, through a combination of classroom and distance-learning formats, provides educational opportunities to 90,000 students. The university is proud to offer highly acclaimed faculty and world-class student services to educate students online, throughout Maryland, across the United States, and in 27 countries around the world. UMUC serves its students through undergraduate and graduate degree and certificate programs, noncredit leadership development, and customized programs. For more information regarding UMUC and its programs, visit [www.umuc.edu](http://www.umuc.edu).

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UMUC is governed by the University System of Maryland Board of Regents and certified by the State Council of Higher Education for Virginia. UMUC is a constituent institution of the University System of Maryland.

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# TABLE OF CONTENTS

1. INTRODUCTION	1
2. HISTORY AND ACKNOWLEDGMENTS	2
3. RATIONALE	3
3.1 Definition	
3.2 Philosophy	
3.3 Culture of Outcomes Assessment	
4. CONCEPTUAL FRAMEWORK	5
4.1 Guiding Principles	
4.2 Curricular Alignment	
4.2.1 Institutional-Level Learning Outcomes	
4.2.2 School-Level Learning Outcomes	
4.2.3 Program-Level Learning Outcomes and Course Objectives	
4.3 Outcomes Assessment Methodology	
4.3.1 Institutional-Level Outcomes Assessment	
4.3.2 Program-Level Outcomes Assessment	
4.3.3 Developing and Evaluating Outcomes Assessment Measures	
5. IMPLEMENTATION	9
5.1 Data Collection	
5.2 Analysis and Dissemination of Results	
5.3 Closing the Loop: Applying the Results of Assessment	
6. REPORTING	11
6.1 Annual Reporting Cycle	
6.2 Three-Year Reporting Cycle	
6.3 Five-Year Reporting Cycle	
6.4 Academic Program Reviews	
6.5 Summary: Overview of Data Flow and Reporting Cycles	
7. ROLES AND RESPONSIBILITIES	14
7.1 Learning Outcomes Assessment Steering Committee	
7.2 Offices and Individuals	
8. LEARNING ASSESSMENT GOALS AND TIMELINES	16
8.1 Short-Term Planning for Undergraduate Assessment	
8.2 Short-Term Planning for Graduate Assessment	
8.3 Long-Term Planning for Outcomes Assessment at UMUC	

# LIST OF TABLES

TABLE 1: RATIONALE FOR LEARNING OUTCOMES ASSESSMENT AT UMUC	4
TABLE 2: GUIDING PRINCIPLES FOR LEARNING OUTCOMES ASSESSMENT AT UMUC	5
TABLE 3: INSTITUTIONAL-LEVEL LEARNING OUTCOMES: STUDENT LEARNING EXPECTATIONS (SLEs)	5
TABLE 4: ASSESSMENT OF GRADUATE AND UNDERGRADUATE SLEs	6
TABLE 5: ADDITIONAL UNDERGRADUATE SLEs	6
TABLE 6: SCHOOL OF UNDERGRADUATE STUDIES HALLMARKS	6
TABLE 7: PROGRAM-LEVEL ASSESSMENT OF SLEs	7
TABLE 8: SAMPLE LEARNING OUTCOMES ASSESSMENT MEASURES	8
TABLE 9: CRITERIA FOR REVIEW OF ASSESSMENT TOOLS	8
TABLE 10: EXAMPLES OF CHANGES MADE AS A RESULT OF OUTCOMES ASSESSMENT	10
TABLE 11: REPORTING CYCLES FOR LEARNING OUTCOMES ASSESSMENT	13
TABLE 12: OVERVIEW OF ROLES AND RESPONSIBILITIES FOR LEARNING OUTCOMES ASSESSMENT	14
TABLE 13: LONG-TERM LEARNING OUTCOMES ASSESSMENT GOALS (2009–14)	16

# APPENDICES

APPENDIX A: ALIGNMENT OF SCHOOL-LEVEL OUTCOMES AND SLEs	A-1
APPENDIX B: ASSESSMENT PLANS FOR THE SCHOOL OF UNDERGRADUATE STUDIES	B-1
APPENDIX C: ASSESSMENT PLANS FOR THE GRADUATE SCHOOL OF MANAGEMENT AND TECHNOLOGY	C-1
APPENDIX D: EXAMPLE OF A PROGRAM ASSESSMENT PLAN—UNDERGRADUATE	D-1
APPENDIX E: EXAMPLE OF A PROGRAM ASSESSMENT PLAN—GRADUATE	E-1
APPENDIX F: EXAMPLE OF A PROGRAM ASSESSMENT REPORT—UNDERGRADUATE	F-1
APPENDIX G: EXAMPLE OF A PROGRAM ASSESSMENT REPORT—GRADUATE	G-1
APPENDIX H: ETS PROFICIENCY PROFILE (EPP) IMPLEMENTATION PLAN	H-1

This *Institutional Plan for the Assessment of Student Learning Outcomes* establishes a roadmap for all activities related to student learning outcomes assessment at University of Maryland University College (UMUC). The plan clarifies the university's rationale for undertaking outcomes assessment and provides coordination for the broad range of learning assessment activities carried out by the university's two major academic units: the School of Undergraduate Studies and the Graduate School of Management and Technology.

Based on a conceptual framework that defines institution-wide student learning outcomes, the plan describes how these outcomes are assessed across the university and within degree programs. Each step of the assessment process is covered: definition of learning outcomes and alignment of the curriculum; design of assessment tools; collection and analysis of data; dissemination of results; and continuous improvement of curricula, instruction, and the assessment process itself.

This plan builds upon what is already a flourishing institutional culture of learning outcomes assessment at UMUC—a commitment to ongoing and systematic assessment shared by faculty, administrators, and other key stakeholders. The goals of student learning outcomes assessment are directly informed by the university's mission, core values, and strategic plan, as well as by the missions of the undergraduate and graduate schools and by the needs of academic degree programs and UMUC faculty. The university is further committed to meeting external reporting requirements of the Maryland Higher Education Commission and the Middle States Commission on Higher Education.

UMUC's *Institutional Plan for the Assessment of Student Learning Outcomes* will be reviewed and revised, as appropriate, each year. The most up-to-date approved version of the plan will be made available to the UMUC community online (<http://www.umuc.edu/outcomes/documents.shtml>).



The first *Institutional Plan for the Assessment of Student Learning Outcomes* consolidated years of dedicated work by UMUC faculty, administrators, and staff to establish ongoing and systematic learning outcomes assessment across the institution. At the heart of the 2003 plan were the same seven competency areas that have informed institutional assessment efforts ever since: written communication, critical thinking, quantitative reasoning, scientific literacy, information literacy, and technological fluency, as well as specialized disciplinary knowledge and skills. In 2006, the university's assessment activities, including its *Institutional Plan*, were recognized by the Middle States evaluation team, which noted in its report that UMUC “has clearly articulated academic performance expectations...the resulting evidence from these assessments is systematically used to improve teaching and learning throughout the institution” (*Report to the Faculty, Administration, Regents, Students of University of Maryland University College*, p. 32).

While serving as a roadmap for institution-wide assessment activities, the *Institutional Plan* is itself an evolving document, subject to continuous improvement based on the results of learning outcomes assessment. Since 2003, the plan has undergone a number of revisions, including the current version. The current plan incorporates the conclusions of an unusually thoroughgoing effort by administrators and faculty in both schools to “assess the assessment” at UMUC—to review the philosophy, approach, and methods of all outcomes assessment activities to date.

Responding to this wide-ranging review of the assessment process, the university has instituted a series of organizational changes designed to support enhanced school- and program-level leadership of the learning outcomes assessment process. The Provost's Office is responsible for ensuring the appropriate direction, emphasis, and support for learning outcomes assessment institution-wide. The School of Undergraduate Studies and the Graduate School of Management and Technology are responsible for the design and implementation of outcomes assessment plans. Technical support for assessment activities in the schools is provided by the Office of Evaluation and Assessment, a unit within the Office of Institutional Planning, Research, and Accountability. Overall coordination of learning outcomes assessment university-wide is facilitated by the Learning Outcomes Assessment Steering Committee, which consists of the provost; the graduate

and undergraduate deans; the vice president and associate vice president of Institutional Planning, Research, and Accountability; and a representative of the Faculty Advisory Council. Further details about roles and responsibilities are provided in Section 7.

The present plan owes a special debt to members of the Faculty Advisory Council. On June 21, 2009, a plenary session of the council discussed a draft of the current plan and shared ideas with the provost on a variety of matters, including the role of faculty in implementing the plan and the potential impact of assessment activities on student learning. Council members also made specific recommendations for structural improvements to this document; their ideas and suggestions have been incorporated in the current revision. Efforts such as these to enhance collaboration and communication in outcomes assessment address a suggestion by the Middle States evaluation team in its 2006 report that the university incorporate additional strategies for building “an assessment culture with buy-in from the full range of constituencies” (p. 33).



### 3.1 DEFINITION

Learning outcomes are measurements of what students know or can accomplish by the time they graduate. Learning outcomes assessment is accordingly the systematic process of comparing measured outcomes against clearly stated goals for the knowledge, skills, habits of mind, and values that students should acquire during their academic career. Institution-wide assessment is a continuous cycle comprising a variety of activities, including curricular mapping, data collection, analysis, interpretation, reporting, and application of assessment results to both the improvement of instruction and refinement of the assessment process itself.

### 3.2 PHILOSOPHY

Guided by institutional as well as undergraduate and graduate school mission statements, UMUC has undertaken learning outcomes assessment to support and ensure student success. The university is committed to ensuring that all students, regardless of their chosen degree program, receive systematic instruction across the curriculum in a set of institution-wide competency areas (see Section 4.2.1). The university further commits itself

to assessing student achievement in each of these common competency areas and applying the results of outcomes assessment to continuous improvement of instruction and curriculum. Accordingly, all processes and activities within the outcomes assessment cycle should be designed with the ultimate goal of “closing the loop”—applying assessment results to the continuous improvement of teaching and learning (see Section 5.3).

### 3.3 CULTURE OF OUTCOMES ASSESSMENT

Why has UMUC made outcomes assessment an institutional priority? The university’s answer to this question flows from its mission, core values, and strategic plan. These broader imperatives inform the institution’s well-established culture of learning outcomes assessment: an environment that demonstrates an attitudinal and organizational commitment to student learning, outcomes assessment, and continuous improvement.

Continuous improvement is implicit in the institutional mission to “offer top-quality educational opportunities to adult students in Maryland, the nation, and the world, setting the global standard of excellence in adult education” (<http://www.umuc.edu/gen/mission.shtml>). Ensuring and supporting student success is the primary mission of UMUC and the end toward which ongoing assessment activities and metrics are directed. This imperative is given specific focus in UMUC’s *Strategic Plan*, which prioritizes efforts to “constantly improve our quality” and to “maximize student success and serve the entire field of distance education for adults by serving as a leader both nationally and internationally” ([http://www.umuc.edu/gen/strategic\\_plan.pdf](http://www.umuc.edu/gen/strategic_plan.pdf)). Systematic learning outcomes assessment provides the vehicle for identifying teaching and learning strategies that address these goals.

School-level mission statements further support the development of an institutional culture that values assessment. The School of Undergraduate Studies is “committed to meeting undergraduate students’ needs for lifelong learning by providing innovative delivery of high-quality educational programs, ensuring substantive and relevant curricula, and recognizing the value of experiential learning.” Ensuring continuing innovation, quality, and relevance in curricula and programs requires a strong feedback loop at multiple points in students’ academic careers and, there-

fore, requires a methodology that addresses the needs of a diverse study body. The mission of the Graduate School of Management and Technology is to equip graduates not only with disciplinary knowledge but also with the ability “to apply what they study to their professions and their daily lives.” The forms of assessment in graduate degree programs accordingly emphasize both the acquisition of knowledge as well as the ability to apply it appropriately in a variety of situations.

In addition, the institution-wide commitment to learning outcomes assessment is informed by UMUC’s adherence to regulatory processes that mandate three-year reports for the Maryland Higher Education Commission as well as five- and ten-year progress reports on learning outcomes assessment for the Middle States Commission on Higher Education. Efficiencies are possible in these external

reporting cycles because Maryland has adopted the Middle States Commission’s definitions of student learning competencies for the following areas: writing, quantitative reasoning, critical analysis, information literacy, technological fluency, and scientific literacy. UMUC has accordingly adapted the same competency areas as the basis of its institutional-level student learning outcomes—common areas of student achievement defined for all degree programs.

To summarize, the four factors informing an institutional culture of assessment at UMUC are shown in Table 1 below. The institutional-, school-, and program-level learning outcomes referred to in Table 1 are discussed in Section 4.2. These intended student learning outcomes provide specific goals and structure for all learning assessment activities at UMUC.

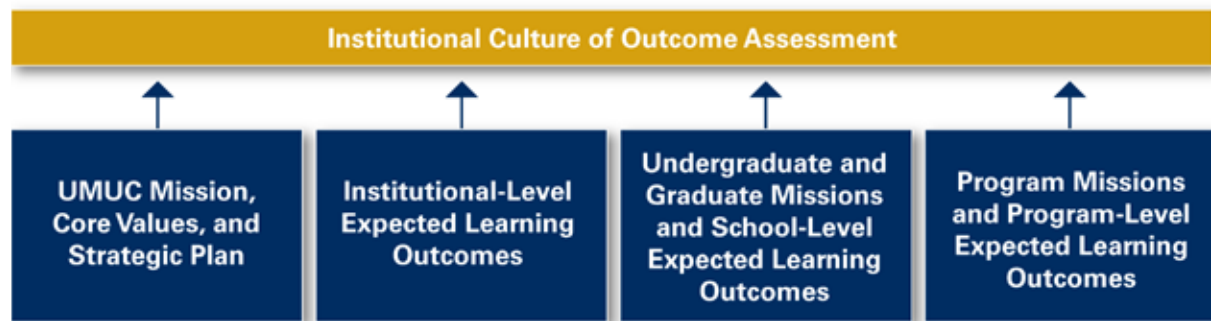


Table 1: Rationale for Learning Outcomes Assessment at UMUC

## 4.1 GUIDING PRINCIPLES

UMUC has identified guiding principles to ensure that learning outcomes assessment is systematic, sustained, and meaningful. Summarized in Table 2 below, these principles articulate the values and expectations for enhancing and institutionalizing a learning outcomes assessment culture and are intended to inform all discussions pertaining to learning outcomes assessment across the institution.

Guiding Principles for Effective Learning Outcomes Assessment
All UMUC administrators, faculty, and staff have a role in ensuring the academic success of UMUC students.
Every UMUC degree program is responsible for the development and assessment of student skills in specific and identified areas of learning.
Assessment of students is an integral and unconditional component of effective instruction at UMUC.
Assessing student learning using reliable and effective methodologies is the collective responsibility of every UMUC faculty member.
UMUC assessment results are used in a documented way to inform curriculum review and design.
UMUC stakeholders, including internal and external constituents, are routinely apprised of learning outcomes results.

Table 2: Guiding Principles for Learning Outcomes Assessment at UMUC

## 4.2 CURRICULUM ALIGNMENT

### 4.2.1 Institutional-Level Learning Outcomes

UMUC has developed four levels of student learning outcomes: institutional-level, school-level, and program-

level as well as course objectives common to all sections of a given course.

Institutional-level learning outcomes are based upon the educational missions of UMUC's undergraduate and graduate programs. Institutional-level outcomes also reflect competency areas identified in Standard 12 of the Middle States Commission's *Characteristics of Excellence in Higher Education* (2006 edition) and adopted by the Maryland Higher Education Commission as the basis of mandatory reporting categories within the triennial assessment report required of the state's higher education institutions. Previously known as Core Learning Areas, UMUC's institutional-level learning outcomes have been renamed *Student Learning Expectations* (SLEs). Definitions of these seven institutional-level SLE areas are provided in Table 3 below.

These common areas provide a structure for institution-wide learning outcomes assessment. What they collectively say is that all UMUC students, regardless of their degree program, will be instructed and assessed in six common learning areas: written communication, critical thinking, quantitative reasoning, scientific literacy, information literacy, and technology fluency (abbreviated COMM, THIN, QUAN, SCIE, INFO, and TECH, respectively). In addition, the university expects that all students demonstrate competence in their chosen field of study (designated by the seventh SLE area, SPEC).

While SLE definitions and other basic terms and methods of learning outcomes assessment are shared across the institution, differences in mission and in students served necessitate some differences in how the schools approach the assessment process. Specifically, assessment in the

Student Learning Expectations (SLEs)	
<b>Written Communication (COMM)</b>	Produce writing that meets expectations for format, organization, content, purpose, and audience.
<b>Technology Fluency (TECH)</b>	Demonstrate an understanding of information technology broad enough to apply technology productively to academic studies, work, and everyday life.
<b>Information Literacy (INFO)</b>	Demonstrate the ability to use libraries and other information resources to effectively locate, select, and evaluate needed information.
<b>Critical Thinking (THIN)</b>	Demonstrate the use of analytical skills and reflective processing of information.
<b>Quantitative Reasoning* (QUAN)</b>	Demonstrate the application of mathematical and numerical reasoning skills.
<b>Scientific Literacy* (SCIE)</b>	Demonstrate the ability to understand key concepts and principles of the natural, social, and behavioral sciences and to apply these principles appropriately within personal lives.
<b>Content/Discipline-Specific Knowledge (SPEC)</b>	Demonstrate knowledge and competencies specific to program or major area of study.

\*Not assessed in the graduate school.

Table 3: Institutional-Level Learning Outcomes: Student Learning Expectations (SLEs)

School of Undergraduate Studies covers the full complement of SLE areas, reflecting the broader reach of four-year undergraduate degrees, which include a common set of general education requirements as part of all specialized degree programs. By contrast, the Graduate School of Management and Technology, focused on more narrowly specialized professional programs, omits assessment of scientific literacy and quantitative reasoning.

These differences in undergraduate and graduate practice are summarized in Table 4 below:



Table 4: Assessment of Graduate and Undergraduate SLEs

#### 4.2.2 School-Level Learning Outcomes

School-level outcomes are those additional competency areas, over and above the institutional SLEs, that either the undergraduate or graduate school decides to embed and assess across all degree programs. At present, only the School of Undergraduate Studies has identified such outcomes beyond the institutional SLEs. Reflecting its mission to produce graduates who are not only competent in their areas of study but also well prepared to be responsible citizens in a global society, the undergraduate school has designated history and ethics as additional key competency areas:

Additional School-Level Outcomes Assessed in the School of Undergraduate Studies	
<b>Historical and Cultural Perspectives (HIST)</b>	Knowledge of diverse cultures and historical periods
<b>Ethics (ETH)</b>	Understanding of and ability to apply frameworks for ethical decision making

Table 5: Additional Undergraduate SLEs

Internally, the School of Undergraduate Studies uses the term “hallmarks” to refer collectively to the institutional-level SLEs plus the two additional school-level outcomes. In its communications with students, the School of Undergraduate Studies refers to “the hallmarks of the educated person,” adopting the term “hallmark” to convey that these areas distinguish UMUC’s approach to learning and program design. The undergraduate school prefers the term “hallmark” for communications with students as

a means of emphasizing educational quality and characteristics and minimizing what may be perceived by some students as technical terminology or acronyms. However, both “hallmarks” and “SLEs” share the same definition and have a common meaning.

