



CAEL
Linking Learning and Work

Competency-Based Degree Programs in the U.S.

*Postsecondary Credentials for Measurable
Student Learning and Performance*



2012

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Council for Adult and Experiential Learning

Contents

Executive Summary	4
Introduction	8
Defining the Term <i>Competency</i>	9
A Short History of Competency-Based Education in the U.S.	10
A Vision for a Competency-Based System	12
Current Competency-Focused Degree Programs in the U.S.	12
Competency Frameworks within Traditional Course-Based Programs	13
Community College Examples	14
Public 4-Year Institution Example	16
Private 4-Year Institution Examples	16
Competency Frameworks That Drive Curricular Redesign	21
The Use of Competencies and Progress toward a Degree	28
Lessons and Suggestions for Implementation	29
Ensure Strong Leadership and Vision	29
Develop a System of Reliable Assessments	30
Rethink the Traditional Models for Staffing and Courses	30
Establish Pathways to Other Degree Programs	31
A View to the Future	31
References	35

Figures

- Figure 1. DCCC Competency 8 14
- Figure 2. Alverno College Problem Solving Ability and Levels 17
- Figure 3. Tusculum College Competency Levels for Coherence 20
- Figure 4. Western Governors University Assessments for Bachelor of Science in Accounting 24
- Figure 5. DePaul University School for New Learning Bachelor of Arts Program Grid 26

Appendix

- A-1. University of Maryland University College Computer and Information Science Program Outcomes Guide 38
- A-2. University of Maryland University College Institutional Level Learning Outcomes: Student Learning Expectations 39
- A-3. Alverno College Social Science Example of Relationships among Outcomes 39
- A-4. Brandman University's Degree Qualifications 40
- A-5. Marylhurst University's Liberal Arts Core Outcomes 41
- A-6. Westminster College Consumers and Markets Sequence 41
- A-7. Southern New Hampshire University Year One Modules, Themes, and Integrating Experiences 42
- A-8. Southern New Hampshire University Year One Competency Reinforcement Plan 43
- A-9. Western Governors University Domain for Bachelor of Science in Accounting 44
- A-10. Western Governors University Subdomains and Competencies for Accounting Domain 44
- A-11. DePaul University School for New Learning's Master of Arts in Applied Professional Studies (MAAPS) 45

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Competency-Based Degree Programs in the U.S.

Postsecondary Credentials for Measurable Student Learning and Performance

By Rebecca Klein-Collins

Executive Summary

As our economy evolves, there is growing recognition of the importance of an educated workforce. A key challenge is how to help more people, particularly adults, succeed at the postsecondary level and earn degrees. However, promoting degree completion is not our only challenge. Today our higher education system is facing a crisis regarding its perceived quality. One model for improving quality is competency-based education, in which an institution clearly defines the specific competencies expected of its graduates.

This paper examines the current state of competency-based postsecondary education in the U.S., profiling the various types of competency-based, or competency-focused, models that currently exist, the extent to which these programs assess for student competencies or learning outcomes, and the extent to which these programs operate outside of a credit-based system. These programs can help inform other institutions interested in developing a stronger focus on competencies, whether by demonstrating the possibilities of high-quality programs or by facilitating the recognition of learning acquired outside of traditional instruction.

Current Competency-Focused Degree Programs in the U.S.

Following a review of recent literature and interviews with a wide range of institutions, CAEL has identified several institutions that

are currently using competency frameworks as part of their postsecondary degree offerings. One subset of institutions uses competency frameworks in the context of a course-based system. By course-based system, we mean that students take the same kinds of courses that have always been offered by colleges and universities: instructor-led and credit-hour based. Another subset of institutions uses competency frameworks as a tool to disrupt the traditional college curriculum in new and innovative ways.

Competency Frameworks within Traditional Course-Based Programs

Many institutions that are designed around courses and credit hours have embraced the use of competency frameworks for their programs. It is, in fact, somewhat common to see colleges and universities taking the most basic approach: identifying what the intended learning outcomes are for students graduating with a degree from that institution. College catalogs might include language such as “Our students will be expected to know and be able to do the following upon graduation...” or “Students earning a degree in this discipline will have the following competencies...” Many colleges take this approach down to the course level, articulating the specific learning outcomes that students are expected to have at the end of a given course. **Delaware County Community College** (Pennsylvania) is a good example of this kind of approach.

A much smaller number of institutions have developed, or are working to develop, methods of assessing the competencies. In these cases, competency assessment is built into the courses. Examples described in this paper include **Rio Salado College** (one of Arizona's Maricopa Community Colleges), **Alverno College** (Wisconsin), and **Brandman University** (California and Washington). A slightly different take on competency assessment is used at **Tusculum College** (Tennessee), which has established specific learning outcomes for its general education core curriculum. At **Marylhurst University** (Oregon), the program is primarily course-based, but there are some competency requirements that students can satisfy through assessments rather than through courses.

The above-mentioned institutions are mostly, if not entirely, course-based. In other words, students receive instruction primarily through courses, or demonstrate learning through course-based prior learning assessment, or PLA. In addition, they are also credit-based in that their students satisfy graduation requirements by earning a required number of credits, mostly by taking courses from the institutions. In no case can a student progress toward a degree by demonstrating competencies alone.

Competency Frameworks That Drive Curricular Redesign

Competency frameworks can also provide an opportunity for institutions to offer a very different curriculum from the traditional course-based models. As we identified a range of institutions focused on student competencies, we recognized that some presented remarkably different models of instruction or degree completion. These institutions have taken noteworthy steps away from traditional or seat-time-based course models.

Westminster College (Utah), for example, redesigned its business degree program to be a series of competency-driven projects for stu-

dents to accomplish. **Southern New Hampshire University** conducted a thorough analysis of its business administration program's existing courses and discovered that a redesign of the curriculum into specially designed modules could better instruct and reinforce the required competencies while eliminating the need for an entire year of study. The result is an innovative, competency-based, 3-year bachelor's degree that saves students both time and money in earning their degrees. Taking another approach, **Western Governors University** (Utah and national) and **DePaul's School for New Learning** (Illinois) allow students to progress toward a degree by demonstrating competencies acquired through courses or independent study. Similarly, **Excelsior College's School of Nursing** (New York and national) provides an example of a professional school that allows students to graduate by demonstrating competencies.