A summary illustration of the undergraduate hallmarks, including the two school-level outcomes and the seven institutional-level SLEs, is provided in Table 6 below:



Table 6: School of Undergraduate Studies Hallmarks

#### 4.2.3 Program-Level Learning Outcomes and Course Objectives

An initial step in designing an assessment plan for a particular degree program involves curriculum alignment: mapping institutional- and school-level intended learning outcomes to program-level outcomes and, in turn, to course objectives within those programs. Program-level objectives are informed not only by SLEs, school-level outcomes, and the mission of each program but also, in many cases, by external standards either mandated or recommended by accrediting bodies or scholarly societies. To the extent that they have been aligned with SLEs, program-level outcomes provide a means by which the diverse range of assessment activities undertaken at the course level can be compared, analyzed, and summarized in internal and external reports. Appendices B and C summarize how current program outcomes for the School of Undergraduate Studies and the Graduate School of Management and Technology are aligned with SLEs.

Each undergraduate and graduate degree program has developed a five-year assessment plan that includes a curricular alignment piece as the basis for assessing the SLEs and school-level outcomes. To design an assessment tool for the writing SLE, for example, the undergraduate psychology program would first map this SLE to a corresponding program outcome for competency in writing. Next, from within the psychology program, a required course would be selected that includes a course objective emphasizing writing skills. Every undergraduate and graduate program has such a mapping exercise completed

for each relevant institutional-level learning outcome. In addition, undergraduate programs have mapped course objectives corresponding to the two additional school-level outcomes: history and ethics.

Sample program plans are provided in Appendices D and E. Program Assessment Plans are reviewed and revised annually by program and school personnel as well as by Institutional Planning, Research, and Accountability. If necessary, corrections or changes are made to reflect ongoing curricular modifications or programmatic changes resulting from student learning findings.

## 4.3 OUTCOMES ASSESSMENT METHODOLOGY

### 4.3.1 Institutional-Level Outcomes Assessment

UMUC conducts assessment of the SLEs at two levels: the institutional level and the program level. Institutional-level assessment refers to measures of student achievement in multiple programs that produce data relevant for all degree programs. As its institutional-level assessment tool, UMUC has chosen to deploy the Educational Testing Service Proficiency Profile (EPP), which measures student achievement in writing, quantitative reasoning, critical thinking, and reading skills. The first three areas correspond to SLEs at UMUC; reading skills are not specifically addressed within UMUC’s institutional-level learning outcomes.

Institutional-level assessment via the EPP exam offers a “snapshot” of average student achievement across all programs at a given time and, therefore, provides a benchmark with which to compare UMUC students against peers in comparable institutions. Internally, when administered to incoming students as well as students just prior to graduation, the EPP provides a longitudinal measure of the “value added” by a UMUC education.

While some valuable comparison groups can be disaggregated and compared within the EPP results, this level of assessment does not typically deliver the kind of actionable data that directly informs curricular changes at the program or course level. Moreover, the EPP exam does not measure student learning in three other areas (information literacy, technology fluency, and scientific literacy), nor does it provide a measure of student learning in program-specific knowledge and skills. For these and other reasons, UMUC also assesses SLEs at the program level.

Current plans call for EPP assessments twice annually: once in the fall, administered to incoming students; and

once in the spring, administered to students nearing graduation. A detailed plan for implementation of the EPP appears in Appendix H.

### 4.3.2 Program-Level Outcomes Assessment

Program-level assessment is typically conducted through a required course (using either all sections or a sample of sections) to ensure that students achieve the required content from the program, course, or series of courses. Assessment at this level might focus on a sample of students drawn from a single course required for a particular degree (for example, a foundation or capstone course), or it may focus on several courses that share a common exam question, common paper assignment, or other assessment tool.

All degree programs have developed an assessment plan to ensure that all SLEs measured by the School of Undergraduate Studies and the Graduate School of Management and Technology are assessed at the program level at least once every three years. Table 7 below compares program-level assessment of SLEs in the undergraduate and graduate schools.

As is shown in Table 7, in a given major in the School of Undergraduate Studies, program-level assessment of a particular SLE may occur in a required course for that major, in a general education course required of all undergraduate

Undergraduate Degree Programs	Graduate Degree Programs
<p>INFO THIN COMM ETH HIST SPEC</p> <p><b>All programs:</b> SLEs above are assessed in required courses for undergraduate major.</p>	<p>INFO THIN COMM TECH SPEC</p> <p><b>All programs:</b> SLEs above are assessed in required courses for graduate degree.</p>
<p>QUAN SCIE TECH</p> <p><b>All programs:</b> SLEs above are assessed in general education courses.</p> <p><b>Some programs:</b> SLEs above are assessed in required courses for major.</p>	

Table 7: Program-Level Assessment of SLEs in Undergraduate and Graduate Degree Programs

majors, or in both a course required for the major and a general education course. For example, in the accounting major, program-level assessment of quantitative reasoning occurs within a course required for the major as well as a general education course; in the history major, by contrast, program-level assessment of QUAN would occur only in a general education mathematics course.

For every program in the graduate school, all SLEs measured are assessed at the program level within required courses for the degree.

Whichever model is followed, all SLEs measured by undergraduate or graduate programs are assessed at the program level at least once every three years. The frequency of program-level assessment as well as of reporting on the results of assessment is discussed in Section 5.2. Specific reporting schedules are provided in Section 6 and Appendices B and C, which cover undergraduate and graduate assessment plans, respectively.

### 4.3.3 Developing and Evaluating Outcomes Assessment Measures

With the support and consultation of Institutional Planning, Research, and Accountability, the schools and programs develop and deploy a variety of methods to assess student learning outcomes. Methods are selected to incorporate both direct and indirect assessment tools. Examples of direct and indirect assessment tools used in the undergraduate and graduate schools are identified in Table 8 below:

Level	Measure	SLE(s)
<b>Institutional</b>	ETS Proficiency Profile (EPP)	COMM QUAN THIN
<b>Programmatic— general education course exams (undergraduate only)</b>	LIBS 150 Final Exam	INFO
	BIOL 101 Final Exam	SCIE
	Fluency in Technology Exam	TECH
	MATH 106 and 107 Exams	QUAN
<b>Programmatic</b>	<ul style="list-style-type: none"> <li>• Capstone Course Projects</li> <li>• Course Examinations</li> <li>• Course Assignments (e.g., Research Papers, Essays)</li> </ul>	All SLEs

Table 8: Sample Learning Outcomes Assessment Measures

Institutional-level assessment measures, such as the EPP exam, require formal review by Institutional Planning, Research, and Accountability and approval by the Provost's Office. Program-level assessments must also be submitted to Institutional Planning, Research, and Accountability

for review and technical assistance. Guiding this review process is the following set of criteria regarding the design and use of effective assessment tools:

Criteria for the Review of Assessment Tools	
<b>Criterion #1</b>	Some standardized assessments will be used for the assessment of student learning. A standardized assessment is defined as a test constructed using standard administration procedures. Examples of standardized assessments include, but are not limited to, final examinations, case studies, research papers, or norm-referenced/criterion-referenced tools.
<b>Criterion #2</b>	Scoring procedures for standardized assessments must be well documented and uniformly applied. Documentation of reliability and validity of scores is required for norm-referenced and criterion-referenced assessments. A scoring rubric is required for all other forms of standardized assessments.
<b>Criterion #3</b>	Any assessment used to report student learning must demonstrate a clear linkage between the SLE(s), program-level learning outcomes, or course learning objectives.
<b>Criterion #4</b>	Any assessment used to report student learning must provide quantifiable and concrete results directly linked to the SLE(s), program-level learning outcomes, or course learning objectives.
<b>Criterion #5</b>	Any assessment used to report student learning must adhere to a collaboratively developed action plan for the implementation of the assessment. The action plan must address the administration of the assessment(s), provide an implementation timeline, identify the students to be assessed, and detail the use of student learning results at the school or program level.
<b>Criterion #6</b>	The implementation of an assessment instrument must provide a documented process for continuous feedback that connects content, instructional practice, and the results of student learning. Evidence must be provided that documents how the iterative feedback process has been (or will be) used to revise, refine, and/or enhance the appropriate curriculum and the assessment instrument.

Table 9: Criteria for the Review of Assessment Tools

Upon request, Institutional Planning, Research, and Accountability supports the work of individual degree programs by conducting a review of any planned assessment tool. Following review of an assessment tool, the office will prepare an analysis that details findings and recommendations specific to the assessment.

### 5.1 DATA COLLECTION

At the institutional level, the standardized EPP exam is administered online and results are compiled for UMUC as a service of ETS (for additional discussion of EPP implementation plans, see Appendix H). Further analysis and interpretation of EPP results is provided by Institutional Planning, Research, and Accountability, which distributes an annual summary report on institutional-level assessment to the university community (see Section 6 for additional discussion of this and other reporting cycles).

Collection of program-level outcomes assessment data begins with the five-year Program Assessment Plans developed for all undergraduate and graduate degree programs. As was previously discussed (Sections 4.2.3 and 4.3.2), each plan includes a curricular map that identifies, for each SLE, a corresponding program outcome, course objective, and assessment tool. The variety of tools used is suggested by Table 8. Program-level assessment data thus takes a variety of forms, depending on the tool employed.

Collecting data at the program level currently requires a labor-intensive process, involving considerable coordination among program directors, faculty, and other staff. For example, the assessments that the School of Undergraduate Studies currently administers in its general education courses (LIBS 150, BIOL 101, and IFSM 201) require manual gathering and scanning of final exam forms from multiple course sections. Other types of program-level data collection involve downloading results from WebTycho, the university's proprietary online learning platform.

To improve the efficiency and reduce the burden on staff of program-level data collection, the Learning Outcomes Assessment Steering Committee and Institutional Planning, Research, and Accountability are currently investigating outcomes assessment management solutions that would provide a central location for the gathering and storing of learning outcomes assessment documentation and data. With such an assessment management system, program directors and other assessment administrators would be able to upload data from a variety of sources. Depending on the system adopted, assessment administrators would have the capacity to pull results directly from multiple online course gradebooks, upload or input external assessment data directly, compile scores produced by common assessment rubrics, administer custom tests and surveys, and develop and score electronic portfolios.

### 5.2 ANALYSIS AND DISSEMINATION OF RESULTS

With the support of Institutional Planning, Research, and Accountability, all institutional- and program-level outcomes assessment data is aggregated, analyzed, and shared with undergraduate and graduate faculty and administrators. Data from the institutional-level EPP exam is gathered and analyzed twice a year, and a summary report produced annually by Institutional Planning, Research, and Accountability. Program-level assessment data is gathered, analyzed, and reported annually in the Program Assessment Reports, prepared annually for each undergraduate and graduate degree program. In addition, external and internal reports on outcomes assessment activity are produced on three- and five-year cycles. A complete discussion of data flow and formal reporting cycles is provided in Section 6.

Open and ongoing dialogue across the university is crucial for the meaningful application of outcomes assessment results. At the program level, online discussions of assessment results are conducted via the WebTycho course sections that have been constructed for each discipline. These sections may include smaller “study groups” of selected faculty members; such study groups allow for targeted applications of assessment results or the development of assessment tools specific to a particular course or courses within a program.

Annual faculty meetings, held separately for undergraduate and graduate personnel, provide a more intensive venue for dialogue and discussion of learning outcomes. Such meetings provide an opportunity for the university provost and deans to discuss outcomes assessment plans and results with faculty across many programs. These meetings include breakout sessions in which program directors can discuss outcomes assessment plans and results with faculty members in particular disciplines.

The university maintains a Web site ([www.umuc.edu/outcomes](http://www.umuc.edu/outcomes)) with information and resources on learning outcomes assessment at UMUC.

### 5.3 CLOSING THE LOOP: APPLYING THE RESULTS OF ASSESSMENT

A phrase commonly used in the literature of learning outcomes assessment, “closing the loop,” emphasizes the importance of not merely gathering, analyzing, and reporting learning outcomes data, but also acting upon those results to improve student learning. At an institutional level, such actions might include changes in the administration of outcomes assessment. For example, the organizational changes discussed previously (Section 2) were undertaken in 2009 based upon prior experience with outcomes assessment that suggested the need for strengthened school- and program-level leadership of the process. A further example of closing the loop at an institutional level is represented by the university’s new approach to implementing the EPP standardized exam (see Appendix H). The current revision of UMUC’s *Institutional Plan* also represents an instance of closing the loop at an institutional level.

It is in closing the loop at the program level, however, that perhaps the most immediate impacts to pedagogy and curriculum occur. Following the analysis and dissemination of results, faculty and program administrators need to ensure that these results are applied to improvements in pedagogy and curricula. For example, program-level assessments of information literacy have over the past several years been applied to changes in both curricula and pedagogy. Revisions to the content of the online library skills course (LIBS 150) have been implemented to address deficits in student performance revealed by a program-level assessment. To help support faculty teaching this course, the interface to a quiz-results database has been improved so that instructors get a snapshot of student performance on assessments across a section and can adjust their instruction and provide feedback to individual students accordingly.

Documenting such instances of program-level closing-the-loop activities is included in the formal reporting procedures described in Section 6. Sharing examples of successful applications of outcomes assessment helps to encourage similar applications within and across programs. An awareness of the ultimate ends to which outcomes assessment is directed also helps to minimize “compliance mentality”: gathering assessment data for its own sake. Accordingly, the timetables developed for each Program Assessment Plan include not only the development of assessment tools and the gathering of data but also the semester and year in which the results of a particular assessment event will be applied.

A summary of possible closing-the-loop activities is provided in Table 10 below. The chart is not intended to be exhaustive, merely illustrative of possible ways in which to apply the results of outcomes assessment.

Actions for Closing the Loop			
Level	Changes to Assessment Plan	Changes to Curricula and Pedagogy	Changes to Academic Processes
<b>Programmatic</b>	<ul style="list-style-type: none"> <li>revising intended learning outcomes</li> <li>collecting and analyzing additional data to corroborate institutional-level outcomes assessment data</li> </ul>	<ul style="list-style-type: none"> <li>revising course objectives</li> <li>revising course sequence</li> <li>revising course content</li> </ul>	<ul style="list-style-type: none"> <li>modifying frequency or schedule of course offerings</li> <li>implementing additional training</li> <li>revising of advising standards or processes</li> <li>identifying or creating activities beyond the classroom related to student learning</li> </ul>
<b>Institutional</b>	<ul style="list-style-type: none"> <li>implementing organizational changes in outcomes assessment administration</li> <li>changing data collection methods</li> </ul>	<ul style="list-style-type: none"> <li>highlighting and disseminating successful applications of assessment findings</li> </ul>	<ul style="list-style-type: none"> <li>identifying/changing/creating communication and feedback methods</li> <li>improving technology to support learning outcomes assessment</li> </ul>

Table 10: Examples of Changes Made as a Result of Outcomes Assessment

### 6.1 ANNUAL REPORTING CYCLE

Each school adheres to a formal reporting process that summarizes school- and program-level assessment activities. Learning outcomes assessment activities—including closing-the-loop activities—are documented in internal and external reports produced on one-, three-, and five-year intervals. These reports are disseminated to stakeholders across the institution as appropriate and support a culture of learning outcomes assessment.

Fundamental to all subsequent reports are the annual Program Assessment Reports, one of which is written for each degree program. Examples of annual undergraduate and graduate Program Assessment Reports are provided in Appendices F and G, respectively. The annual Program Assessment Reports provide information on instruments, historical data collection, corroborating assessments, benchmarks, analysis of data, use of results, and a timeline for implementation of changes based on data. Program Assessment Reports document assessments of the institutional- and school-level outcomes as well as assessments of program outcomes related to specialized disciplinary knowledge or skills. Program directors are responsible for compiling these reports and are supported in these efforts by the assessment coordinators in the School of Undergraduate Studies and the Graduate School of Management and Technology and by Institutional Planning, Research, and Accountability personnel. Each annual report is shared with the undergraduate and graduate deans as well as faculty within that discipline.

A second form of annual reporting is the Institutional-Level Assessment Report. Written by Institutional Planning, Research, and Accountability personnel, this summary report provides an overview and analysis of all EPP standardized exam results from the preceding academic year. Institutional-Level Assessment Reports are structured around the three SLE competency areas covered by the EPP exam: writing, critical thinking, and quantitative reasoning. The report is shared with administrators and faculty across all programs in the School of Undergraduate Studies or the Graduate School of Management and Technology.

The purpose of a third form of annual reporting, the SLE Summary Report, is to document all program-level assessments for each SLE area in an academic year. For each SLE corresponding to one of the mandated competency areas,



this report synthesizes and analyzes the program-level assessments conducted in a given year. Where meaningful correlations can be made, the SLE Summary Reports will also include a discussion of institutional measures of SLE areas. These reports will be developed by the undergraduate and graduate assessment coordinators, supported by Institutional Planning, Research, and Accountability personnel and by designated assessment leads within each of the schools. They are key documents in the external reporting requirements described in Sections 6.2 and 6.3.

### 6.2 THREE-YEAR REPORTING CYCLE

Beginning August 2, 2004, the Maryland Higher Education Commission required Maryland institutions of higher education to submit triennial reports on assessment activities. To promote efficiency among institutions within the University System of Maryland, the commission has adopted for the triennial Student Learning Outcomes Assessment Report the same competency areas identified in Standard 12 of the Middle States Commission's *Characteristics of Excellence in Higher Education* (2006 edition). These include written and oral communication skills, quantitative reasoning, critical thinking, scientific literacy,

information literacy, and technological fluency. (Given the nature of the online learning environment, UMUC has received a temporary waiver for assessing student learning in oral communication skills.)

The Student Learning Outcomes Assessment Report has specific requirements in terms of form and content. For each competency area, the report should provide an institutional-level definition, a discussion of methodology and measures, and documentation of the ways in which outcomes assessment has been applied to the improvement of teaching and learning.

At the conclusion of each three-year cycle, UMUC's report will be informed by a corresponding three-year SLE Summary Report (one report each for the undergraduate and graduate schools). The purpose of these reports is to compile results of three years' worth of institutional-level and program-level assessment activity, as recorded in the annual SLE Summary Reports. Like the annual SLE Summary Reports, the triennial reports will synthesize, for each of the SLE areas, the results of program- and institutional-level assessments. The three-year summary reports will give particular emphasis to closing-the-loop activities. These reports will be prepared by the undergraduate and graduate assessment coordinators, with the support of Institutional Planning, Research, and Accountability personnel.

### 6.3 FIVE-YEAR REPORTING CYCLE

In 2011, five years subsequent to its successful decennial evaluation by the Middle States accreditation team, UMUC is required to submit an interim Periodic Review Report. According to the commission, this report is a "retrospective, current, and prospective analysis of an institution since its last evaluation ... [including] a description of how the institution responded to any recommendations made by the institution in its own self-study report, by the visiting team that evaluated the institution, and by the Commission."

Among its recommendations in the 2006 report, the Middle States evaluation team included one directly related to learning outcomes assessment:

UMUC is engaged in multiple activities to assess student learning. The university has committed substantial resources to assessment and there is broad-based commitment to use these assessments to enhance student learning. We recommend that UMUC report over the coming years to the UMUC community selected findings from these assessments and begin to develop and report on the outcomes of these assessments, how and where they are analyzed, and how the conclusions drawn from the assessments can be used to improve current practices, programs and services.

In addition to formal recommendations, an accreditation team may also make suggestions. While the Periodic Review Report is structured to directly and fully address recommendations, the narrative should also address suggestions. Three suggestions with regard to learning outcomes assessment were made by the evaluation team:

The team suggests that UMUC consider clear metrics related to student learning in the balanced scorecard under development.

The team suggests consideration of an electronic portfolio within WebTycho as an additional tool for assessing student learning.

The team suggests that UMUC continue to make explicit linkages, in public, transparent and redundant ways with its constituencies, between assessment activities, the resulting data, and the decisions for improvement based on assessment in general and of student learning in particular.

The above recommendations and suggestions, as well as the university's own recommendations in its 2006 Self-Study, will be addressed in UMUC's 2011 Periodic Review Report. The substance for learning outcomes assessment reporting in the 2011 report will derive from the university's triennial report submitted to the Maryland Higher Education Commission in 2010. In addition, updates for 2011 will be provided by the annual SLE Summary Reports and the Institutional-Level Assessment Report (EPP exam analysis) that will be produced in the spring of 2011.

A visual overview and summary of the relationship among these various reporting cycles is provided in Section 6.5.

### 6.4 ACADEMIC PROGRAM REVIEWS

Also on five-year cycles (although not necessarily coinciding with the Periodic Review Report) are the academic program reviews completed by each undergraduate and graduate academic program. The full academic program review is a comprehensive assessment, covering enrollment and graduation rates, faculty demographics, grade distributions, course evaluations, and other measures relevant to the overall health and quality of an academic program. Included as well is a report from an external reviewer not affiliated with UMUC.

Learning outcomes assessment has become an increasingly prominent part of the academic program review process. The annual Program Assessment Reports discussed previously in Section 6.1 provide the basis not only for institutional-level reporting on SLEs but also for the five-year summary and analysis provided in the academic program reviews. The focus of the academic program reviews, however, will be those assessment activities most directly related to students' mastery of the specialized content of

their degree program and their ability to demonstrate the associated knowledge, skills, and attitudes during and upon completion of the program—those areas of competency collectively designated by this plan as the SLE in content/discipline-specific knowledge.

In practice, some disciplinary academic program reviews will likely include outcome assessment results for program outcomes aligned with SLEs. This is because many programs have articulated outcomes that represent higher levels of competency for certain SLE skills than are generally expected of all UMUC students. For example, a computer and information science (CMIS) major demands a level of competency in technological fluency that is more advanced than the level expected by a history major. In its academic program review, CMIS will accordingly include assessment activities related to the TECH SLE.

Thus, assessment results and activities discussed in annual Program Assessment Reports have two destinations: institutional-level reports on SLE areas and the academic program reviews focused on discipline-specific measures. An overview and illustration of these reporting relationships is provided in Section 6.5.

## 6.5 SUMMARY: OVERVIEW OF DATA FLOW AND REPORTING CYCLES

Table 11 provides a summary overview of the various reports and reporting cycles discussed previously in Sections 6.1 through 6.4.

Vertical columns represent one-, three-, and five-year intervals of time. Reporting cycles do not necessarily coincide (e.g., a particular program’s academic program review may or may not be due the same year as the institutional Periodic Review Report). Arrows represent the flow of data between and among reports. For example, as discussed in Section 6.4, Program-Level Assessment Reports inform school- and institutional-level reporting on SLE areas as well as providing the basis of each program’s five-year academic program review.

Listed on the left-hand side of each row is the office or person responsible for producing each report at one-, three-, or five-year intervals. Further discussion of roles and responsibilities, covering all aspects of the outcomes assessment process, is provided in Section 7.

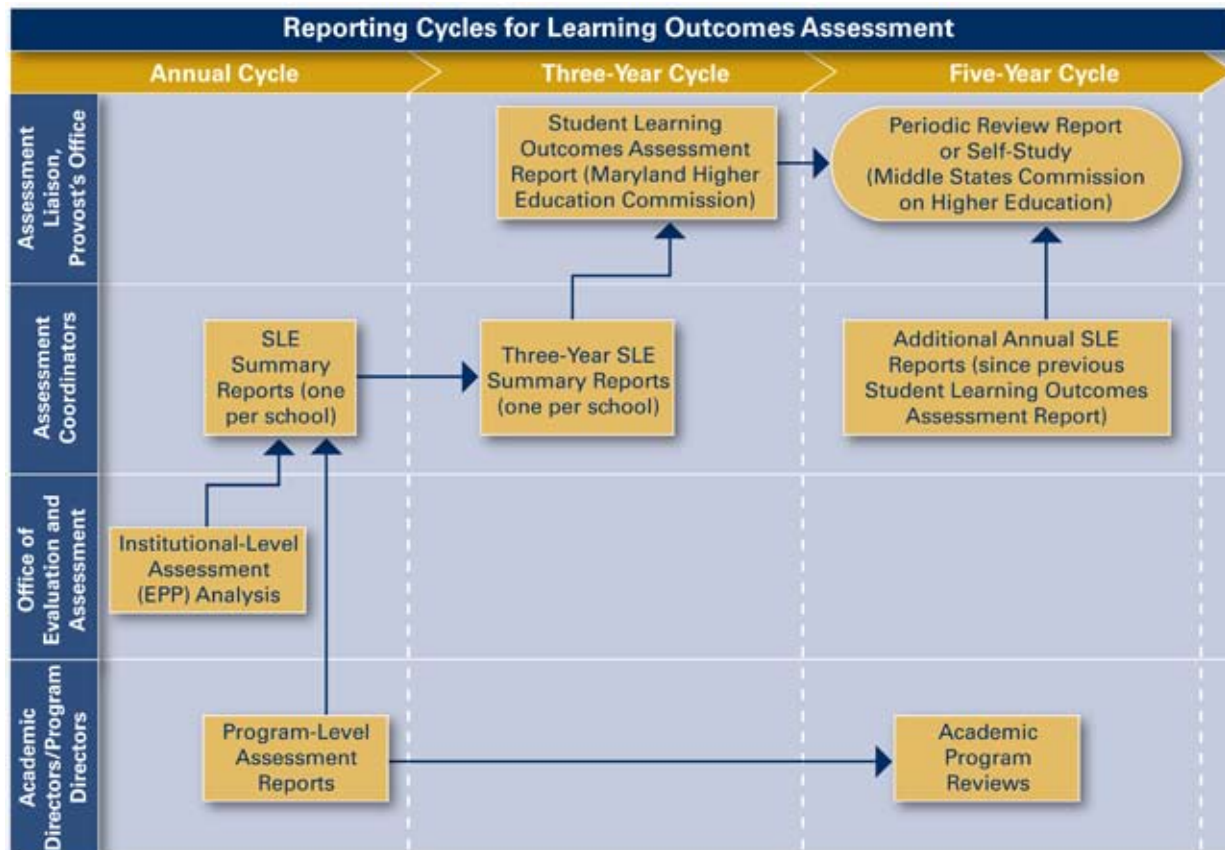


Table 11: Reporting Cycles for Learning Outcomes Assessment

Various organizational entities and personnel have distinct roles and responsibilities in maintaining ongoing, systematic learning outcomes assessment. Table 12 below provides a summary overview of persons and offices with responsibilities for selected actions in the assessment process.

This table indicates either primary responsibility or an advisory/supporting role for a particular stage in the learning outcomes assessment process. Further details are provided in the discussion below.

### 7.1 LEARNING OUTCOMES ASSESSMENT STEERING COMMITTEE

The university maintains an executive steering committee to set institutional learning outcomes assessment strategies and to coordinate efforts across the university. This committee is led by the provost and includes the undergraduate and graduate deans and the vice president and the associate vice president of Institutional Planning, Research, and Accountability.

### 7.2 OFFICES AND INDIVIDUALS

#### Provost

The infrastructure for learning outcomes assessment at UMUC is directed by the collaborative vision of many senior administrators. Working with other members of the Learning Outcomes Assessment Steering Committee, the provost articulates the institutional vision for the assessment of student learning and is committed to institutional ownership of the learning assessment process. Among

the primary responsibilities of the provost with regard to outcomes assessment are the following:

- Ensures external mandated requirements are met
- Ensures institutional assessment processes embody best practices
- Maintains the *Institutional Plan for the Assessment of Student Learning Outcomes*
- Ensures all plans and procedures for assessment are clear, well developed, consistent, and meaningful
- Ensures that the *Institutional Plan* is executed
- Produces triennial Student Learning Outcomes Assessment Report for the Maryland Higher Education Commission

The Provost's Office also serves as the principal link between the faculty and administration with regard to learning outcomes assessment (see discussion of the Faculty Advisory Council below).

#### Undergraduate and Graduate Deans

The dean of the School of Undergraduate Studies and the dean of the Graduate School of Management and Technology are responsible for developing and implementing school-level assessment plans, which in turn inform the *Institutional Plan*. Deans have primary responsibility for the following:

- Ensure the submission of annual school-level and program-level reports that describe data and/or use of findings resulting from learning outcomes assessment activities

Person/Unit	Institutional Assessment Plan	Curriculum Alignment	Institutional-Level Assessment	Program-Level Assessment	Reporting / Disseminating Results	Closing the Loop
Learning Outcomes Assessment Steering Committee	X		X			
Provost	X				X	
Undergraduate and Graduate Deans	X	X	X	X	X	X
Institutional Planning, Research, and Accountability			X	X	X	
Faculty Advisory Council	X				X	
Assessment Liaison, Provost's Office	X				X	
Undergraduate and Graduate Assessment Coordinators		X		X	X	X

Table 12: Overview of Roles and Responsibilities for Learning Outcomes Assessment

- Establish a communication process that demonstrates support of the learning outcomes assessment initiative to faculty and students
- Develop and implement a curricular mapping process that ensures institutional-level student learning outcomes are embedded across all degree programs
- Ensure program-level and school-level reporting on instances of closing-the-loop activities
- Provide school-level faculty development opportunities that act on the results of assessment and further support continuing effective learning outcomes

The deans are further responsible for ensuring that learning outcomes assessment findings are incorporated into academic program reviews and other curriculum development processes. For each school, the respective dean appoints a senior administrator responsible for the general coordination of learning outcomes assessment activities. These administrators are charged with building a team of program directors and faculty to ensure coordinated direction and strategies for assessment activities within each of the schools. These administrators communicate learning outcomes assessment activities and progress to the deans and faculty, track assessment efforts and resources, and serve as the key points of contact for assessment questions within each school or division.

Numerous other school-level personnel and faculty are involved in learning outcomes assessment; additional roles within the graduate and undergraduate schools are described in school-level assessment plans.

### **Institutional Planning, Research, and Accountability**

Each academic unit is ultimately responsible for learning outcomes assessment in its respective unit. However, there are also offices at the institutional level that exist in support of learning outcomes assessment. The most prominent of these is Institutional Planning, Research, and Accountability, which serves as a collaborative partner in learning outcomes assessment—providing a framework for assessment and technical assistance in the learning outcomes assessment process.

The Office of Evaluation and Assessment within Institutional Planning, Research, and Accountability has primary responsibility for learning outcomes assessment. Personnel in this office analyze data from the EPP and share results with the university community. Additionally, this office supports each stage of the assessment process as it is implemented by the School of Undergraduate Studies and the Graduate School of Management and Technology.

Among the many forms of support provided to the schools by Institutional Planning, Research, and Accountability are the following:

- Ensure reliability and validity of assessment tools and measures
- Support personnel engaged in assessment activities by providing expertise related to effective student learning assessment
- Design data-driven projects and, where possible, share responsibilities related to collection, analysis, and interpretation of data

### **Faculty Advisory Council**

Consisting of 18 elected members, the Faculty Advisory Council represents all faculty, including librarians, in UMUC Adelphi, UMUC–Asia, and UMUC–Europe. The council advises the provost on a variety of matters of concern to faculty, including the *Institutional Plan for the Assessment of Student Learning Outcomes*.

### **Assessment Liaison, Office of the Provost**

The designated assessment liaison works directly with assessment coordinators and other personnel across the institution to support the assessment process. As appropriate and as needed, the liaison for assessment facilitates communication between the schools and university administration regarding assessment matters, maintains and updates the *Institutional Plan* and other documentation housed on the Assessment Web site, and assists as needed in meeting institutional reporting requirements.

### **Undergraduate and Graduate Assessment Coordinators**

Assessment coordinators within the School of Undergraduate Studies and the Graduate School of Management and Technology work directly with school personnel and faculty in the design and implementation of assessment instruments. They collaborate with academic departments to manage, support, and document learning outcomes assessment activity within the schools. Assessment coordinators assist program directors in the design as well as the implementation of Program Assessment Plans. Working with school personnel as well as with the assessment liaison in the Office of the Provost, assessment coordinators are directly responsible for producing the one- and three-year Summary SLE Reports (see Section 6 for a discussion of reporting).

In addition to individual Program Assessment Plans (see Section 4.2.3), both the undergraduate and graduate schools have developed school-level plans and schedules.

### 8.1 SHORT-TERM PLANNING FOR UNDERGRADUATE ASSESSMENT

One- and five-year outcomes assessment schedules for all undergraduate programs are detailed in three charts available in Appendix B. These schedules will be used to ensure that all SLEs assessed by the School of Undergraduate Studies are measured in each program within a three-year cycle.

The first two charts in Appendix B are focused on assessment during the period summer 2009 to spring 2010. During this period, all undergraduate programs will assess at least one program-level outcome, with additional outcomes being assessed in subsequent semesters. Chart 1 is a broad overview showing the breakdown of program-level assessment by SLE category. Chart 2 provides a breakdown by program, showing the specific program outcome to be assessed and the planned assessment tool. Finally, the third chart in Appendix B extends the timeline to four years out, showing for each SLE which programs anticipate a program-level assessment in a required course for the major. Undergraduate programs without such an assessment for a particular SLE must ensure that this SLE is covered during the same period by an assessment taken by their majors in a required general education course.

Individual Program Assessment Plans will be updated twice a year, fall and spring, to reflect changes as a result of the outcomes assessment process and to ensure that all SLEs are assessed at the program level at least once every three years.

### 8.2 SHORT-TERM PLANNING FOR GRADUATE ASSESSMENT

Short-term targeted goals guide the annual cycle of learning assessment activities. Currently, the graduate assessment liaisons are working regularly with faculty members to develop rubrics and course assignments to assess the SLEs covered by the graduate school. The graduate school will conduct assessments every spring semester. The data gathering and analysis will be done during the subsequent summer semester. In conjunction with these activities, each fall semester the graduate school will conduct a review of the findings and changes to course syllabi, curriculums, and programs based on findings of the previous spring. No changes in the assessment tools will be made until a complete cycle (three rounds) of assessment is completed. The short-term learning assessment goal for the graduate school is to begin the first implementation of assessments in the spring 2010 semester. Further details of past as well short- and long-term assessment of each SLE are presented in Appendix C.

Graduate Program Assessment Plans will be updated twice a year, fall and spring, to reflect changes as a result of the outcomes assessment process.

### 8.3 LONG-TERM PLANNING FOR OUTCOMES ASSESSMENT AT UMUC

Broad, long-term goals are projected to guide future learning outcomes assessment activities. Long-term learning assessment goals are subject to change. The broad goals for 2009–14, described in Table 13 below, are refined annually for incorporation into revisions of the *Institutional Plan*.

Long-Term Learning Outcomes Assessment Goals (2009–14)	
1	Conduct twice annual (freshman in fall; seniors in spring) assessment of undergraduate-level learning in communication, quantitative reasoning, and critical thinking using the EPP exam.
2	Continue development of measures for and conduct annual assessment of undergraduate-level learning in all program outcomes, with full coverage of all outcomes within the 2009–14 cycle.
3	Conduct biannual assessment of undergraduate-level learning in information literacy, technology fluency, and scientific literacy.
4	Conduct annual assessment of graduate-level learning in the Graduate School of Management and Technology.
5	Monitor all Program Assessment Plans for implementation, including data collection, analysis, reporting, and use of results.
6	Investigate opportunities to build practices and processes into WebTycho (the university's proprietary online learning management system) and/or other electronic formats (e.g., an assessment management system such as TK-20) to ease gathering, storing, and analyzing learning outcomes assessment data.