The Use of Competencies and Progress toward a Degree

Some of the examples described in this paper show that it is possible for students to earn degrees by demonstrating competencies alone. At DePaul University's School for New Learning (SNL), students progress toward a degree by demonstrating the competencies required for the degree. They can do this by taking courses that are related to those competencies or by preparing portfolios that demonstrate mastery of those competencies through prior learning (with minimal required coursework). At Western Governors University (WGU), there are no required courses, just required competencies. Students gain knowledge and skills on their own, with the help of faculty mentors, but they can demonstrate competencies at their own pace and earn a degree based on what they have learned from a variety of sources, including work and other life experiences.

In contrast, in the competency-based business programs at SNHU and Westminster, traditional forms of PLA (e.g., standardized exams, challenge exams, evaluation of external training, and portfolio assessments) are not options, and yet the focus on competencies, rather than on seat time, allows the student to progress toward a degree more efficiently. While neither the SNHU nor Westminster model offers the same kind of transferability of learning between institutions that is possible at DePaul's SNL or WGU, their examples show that competency-based education is not just about moving beyond a credit-based system. It is also about advancing multiple visions for what postsecondary education could be in the future.

Lessons and Suggestions for Implementation

Institutions and state higher education systems interested in developing and implementing competency frameworks of their own can learn from the experiences of the colleges and universities that have pioneered the approaches described in this paper. Suggestions for implementation come from literature on this subject as well as from the individuals we interviewed and include the following:

- **Ensure strong leadership and vision.** A strong leader is important for creating an institutional culture that is open to change and oriented to the same mission.
- **Develop a system of reliable assessments.** Some form of assessment is important for the effectiveness of a competency framework in ensuring the quality and value of the degree.
- **Rethink the traditional models for staffing and courses.** A focus on competencies and related assessments may require new or expanded roles for faculty, and it may require a new way to design courses and learning activities.

- **Establish pathways to other degree programs.** Programs breaking free of the seat-time constraint nevertheless need to find ways for their programs to exist within credit-hour systems so that their students are able to transfer to other institutions, receive financial aid, and have their degrees recognized by advanced degree programs.

A View to the Future

The steps taken to move beyond the credit-hour framework for higher education are helping colleges rethink higher education in terms of efficiency, effectiveness, and fairness. They are more **efficient** in that they are focused on how best to help students demonstrate competence, even if it means eliminating redundant coursework or unnecessary degree requirements. They are more **effective** in that they develop methods to validate that student learning has occurred and competencies have been achieved, rather than merely assuming that such learning has taken place if a student has taken a certain number and series of courses. They are **fairer** because they recognize learning that the student may have acquired outside of a classroom. Learning is what counts, and not the time spent in a classroom. Several policy changes can help to create a more welcoming environment for these approaches:

- **Support further adoption of competency-based degree programs.** Public officials and policy makers can provide incentives for colleges and universities to design their programs around well defined and assessed student competencies, in an effort to promote higher quality, effectiveness, and fairness.
- **Support research that results in a greater understanding of competency-based degree programs and how they might be used.** We need to continue to explore new models for competency-based programs. In addition, more information is needed to understand what it takes to develop and maintain effective assessment methods and to evaluate the benefits to the student.

- **Identify and promote quality principles for competency-based programs.** Institutions interested in developing and implementing programs designed around competencies need flexibility to pursue innovative approaches, but there should also be guidelines for ensuring high quality and academic rigor.
- **Align degree-based competencies with workplace skill requirements.** Colleges need to collaborate more closely with workforce systems, industry associations, and regional employers to ensure that the competencies assessed are meaningful in the world of work.
- **Remove existing policy barriers.** Federal and state higher education policy makers need to consider how existing policies, regulatory language, and stated rules may serve as barriers to institutions interested in developing new programs.
- **Promote valid approaches to recognizing and awarding credit for prior learning.** Federal and state policies that encourage greater access to and use of PLA options

would help to advance a broader understanding of why it is efficient, effective, and fair to focus on what a student has learned rather than how that learning was acquired. A broader acceptance of PLA can provide a pathway for institutions and accrediting bodies to implement innovative approaches to competency-based degree programs.

- **Use competency frameworks to support statewide transfer and articulation agreements.** State higher education leaders should encourage all institutions within a state system to specify the competencies acquired in each course, and then those competencies can be used to develop clearly understood transfer and articulation policies within that system. This kind of policy change will encourage a greater focus on competencies throughout the system and create an environment in which new competency-based programs can emerge.

These policy changes can provide a starting point for what could ultimately be a transformed system of higher education that is focused on student learning above all. Degree completion without such transformation is but a hollow goal.



Competency-Based Degree Programs in the U.S.

Postsecondary Credentials for Measurable Student Learning and Performance

Full Report

Introduction

As our economy evolves, there is growing recognition of the importance of an educated workforce. Economists are projecting widespread increases in skill requirements, partly due to the nature of the industries in which we are likely to see the most growth. In addition, individual workers improve their earnings and their employability as they increase their educational attainment. The challenge is how to help more people, particularly adults, succeed at the postsecondary level and earn degrees.

Promoting degree completion is good. It is also necessary. But it is not sufficient. Today our higher education system is facing a crisis regarding its perceived quality. The public is putting pressure on institutions to show the value of their degrees. Not only do employers complain about college graduates who lack skills, but students also question the meaning and value of a college education, no doubt because of its high cost and its potential for resulting in significant personal debt.

One model for improving quality is competency-based education, in which an institution clearly defines the specific competencies expected of its graduates. A competency framework sends a message to those outside the institution about what a college degree-holder should know and be able to do. When the institution also assesses for those competencies, the message is one of transparent rather than abstract expectations.

A competency-based degree program also has other benefits. With a defined competency framework, students understand what they are expected to learn and how they are expected to apply that learning. In addition, a focus on

competency allows for better understanding of how learning translates across degree programs, from one institution to another, or from work and other life experiences to a degree or credential.

Most of our current higher education system is based on the credit hour. When students complete courses, they earn a certain number of credit hours, and then they accumulate the right number of credit hours in the right combination to earn a degree. There have been proposals for the U.S. postsecondary system to move away from credit-hour models entirely, with a vision portrayed of students progressing toward degrees through the demonstration of competencies rather than the accumulation of a prescribed number of credit hours. In this system, the combination of courses and credit hours is no longer relevant. What is most important is the demonstration of pre-defined competencies, or the students' ability to apply college-level skills and knowledge.

This paper examines the current state of competency-based postsecondary education in the U.S., profiling the various types of competency-based, or competency-focused, models that currently exist, the extent to which these programs assess for student competencies or learning outcomes, and the extent to which these programs operate outside of a credit-based system. These programs can help inform other institutions interested in developing a stronger focus on competencies, whether by demonstrating the possibilities of high quality programs or by facilitating the recognition of learning acquired outside of traditional instruction.



Defining the Term *Competency*

The terms *learning outcomes* and *competencies* are often used interchangeably, but there is an important distinction that can and should be made. When we talk of competencies, we are talking about much more than learning outcomes. As Peter Ewell (2001) noted, student learning outcomes can be defined in terms of “the particular levels of knowledge, skills, and abilities that a student has attained at the end (or as a result) of his or her engagement in a particular set of collegiate experiences” (p. 6), but when describing learning outcomes in terms of *competencies*, “such goals describe not only what is to be learned but also the specific levels of performance that students are expected to master” (Ewell, 2001, p. 6). Similarly, Boyatzis (1982) defined a competency as “the ability to demonstrate a system or sequence of behavior that is functionally related to attaining a performance goal” (as described in Bradley, Seidman, & Painchaud, 2012, p. 28). Similar definitions are found in other research papers (for example, Kouwenhoven, 2009; Bers, 2001; and U.S. Department of Education, 2002).

Many of these definitions make several important points about competencies. First, while learning outcomes typically include specific skills and knowledge, competencies are at a **higher categorical level**. Acquiring skills and knowledge is important, but a competency requires students to process that learning in a way that enables them to apply it in a variety of situations. Second, there are **different levels of competence** a student might be required to demonstrate. A specific competency demonstrated by a first-year college student is at a different level of performance compared to competencies that can be demonstrated by a third- or fourth-year student. Third, competencies are more objectively **measurable**.

Given these definitions, a competency-based system for higher education provides a clear contrast to a credit-hour-based system.

Competencies are clearly defined and measurable, while the credit hour “can be many different things to many different people” (Wellman and Ehrlich, 2003, p. 16). What counts as a credit hour at one institution may not count at another institution because credit hours do not inherently convey the amount of student learning that has taken place (Lipka, 2010). Competencies, on the other hand, do have inherent meaning or objective value. For that reason, competency frameworks provide a meaningful description of what a postsecondary degree means in terms of actual student learning.

What Is Prior Learning Assessment?

Prior learning is a term used by educators to describe learning that a person acquires outside a traditional academic environment. This learning may have been acquired through work experience, employer training programs, independent study, non-credit courses, volunteer or community service, travel, or non-college courses or seminars.

Prior learning assessment (PLA) is a term used to describe the process by which an individual’s experiential learning is assessed and evaluated for purposes of granting college credit, certification, or advanced standing toward further education or training. There are four generally accepted approaches to PLA and, when properly conducted, all ensure academic quality: (1) national standardized exams in specified disciplines, e.g., Advanced Placement (AP) exams, College Level Examination Program (CLEP) tests, Excelsior College exams, DSST (DANTES Subject Standardized Tests); (2) challenge exams for local courses; (3) evaluated non-college programs, e.g., American Council on Education (ACE) evaluations of corporate training and military training; and (4) individualized assessments, particularly portfolio-based assessments.



A Short History of Competency-Based Education in the U.S.

Today's competency-based degree programs might trace their roots back at least as far as teacher education in the 1960s, when the U.S. Office of Education funded 10 colleges and universities to develop pilot training programs for elementary school teachers (Tuxworth, 1989; Malan, 2000). The programs had common elements which included "the precise specification of competences or behaviors to be learned, the modularization of instruction, evaluation and feedback, personalization, and field experience" (Swanchek & Campbell, 1981, in Tuxworth, 1989, p.11).

In the 1970s, competency-based programs emerged as important models for serving the growing number of adults returning to college. At that time, the U.S. Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE) provided significant grant support for adult learning programs to develop competency-based programs. According to William Maehl (2000), "the competence approach offered adults in particular many benefits. Progress became linked to performance rather than to required time in attendance. Competence assessment could acknowledge the previous learning, whether from institutions or other sources, that many adults had acquired" (p. 115). This approach to education led to advances in prior learning assessment (PLA) for college credit (see box), as well as innovative degree programs for adults through Empire State College, Regents College (now Excelsior College), Thomas Edison State College, Alverno College, DePaul University's School for New Learning, and many others.

These approaches for focusing on learning, rather than required time in attendance, proved to be valuable as we saw the explosion of online learning in the last decade. With a delivery model very different from the traditional classroom lecture or seminar discussion, online courses and programs were an uneasy fit for our seat-time-based credit-hour system. It was not immediately clear how to assign credits to an

online course when students spent no required hours in a classroom or in traditional instructional activities. Peter Ewell (2001) noted that, "demonstrated student mastery of the subject matter became the *only* way in which academic progress could be judged" (p. 3).

Today, discussions within higher education around competencies are not limited to how to recognize prior learning or how to assign credits to online courses. Rather, competency frameworks have been developed and operationalized as institutional responses to concerns about quality. Spady (1994) argued that a focus on outcomes within education is in part the result of our shift from the Industrial Age to the Information Age, in which a "complex, technologically dominated, multicultural, constantly changing world demands far higher learning results from schools than they have ever produced" (p. 38). Our workplace now requires workers to be part of "adaptable, effective working teams" (p. 41) and so workers need to have much more than just technical skills. They need also to have adaptability, interpersonal competence, and the ability to deal with open-ended issues. Spady further noted that the shift to the Information Age has also resulted in a new definition of organizational excellence: excellent corporations are those that are tightly focused around organization purposes and goals, rather than on systems, processes, and roles. When this framework is applied to higher education institutions, the result is a focus on achievement, standards, performance, and learning.