Table 13: Long-Term Learning Outcomes Assessment Goals (2009–14)

# APPENDIX A

# ALIGNMENT OF SCHOOL-LEVEL OUTCOMES AND SLEs

**Alignment of School-Level Outcomes and SLEs**

<b>SLE</b>	<b>Expected Outcome (Graduate)</b>	<b>Expected Outcome (Undergraduate)</b>
<b>Written Communication (COMM)</b>	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Produce writing samples that meet expectations for content and purpose.</li> <li>2. Develop a clearly articulated and original thesis and/or main idea consistent with expectations of content and purpose.</li> <li>3. Organize ideas in clear and sequential paragraphs that logically reinforce the main idea.</li> <li>4. Incorporate sufficient use of appropriate research, supporting evidence, and relevant sources.</li> <li>5. Use language and tone appropriate in a written document.</li> <li>6. Critically evaluate information and/or data within boundaries established by a main idea.</li> <li>7. Display sound grammar, spelling, and appropriate conventions.</li> <li>8. Produce an acceptably researched and documented extended essay, thesis, or dissertation.</li> </ol>	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Communicate effectively to a target audience.</li> <li>2. Use expected conventions of format and organization in writing.</li> <li>3. Use credible reasoning and evidence in communication.</li> <li>4. Satisfy standards of writing style and grammatical correctness.</li> <li>5. Produce an acceptably researched and documented extended essay.</li> <li>6. Incorporate sufficient use of appropriate research, supporting evidence, and relevant sources.</li> </ol>
<b>Technology Fluency (TECH)</b>	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Explain the generic nature and uses of technologies, both physical and information technologies, for competitiveness.</li> <li>2. Exhibit technical and managerial competencies in employing, integrating, and managing technologies within organizations to achieve competitive edge.</li> <li>3. Apply technology in a manner most appropriate to context and discipline.</li> <li>4. Maintain knowledge of current and new trends in technologies.</li> <li>5. Adapt to current and new trends in technologies.</li> </ol>	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Identify the basic parts and functions of computers, information systems, networks, and the relationships between data and information in the computer environment.</li> <li>2. Analyze issues faced by information system professionals, including security, ethical, and privacy problems.</li> <li>3. Explain the issues in managing information systems.</li> <li>4. Effectively use the Internet to find, evaluate, and present information.</li> <li>5. Create simple word processing documents, spreadsheets, databases, and presentations.</li> </ol>
<b>Information Literacy (INFO)</b>	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Formulate viable and subject-relevant research questions.</li> <li>2. Use appropriate investigative methods and information retrieval systems.</li> <li>3. Evaluate the scholarly merits of sources against a set of supportable criteria.</li> <li>4. Compare new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of information.</li> <li>5. Use information in ethical and legal ways to support or refute research hypotheses.</li> <li>6. Cite subject-expert authors and scholarly sources in the respective field of study.</li> <li>7. Locate relevant books, journals, articles, and scholarly Web sites to support research activities.</li> </ol>	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Determine the nature and extent of information needed.</li> <li>2. Access needed information effectively and efficiently.</li> <li>3. Evaluate information and sources critically.</li> <li>4. Individually, or as a member of a group, use information effectively to accomplish a specific purpose.</li> <li>5. Understand the economic, legal, and social issues surrounding the use and access of information.</li> </ol>

**Alignment of School-Level Outcomes and SLEs**

<b>SLE</b>	<b>Expected Outcome (Graduate)</b>	<b>Expected Outcome (Undergraduate)</b>
<b>Quantitative Reasoning (QUAN)</b>	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Perform quantitative operations relative to the chosen field of study.</li> <li>2. Use skills involved in data collection and interpretation for the purpose of describing phenomena, creating hypotheses, and analyzing results.</li> <li>3. Interpret data in graphical, tabular, or abstracted form for the purpose of summarizing results, revealing underlining trends, and communicating key meanings.</li> <li>4. Evaluate evidence and assertions based on quantitative information and reasoning for the purposes of prediction, decision making, and problem solving as well as determining risk and uncertainty.</li> <li>5. Recognize the limitations of mathematical and statistical methods when creating and critiquing quantitative reasoning.</li> </ol>	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Demonstrate understanding of basic quantitative and mathematical principles.</li> <li>2. Interpret quantitative information and ideas.</li> <li>3. Communicate quantitative information effectively.</li> </ol>
<b>Critical Thinking (THIN)</b>	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Demonstrate the ability to integrate disparate concepts, theories, academic disciplines, and contexts (e.g., social, ethical, legal, cultural, global).</li> <li>2. Connect skills and knowledge from multiple sources, academic disciplines, and experiences.</li> <li>3. Apply theory to practice and vice versa in various settings.</li> <li>4. Utilize diverse and possibly contradictory information and points of view.</li> <li>5. Understand, synthesize, and critically evaluate issues and information contextually so as to make informed decisions and judgments in the conduct of personal, professional, and civic life.</li> <li>6. Show evidence of linkage between affective and cognitive (“head, hand, and heart”) learning in their management education.</li> </ol>	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Make linkages or connections between diverse facts, theories, and observations.</li> <li>2. Use reasoning to recognize, develop, defend, and criticize arguments and other persuasive appeals.</li> <li>3. Distinguish among assumptions, emotional appeals, speculations, and defensible evidence.</li> <li>4. Weigh support for conclusions to determine how well reasons support conclusions.</li> <li>5. Develop credible responses to complex questions.</li> </ol>
<b>Scientific Literacy (SCIE)</b>	N/A	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Describe basic concepts, principles, and common themes of the natural, social, and behavioral sciences.</li> <li>2. Cite the strengths and limitations of scientific methods of inquiry.</li> <li>3. Form relevant, reasonable, and sound scientific questions.</li> <li>4. Think critically to recognize and weigh alternative scientific evidence, explanations, and theories.</li> </ol>

**Alignment of School-Level Outcomes and SLEs**

<b>SLE</b>	<b>Expected Outcome (Graduate)</b>	<b>Expected Outcome (Undergraduate)</b>
<b>Historical and Cultural Perspectives (HIST)</b>	N/A	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Recognize basic characteristics of important historical periods and cultures.</li> <li>2. Use appropriate historical and cultural evidence to form relevant, reasonable, and objective conclusions.</li> <li>3. Demonstrate understanding of key historical and cultural perspectives.</li> <li>4. Demonstrate an understanding of diversity in a global context.</li> </ol>
<b>Ethics (ETH)</b>	N/A	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Explain how their decisions and actions affect the human and physical environment.</li> <li>2. Explain the philosophy, techniques, and ethical decision making involved in making choices.</li> </ol>
<b>Content/Discipline (SPEC)</b>	N/A	<p>Graduates will be able to</p> <ol style="list-style-type: none"> <li>1. Apply principles and theories in the discipline.</li> <li>2. Conduct research appropriate to the discipline.</li> <li>3. Integrate principles and theories of the discipline for evaluation and analysis.</li> </ol>

**APPENDIX B**

**ASSESSMENT PLANS  
FOR THE SCHOOL OF  
UNDERGRADUATE  
STUDIES**

Undergraduate assessment plans include the following:

- Overview of Undergraduate Program-Level Assessment of SLE Areas, Spring 2010
- Summary Plans for Undergraduate Program-Level Assessment of SLE Areas, 2009–10
- Undergraduate Program-Level Assessments by SLE (All Programs), 2010–14

Student Learning Expectations Assessed								
	COMM	TECH	INFO	QUAN	SCIE	THIN	ETH*	HIST*
Academic Programs	Writing	Computer and Information Science	Asian Studies	Finance	Biotechnology	Accounting	Global Business and Public Policy	History
	Fire Science		Political Science		Environmental Management	Criminal Justice		
	Humanities	Humanities	Gerontology	English	Information Assurance			
	Legal Studies	Computer Information Technology	Management Studies	Laboratory Management	Gerontology	Legal Studies		
		Computer Science	Psychology		Political Science			
		Computer Studies			Human Resource Management			
		Information Systems Management			Legal Studies			
					Marketing			

\*Not included in external reporting.

Chart 1: Overview of Undergraduate Program-Level Assessment of SLE Areas, Spring 2010

Undergraduate Program-Level and SLE Assessment, 2009–10						
Program/Major	SLE(s)	Course/Outcome	Tool	SU	FA	SP
Academic Writing	COMM	WRTG 101 Outcome 1	Final exam question w/rubric	DA DM	IA	CD AD RD
Accounting	THIN	ACCT 495 Outcome 5	Project w/rubric	DA DM	IA	CD
Asian Studies	INFO	ASTD 160 Outcome 2	Exam question w/rubric	DA DM	IA	CD AD
Biotechnology	SCIE	BIOL 362 Outcome 1	Exam question w/rubric	DA DM	IA	CD AD RD
Biotechnology	SCIE	BIOL 486A/486B Outcome 2	Being developed			DA DM
Business Administration	SPEC	BMGT 364 Outcome 3	Final exam question w/rubric	DA DM	IA	CD
Communication Studies	SPEC	COMM 300 Outcome 2	Common assignment w/rubric	DA DM	IA	CD AD RD
Communication Studies	TECH	COMM 379A Outcome 5	Being developed			DA
Computer and Information Science	TECH	CMIS 102 Outcome 1	Final exam question	DA DM	IA CD	AD RD
Computer and Information Science	THIN TECH	CMIS 141/CMIS 310	Being developed			DA DM
Computer Information Technology	TECH	CMIT 265 Outcome 1	Scenario-based essay question w/rubric	DA DM	IA	CD AD

Undergraduate Program-Level and SLE Assessment, 2009–10						
Program/Major	SLE(s)	Course/Outcome	Tool	SU	FA	SP
Computer Science	TECH	CMSC 230 Outcome 1	Project w/rubric	DA DM	IA CD	AD RD
Computer Science	TECH	CMSC 130 Outcome 2	Being developed			DA DM
Computer Studies	TECH (2)	CMST 103 Outcome 1 & Outcome 2	Final exam question w/rubric	DA DM	IA	CD AD
Criminal Justice	THIN	CCJS 100 Outcome 2	Paper w/rubric	DA DM	IA	CD AD
Criminal Justice	THIN	CCJS 100 Outcome 3	Being developed		DA DM	IA
Emergency Management	SPEC	HMLS 495 Outcome 5	Research paper w/rubric	DA DM	IA	CD AD
English	THIN	ENGL 303 Outcome 1	Final exam question w/rubric	DA DM	IA	CD
Environmental Management	SCIE	ENMT 301 Outcome 1	Essay w/rubric	DA DM	IA	CD AD RD
Environmental Management	SCIE	ENMT 495	Being developed			DA DM
Finance	QUAN	FINC 330 Outcome 1	Common exam w/rubric	DA DM	IA	CD AD
Fire Science	COMM	HMLS 495 Outcome 2	Research paper w/rubric	DA DM	IA	CD AD
Gerontology	THIN SCIE	GERO 302	Final exam essay question w/rubric	DA DM	IA	CD AD
Global Business and Public Policy	ETH	BMGT 392 Outcome 2	Research paper w/rubric	DA DM	IA	CD
Government and Political Science	THIN	GVPT 444	Final exam essay question w/rubric	DA DM	IA	CD AD
Government and Political Science	INFO	GVPT 480 Outcome 5	Being developed		DA DM	IA
History	HIST	HIST 157 Outcome 1	Final exam question w/rubric	DA DM	IA	CD AD
History	HIST	HIST 309 Outcome 2	Being developed		DA DM	IA
History	HIST	HIST 116 Outcome 3	Being developed			DA DM
Homeland Security	SPEC	HMLS 495 Outcome 7	Research paper w/rubric	DA DM	IA	CD AD
Humanities	INFO COMM	PHIL 315	Assigned essay w/rubric	DA DM	IA CD	AD RD DI
Human Resource Management	THIN	HRMN 495	Final paper w/rubric	DA DM	IA CD	AD
Information Assurance	ETH	IFSM 310	Research paper w/rubric	DA DM	IA CD	AD RD
Information Systems Management	TECH	IFSM 300 Outcome 1	Final exam question	DA DM	IA CD	AD RD
Investigative Forensics	SPEC	CCJS 320 Outcome 1	Paper w/rubric	DA DM	IA	CD AD

Undergraduate Program-Level and SLE Assessment, 2009–10						
Program/Major	SLE(s)	Course/Outcome	Tool	SU	FA	SP
Investigative Forensics	SPEC	CCJS 425 Outcome 2	Being developed			DA DM
Laboratory Management	SCIE	NSCI 301	Exam question	DA DM	IA	CD AD RD
Laboratory Management	SCIE	BIOL 486A/486B Outcome 2	Being developed			DA DM
Legal Studies	ETH	LGST 204 Outcome 2	Memorandum w/rubric	IA	CD AD	RD DI
Legal Studies	THIN	LGST 204 Outcome 5	Memorandum w/rubric	IA	CD AD	RD DI
Legal Studies	COMM	LGST 204 Outcome 6	Memorandum w/rubric	IA	CD AD	RD DI
Legal Studies	COMM	LGST 201 Outcome 8	Being developed	IA	CD AD	RD DI
Management Studies	INFO	BMGT 364 Outcome 2	Essay w/rubric	DA DM	IA	CD
Marketing	THIN	MRKT 495 Outcome 1	Case study w/rubric	DA DM	IA	CD
Psychology	INFO	PSYC 305 Outcome 3	Final exam question w/rubric	DA DM	IA	CD AD
Social Science	SPEC	SOCY 100 Outcome 1	Common exam	DA DM	IA CD	AD RD

Chart 2: Summary Plans for Undergraduate Program-Level Assessment of SLE Areas, 2009–10

Codes: Develop Assignment = DA; Define Measures = DM; Implement Assignment in Course = IA; Collect Data = CD; Analyze Data = AD; Report Data = RD; Determine and Implement Needed Changes = DI

Prior Learning/Portfolio and Cooperative Education (COOP) will be assessed. Because of the format of these programs, they do not consistently fit with the model for the assessment of all other programs. However, each of these programs has developed desired outcomes and is continuing to work on effective models for assessment.

The chart below shows the schedule for all undergraduate program-level assessments for 2010–14.

Summer or Fall 2010							
	COMM	TECH	INFO	QUAN	SCIE	THIN	ETH
Academic Programs	Computer Science	Finance	Asian Studies		Investigative Forensics	Asian Studies	Asian Studies
	Legal Studies	Information Systems Management	Finance			Computer and Information Science	Environmental Management
		Information Assurance	Political Science			English	Information Systems Management
						Environmental Management	

Spring 2011							
	COMM	TECH	INFO	QUAN	SCIE	THIN	ETH
Academic Programs	Writing	Computer Science	Asian Studies			Asian Studies	Asian Studies
	Computer and Information Science	Legal Studies	Computer Information Technology			Computer Studies	Legal Studies
	Marketing		Computer Studies			Emergency Management	
	Political Science		Legal Studies			Homeland Security	
						Legal Studies	

Summer or Fall 2011							
	COMM	TECH	INFO	QUAN	SCIE	THIN	ETH
Academic Programs	Human Resource Management	Information Assurance	Accounting	Environmental Management		Biotechnology	Accounting
	Humanities	Legal Studies	Communication Studies	Human Resource Management		Business Administration	Business Administration
	Legal Studies		Human Resource Management			Computer Science	Computer and Information Science
			Humanities			Investigative Forensics	Social Sciences
						Information Systems Management	
						Psychology	
						Social Sciences	

Spring 2012							
	COMM	TECH	INFO	QUAN	SCIE	THIN	ETH
Academic Programs	Writing	Computer Studies	Biotechnology		Biotechnology	Fire Science	Communication Studies
	Computer Information Technology	Human Resource Management	Gerontology		Laboratory Management	Global Business and Public Policy	English
	Computer Studies		Humanities		Psychology	Laboratory Management	Environmental Management
	Global Business and Public Policy		Marketing				
	Homeland Security						
	Humanities						

Summer or Fall 2012							
	COMM	TECH	INFO	QUAN	SCIE	THIN	ETH
Academic Programs	Accounting	Accounting	Asian Studies	Social Sciences		Asian Studies	Asian Studies
	Humanities	Computer and Information Science	Business Administration			Information Assurance	Criminal Justice
	Investigative Forensics	Computer Science	Humanities			Laboratory Management	Finance
		Information Systems Management	Laboratory Management			Management Studies	Management Studies
		Legal Studies	Social Sciences				

Spring 2013							
	COMM	TECH	INFO	QUAN	SCIE	THIN	ETH
Academic Programs	Communication Studies	Computer and Information Science	Criminal Justice	Computer Science		Computer Information Technology	Computer Science
	Humanities	Marketing	Humanities			Communication Studies	Emergency Management
							Fire Science
							Homeland Security
							Human Resource Management
							Investigative Forensics
							Marketing

Summer or Fall 2013							
	COMM	TECH	INFO	QUAN	SCIE	THIN	ETH
Academic Programs	English	Computer Information Technology	English			Biotechnology	Gerontology
	Humanities	English	Humanities			Finance	
	Laboratory Management	Information Systems Management	Investigative Forensics			Psychology	
		Information Assurance					

Spring 2014							
	COMM	TECH	INFO	QUAN	SCIE	THIN	ETH
Academic Programs	Business Administration	Fire Science	Asian Studies			Asian Studies	Asian Studies
	Humanities		Biotechnology			Laboratory Management	Computer Information Technology
			Fire Science				Environmental Management
			Humanities				Global Business and Public Policy
							Laboratory Management
							Political Science

Chart 3: Undergraduate Program-Level Assessments by SLE (All Programs), 2010–14

# APPENDIX C

# ASSESSMENT PLANS FOR THE GRADUATE SCHOOL OF MANAGEMENT AND TECHNOLOGY

## Plans for Graduate Assessment by SLE

### SLE: Written Communication

**Past Assessment:** A standardized rubric, entitled the GSMT Standardized Writing Rubric, was developed and piloted in 2006. Assessment of graduate students began in spring 2007 using the standardized rubric. Results were reported in August 2007.

Program	Plans
<b>Master – Accounting &amp; Financial Management</b>	Round 1: FIN 610, Short Paper, scored using GSMT COMM Rubric; Round 2: ACCT 612, Research Paper, scored using GSMT COMM Rubric; Round 3: FIN 660, CFO Research Paper, scored using GSMT COMM Rubric.
<b>Master – Accounting &amp; Information Technology</b>	Round 1: ACCT 610, Short Paper, scored with GSMT COMM Rubric; Round 2: ACCT 614, Short Paper, scored with GSMT COMM Rubric; Round 3: ACCT 665, Short Paper, scored with GSMT COMM Rubric.
<b>Master – Financial Management &amp; Information Systems</b>	Round 1: FIN 610, Short Paper, scored using GSMT COMM Rubric; Round 2: FIN 645, Short Paper, scored using GSMT COMM Rubric; Round 3: MSFS 670, Short Paper, scored using GSMT COMM Rubric.
<b>Master – Business Administration (MBA)</b>	Round 1: AMBA 610, GSMT COMM Rubric; Round 2: AMBA 640, GSMT COMM Rubric; Round 3: AMBA 670, GSMT COMM Rubric.
<b>Master – Environmental Management</b>	Round 1: USCP 611, Final Exam; Round 2: ENVM 670; Round 3: ENVM 643.
<b>Master – Distance Education</b>	Round 1: OMDE 603, Essay and/or Writing Task; Round 2: OMDE 606, Project; Round 3: OMDE 670, Essay and/or Writing Task.
<b>Master – Health Care Administration</b>	HCAD 600, Research Paper.