Rising concerns about quality in higher education prompted a formal examination of the issue by the federal government in the mid 2000s, resulting in a 2007 report from the Commission on the Future of Higher Education led by former Department of Education Secretary Margaret Spellings. This report recommended that institutions of higher education post student outcomes data (such as students' results on assessments of general education) so that consumers could make informed compari-

sons between schools (Basken, 2007). Since then there has been an outgrowth of initiatives that have attempted to delineate the skills, knowledge, and competencies students should gain in college, as well as to develop ways of measuring these outcomes.

Since 2005, for example, the American Association of Colleges and Universities (AAC&U), has worked with member colleges and universities on the Liberal Education and America's Promise (LEAP) initiative, which defined "The Essential Learning Outcomes" as a set of educational outcomes that all students need from higher learning across all fields of study. The LEAP recommendations are intended to foster "wide-ranging knowledge of science, cultures, and society; high-level intellectual and practical skills; an active commitment to personal and social responsibility; and the demonstrated ability to apply learning to complex problems and challenges" (AAC&U, 2011, p. 9). Part of the LEAP initiative's focus is also to promote the assessment of postsecondary learning beyond the use of standardized tests. Institution-level rubrics have been developed for the Essential Learning Outcomes, and the initiative is working with various institutions to test the rubrics with students (AAC&U, n.d.).

In 2011, the Lumina Foundation developed the Degree Qualifications Profile (DQP), a set of student performance benchmarks at the associate, bachelor's, and master's degree levels. The DQP was informed in part by similar frameworks developed in other countries, such as the Bologna Process in Europe, which are known as "qualifications frameworks" (Lumina Foundation, 2011, p. 3).

The DQP identifies 5 areas of learning:

- Broad, integrative knowledge, which stresses the acquisition of more complex and advanced knowledge in areas such as English, mathematics, science, history, social sciences, languages, and the arts, as well as the creative integration of knowledge about science, culture and society with the students' specialized interests
- Specialized knowledge, which is related to the specific discipline or field of study (terminology, tools, and technologies related to that field, principal features, core theories and practices, etc.)
- Intellectual skills, which includes oral and written communications and quantitative applications
- Applied learning, which stresses the importance of students being able to do something with what they learn
- Civic learning, which focuses on students' ability to understand diverse positions and develop responses to social, environmental, and economic challenges at the local, national, and global levels (Lumina Foundation, 2011)

Having these areas defined at various academic levels helps to communicate how students are expected to perform at progressively more challenging stages and creates "the grounds on which degrees are awarded" (Lumina Foundation, 2011, p. 1). The Lumina Foundation's "beta version" of the DQP is currently the focus of several initiatives in which colleges and higher education systems are testing and refining the framework, while also implementing methods of assessing student achievement of the learning outcomes.

Regardless of the terminology used—learning outcomes, competencies, performance benchmarks—both the LEAP and the Lumina DQP initiatives have defined their outcome or competency frameworks broadly enough to allow individual institutions to have their own areas of emphasis. However, both models also provide enough specificity so that there can be a "common vocabulary for sharing good practice" and for a "better public understanding of what institutions of higher education do" (Lumina Foundation, 2011, p. 2).

A Vision for a Competency-Based System

Designing degree programs around competencies would not only help demonstrate quality, but it would also support students as they move from one institution to another. In a 2002 essay (reissued in 2010), “Student Learning as Academic Currency,” Sally M. Johnstone, Peter Ewell, and Karen Paulson argue that competency frameworks would allow learning itself to function as a form of currency; in other words, a clearly-defined unit that would hold value across individual institutions and educational systems, either through transfer and articulation policies or through assessment (PLA).

Johnstone, Ewell, and Paulson envisioned a system that would operate differently from our current credit-based system in that it would establish a seamless and portable system of academic achievement with the following key features:

- Academic awards structured in terms of outcomes or competencies, instead of courses and seat time.
 - Academic awards based on demonstrated achievement of competencies through assessment.
 - Early assessment of outcomes or competencies to determine individual gaps in current abilities that can provide
- guidance about the kinds of subsequent learning experiences in which students should engage.
 - Learning opportunities beyond formal coursework, with provisions for certifying learning obtained on the job or through past experiences.
 - Prominent role of mentors or advisers in helping shape divergent individual paths of learning toward established competencies.
 - Third-party verification of attainment through a professional organization, consortium of institutions or providers, or registry.
 - Ready acceptability of credentials to higher education institutions and employers, with clear consequences and equivalencies established for both.
 - Multiple examples of student achievement—both for individuals and for institutions—readily accessible in the form of a portfolio or website.
 - A distributed learning system in which delivery mode is unimportant. (2010, p. 10)

Current Competency-Focused Degree Programs in the U.S.

In the past decade or so, we have seen even greater needs for competency-based systems due to the proliferation of online programs, the expansion of open source learning opportunities, and labor market projections that point to the need for more adults to obtain formal postsecondary credentials.

The question CAEL explores in this paper is how institutions have responded to these trends and challenges in their use of competency frameworks. From a review of recent literature and from interviews with a wide range

of institutions, we have identified several institutions that are currently using competency frameworks as part of their postsecondary degree offerings.

One subset of institutions uses competency frameworks in the context of a course-based system. By course-based system, we mean that students take the same kinds of courses that have always been offered by colleges and universities: instructor-led and credit-hour based. These may be offered on campus or off, in the classroom or online, accelerated or normally

paced. These institutions define competencies that are expected of graduates, and students demonstrate these competencies by successfully completing courses that relate to the required competencies. In some cases, institutions embed competency assessments into each course. In most of the examples presented in this paper, the institution also offers the option of awarding credit for prior learning, and usually PLA is course-based as well. (This is explained in more detail later in the paper.)

Another subset of institutions uses competency frameworks as a tool to disrupt the traditional college curriculum in new and innovative ways. For example, some of these institutions combine independent student learning with competency assessments in lieu of traditional course-based offerings; one institution uses project-based learning designed around the competencies, and another has developed a tightly structured combination of courses and integrative experiences around the competencies. Three of the models described in this paper use a competency-based approach to prior learning assessment as well.

All of the models described here suggest a range of possible uses for competency-based approaches that could benefit the student and our higher education system. They also offer lessons and suggestions for implementation.

Competency Frameworks within Traditional Course-Based Programs

Many institutions that are designed around courses and credit hours have embraced the use of competency frameworks for their programs. It is, in fact, somewhat common to see colleges and universities taking the most basic approach: identifying what the intended learning outcomes are for students graduating with a degree from that institution. College catalogs might include language such as: “Our students will be expected to know and be able to do the following upon graduation...” or “Students earning a degree in this discipline will have the following competencies....” Many colleges take this

approach down to the course level, articulating the specific learning outcomes that students are expected to have at the end of a given course. **Delaware County Community College** (Pennsylvania) is a good example of this kind of approach.

A much smaller number of institutions have developed, or are working to develop, methods of assessing the competencies. In these cases, competency assessment is built into the courses. The exact number of institutions that do this kind of competency assessment as a routine part of their programs is very small, but it may be growing, given Lumina Foundation’s current initiative supporting the implementation of the Degree Qualifications Profile. Examples described here include **Rio Salado College** (one of Arizona’s Maricopa Community Colleges), **Alverno College** (Wisconsin), and **Brandman University** (California and Washington).

A slightly different take on competency assessment is used at **Tusculum College** (Tennessee), which has established specific learning outcomes for its general education core curriculum. These outcomes are assessed using rubrics applied to regular course work assigned by the faculty. Tusculum does not tie assessment outcomes to student graduation requirements, but instead uses them primarily for the purposes of continuously improving instruction.

At **Marylhurst University** (Oregon), the program is primarily course-based, but there are some competency requirements that students can satisfy through assessments rather than through courses.

The above-mentioned institutions are mostly, if not entirely, course-based (students receive instruction primarily through courses, or demonstrate learning through course-based PLA). In addition, they are also credit-based in that their students satisfy graduation requirements by earning a required number of credits, mostly by taking courses from the institutions. In no case can a student progress toward a degree by demonstrating competencies alone.

Community College Examples

Delaware County Community College

Delaware County Community College (DCCC) has identified three levels of competencies: there are 11 college competencies, which all degree earners are expected to have upon graduation; discipline-specific competencies; and individual course competencies.

The 11 college competencies specify that graduates of Delaware County Community College should:

1. Be proficient in mathematics, reading, writing, and speech communication.
2. Have a concept of self (needs, abilities, interests, values) and be able to explain the relationship of self to others, necessary for making value judgments for satisfying and productive lives.
3. Apply the meaning of *career*, defined as a whole life endeavor, to make career choices appropriate to individuals' own needs, abilities, interests, values, and education.
4. Have the skills to pursue lifelong learning.
5. Be able to use decision making processes to solve problems.
6. Be able to analyze the impact of arts and humanities on life and discuss the part which diverse cultural ethnic groups play in the arts and humanities.
7. Have the skills necessary to analyze social, political, business, and economic systems in order to function effectively within them.
8. Be able to analyze the impact and apply the principles of science and technology so that they may make intelligent judgments.

Figure 1. DCCC Competency 8

Graduates of Delaware County Community College should be able to analyze the impact and apply the principles of science and technology so that they may make intelligent judgments.

Therefore, graduates should be able to:

1. Identify those activities and products which constitute the scientific and technological aspects of a culture.
2. Acknowledge that scientific concepts, laws, or principles underlie technological activities and products.
3. Demonstrate that technology impacts individuals, cultures, and the physical and ecological environment.
4. Possess scientific literacy in order to make intelligent judgments regarding individual lifestyles.

Source: DCCC Catalog

9. Have the skills and experience necessary to make use of contemporary information systems in support of their personal life and career goals.
10. Have a concept of diversity that enables them to appreciate individual and group differences and to recognize that appreciating these differences benefits everyone.
11. Be able to satisfy the competencies in their chosen curricula. (DCCC Catalog)

Figure 1 provides an example of the specific competency statements that comprise Competency 8.

When new programs or courses are developed at DCCC, teams of faculty fill out grids showing how that program or course will help students achieve specific competencies. Each course is reviewed every five years. The Office of the Provost is in charge of this process, and the College Advisory System's Curricular Review Committee plays a role when courses are significantly revised.

While course content is reviewed to ensure that competencies are addressed, and students are assessed in each of their courses based upon the course competencies, at this time faculty are not required to document how students have mastered each of the competencies. However, individual assessment of competencies does take place if a student applies for credit by examination or by portfolio review (i.e., prior learning assessment). When prior learning assessment is used, the student must show competencies assigned to a particular course to receive credit for that course.

Rio Salado College

Rio Salado College has a model that is similar to that of DCCC, but also incorporates competency assessment into each course. Each online degree and certificate program lists the competencies expected of students who complete that program, and each course is designed to help students achieve a specific set of competencies.