### SLE: Technology Fluency

**Past Assessment:** No previous assessment.

Program	Plans
<b>Master – Accounting &amp; Financial Management</b>	Round 1: MGMT 640, Homework in Excel, scored using modified TECH Rubric; Round 2: FIN 630, Homework in Excel, scored using modified TECH Rubric; Round 3: FIN 660, Simulation Homework Assignment, scored using modified TECH Rubric.
<b>Master – Accounting &amp; Information Technology</b>	Round 1: ACCT 610, Homework in Excel, scored using modified TECH Rubric; Round 2: ACCT 614, Homework in Access, scored using TECH Rubric; Round 3: ACCT 665, Homework in Excel, scored using modified TECH Rubric.
<b>Master – Financial Management &amp; Information Systems</b>	Round 1: MGMT 640, Homework in Excel, scored using modified TECH Rubric; Round 2: FIN 630, Homework in Excel, scored using modified TECH Rubric; Round 3: MSFS 670, Homework in Excel, scored using modified TECH Rubric.
<b>Master – Business Administration (MBA)</b>	Round 2: Course-identified rubric and assignment; Round 3: Course-identified rubric and assignment.
<b>Master – Environmental Management</b>	Round 2: ENVM 649, Exam; Round 3: ENVM 670, Term Project.
<b>Master – Distance Education</b>	Round 1: OMDE 603, Essay and/or Writing Task; Round 2: OMDE 606, Project; Round 3: OMDE 670, E-portfolio.
<b>Master – Health Care Administration</b>	HCAD 600, Conference.

## Plans for Graduate Assessment by SLE

### SLE: Information Literacy

**Past Assessment:** The assessment tool, a standardized final examination entitled the UCSP 611 Final Exam, was selected as the tool to measure institutional-level student learning. The assessment tool was developed and piloted in 2006. Assessment of graduate students began in spring 2007. Results were reported in October 2007.

Program	Plans
<b>Master – Accounting &amp; Financial Management</b>	Round 1: UCSP 611 Final Exam or ACCT 608 Article Briefing Paper, scored using GSMT Modified INFO Rubric; Round 2: ACCT 665, Short Paper, scored using GSMT Modified INFO Rubric; Round 3: MSAF 670, Article Briefing Paper, scored using GSMT Modified INFO Rubric.
<b>Master – Accounting &amp; Information Technology</b>	Round 1: UCSP 611 Final Exam or ACCT 610 Short Paper, scored using GSMT Modified INFO Rubric; Round 2: ACCT 608, Article Briefing Paper, scored using GSMT Modified INFO Rubric; Round 3: ACCT 665, Article Briefing Paper, scored using GSMT Modified INFO Rubric.
<b>Master – Financial Management &amp; Information Systems</b>	Round 1: UCSP 611 Final Exam or FIN 615 Short Paper, scored using GSMT Modified INFO Rubric; Round 2: FIN 630, Short Paper, scored using GSMT Modified INFO Rubric; Round 3: MSFS 670, Short Paper, scored using GSMT Modified INFO Rubric.
<b>Master – Business Administration (MBA)</b>	Round 1: UCSP 611, Final Exam; Round 2: Rubric and Assignment from OA Departments; Round 3: Rubric and Assignment from OA Department.
<b>Master – Environmental Management</b>	Round 1: UCSP 611 Final Exam or ENVM 646 Assignment; Round 2: ENVM 643, Assignment; Round 3: ENVM 649, Term Paper.
<b>Master – Distance Education</b>	Round 1: UCSP 611, Final Exam; Round 2: OMDE 606, Project; Round 3: OMDE 670, Essay and/or Writing Task.
<b>Master – Health Care Administration</b>	UCSP 611 Final Exam or HCAD 600 Research Paper.

### SLE: Critical Thinking

**Past Assessment:** No previous assessment. School-level outcomes in the graduate school for critical thinking emphasize the importance of integrating a variety of skills from SLE areas as well as knowledge from a variety of disciplinary areas. Consequently, critical thinking will not be assessed in Round 1 for any of the programs. Given the nature of school-level outcomes for this SLE and the emphasis on integrating learned skills, there is nothing to integrate at the outset of the program. After three or more courses have been taken—by Round 2—this SLE will be assessed.

Program	Plans
<b>Master – Accounting &amp; Financial Management</b>	Round 2: FIN 614, Group Project, scored using Custom Rubric; Round 3: FIN 660, Simulation, scored using Custom Rubric.
<b>Master – Accounting &amp; Information Technology</b>	Round 2: ACCT 614, Group Project, scored using Custom Rubric; Round 3: MSAT 670, Group Project, scored using Custom Rubric.
<b>Master – Financial Management &amp; Information Systems</b>	Round 2: FIN 614, Group Project, scored using Custom Rubric; Round 3: MSFS 670, Group Project, scored using Custom Rubric.
<b>Master – Business Administration (MBA)</b>	Courses, assignments, and rubrics are being identified for Rounds 2 and 3.
<b>Master – Environmental Management</b>	Round 2: ENVM 646, Assignment; Round 3: ENVM 670, Term Project.
<b>Master – Distance Education</b>	Round 2: OMDE 606, Project; Round 3: OMDE 670.
<b>Master – Health Care Administration</b>	HCAD 670, Case Study.

## Plans For Graduate Assessment by SLE

### SLE: Content

**Past Assessment:** No previous assessment. Each department is developing a rubric to assess program content knowledge.

Program	Plans
<b>Master – Accounting &amp; Financial Management</b>	Round 1: MGMT 640, Final Exam; Round 2: FIN 630, Final Exam; Round 3: MSAF 670, Final Exam.
<b>Master – Accounting &amp; Information Technology</b>	Round 1: ACCT 610, Final Exam; Round 2: ACCT 614, Final Exam; Round 3: MSAT 670, Final Exam.
<b>Master – Financial Management &amp; Information Systems</b>	Round 1: MGMT 640, Final Exam; Round 1: FIN 615, Final Exam; Round 3: MSFS 670, Group Project Assignment, scored using Custom Rubric.
<b>Master – Business Administration (MBA)</b>	Assignment and rubrics embedded in three courses at each of three rounds.
<b>Master – Environmental Management</b>	Round 1: ENVM 643, Assignment; Round 2: ENVM 646, Assignment; Round 3: ENVM 670, Term Project.
<b>Master – Distance Education</b>	Round 1: OMDE 603, Essay and/or Writing Task; Round 2: OMDE 606, Project; Round 3: OMD 670, Essay and/or Writing Task.
<b>Master – Health Care Administration</b>	HCAD 670, Case Study.

# **APPENDIX D**

## **EXAMPLE OF A PROGRAM ASSESSMENT PLAN IN THE SCHOOL OF UNDERGRADUATE STUDIES**

## FIVE-YEAR PROGRAM ASSESSMENT PLAN

### Five-Year Assessment Cycle Planning (Tentative Schedule)

In completing this schedule, please keep in mind that all of your program outcomes should be assessed at least once during the five-year cycle so that, when a program/discipline comes up for review, you can report on the learning for all of the goals. Every goal should be listed at least once, and every goal does not need to be assessed every year.

**Date:** February 26, 2009

**Program/Discipline Name:** Computer information technology

**Program Mission:** The computer information technology major prepares students to enter or advance in information technology fields where certification of knowledge level is commonly considered in hiring and promotion decisions. The computer information technology major is designed to combine the benefits of a traditional college education with the benefits of hands-on training in state-of-the-art computer technology. Students become technically competent but also learn to write well-organized and clear memoranda and reports. The computer information technology curriculum integrates technical skill with communication skills, superior general education requirements, and breadth of knowledge in computer information technology fields, particularly networking.

**Student Learning Outcomes:**

1. Develop solutions to network administration problems.
2. Apply effective information research techniques.
3. Use effective communication.
4. Critically analyze multifaceted network problems and develop solutions (THIN).
5. Articulate ethical issues related to the impact of information technology on contemporary issues (ETH).

Student Learning Outcomes	Place in Curriculum (course)	Su 09	Fa 09	Sp 10	Su 10	Fa 10	Sp 11	Su 11	Fa 11	Sp 12	Su 12	Fa 12	Sp 13	Su 13	Fa 13	Sp 14
1	CMIT 265	DA DM	IA	CD AD	RD DI								DA DM	IA	CD AD	RD DI
2	CMIT 368				DA DM	IA	CD AD	RD DI								
3	CMIT 368							DA DM	IA	CD AD	RD DI					
4	Capstone										DA DM	IA	CD AD	RD DI		
5	Capstone and CMIT 321													DA DM	IA	CD AD

**Field Codes:**

Develop Assignment = DA

Define Measures = DM

Implement Assignment in Course = IA

Collect Data = CD

Analyze Data = AD

Report Data = RD

Determine and Implement Needed Changes = DI

## **APPENDIX E**

# **EXAMPLE OF A PROGRAM ASSESSMENT PLAN IN THE GRADUATE SCHOOL OF MANAGEMENT AND TECHNOLOGY**

**MASTER OF SCIENCE IN ACCOUNTING  
AND FINANCIAL MANAGEMENT (MSAF)  
MANAGEMENT, ACCOUNTING, AND FINANCE DEPARTMENT**

**PROGRAM ASSESSMENT PLAN**  
**PROGRAM OUTCOMES AND LEARNING  
ASSESSMENT CRITERIA**

**SPRING 2009**

## CONTENTS

Program Overview .....	E-3
Program of Study .....	E-3
Development of Program Outcomes .....	E-4
Program Outcomes .....	E-5
Alignment of Program Outcomes with Learning Objectives and Assessment Methods .....	E-7

## PROGRAM OVERVIEW

The Master of Science in Accounting and Financial Management Program is designed for students who want to gain a comprehensive understanding of the financial reporting process, the impact of financial reporting on the financial markets, and the use and analysis of financial information for better decision making. Graduates possess academic depth in both the fields of accounting and finance upon completion of coursework in financial and managerial accounting, taxation, financial management of operations, capital markets, investments, global finance, corporate ethics, and e-commerce. The resulting competencies will enable graduates to pursue management positions of increasing responsibility, with potential to assume the role of chief financial officer. Additionally, successful completion of the program may satisfy the education requirement for candidacy for the Certified Public Accountant examination.

## PROGRAM OF STUDY

### Core Courses

UCSP 611	Introduction to Graduate Library Research Skills	0 credit hours
ACCT 608	Fraud Detection and Accounting Ethics	3 credit hours
ACCT 610	Financial Accounting	3 credit hours
ACCT 612	Auditing Process	3 credit hours
ACCT 613	Federal Income Taxation	3 credit hours
ACCT 665	Special Topics in Accounting	3 credit hours
FIN 610	Financial Management in Organizations	3 credit hours
FIN 620	Capital Markets, Institutions, and Long-Term Financing	3 credit hours
FIN 630	Investment Valuation	3 credit hours
FIN 645	Behavioral Finance	3 credit hours
FIN 660	Strategic Financial Management	3 credit hours
MGMT 640	Financial Decision Making for Managers	3 credit hours
MSAF 670	Financial Management and Accounting Capstone	3 credit hours

## DEVELOPMENT OF PROGRAM OUTCOMES

The table below identifies the curricular influences that support the program outcomes specific to the Master of Science in Accounting and Financial Management Program.

SOURCES/RESOURCES PROVIDING CURRICULAR FOUNDATION FOR PROGRAM OUTCOMES Master of Science in Accounting and Financial Management Program		
Source	Description	Web Address or Document Name (if applicable)
<b>Student Learning Expectation of the UMUC Graduate School of Management and Technology</b>	<p>UMUC degree programs are required to embed identified institutional SLEs into each degree program. The SLEs for the Graduate School of Management and Technology are</p> <p>Written Communication (COMM) Information Literacy (INFO) Technology Fluency (TECH) Program Content Knowledge (KNOW/SPEC) Integrative Skills (THIN)</p> <p>The expanded definition for each Student Learning Expectation was considered in creating the respective program outcome.</p>	UMUC <i>Institutional Plan for the Assessment of Student Learning Outcomes</i>
<b>American Institute of Certified Public Accountants (AICPA)</b>	The AICPA writes the Certified Public Accountant examination and suggests curricula that will prepare students for entry into the public accounting profession.	<a href="http://www.aicpa.org">http://www.aicpa.org</a>
<b>American Finance Association (AFA)</b>	The AFA is an academic organization that publishes <i>The Journal of Finance</i> , a leading resource on the application of finance theory.	<a href="http://www.afajof.org">http://www.afajof.org</a>
<b>Financial Education Association</b>	This professional association of finance academicians has as its mission to enhance the teaching of financial education and improve the collegiate financial education experience and curriculum.	<a href="http://www.fea.sju.edu">http://www.fea.sju.edu</a>
<b>International Federation of Accountants (IFAC)</b>	The IFAC is a pioneer in discussions of distance education in accounting and suggests standards that should be met by such programs.	<a href="http://www.ifac.org">http://www.ifac.org</a>
<b>State Board of Public Accountancy of Maryland</b>	The Maryland State Board of Public Accountancy sets education requirements for eligibility for the Certified Public Accountant examination in Maryland.	<a href="http://www.dllr.state.md.us/license/cpa/cpareqact.htm#cirr.htm">http://www.dllr.state.md.us/license/cpa/cpareqact.htm#cirr.htm</a>

## PROGRAM OUTCOMES

The program outcomes for the Master of Science in Accounting and Financial Management Program are delineated below. The program outcomes describe the expectations for all graduates of the Master of Science in Accounting and Financial Management Program.

PROGRAM OUTCOMES Master of Science in Accounting and Financial Management Program											
Student Learning Expectation	Program Outcome	ACCT 608	ACCT 610	ACCT 612	ACCT 665	FIN 610	FIN 630	FIN 645	FIN 660	MGMT 640	MSAF 670
<b>COMM</b>	Use effective communication to express clearly ideas about accounting and financial management in a professional manner and tone.			2		1			3		
<b>INFO</b>	Identify problem areas in accounting and financial management and information sources useful in forming resolutions to such problems.	1			2						3
<b>TECH</b>	Utilize technology and information systems in the financial management of organizations to share access to information and improve the quality of decision making enterprise-wide.						2		3	1	
<b>KNOW (SPEC)</b>	Integrate accounting and financial management concepts, principles, and applications into a coherent, structured system for analysis and resolution of problems within organizations.						2			1	3
<b>THIN</b>	Evaluate complex problems and ethical situations found in accounting and financial management and potential appropriate solutions within the context of the internal structures and external institutions that influence multinational organizations in ways that evidence problem solving, systems thinking, critical thinking, ethical behavior, sensitivity to diversity, team work, and quantitative reasoning.		1					2	3		

*Note: Number under course column indicates the round in which a specific SLE will be assessed.*

**PROGRAM OUTCOMES**  
**Master of Science in Accounting and Financial Management Program**  
**Summary Schedule by Rounds**

Student Learning Expectation	Program Outcome	Round 1	Round 2	Round 3
<b>COMM</b>	Use effective communication to express clearly ideas about accounting and financial management in a professional manner and tone.	FIN 610	ACCT 612	FIN 660
<b>INFO</b>	Identify problem areas in accounting and financial management and information sources useful in forming resolutions to such problems.	ACCT 608	ACCT 665	MSAF 670
<b>TECH</b>	Utilize technology and information systems in the financial management of organizations to share access to information and improve the quality of decision making enterprise-wide.	MGMT 640	FIN 630	FIN 660
<b>KNOW (SPEC)</b>	Integrate accounting and financial management concepts, principles, and applications into a coherent, structured system for analysis and resolution of problems within organizations.	MGMT 640	FIN 630	MSAF 670
<b>THIN</b>	Evaluate complex problems and ethical situations found in accounting and financial management and potential appropriate solutions within the context of the internal structures and external institutions that influence multinational organizations in ways that evidence problem solving, systems thinking, critical thinking, ethical behavior, sensitivity to diversity, team work, and quantitative reasoning.	ACCT 610	FIN 645	FIN 660

## ALIGNMENT OF PROGRAM OUTCOMES WITH LEARNING OBJECTIVES AND ASSESSMENT METHODS

The following grid aligns the program outcomes of the Master of Science in Accounting and Financial Management Program with learning objectives from the designated program coursework and with the specific methods used to assess student learning within the degree program.

CURRICULAR ALIGNMENT Master of Science in Accounting and Financial Management Program			
Student Learning Expectation	Program Outcome	Learning Objective(s) and Correlating Coursework	Method(s) of Assessment
<b>COMM</b>	Use effective communication to express clearly ideas about accounting and financial management in a professional manner and tone.	Round 1: FIN 610 – Identify the functions of financial management in public, private and not-for-profit organizations.	Round 1: FIN 610 – Short Paper, scored using GSMT COMM Rubric
		Round 2: ACCT 612 – Explain the meaning of Generally Accepted Auditing Standards and distinguish the types of assurance and attestation provided by independent auditors.	Round 2: ACCT 612 – Research Paper, scored using GSMT COMM Rubric
		Round 3: FIN 660 – Analyze the financial management policies and practices of selected organizations and recommend methods for improving them.	Round 3: FIN 660 – CFO Research Paper, scored using GSMT COMM Rubric
<b>INFO</b>	Identify problem areas in accounting and financial management and information sources useful in forming resolutions to such problems.	Round 1: ACCT 608 – Analyze the different types of fraud and their causes in a variety of contexts.	Round 1: ACCT 608 – Article Briefing Paper, scored using GSMT Modified INFO Rubric
		Round 2: ACCT 665 – Identify the diversity in global accounting practices, the difficulties such diversity causes, and the pros and cons of international harmonization of accounting standards.	Round 2: ACCT 665 – Short Paper, scored using GSMT Modified INFO Rubric
		Round 3: MSAF 670 – Assess the strengths and weaknesses of corporate strategies from recent financial performance.	Round 3: MSAF 670 – Article Briefing Paper, scored using GSMT Modified INFO Rubric
<b>TECH</b>	Utilize technology and information systems in the financial management of organizations to share access to information and improve the quality of decision making enterprise-wide.	Round 1: MGMT 640 – Perform a financial analysis of a for-profit firm using the organization’s financial statements and conducting a financial ratio analysis.	Round 1: MGMT 640 – Homework in Excel, scored using modified TECH rubric
		Round 2: FIN 630 – Apply valuation principles using various comparables techniques, such as multiples of earnings and revenues.	Round 2: FIN 630 – Homework in Excel, scored using modified TECH rubric
		Round 3: FIN 660 – Analyze the financial management policies and practices of selected organizations and recommend methods for improving them.	Round 3: FIN 660 – Simulation Homework Assignment, scored using modified TECH rubric

CURRICULAR ALIGNMENT			
Master of Science in Accounting and Financial Management Program			
Student Learning Expectation	Program Outcome	Learning Objective(s) and Correlating Coursework	Method(s) of Assessment
<b>KNOW (SPEC)</b>	Integrate accounting and financial management concepts, principles, and applications into a coherent, structured system for analysis and resolution of problems within organizations.	Round 1: MGMT 640 – Apply financial and nonfinancial information to both short-term and long-term management decisions in for-profit, nonprofit, and government organizations.	Round 1: MGMT 640 – Final Exam
		Round 2: FIN 630 – Assess the impact of managerial and financial decision making on the value of the firm.	Round 2: FIN 630 – Final Exam
		Round 3: MSAF 670 – Apply the course material and the concepts, principles, and tools developed in the financial management and accounting courses to support the valuation estimate of a given firm.	Round 3: MSAF 670 – Final Exam
<b>THIN</b>	Evaluate complex problems and ethical situations found in accounting and financial management and potential appropriate solutions within the context of the internal structures and external institutions that influence multinational organizations in ways that evidence problem solving, systems thinking, critical thinking, ethical behavior, sensitivity to diversity, teamwork, and quantitative reasoning.	Round 1: ACCT 610 – Articulate issues currently debated in modern accounting research and demonstrate the ability to critique relevant research based on professional accounting literature.	Round 1: ACCT 610 – Group Project, scored using Custom Rubric
		Round 2: FIN 645 – Apply the effects of potential biases with the use of valuation heuristics to real-world scenarios provided by the instructor.	Round 2: FIN 614 – Group Project, scored using Custom Rubric
		Round 3: FIN 660 – Apply the concepts and tools developed in the track courses to the solution of financial management problems that arise in cases and/or simulations in this course.	Round 3: FIN 660 – Simulation, scored using Custom Rubric

# **APPENDIX F**

## **EXAMPLE OF AN UNDERGRADUATE PROGRAM ASSESSMENT REPORT: SOCIAL SCIENCES (2009)**

# **LEARNING OUTCOMES ASSESSMENT REPORT**

**PROGRAM: SOCIAL SCIENCES  
COURSE: SOCIOLOGY 100**

**TERM: FALL 2009**

## I. PROGRAM LEARNING OUTCOME ASSESSED

Explain basic foundational concepts of sociology.