The degree program for the Associate in Applied Science (AAS) in Computer Technology, for example, specifies the program competencies and the required courses that address those competencies. The following is a sample of four competencies for the AAS in Computer Technology program:

1. Define terms related to microcomputer usage and applications. (CIS105, CIS113DE, CIS114DE, CIS117DM, CIS121AE)
2. Evaluate and select microcomputer hardware and software for specific applications. (CIS105)
3. Diagnose problems with microcomputer operating systems and application software. (BPC278)
4. Describe the role of the systems analyst and his/her typical responsibilities to the total business field. (CIS225)

Rio Salado College's assessment processes determine quality assurance or the need for "relentless improvement" in its courses and degree programs. The College uses the "Plan-Do-Check-Act Cycle" to assess course-level and college-level student learning outcomes. The measurement of student learning outcomes is not limited to graduating students. Rio Salado assesses student learning outcomes at the course level in specific courses, which could include first-time, one-course students. "Assessed learning outcomes are critical thinking, writing, information literacy, reading, and, recently adopted, sustainability. These outcomes are assessed using rubrics which have been developed and refined by the Learning Outcomes Coordinators, and then approved and adopted by the Faculty Chairs. Based on the data, interventions are designed for the improvement of student learning as indicated. In addition, a random selection of students is assessed biennially in critical thinking, writing, information literacy, and reading, with plans to include sustainability in 2013. Results are used to assess student performance college-wide as well as by department, with individual programs being assessed as part of a formal program review every three to five years (Rio Salado College, 2010-2011).

This "spot-checking" approach to assessing student learning outcomes is used in order to ensure ongoing quality and improvement. These data are then shared publicly through an initiative called *Transparency by Design*. Included in the process are summarized responses to an Alumni Satisfaction Survey, which asks about the satisfaction of the students' educational experiences and relevance of their education to their careers (Albo & Davis, n.d.).

Quality Guarantees

Some community colleges provide a **guarantee** of their programs' quality. At DCCC, for example, if a graduate's skills or competencies do not meet stated expectations of employers or transfer baccalaureate institutions, the student has the opportunity to enroll for additional 15 credit hours of course work at no charge.¹

Public 4-Year Institution Example

University of Maryland University College

The **University of Maryland University College** (UMUC) provides programs for adult students, many of whom have military experience. In 2010, the college redesigned its curriculum to be more focused on what they call "program outcomes." The college involved employers and alumni in identifying key outcomes that students should have upon graduation. The college then translated those program outcomes into learning outcomes for individual courses. The UMUC model further shows how the intended program outcomes are to be assessed throughout the various courses in the program. (An example of what this looks like for the Computer and Information Science major is found in the Appendix.)

The college has structured the programs to be as flexible as the state will allow in terms of accepting transfer credits and credits for prior learning. Progress toward the degree, whether by taking courses or through PLA, is counted in terms of course credits, not competencies, although prior learning assessments are aligned with the course outcomes or competencies just as work in the formal classroom is. Associate Dean Cynthia Davis notes that counting PLA in terms of credits helps the students maximize their ability to apply that learning in combination with other sources of credit.

Students can earn up to 30 credits through portfolio assessment, and these credits count for the school's residency requirement. UMUC

also awards credit for corporate and military program evaluations by ACE, challenge exams (or sometimes projects), and a co-op internship program. According to Davis, approximately 90% of UMUC students have transfer credit or credit through PLA, and approximately half of all students earn half of their degrees through a combination of transfer credit and PLA.

Private 4-Year Institution Examples

Alverno College

Alverno's abilities-based approach to education is not new. It was the result of an exploration by the College's faculty that began in the late 1960s, when serious questions were emerging nationwide about the meaning and value of college and liberal education. (For additional historical information, refer to Alverno College Archives, 2011; Alverno College Faculty, 1976/2005.) Simultaneously, faculty at Alverno were re-examining the institution's mission as a small, urban, liberal arts college for women.

Early in the 1970-1971 academic year, President Joel Read asked the academic departments a set of questions about the kinds of student learning outcomes that are important to individual fields, as well as what faculty viewed as important learning outcomes of their own courses (Alverno College Faculty, 1975/1989/1994). In examining the answers to these questions, faculty began to notice some commonalities in the departments' responses (Alverno College Faculty, 1976/2005), and more specific questions followed:

- How do you want your students to be able to think as a result of studying your discipline?
- What do you want your students to be able to do as a result of studying your discipline?

A task force synthesized and summarized emerging commonalities, resulting in the iden-

¹ An earlier version of this paper referenced a guarantee at Rio Salado College which was in error.

tification of an initial set of four institution-wide learning outcomes in May 1971. With further input from the faculty's own pedagogical practice and professional expertise, as well as from an extensive review of the literature, the four outcomes were expanded in 1971-1972 to eight institution-wide student learning outcomes that, taken together, would result from a successful liberal education. Alverno refers to these outcomes as "abilities." Those original eight abilities have been revisited, and on occasion reconceptualized, 13 times since 1973. Today's eight abilities have very similar (but not identical) names to those that were articulated 40 years ago:

1. Communication
2. Analysis
3. Problem Solving
4. Valuing in Decision-Making
5. Social Interaction
6. Developing a Global Perspective
7. Effective Citizenship
8. Aesthetic Engagement

Each of the abilities is articulated as a series of developmental levels through which individual students progress over the course of their college careers. For the bachelor's degree, levels one through four correspond to general education courses, and levels five and six correspond to the student's specialized work in the major and supporting areas of study. An example of these levels for the ability of Problem Solving is shown in Figure 2.

Figure 2. Alverno College Problem Solving Ability and Levels

Problem Solving

Beginning Levels: Articulates problem solving process and understands how a discipline framework is used to solve a problem

- Level 1—Articulates problem solving process by making explicit the steps taken to approach a problem
- Level 2—Practices using elements of disciplinary problem solving processes to approach problems

Intermediate Levels: Takes thoughtful responsibility for process and proposed solutions to problems

- Level 3—Performs all phases or steps within a disciplinary problem solving process, including evaluation and real or simulated implementation
- Level 4—Independently analyzes, selects, uses, and evaluates various approaches to develop solutions

Advanced Levels in Areas of Specialization: Uses problem solving strategies in a wide variety of professional situations

- Level 5—Demonstrates capacity to transfer understanding of group processes into effective performance in collaborative problem solving
- Level 6—Applies methods and frameworks of profession/discipline(s); integrating them with personal values and perspectives; adapting them to the specific field setting; demonstrating independence and creativity in structuring and carrying out problem solving activities

Source: Alverno College's "Ability-Based Learning Program" Brochure.

More detailed outcomes, and higher level outcomes, have also been developed for master's-level programs.

In addition to the college-level outcomes, each department identifies outcomes at the program level linked to the eight abilities (i.e., what competencies students majoring in their department should have), and then teams of faculty develop course-level outcomes. (An example showing the link between the eight abilities and program outcomes for social science majors is provided in the Appendix.) Each faculty member (except for first-year faculty) is part of both an academic department and an ability department. Ability departments include representation from a broad range of academic disciplines and academic departments. This is an important part of how they operationalize the competency-based approach.

In each course, faculty plan assessments and exercises so that students have at least two opportunities to demonstrate the various course outcomes, and they provide rubrics to further elaborate on the outcomes and criteria for assessment. Faculty members consider the appropriate ability level depending on whether the course is for freshmen, sophomores, juniors, or seniors. If a student does not successfully demonstrate all course learning outcomes, that student must retake the course. On the other hand, a student demonstrating mastery of the learning outcomes early in a course can signal to the faculty that PLA credit for that course might be explored.

On a regular basis, students conduct self-assessments so that it becomes a habitual part of the learning process. Faculty members provide feedback to the students on their performance using the criteria as the basis for making that judgment.

Associate Vice President for Academic Affairs Jeana Abromeit notes that the college routinely receives informal feedback from employers about their experiences with Alverno College hires. With considerable consistency, employers report that Alverno graduates excel at teamwork, analytical, and presentation skills and that they take initiative to seek resources

to help themselves improve without prompting from supervisors.

Brandman University

Brandman University (formerly Chapman University College) is a member of the Chapman University system. In 2008, Brandman University became a separately accredited unit within the Chapman system to better serve the needs of adult learners. In 2009, the Brandman University faculty and leadership team began looking into developing its bachelor's level institutional outcomes and revision of the general education requirements based on the competencies for the 21st century graduate. According to Laurie Dodge, Associate Vice Chancellor of Institutional Assessment & Planning and a member of the General Education Task Force, they started by reviewing existing literature, employer survey data, and overall trends in higher education to help inform what institutional learning outcomes and general education requirements should be for Brandman baccalaureate graduates. What resulted at Brandman was a framework for undergraduate competencies that was an amalgam of the AAC&U Liberal Education and America's Promise (LEAP) Essential Learning Outcomes, Lumina Foundation's Degree Qualifications Framework, and outcomes shaped by Brandman's own mission and values.

Officially launched in 2011, Brandman's competency framework consists of three parts. The first part is "Broad, Integrative Knowledge" which specifies course credit requirements for basic skills such as oral and written communication and quantitative reasoning (12 credits), breadth requirements (i.e., 9 credits in the humanities, 6 credits in the natural sciences, and 9 credits from the social sciences), and 2 core required courses. All but the 2 core required courses can be satisfied through transfer credits.

The second part of the framework introduces the university degree qualifications, the areas in which all bachelor's degree students must demonstrate competencies. The five degree qualification areas are applied learning; inno-

vation and creativity, civic engagement; global cultures, and integrated learning. (Complete descriptions of these qualifications are found in the Appendix.) These five competencies are now articulated in the university catalog; and in the Fall of 2011, the university rolled out course-embedded assessments. The university developed detailed rubrics for all five competencies based on the AAC&U's Valid Assessment of Learning in Undergraduate Education (VALUE) rubrics. Students need to show how each of the competencies is demonstrated through the upper division courses taken at Brandman. The faculty members are currently developing signature assignments in the required courses of the major to address the competencies. It is understood that some degree requirements may need revision (e.g., add a new course) to address all of the competencies.

The third part of the framework is a disciplinary skills requirement, which consists of a discipline-based writing course and a disciplinary foundations course. Both of these can be satisfied through transfer credits.

Brandman's bachelor's degree framework is just the beginning. The faculty are also revising courses and developing new courses to ensure that all baccalaureate students have met the university degree qualifications. In addition, the institution is revising its associate degree to include Lumina Foundation's Degree Qualifications Profile.

Also, in May 2011, Brandman's accrediting organization, the Western Association of Schools and Colleges (WASC), was awarded a grant from Lumina Foundation to test and refine the Degree Qualifications Profile (DQP). As noted in the foundation's press release, WASC will be redesigning its accreditation process for member schools in California and Hawaii with the DQP as a central reference point. Brandman's efforts to redesign its competencies at the baccalaureate level fit well within the framework of WASC's grant-funded work. Brandman University is a WASC-chosen pilot institution for its work embedding the DQP.

According to Dodge, a competency-based approach which focuses on student learning

outcomes is at the heart of higher education—prospective employers are demanding that universities and colleges prepare their graduates for the 21st century. She adds, “Brandman University, as a WASC accredited institution, is fortunate to be a part of the Lumina Degree Qualifications Profile pilot. This opportunity to redesign curriculum and ensure student learning outcomes that matter to students and employers is innovative and ‘doing the right thing.’”

Dodge observes that the movement in higher education toward competency-based approaches underscores the importance of providing some flexibility for how students can demonstrate their learning and knowledge. She says, “PLA is one option. Other options may include taking a course, engaging in a new field experience, or learning through open sources. It is not always ‘looking back’ to see what I know—but also ‘looking forward’—what is the best way to gain this knowledge.”