## II. METHODS

A 50-item, 4-option, multiple choice test was used. The test was a common final exam. The exam had three test forms – A, B, and make-up. The analyses below are for Form A. The sample sizes for Form B ( $n = 18$ ) and the make-up ( $n = 37$ ) were too small to allow for meaningful analysis. Form A reflects both CBT and Paper-and-Pencil data.

## III. RESULTS

- The sample size was 152. The minimum score in the sample was 18 out of 50. The maximum score in the sample was 50 out of 50. The mean score was 35.03 (SD = 5.92).
- For this test, Coefficient Alpha is .774. This test has a good level of reliability. No items should be removed based on the reliability analysis.
- Based on the item difficulty analysis, Items 7, 8, 12, 16, 17, 18, 20, 25, 33, 25, 40, and 43 are very easy; they have a proportion correct of 90% or higher. That means that 90% or more of the students who took the exam answered these items correctly. Items 39, 50, and 4, are difficult; they reflect a proportion correct of 20% to 30%.
- Based on the item discrimination indices, special attention should be paid to Items 5, 16, 45, 1, 2, 6, 10, 12, 13, 15, 20, 21, 23, 32, 34, 35, 37, 40, and 43 because their discrimination level is very low, and in some cases zero. The only item with a high level of discrimination is Item 47. Generally, these items do not perform well in discriminating between students who know the material and those who do not know the material.
- The items in this test that have fully functioning distracters are Items 19, 21, 23, 28, 37, 38, 44, 45, 47, 48, and 49. For all other test items, the distracters should be reviewed, such that the item writers should change the unused distracter to be more feasible options.
- See attached Item Analysis Report for details.

## IV. NEXT STEPS

- The primary suggestion for improving the test is to re-write the distracters that are used less than 5% of the time, such that they are more feasible options.
- Remember to define a benchmark using the results, against which future results can be compared to determine if desired improvements in learning are being reached.
- Remember to disseminate results, reports, recommendations, and changes to appropriate audiences (e.g., faculty).

## V. PROGRAM ADDITIONS

### Learning Outcomes Assessment Report

Program Comments and Actions

Social Sciences Program

Submitted by Darlene A. Smucny, Ph.D.

5/3/2010

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## I. SUMMARY

The Learning Outcomes Assessment Report of the Item Analysis (psychometric analysis and suggestions for content review) was reviewed by the Academic Director (Darlene Smucny), the SOCY 100 Exam Chair, and the document was posted in the Faculty Resource classroom (BEHS 999) for general discussion. In order to better determine which areas of the course may pose more difficulty to students, or are less clear, the multiple-choice test items were mapped to course goals and objectives (Table I, Table II).

Preliminary observations of the mapping reveal that the three most difficult items all mapped to course objective #1, while the very easy questions mapped to a number of the objectives (#1, 3,4, 5,7, and 8). The Academic Director and the Exam Chair will work to improve the discrimination of the multiple-choice test items, by re-writing the distracters particularly for items identified as having low discrimination (Table II). The test items will be further reviewed in terms of basic sociological concepts, specifying beyond the course goals and objectives. Working with the faculty, the Program will identify the benchmarks of student learning for this assessment.

## II. TASKS, ACTION ITEMS AND TIMELINE

Task	Action Item	Target Date
Improve discrimination of multiple-choice test items	Work with Exam Chair in re-writing distracters for items with low discrimination	Spring 2010
Determine how sociology course goals and objectives, and then concepts map to item analysis results	Map course goals and objectives, and then more specific concepts, to results of item analysis; identify possible problem areas in course and discuss with instructors	Summer 2010
Define benchmarks of student learning for this assessment	Work with SOCY faculty to define benchmarks	Summer 2010
Use assessment results to improve teaching practices in SOCY 100	Work with SOCY working group prepare guidelines for best practices for SOCY 100 instruction; "course guide"	Academic Year 2010-11 (as part of SEGUE curricular redesign process in the School of Undergraduate Studies)

Table I: SOCY 100 Course Objectives:

1. identify the main components of a sociological perspective as contrasted with a common sense perspective
2. apply key theoretical frameworks to such institutionalized spheres as family, work, and the economy
3. explain sociologically how social structures and cultures serve both to facilitate as well as to constrain people's actions and interactions
4. identify components of social stratification as rooted in such characteristics as race, gender, class, and age
5. identify social, cultural, and economic differences among developed and newly developing countries
6. describe the importance of population growth and decline for society
7. summarize current patterns of global stratification
8. apply skills in critical thinking as well as research and writing to topics important to your own outlook and perspective

Question, Version A	Question, Version B	Correct Response	Mapped to Objective	Difficulty	Item Discrimination
1	28	B	3		low
2	29	D	1		low
3	30	B	1,3		
4	31	D	1	difficult	
5	32	A	3		low
6	33	C	8		low
7	34	B	3	Very easy	
8	1	B	4	Very easy	
9	38	A	3		
10	2	D	3		low
11	13	B	5,7		
12	14	B	8	Very easy	low
13	15	B	3		low
14	16	B	4		
15	17	B	2		low
16	18	A	8	Very easy	low
17	19	C	4	Very easy	
18	20	B	1	Very easy	
19	21	B	8		
20	22	C	1	Very easy	low
21	23	A	1		low
22	24	A	3		
23	26	D	3		low
24	47	C	5,7		
25	48	C	3	Very easy	
26	27	C	3		
27	35	D	6		
28	36	B	4		
29	37	A	3		
30	39	A	1		
31	40	D	8		
32	41	A	3		low
33	42	A	5,7	Very easy	
34	43	D	5,7		low
35	6	A	6		low
36	7	B	3		
37	5	C	3		low
38	3	A	1		
39	4	C	1	difficult	
40	8	B	3	Very easy	low
41	9	B	1		
42	10	C	1		
43	11	B	1	Very easy	low
44	12	A	5,6,7		
45	44	C	8		low
46	45	A	3		
47	46	B	1		high
48	49	B	3		
49	50	A	3		
50	25	A	1	difficult	

Table II: Mapping of Test Items to Course Goals and Objectives, and General Summary of Item Analysis

# **ITEM ANALYSIS REPORT**

**COURSE: SOCIOLOGY 100**

**TEST: SOCIOLOGY 100 FINAL EXAM**

**SEMESTER: FALL 2009**

## SECTION ONE: PSYCHOMETRIC ANALYSIS

### Part I: Background

Summary statistics, reliability calculations, item difficulty indices, item discrimination indices, and distributions of students' item responses are presented for the Sociology 100 Final Exam. The exam had three test forms—A, B, and make-up. The analyses below are for Form A. The sample sizes for Form B and the make-up were too small to allow for meaningful analysis. Form A reflects both CBT and Paper-and-Pencil data. The analysis was conducted using Classical Test Theory (CTT). A review of the test items' contents was also conducted. Combining the psychometric analysis with the content review, recommendations are made for improving the test's psychometrics by making modifications to the test content.

### Part II: Summary Statistics

The sample size was 152. The minimum score in the sample was 18 out of 50. The maximum score in the sample was 50 out of 50. The mean score was 35.03 (SD = 5.92). Table 1 shows the summary statistics.

<b>Count (n)</b>	152
<b>Minimum</b>	18
<b>Minimum Possible</b>	0
<b>Maximum</b>	50
<b>Maximum Possible</b>	50
<b>Median</b>	34.50
<b>Mean</b>	35.03
<b>Standard Deviation</b>	5.92

Table 1: Summary Statistics

### Part III: Reliability (Coefficient Alpha)

Coefficient alpha estimates the internal consistency reliability of test scores. That is, combined overall, it is a measure of how much consistency there is among the items when measuring the students' knowledge. The values of coefficient alpha can range from zero to one. The closer the reliability coefficient is to one, the better the reliability is. High reliability is desirable especially when the goal of the test is to measure a single dimension of knowledge, because the magnitude of coefficient alpha indicates the level of consistency among test items that measure similar content. For interpreting the value of coefficient alpha, the common rule of thumb is that when the alpha is somewhere between 0.60 and 0.70, the test scores can be

regarded as having acceptable reliability. When coefficient alpha is above 0.80, the test scores can be regarded as highly reliable.

For this test, Coefficient Alpha is .774. This test has a good level of reliability.

Sometimes coefficient alpha can increase by removing a test item or items. Table 2 shows the overall Alpha, identifies each test item, identifies what Alpha would be without that item, and what the change in Alpha is if that item were to be removed. By removing any item in this test, reliability would decrease. No items should be removed based on the reliability analysis.

Alpha = .774		
Item	Alpha without Item	Change in Alpha by Removing Item
1	.772	-0.00191
2	.773	-0.00141
3	.769	-0.00474
4	.768	-0.00598
5	.776	0.00242
6	.772	-0.00187
7	.771	-0.00278
8	.772	-0.00245
9	.772	-0.00229
10	.773	-0.00082
11	.767	-0.00674
12	.773	-0.00055
13	.773	-0.00074
14	.771	-0.00299
15	.774	0.00008
16	.774	0.00046
17	.770	-0.00397
18	.770	-0.00353
19	.772	-0.00234
20	.772	-0.00174
21	.775	0.00116
22	.770	-0.00399
23	.773	-0.00146
24	.769	-0.00498
25	.769	-0.00490
26	.769	-0.00472
27	.770	-0.00360

Alpha = .774		
Item	Alpha without Item	Change in Alpha by Removing Item
28	.769	-0.00468
29	.771	-0.00330
30	.769	-0.00504
31	.769	-0.00523
32	.774	-0.00015
33	.770	-0.00403
34	.774	-0.00011
35	.773	-0.00095
36	.766	-0.00794
37	.774	0.00027
38	.765	-0.00921
39	.764	-0.00969
40	.772	-0.00151
41	.765	-0.00890
42	.768	-0.00641
43	.773	-0.00084
44	.768	-0.00609
45	.777	0.00307
46	.769	-0.00522
47	.759	-0.01521
48	.768	-0.00639
49	.768	-0.00555
50	.768	-0.00576

Table 2: Coefficient Alpha if a Single Item is Eliminated

### Part IV: Item Difficulty

Next, the level of difficulty of each item was determined. To do this, a statistical measure called the *difficulty index* was used. The difficulty index (also called a p-value) represents the proportion of students who answered the item correctly to the total number of students who answered the item. That is, item difficulty is calculated as the percentage correct for the total group of students on each item. Therefore, an item's difficulty or p-value can range from 0 to 1. The lower the p-value the more difficult the item is, because fewer students (a smaller proportion) would have answered it correctly. Based on the item difficulty analysis here, Items 7, 8, 12, 16, 17, 18, 20, 25, 33, 25, 40, and 43 are very easy; they have a proportion correct of 90% or higher. That means that 90% or more of the students who took the exam answered these items correctly. Items 39, 50, and 4, are difficult; they reflect a

proportion correct of 20% to 30%. It is the responsibility of the item writer to decide whether the difficulty level of the items is what they intended to achieve. Table 3 presents the item difficulty levels for all items.

.00:	
.10:	
.20:	Item 39 Item 50
.30:	Item 4
.40:	Item 2 Item 3 Item 9 Item 11 Item 28 Item 49
.50:	Item 5 Item 6 Item 21 Item 23 Item 34 Item 38 Item 45 Item 47
.60:	Item 1 Item 19 Item 26 Item 29 Item 30 Item 44 Item 48
.70:	Item 36 Item 41 Item 42
.80:	Item 10 Item 13 Item 14 Item 15 Item 22 Item 24 Item 27 Item 31 Item 32 Item 37 Item 46
.90:	Item 7 Item 8 Item 12 Item 16 Item 17 Item 18 Item 20 Item 25 Item 33 Item 35 Item 40 Item 43

Table 3: Item Difficulty

### Part V: Item Discrimination

In psychometrics, the *discrimination index* indicates how well as test differentiates between two groups of scorers on the test – a group of high scorers and a group of low scorers. One would expect that the high scorers (on the overall test) would answer a particular item correctly more often than the low scorers. That is, it is probable that a student who scores high on the overall test answers any given item correctly. Item discrimination is calculated based on the correlation between a single item and overall test scores. The higher the discrimination index the better the items discriminates between students who know the material and those students who do not know the material. A low discrimination index means that the test item does not have enough power to discriminate between students with low overall test performance and high overall test performance. Based on the item discrimination indexes, special attention should be paid to Items 5, 16, 45, 1, 2, 6, 10, 12, 13, 15, 20, 21, 23, 32, 34, 35, 37, 40, and 43 because their discrimination level is very low, and in some cases zero. The only item with a high level of discrimination is Item 47. Generally, these items do not perform well in discriminating between students who know the material and those who do not know the material. Item discrimination for all items is shown in Table 4.

<b>.00:</b>	Item 5 Item 16 Item 45
<b>.10:</b>	Item 1 Item 2 Item 6 Item 10 Item 12 Item 13 Item 15 Item 20 Item 21 Item 23 Item 32 Item 34 Item 35 Item 37 Item 40 Item 43
<b>.20:</b>	Item 3 Item 4 Item 7 Item 8 Item 9 Item 14 Item 17 Item 18 Item 19 Item 22 Item 24 Item 26 Item 27 Item 28 Item 29 Item 30 Item 31 Item 33 Item 44 Item 49 Item 50
<b>.30:</b>	Item 11 Item 25 Item 36 Item 38 Item 39 Item 41 Item 42 Item 46 Item 48
<b>.40:</b>	
<b>.50:</b>	Item 47
<b>.60:</b>	
<b>.70:</b>	
<b>.80:</b>	
<b>.90:</b>	

Table 4: Item Discrimination

## Part VI: Distribution of Students' Responses per Item

Table 5 below presents the percentage of students who chose each answer option for each item.

The last column in Table 5 lists the incorrect answer options created by the item writers (also called *distracters*) that need to be reviewed. These distracters are selected because less than 5% of all students chose these options. From a psychometric perspective, if a distracter only attracts a very small group of students or no students, it is not performing its function. Distracters should be analyzed, as they can influence the quality of the item. It is important to make distracters feasible, so that a student must really know (not just guess at) the answer, in order to get it correct. If nobody selects an answer option, even if it is wrong (a distracter), then the distracter is not distracting anybody, which means it is not a feasible option and should be changed. For example, Option A for Item 7 was not selected by any students and the same is true of Option D for Item 8. The items in this test that have fully functioning distracters are Items 19, 21, 23, 28, 37, 38, 44, 45, 47, 48, and 49. For all other test items, the distracters should be reviewed, such that the item writers should change the unused distracter to be more feasible options.

Table 5 also has two columns toward the right that indicate the difficulty index and the discrimination index for each item.

Item	Student Response Choices				Difficulty Index	Discrimination Index	Distracters to be Reviewed
	A	B	C	D			
Item 1	5%	63%	32%	1%	0.63	0.19	D
Item 2	2%	14%	36%	48%	0.48	0.18	A
Item 3	2%	41%	4%	53%	0.41	0.26	A and C
Item 4	4%	37%	22%	38%	0.38	0.29	A
Item 5	58%	9%	4%	29%	0.58	0.08	C
Item 6	13%	12%	49%	26%	0.49	0.19	A
Item 7		91%	3%	5%	0.91	0.21	A and C
Item 8	1%	94%	5%		0.94	0.21	A and D
Item 9	43%	32%	22%	3%	0.43	0.20	D
Item 10	1%	11%	1%	86%	0.86	0.14	A and C
Item 11	28%	48%	20%	3%	0.48	0.30	D
Item 12	3%	96%		1%	0.96	0.11	A, C, and D
Item 13	5%	86%	1%	9%	0.86	0.13	C
Item 14		84%	15%	1%	0.84	0.21	A and C
Item 15	15%	80%	4%	1%	0.80	0.12	C and D
Item 16	98%	1%	1%		0.98	0.03	B, C, and D
Item 17	3%	3%	93%	1%	0.93	0.28	A, C, and D
Item 18	3%	95%	1%	1%	0.95	0.27	A, C, and D
Item 19	20%	62%	10%	9%	0.62	0.20	
Item 20	3%	1%	95%	1%	0.95	0.18	A, B, and D
Item 21	54%	7%	33%	6%	0.54	0.12	
Item 22	84%	6%	7%	3%	0.84	0.24	D

Item	Student Response Choices				Difficulty Index	Discrimination Index	Distracters to be Reviewed
	A	B	C	D			
Item 23	18%	19%	7%	55%	0.55	0.18	
Item 24	1%	18%	80%	1%	0.80	0.27	A and D
Item 25	3%	4%	90%	3%	0.90	0.29	A, B, and D
Item 26	34%		63%	3%	0.63	0.26	B and D
Item 27	3%	9%	5%	84%	0.84	0.23	A
Item 28	34%	44%	14%	8%	0.44	0.26	
Item 29	66%	3%	16%	14%	0.66	0.22	B
Item 30	60%	5%	32%	3%	0.60	0.26	D
Item 31	3%	11%	7%	80%	0.80	0.27	A
Item 32	84%	15%	1%	1%	0.84	0.12	C and D
Item 33	<u>90%</u>	1%		9%	0.90	0.26	B and C
Item 34	19%	9%	16%	<u>55%</u>	0.55	0.15	C
Item 35	97%		3%		0.97	0.14	B, C, and D
Item 36	3%	<u>76%</u>	16%	4%	0.76	0.35	A and D
Item 37	6%	5%	<u>81%</u>	9%	0.81	0.11	
Item 38	<u>54%</u>	20%	16%	11%	0.54	0.36	
Item 39	9%	3%	<u>28%</u>	61%	0.28	0.39	B
Item 40	5%	<u>94%</u>	1%		0.94	0.16	C and D
Item 41	13%	<u>75%</u>	11%	2%	0.75	0.37	D
Item 42	11%	4%	<u>71%</u>	14%	0.71	0.30	B
Item 43		98%		2%	0.98	0.15	A, C, and D
Item 44	<u>62%</u>	11%	5%	22%	0.62	0.29	
Item 45	5%	35%	<u>56%</u>	5%	0.56	0.07	
Item 46	<u>88%</u>	5%	1%	6%	0.88	0.29	C
Item 47	34%	<u>54%</u>	5%	7%	0.54	0.50	
Item 48	10%	<u>62%</u>	13%	16%	0.62	0.30	
Item 49	<u>47%</u>	19%	22%	11%	0.47	0.28	
Item 50	<u>24%</u>	18%	54%	3%	0.24	0.29	D

Table 5: Distribution of Student Responses for Each Item

Table 6 presents distributions of students’ response options in more detail than in Table 5. In Table 6, the distributions of students’ responses correspond to test items and to students’ different ability levels. The students’ ability groups are determined based on students’ total scores from the exam. As you can see for item 1 there is an “upper” ability level, a “2<sup>nd</sup>” ability level, a “3<sup>rd</sup>” ability level, and so forth down to the “lower” ability level.

With the proportion of answer options selected divided into ability groups the test writer can see which distracters are working (drawing in the students who don’t know the correct answer) and which distracters are not working (nobody selects them or students who score high on the test seem to select the same wrong answer). If all or many

of the best test takers (i.e., high scorers) select a particular distracter, this indicates that there may be a double-keyed item (there are actually two correct answers to the item) or that the answer key being used to score the test is wrong. Items with response in bold, indicate an unusual pattern of responding based on ability level. For example, the 3<sup>rd</sup> (41%) and 4<sup>th</sup> (30%) highest ability group choose D (the correct answer) less frequently than the lowest ability group (43%).

Item and Ability Level	Response Options Chosen			
	A	B	C	D
Item 1 upper	0.03	0.83	0.13	0.00
2nd	0.07	0.60	0.33	0.00
3rd	0.03	0.72	0.25	0.00
4th	0.03	0.53	0.40	0.03
lower	0.10	0.43	0.47	0.00
Item 2 upper	0.00	0.03	0.23	0.73
2nd	0.07	0.03	0.37	0.53
3rd	0.03	0.16	0.41	0.41
4th	0.00	0.23	0.47	0.30
lower	0.00	0.27	0.30	0.43
Item 3 upper	0.00	0.60	0.00	0.40
2nd	0.00	0.60	0.07	0.33
3rd	0.00	0.34	0.03	0.63
4th	0.03	0.33	0.07	0.57
lower	0.07	0.20	0.03	0.70
Item 4 upper	0.00	0.10	0.23	0.67
2nd	0.00	0.13	0.40	0.47
3rd	0.03	0.59	0.06	0.31
4th	0.13	0.53	0.07	0.27
lower	0.03	0.47	0.33	0.17
Item 5 upper	0.77	0.00	0.00	0.23
2nd	0.53	0.10	0.00	0.37
3rd	0.59	0.00	0.13	0.28
4th	0.50	0.30	0.03	0.17
lower	0.50	0.07	0.03	0.40
Item 6 upper	0.07	0.07	0.77	0.10
2nd	0.10	0.13	0.47	0.30
3rd	0.22	0.06	0.53	0.19
4th	0.20	0.10	0.40	0.30
lower	0.03	0.23	0.30	0.43
Item 7 upper	0.00	0.93	0.00	0.07
2nd	0.00	1.00	0.00	0.00
3rd	0.00	0.94	0.03	0.03
4th	0.00	0.97	0.00	0.03
lower	0.00	0.73	0.13	0.13
Item 8 upper	0.00	1.00	0.00	0.00
2nd	0.00	0.97	0.03	0.00
3rd	0.00	1.00	0.00	0.00
4th	0.03	0.83	0.13	0.00
lower	0.03	0.90	0.07	0.00
Item 9 upper	0.67	0.17	0.17	0.00
2nd	0.50	0.27	0.20	0.03
3rd	0.28	0.41	0.31	0.00
4th	0.43	0.37	0.17	0.03
lower	0.27	0.40	0.27	0.07

Item and Ability Level	Response Options Chosen			
	A	B	C	D
Item 10 upper	0.00	0.07	0.00	0.93
2nd	0.00	0.07	0.00	0.93
3rd	0.00	0.13	0.00	0.88
4th	0.00	0.17	0.03	0.80
lower	0.07	0.13	0.03	0.77
Item 11 upper	0.07	0.87	0.07	0.00
2nd	0.27	0.50	0.23	0.00
3rd	0.31	0.41	0.22	0.06
4th	0.33	0.37	0.27	0.03
lower	0.43	0.27	0.23	0.07
Item 12 upper	0.00	1.00	0.00	0.00
2nd	0.00	1.00	0.00	0.00
3rd	0.00	0.97	0.00	0.03
4th	0.07	0.90	0.00	0.03
lower	0.07	0.93	0.00	0.00
Item 13 upper	0.07	0.93	0.00	0.00
2nd	0.00	1.00	0.00	0.00
3rd	0.09	0.81	0.00	0.09
4th	0.03	0.73	0.03	0.20
lower	0.03	0.80	0.03	0.13
Item 14 upper	0.00	0.97	0.03	0.00
2nd	0.00	0.83	0.17	0.00
3rd	0.00	0.88	0.13	0.00
4th	0.00	0.90	0.10	0.00
lower	0.00	0.63	0.33	0.03
Item 15 upper	0.07	0.93	0.00	0.00
2nd	0.20	0.80	0.00	0.00
3rd	0.22	0.72	0.06	0.00
4th	0.13	0.83	0.00	0.03
lower	0.13	0.70	0.13	0.03
Item 16 upper	1.00	0.00	0.00	0.00
2nd	1.00	0.00	0.00	0.00
3rd	0.97	0.03	0.00	0.00
4th	0.93	0.03	0.03	0.00
lower	1.00	0.00	0.00	0.00
Item 17 upper	0.00	0.00	<u>1.00</u>	0.00
2nd	0.03	0.00	0.97	0.00
3rd	0.00	0.00	<u>1.00</u>	0.00
4th	0.03	0.00	<u>0.93</u>	0.03
lower	0.07	0.13	0.77	0.03
Item 18 upper	0.00	1.00	0.00	0.00
2nd	0.00	1.00	0.00	0.00
3rd	0.03	0.97	0.00	0.00
4th	0.03	0.97	0.00	0.00
lower	0.10	0.80	0.07	0.03

Item and Ability Level	Response Options Chosen			
	A	B	C	D
Item 19 upper	0.17	0.77	0.03	0.03
2nd	0.10	0.70	0.13	0.07
3rd	0.25	0.66	0.06	0.03
4th	0.30	0.53	0.10	0.07
lower	0.17	0.43	0.17	0.23
Item 20 upper	0.00	0.00	1.00	0.00
2nd	0.03	0.00	0.97	0.00
3rd	0.03	0.03	0.94	0.00
4th	0.00	0.00	0.97	0.03
lower	0.10	0.00	0.90	0.00
Item 21 upper	0.70	0.03	0.27	0.00
2nd	0.50	0.07	0.40	0.03
3rd	0.63	0.06	0.28	0.03
4th	0.50	0.17	0.27	0.07
lower	0.37	0.03	0.43	0.17
Item 22 upper	1.00	0.00	0.00	0.00
2nd	0.87	0.03	0.10	0.00
3rd	0.78	0.13	0.09	0.00
4th	0.90	0.00	0.00	0.10
lower	0.63	0.13	0.17	0.07
Item 23 upper	0.13	0.03	0.00	0.83
2nd	0.20	0.17	0.13	0.50
3rd	0.13	0.38	0.00	0.50
4th	0.20	0.17	0.13	0.50
lower	0.27	0.20	0.10	0.43
Item 24 upper	0.00	0.00	1.00	0.00
2nd	0.00	0.10	0.90	0.00
3rd	0.00	0.22	0.78	0.00
4th	0.00	0.23	0.70	0.07
lower	0.03	0.33	0.63	0.00
Item 25 upper	0.00	0.00	1.00	0.00
2nd	0.00	0.00	1.00	0.00
3rd	0.03	0.03	0.84	0.09
4th	0.03	0.03	0.93	0.00
lower	0.10	0.13	0.73	0.03
Item 26 upper	0.13	0.00	0.87	0.00
2nd	0.43	0.00	0.57	0.00
3rd	0.25	0.00	0.75	0.00
4th	0.37	0.00	0.60	0.03
lower	0.53	0.00	0.37	0.10
Item 27 upper	0.03	0.07	0.00	0.90
2nd	0.00	0.03	0.00	0.97
3rd	0.03	0.00	0.06	0.91
4th	0.03	0.13	0.03	0.80
lower	0.03	0.23	0.13	0.60

Item and Ability Level	Response Options Chosen			
	A	B	C	D
Item 28 upper	0.07	0.77	0.13	0.03
2nd	0.40	0.47	0.10	0.03
3rd	0.41	0.38	0.16	0.06
4th	0.33	0.37	0.13	0.17
lower	0.47	0.23	0.20	0.10
Item 29 upper	0.83	0.03	0.13	0.00
2nd	0.77	0.03	0.10	0.10
3rd	0.69	0.00	0.19	0.13
4th	0.57	0.07	0.13	0.23
lower	0.47	0.03	0.23	0.27
Item 30 upper	0.83	0.00	0.17	0.00
2nd	0.67	0.03	0.30	0.00
3rd	0.63	0.00	0.34	0.03
4th	0.50	0.10	0.40	0.00
lower	0.37	0.13	0.40	0.10
Item 31 upper	0.00	0.00	0.00	1.00
2nd	0.00	0.10	0.10	0.80
3rd	0.00	0.09	0.03	0.88
4th	0.10	0.13	0.07	0.70
lower	0.03	0.20	0.17	0.60
Item 32 upper	0.93	0.07	0.00	0.00
2nd	0.83	0.13	0.00	0.03
3rd	0.91	0.09	0.00	0.00
4th	0.80	0.20	0.00	0.00
lower	0.70	0.27	0.03	0.00
Item 33 upper	0.97	0.00	0.00	0.03
2nd	1.00	0.00	0.00	0.00
3rd	0.91	0.00	0.00	0.09
4th	0.90	0.00	0.00	0.10
lower	0.73	0.03	0.00	0.23
Item 34 upper	0.07	0.07	0.17	0.70
2nd	0.17	0.00	0.20	0.63
3rd	0.13	0.09	0.19	0.59
4th	0.30	0.13	0.13	0.43
lower	0.30	0.17	0.13	0.40
Item 35 upper	1.00	0.00	0.00	0.00
2nd	1.00	0.00	0.00	0.00
3rd	0.97	0.00	0.03	0.00
4th	0.97	0.00	0.03	0.00
lower	0.90	0.00	0.10	0.00
Item 36 upper	0.00	0.97	0.03	0.00
2nd	0.03	0.90	0.07	0.00
3rd	0.03	0.78	0.19	0.00
4th	0.03	0.73	0.20	0.03
lower	0.07	0.43	0.33	0.17

Item and Ability Level	Response Options Chosen			
	A	B	C	D
Item 37 upper	0.00	0.03	0.90	0.07
2nd	0.07	0.00	0.87	0.07
3rd	0.09	0.06	0.72	0.13
4th	0.03	0.10	0.83	0.03
lower	0.10	0.03	0.73	0.13
Item 38 upper	0.93	0.03	0.00	0.03
2nd	0.70	0.20	0.03	0.07
3rd	0.44	0.19	0.28	0.09
4th	0.33	0.23	0.27	0.17
lower	0.30	0.33	0.20	0.17
Item 39 upper	0.07	0.00	0.63	0.30
2nd	0.07	0.03	0.33	0.57
3rd	0.13	0.03	0.22	0.63
4th	0.10	0.07	0.13	0.70
lower	0.07	0.00	0.07	0.87
Item 40 upper	0.00	1.00	0.00	0.00
2nd	0.00	1.00	0.00	0.00
3rd	0.06	0.91	0.03	0.00
4th	0.07	0.93	0.00	0.00
lower	0.13	0.87	0.00	0.00
Item 41 upper	0.00	1.00	0.00	0.00
2nd	0.03	0.93	0.03	0.00
3rd	0.16	0.75	0.09	0.00
4th	0.23	0.60	0.17	0.00
lower	0.20	0.47	0.23	0.10
Item 42 upper	0.07	0.00	0.90	0.03
2nd	0.00	0.00	0.93	0.07
3rd	0.09	0.00	0.66	0.25
4th	0.17	0.07	0.63	0.13
lower	0.23	0.13	0.43	0.20
Item 43 upper	0.00	1.00	0.00	0.00
2nd	0.00	1.00	0.00	0.00
3rd	0.00	1.00	0.00	0.00
4th	0.00	0.93	0.00	0.07
lower	0.00	0.97	0.00	0.03
Item 44 upper	0.87	0.10	0.00	0.03
2nd	0.73	0.07	0.03	0.17
3rd	0.66	0.09	0.03	0.22
4th	0.43	0.17	0.13	0.27
lower	0.40	0.13	0.07	0.40
Item 45 upper	0.00	0.30	0.70	0.00
2nd	0.03	0.37	0.53	0.07
3rd	0.09	0.38	0.50	0.03
4th	0.00	0.30	0.63	0.07
lower	0.10	0.40	0.43	0.07

Item and Ability Level	Response Options Chosen			
	A	B	C	D
Item 46 upper	1.00	0.00	0.00	0.00
2nd	0.93	0.00	0.00	0.07
3rd	0.94	0.00	0.03	0.03
4th	0.80	0.07	0.00	0.13
lower	0.70	0.20	0.03	0.07
Item 47 upper	0.07	0.93	0.00	0.00
2nd	0.17	0.77	0.00	0.07
3rd	0.44	0.44	0.06	0.06
4th	0.43	0.43	0.07	0.07
lower	0.60	0.13	0.13	0.13
Item 48 upper	0.00	0.87	0.10	0.03
2nd	0.13	0.73	0.10	0.03
3rd	0.09	0.59	0.16	0.16
4th	0.13	0.50	0.13	0.23
lower	0.13	0.40	0.13	0.33
Item 49 upper	0.77	0.17	0.00	0.07
2nd	0.70	0.07	0.13	0.10
3rd	0.44	0.28	0.13	0.16
4th	0.10	0.23	0.53	0.13
lower	0.37	0.20	0.33	0.10
Item 50 upper	0.43	0.07	0.50	0.00
2nd	0.40	0.17	0.43	0.00
3rd	0.22	0.16	0.59	0.03
4th	0.13	0.33	0.50	0.03
lower	0.03	0.20	0.67	0.10

Table 6: Distribution of Responses Per Item and Ability Groups of Students

## Part VII: Average Total Scores by Ability Groups

Ability Group	n	M	Avg. %	SD	MIN	MDN	MAX
Upper	30	43.6	87%	2.1	41	43	50
2nd	30	38.3	77%	1.3	36	38	41
3rd	32	34.7	69%	0.8	33	35	36
4th	30	31.8	64%	1.0	30	32	33
Lower	30	26.8	54%	2.8	18	28	30
Whole Group	152	35.0	70%	5.9	18	35	50

Table 7: Average Total Scores by Ability Groups

## SECTION TWO: SUGGESTIONS FOR CONTENT REVIEW

While the reliability of the test is good, the test items are generally very easy and lack discrimination. There is a clear issue with unused distracters for many of the test items. By reviewing the unused distracters for each item, and revising the content of these distracters, such that they are more feasible options should increase the difficulty of the items and improve the discrimination of the items. The primary suggestion for improving the test is to re-write the distracters that are used less than 5% of the time, such that they are more feasible options.

## **APPENDIX G**

# **EXAMPLE OF A GRADUATE PROGRAM ASSESSMENT REPORT: MASTER OF SCIENCE IN ACCOUNTING TECHNOLOGY (2010)**

# LEARNING OUTCOMES ASSESSMENT REPORT

**PROGRAM: MSAT**

**COURSES: ACCT 608 AND ACCT 610**

**TERM: SPRING 2010**

## I. PROGRAM LEARNING OUTCOME ASSESSED

- Critical Thinking (THIN) – ACCT 608
- Technology Fluency (TECH) – ACCT 610
- Content Knowledge (KNOW) – ACCT 608
- Written Communication (COMM) – ACCT 610

## II. METHODS

- **Critical Thinking:**  $n = 40$ . The GSMT standard Critical Thinking rubric was used. The rubric uses 5 criteria scored on a scale of 1 to 4. A principal components analysis revealed that the rubric measured a single dimension that accounted for 80.8% of the variability in the scores. That is evidence to support the construct validity of the scores. In as much, the internal consistency (reliability) of the scores was high;  $\alpha = .94$ .
- **Technology Fluency:**  $n = 28$ . The GSMT standard Technology Fluency rubric was used. The rubric uses 4 criteria scored on a scale of 1 to 4. A principal components analysis revealed that the rubric measured two dimensions that accounted for 63% of the variability in the scores. Criteria 1 and 3 combine into one factor, while Criteria 2 and 4 combine into another factor. That is evidence that the rubric is measuring 2 separate constructs, rather than a single construct, “Technology Fluency”. The internal consistency (reliability) of the scores was whether combined as 1 construct or separated into the two identified is extremely low, with the maximum  $\alpha = .07$ , as would be expected this reflects all criteria combined as one. *See Section IV below.*
- **Content Knowledge:**  $n = 40$ . A Content Knowledge rubric for accounting was used. The rubric uses 4 criteria scored on a scale of 1 to 4. A principal components analysis revealed that the rubric measured a single dimension that accounted for 83.7% of the variability in the scores. That is evidence to support the construct validity of the scores. In as much, the internal consistency (reliability) of the scores was high;  $\alpha = .93$ .
- **Written Communication:**  $n = 62$ . A Content Knowledge rubric for accounting was used. The rubric uses 4 criteria scored on a scale of 1 to 4. A principal components analysis revealed that the rubric measured a single dimension that accounted for 52.3% of the variability in the scores. That is weak evidence to somewhat support the construct validity of the scores. In as much, the internal consistency (reliability) of the scores was high;  $\alpha = .77$ . *See Section IV below.*

## III. RESULTS

### Critical Thinking

- **Criterion 1 – Conceptualization:** Observes and describes given information (data, ideas, or concepts) in relation to the context of question or assignment.
- **Criterion 2 – Analysis:** analyzes given information in a logical and organized manner to examine how ideas are developed and interconnected. Identifies embedded hypotheses, biases, causalities, and conclusions.
- **Criterion 3 – Synthesis:** Incorporates own analyses with information or evidence drawn from other resources or prior learning to connect key concepts in a coherent way.
- **Criterion 4 – Conclusion:** Integrates previous criteria and own perspective(s) to formulate conclusion(s) or new hypotheses that are appropriate to the context of question or assignment.
- **Criterion 5 – Evaluation:** Evaluates own conclusions or new hypotheses by considering the issues of reliability, need for further support, and implications within a larger context.

Descriptive Statistics					
Criterion	n	Min	Max	M	SD
Conceptualization	40	1	4	3.43	.78
Analysis	40	1	4	3.20	.90
Synthesis	40	1	4	3.03	1.0
<b>Conclusion</b>	<b>40</b>	<b>1</b>	<b>4</b>	<b>2.87</b>	<b>.97</b>
<b>Evaluation</b>	<b>40</b>	<b>1</b>	<b>4</b>	<b>2.64</b>	<b>1.10</b>
Total	40	4	20	15.16	4.31

### Technology Fluency

- **Criterion 1 – Technology Mastery:** Creates accurate electronic documents and/or materials (i.e. technology-enhanced presentations) with technologies appropriate for the assignment or context, as evidenced in the layout, formatting, and accuracy of documents/presentation.
- **Criterion 2 – Information Retrieval:** Utilizes technology to research, evaluate, inform, and communicate information retrieved from appropriate resources.
- **Criterion 3 – Virtual Collaboration:** Engages in electronic collaboration (email, online conferences, chats, or web meetings), as appropriate to the assignment or context.
- **Criterion 4 – Technology Management:** Shows consideration of legal, ethical, privacy, and security laws that may apply when using technology, handling and exchanging information, and working virtually, as appropriate for the assignment.

Descriptive Statistics					
Criterion	n	Min	Max	M	SD
Technology Mastery	28	3	4	3.46	.51
Information Retrieval	28	2	4	3.36	.62
Virtual Collaborations	28	1	4	3.61	.99
Technology Management	28	3	4	3.75	.44
Total	28	10	16	14.18	1.39

## Content Knowledge

- **Criterion 1 – Conceptual Understanding:** Demonstrates and understanding of discipline theories and concepts presented in the course and relevant to the assignment criteria.
- **Criterion 2 – Theory Application:** Exhibits an ability to apply theories to practical problems within the context of the assignment.
- **Criterion 3 – Experience-based Understanding:** Shows evidence of personal practice or application of theories and concepts presented in the course, in ways relevant to the assignment.
- **Criterion 4 – Knowledge Integration:** Integrates current learning with prior learning to further demonstrate a comprehensive understanding of the subject matter.

Descriptive Statistics					
Criterion	n	Min	Max	M	SD
Conceptual Understanding	40	2	4	2.98	.70
<b>Theory Application</b>	<b>40</b>	<b>1</b>	<b>4</b>	<b>2.73</b>	<b>.75</b>
<b>Experience-based Understanding</b>	<b>40</b>	<b>1</b>	<b>4</b>	<b>2.35</b>	<b>.89</b>
<b>Knowledge Integration</b>	<b>40</b>	<b>1</b>	<b>4</b>	<b>2.63</b>	<b>.74</b>
Total	40	6	16	10.68	2.82

## Written Communication

- **Criterion 1 – Context/Purpose:** Considers the audience, purpose, and the circumstances surrounding the writing assignment(s).
- **Criterion 2 – Content/Ideas/Support:** Articulates and supports main idea(s) that is consistent with context and purpose.
- **Criterion 3 – Organization:** Uses logical sequencing including introduction, transitions between paragraphs, and summary/conclusion to develop main idea(s) and content.

- **Criterion 4 – Sources:** Incorporates use of and identifies sources and/or research, according to APA and/or instructor guidelines.
- **Criterion 5 – Word Usage/Grammar/Spelling/Punctuation:** Uses wording, grammar, spelling and punctuation accurately and correctly.

Descriptive Statistics					
Criterion	n	Min	Max	M	SD
Context/Purpose	62	2	4	3.63	.61
<b>Content/Ideas/Support</b>	<b>62</b>	<b>1</b>	<b>4</b>	<b>3.48</b>	<b>.70</b>
Organization	62	2	4	3.34	.70
<b>Sources</b>	<b>62</b>	<b>2</b>	<b>4</b>	<b>2.98</b>	<b>.22</b>
<b>Word Usage/Grammar/Spelling/Punctuation</b>	<b>62</b>	<b>1</b>	<b>4</b>	<b>3.23</b>	<b>.78</b>
Total Score	62	10	20	16.66	2.27

## Overall

Among all of the outcomes assessed, Content Knowledge was the weakest for the students ( $M = 10.68$ ,  $SD = 2.82$ , with a maximum possible score of 16). Technology Fluency was the strongest outcome for the students with a mean of 14.18 ( $SD = 1.39$ ), where the maximum possible score was 16. Written Communication had a mean of 16.66 ( $SD = 2.27$ ), with a maximum possible score of 20. The weakest areas within Written Communication were Content/Ideas/Support and Word Usage/Grammar/Spelling/Punctuation. Critical Thinking had a mean of 15.16 ( $SD = 4.31$ ). The weakest areas within Critical Thinking were Conclusion and Evaluation.

## IV. NEXT STEPS

- In terms of measurement quality, the Critical Thinking and Content Knowledge rubrics are excellent. However, for all rubric scoring an multi-rater per student assignment method is recommended to establish inter-rater reliability.
- The Technology Fluency rubric should be carefully reconsidered in terms of content to ensure that the rubric measures a single dimension, rather than 2 dimensions. This should help build the validity and reliability of the scores. Content development advice can be provided from Institutional Planning, Research, and Development, if the program wants that assistance.

- The Written Communication rubric should also be carefully reconsidered to improve the amount of variance accounted for in the scores (i.e., reduce the amount of error in the scores). One approach is likely to help. One is clarify any wording/language within the rubric that may be unclear to the raters using it. The individual raters should first do this. Then, through a norming session, which Institutional Planning, Research, and Accountability can run with the faculty, a more consistent interpretation of the rubric can be assured. This should help build the validity and reliability of the scores.
- In terms of learning weaknesses, the Content Knowledge area is weakest. The best first steps to improve the scores are to ensure that the course objectives align to the program outcome and subsequently the measure being used to address that outcome. A misalignment in any of these three parts can lower scores. Additionally, steps should be taken to ensure the course content that address each relevant objective is sufficiently covered and learned prior to the outcomes assessment. This should be done through a series of formative/in-class assessments that build from the course objectives up (aggregate) to the program outcome being measured.
- Disseminate results to all appropriate stakeholders (e.g., faculty, directors, chairs) to identify changes needed to improve measures, students learning and to establish benchmarks using the results above, so future results can be compared to determine if improvements in learning are being reached.
- When reporting data, included with each student's scores should be their EMPLID. This will allow for the alignment of other student data (within the university's warehouse) to their learning outcomes assessment scores, to help establish validity.
- Use multiple raters for each student assignment to establish inter-rater reliability.

## V. PROGRAM ADDITIONS

- The program will add its comments and intended actions with timeline to complete this report. This will likely at least include addressing the information in section IV and anything additional the program does. When complete, the final report should go to John Aje, copy Dan McCollum.

# APPENDIX H

# ETS PROFICIENCY PROFILE (EPP) IMPLEMENTATION PLAN

## OVERVIEW

One measure being used to assess three SLEs (i.e., critical thinking, written communication, and quantitative reasoning) in the School of Undergraduate Studies is the ETS Proficiency Profile, created and administered by Educational Testing Service (ETS). The EPP was formerly named the Measure of Academic Proficiency and Progress (MAPP) and the Academic Profile. Though the name of the test has changed over its approximate 20-year history, the content and psychometric properties have not changed.

## EPP CONTENT

The EPP is a standardized test that uses multiple-choice items to measure four constructs that are typically considered components of a general educational curriculum. The content areas include writing skills (i.e., written communication SLE), mathematics (i.e., quantitative reasoning SLE), critical thinking (i.e., critical thinking SLE), and reading (not an SLE). These four areas are measured in the context of three content areas—humanities, social science, and natural science. That is, the questions on writing skills, mathematics, critical thinking, and reading use content (e.g., reading passages) in the traditional distribution areas of a general education curriculum (i.e., humanities, social science, and natural science).

From the *MAPP User's Guide* (2007):

### Reading questions measure students' ability to:

1. interpret the meaning of key terms
2. recognize the primary purpose of the passage
3. recognize explicitly presented information
4. make appropriate inferences
5. recognize rhetorical devices

### Writing questions measure students' ability to:

1. recognize the most grammatically correct revision of a clause, sentence, or group of sentences
2. organize units of language for coherence and rhetorical effect
3. recognize and reword figurative language
4. organize elements of writing into larger units of meaning

### Critical Thinking questions measure students' ability to:

1. distinguish between rhetoric and argumentation in a piece of nonfiction prose
2. recognize assumptions

3. recognize the best hypothesis to account for information presented
4. infer and interpret a relationship between variables
5. draw valid conclusions based on information presented

### Mathematics questions measure students' ability to:

1. recognize and interpret mathematical terms
2. read and interpret tables and graphs
3. evaluate formulas
4. order and compare large and small numbers
5. interpret ratios, proportions, and percentages
6. read scientific measuring instruments
7. recognize and use equivalent mathematical formulas or expressions

In addition to the cognitive dimensions measured by EPP, the following demographic information is also gathered by ETS: (1) completed credit hours, (2) transfer credit, (3) portion of general education completed, (4) communication language, (5) enrollment status, (6) type of program, (7) age, (8) major, (9) number of courses taken, (10) race, (11) gender, and (12) hours spent working.

## ADDING CONTENT TO EPP

In addition to the content created by ETS for the EPP, UMUC can add up to 50 of its own multiple-choice questions and nine demographic questions. These questions can be used, either as a stand-alone group or in conjunction with another internal measure, to assess general education constructs not otherwise measured.

### UMUC is adding the following demographic questions:

1. **Marital Status** with the answer options "Single," "Separated," "Divorced," "Widowed," and "Married."
2. **Income** with the answer options "\$0 to \$25,000," "\$25,001 to \$50,000," "\$50,001 to \$75,000," "\$75,000 to \$100,000," and "Over \$100,000."
3. **Department** with the answer options "Business and Professional Programs (BAPP)," "Communications, Arts, and Humanities (COMM)," "Computer Information Systems and Technology (CITE)," and "Social, Behavioral, Natural, and Mathematical Sciences (SCIP)."

UMUC is also adding the following self-assessment questions to serve as an indirect measure of student learning. That is, students will self-assess their ability level.

1. How do you rate your current level of writing skills, including recognizing word choice and agreement among basic grammatical elements; combining multiple, simple sentences into complex sentences; and discriminating between complex written elements?

4 = Excellent (I can perform all of these writing skills.)

3 = Good (I can perform most, but not all, of these writing skills.)

2 = Fair (I can perform some of these writing skills.)

1 = Poor (I can perform few or none of these writing skills.)

2. How would you rate your current level of math skills, including solving problems involving whole numbers, fractions, and percents; word problems, algebraic equations, ratios, and graphs; and complex problems involving exponents and square roots?

4 = Excellent (I can perform all of these math skills.)

3 = Good (I can perform most, but not all, of these math skills.)

2 = Fair (I can perform some of these math skills.)

1 = Poor (I can perform few or none of these math skills.)

3. How would you rate your current level of critical thinking skills, including recognizing flaws and inconsistencies in a written argument, evaluating alternative explanations in an argument, and determining relevance of information in drawing conclusions?

4 = Excellent (I can perform all of these critical thinking skills.)

3 = Good (I can perform most, but not all, of these critical thinking skills.)

2 = Fair (I can perform some of these critical thinking skills.)

1 = Poor (I can perform few or none of these critical thinking skills.)

## EPP VALIDITY AND RELIABILITY

Studies done on the Academic Profile and MAPP have demonstrated the content, construct, and predictive validity of the test. In studies conducted by ETS, the abbreviated form of what is now the EPP has a reliability coefficient of .77 for the overall test.

## EPP ABBREVIATED FORM

The abbreviated form of the EPP is being used at UMUC. The abbreviated form has 36 questions. Due to the matrix sampling approach employed by ETS with the abbreviated

form of the EPP, at least 50 test takers must be included in the sample. The abbreviated form can be completed in one 40-minute session.

## EPP ADMINISTRATION

### Proctoring

UMUC will administer the abbreviated EPP online without a proctor.

### Overview of Sampling

All student participants in the EPP test will be recruited according to demographic criteria and quotas using a stratified sampling procedure to obtain a representative sample based on: (1) age, (2) gender, (3) ethnicity, (4) military status, and (5) residency (in-state/out-of-state).

*Entering-Level Students:* The goal is to gain an overall sample of 300 to 500 participants. To begin the entering student sampling, the population is considered all entering students who are new to UMUC. From the population, a randomly selected sample broadly representative of the population will be taken. Representation of the population in the sample will be ensured by comparing demographic information on age, gender, ethnicity, military status, and residency.

*Exiting/Graduating Students:* Each year UMUC will identify those students who have applied for graduation in their third spring semester and take a subset of those who have completed 60 or more credits at UMUC. This will comprise the population from which the sample can be drawn. The goal will be to sample 100 to 200 exiting-level students. As with the entering-level students, a randomly selected sample broadly representative of the entire exiting population will be taken. Representation of the population in the sample will be ensured by comparing demographic information on age, gender, ethnicity, military status, and residency. Additionally, the measurement of the sampled exiting students will be done on a department-by-department basis, with different departments assessed each spring. Therefore, identifying students in the major is also necessary to identify the students for the sample. The intention is to start with the largest department (by head count), which is Business and Professional Programs, followed by Computer Information Systems and Technology; Communications, Arts, and Humanities; and Social, Behavioral, Natural, and Mathematical Sciences, respectively.

## Logistics of Sampling

UMUC in collaboration with a specialized survey research center will recruit, schedule, and compensate participants to take part in EPP. Letters and e-mails will be used to ask students to volunteer for the sample. To recruit sampled students, an informational letter about UMUC's EPP testing will be mailed. This letter will be for information purposes only, to alert the students that they may be selected to take the EPP test and to look for an e-mail on taking the EPP test. The letter will also explain to the students the purpose of the test and the rewards for participation. Students who are selected for the final sample will receive a subsequent e-mail with instructions on how to log in to the ETS Web site for the EPP test and how to complete the test.

## Incentives for Participation

Due to the voluntary nature of participation, which is necessary for sampling at the student level, a program of incentives will be used to get the selected students to take the test and to approach it seriously. First, any student completing the EPP will receive a \$50 gift card. Given that individual students cannot be classified according to EPP proficiency levels (i.e., criterion-based scoring) using the abbreviated test form, use of the overall scaled scores will be used to determine the level of reward for each student. Therefore, the percentile ranks of each student relative to all EPP test takers at UMUC will be considered in determining their reward levels. The reward levels will be as follows: (1) a score in the top 25 percent will earn a \$150 gift card to the retailer of the participant's choice and (2) a score in the top 26 percent to 50 percent will earn a \$100 gift card to the retailer of the participant's choice.

## SCORE REPORTING

With the online test, scores can be reported immediately. However, UMUC has decided to withhold students' scores and inform students later what their scores are, whether or not they received an award, how much their award is (if applicable), and what assistance is available to students to improve performance.

For the EPP, norm-referenced scores (scaled scores) and criterion-referenced scores (proficiency classifications) are both used. The norm-referenced scores are used to compare the scores of one student or group of students to another or to compare the same student or group at different points in time. These scores can be used for benchmarking or for determining value-added learning gains by conducting a longitudinal or cross-sectional study. The EPP has eight

norm-referenced scores: total score, skills subscores (critical thinking, reading, writing, and mathematics), and context subscores (humanities, social sciences, and natural sciences). The skills and context subscores are not available for individual students with the abbreviated form of the EPP.

To have enough data to report for each demographic subgroup in the abbreviated form, there must be 50 participants in each subgroup. The subgroup classifications included in the EPP are completed credit hours, transfer credit, portion of general education completed, communication language, enrollment status, type of program, age, major, number of courses taken, race, gender, and hours spent working. However, it is the primary concern of UMUC to meet the sampling requirements for the subgroups it has identified: (1) age, (2) gender, (3) ethnicity, (4) military status, and (5) residency (in-state/out-of-state), as described above. The sampling approach being implemented will accomplish this.

## USING EPP DATA

The data from EPP can generally be used in one of two ways: for longitudinal analysis and for cross-sectional analysis. UMUC will use the data in both of these ways. With an administration to entering students in every third fall term and an administration to graduating students every third spring term, a cross-sectional comparison of program-entering students to graduating students will be conducted to determine skill levels gained by each graduating class. This type of analysis is commonly referred to as "value-added" analysis and can be used for internal purposes, such as curricular change. To maximize the validity of the results from this analysis, students from the entering and graduating samples will be matched on a selected set of characteristics. Matching will help to control for intervening variables outside of the UMUC curriculum. In addition, longitudinal studies will be conducted year after year to compare graduating classes. This will determine if there are gains in graduate performances over time and help indicate whether changes are needed in the undergraduate general education curriculum that would lead to improved EPP scores.