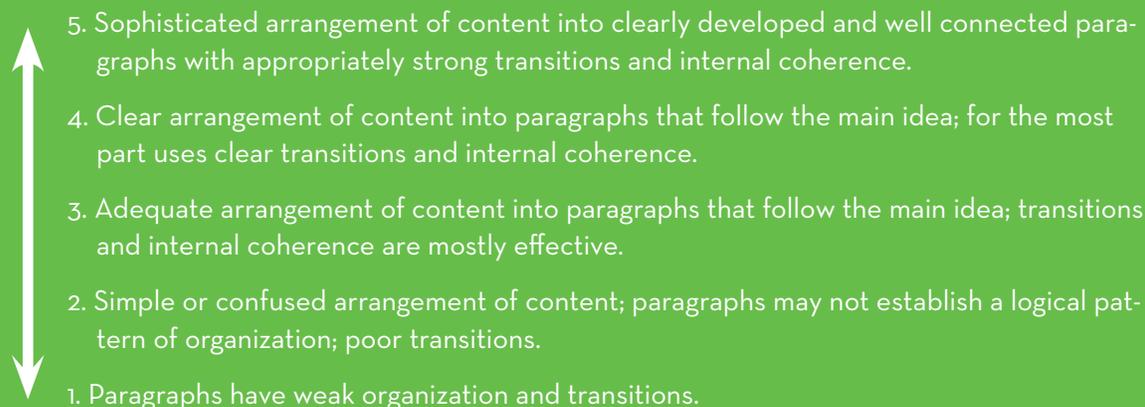
Tusculum College

Tusculum College's Commons Program is the core curriculum for its general education requirements. According to the Tusculum College Student Handbook 2011-2012, the Commons is designed, in part, “to develop the knowledge, skills, perspectives and practical wisdom crucial to effective citizenship. Most specifically, Tusculum seeks to graduate individuals who will become engaged in their communities in various ways and who will know how to most effectively achieve the common good and justice in a global context” (p. 2).

There are 10 competency areas, or “learning outcomes,” that are the focus of the Commons, comprising “Foundational Skills” (writing, public speaking, information literacy, computer literacy, reflective judgment, mathematical reasoning, and scientific inquiry) and “Practices of Virtue” (self-knowledge, civility, and ethics of social responsibility) (*Tusculum College Student Handbook, 2011-2012*).

These learning outcomes are assessed through faculty-developed assignments throughout the Commons curriculum. For example,

Figure 3. Tusculum College Competency Levels for Coherence



Source: *Tusculum College Student Handbook, 2011-2012*

writing and information literacy are assessed in specific courses across seven disciplines, from English to biology. Civility is assessed in two required courses. Mathematics, on the other hand, is only assessed in mathematics courses. In each course no more than two learning outcomes are assessed.

The assessments are not specially developed instruments. Rather, each assessment is carried out by applying rubrics to the regular course work assigned by the faculty. There are rubrics for each competency, and these rubrics are listed in the college's student and faculty handbooks, along with the complete list of courses in which a given learning outcome is assessed. Most of the rubrics have subareas for assessment, with specific descriptions of the levels of competence within that subarea. For example, writing assignments are scored in five subareas: purpose, coherence, content, style, and mechanics. The competence levels for "coherence" are shown in Figure 3.

In each subarea, faculty members circle the number corresponding to each student's demonstrated performance level. All scores are then entered into a college database. At the end of the school year, the faculty who assess a specific learning outcome meet to review how the students performed in aggregate, using average assessment scores from the database. That provides an opportunity to see if students are achieving desired learning outcomes, and whether changes need to be made in the cours-

es or the curriculum as a whole to focus more on developing a given competence.

The college also annually convenes faculty teams to work on norming of the assessment progress. All faculty will score the same student product to see if there is general consensus on the scoring exercise. There is often a great deal of variability in the scores, but this exercise is seen by the college as a way to help faculty be more consistent in their approach to assessment.

Jeff Lokey, Director of General Education, notes that the Tusculum approach to assessment is also useful for measuring individual student progress because the general education curriculum spans all 4 years of a student's time at the college. There are therefore opportunities to assess a student as a freshman and then measure that student's improvement as a junior or senior.

The competencies are not, however, a requirement of graduation. Rather, the goal of this approach is to improve student learning. Lokey explains, "As we develop courses in association with learning outcomes, we are hoping to improve courses over time through our iterative process." The scores provide a way for the faculty to examine student learning within the institution and determine where changes are needed. The competency framework and assessment process is a way for the college to improve pedagogical practices.

Marylhurst University

Marylhurst University was originally founded in 1893 as a Catholic women's liberal arts college. It became a co-ed institution in 1974, when it shifted its mission to focus on adult students and lifelong learning. Approximately 12 years ago Marylhurst developed an outcomes-based learning framework that was inspired by and modeled after the curriculum at DePaul University's School for New Learning (discussed later).

Undergraduate degree program requirements are fulfilled by a hybrid of outcomes-based units that form the Liberal Arts Core (LAC) and traditional coursework that fulfills major requirements.

The Liberal Arts Core is a set of multidisciplinary requirements for all undergraduate programs that encompasses 29 learning outcomes. Twenty-four of these learning outcomes (and their associated credits) fall into four major areas: Life and Learning Skills, Arts and Ideas, Human Community, and Natural World. There are also five outcomes distributed among the areas of Academic Learning, Career Transition and Marylhurst Academic Portfolio (MAP) Completion, and Senior Seminars. (The required distribution of outcomes within the Liberal Arts Core is shown in the Appendix.)

There are several ways to fulfill these learning outcomes: LAC courses at Marylhurst, course challenges through Prior Learning Assessment, exams (e.g., DSST, CLEP tests), and courses transferred from other institutions. For some of the learning outcomes, there is also the option of no-credit outcome assessments. Some LAC learning outcomes can only be fulfilled by successful completion of specific courses offered by the institution.

Competency Frameworks That Drive Curricular Redesign

Competency frameworks can provide an opportunity for institutions to offer a very different curriculum from the traditional course-based models. As we identified a range of insti-

tutions focused on student competencies, we recognized that some presented remarkably different models of instruction or degree completion. These institutions have taken noteworthy steps away from traditional or seat-time-based course models.

Westminster College (Utah), for example, redesigned its business degree program to be a series of competence-driven projects for students to accomplish. **Southern New Hampshire University** conducted a thorough analysis of its business administration program's existing courses and discovered that a redesign of the curriculum into specially designed modules could better instruct and reinforce the required competencies while eliminating the need for an entire year of study. The result is an innovative, competency-based, 3-year bachelor's degree that saves students both time and money in earning their degrees. Taking another approach, **Western Governors University** (Utah and national) and **DePaul's School for New Learning** (Illinois) allow students to progress towards a degree by demonstrating competencies acquired through courses or independent study. Similarly, **Excelsior College's School of Nursing** (New York and national) provides an example of a professional school that allows students to graduate by demonstrating competencies.

Westminster College

Westminster College in Salt Lake City, Utah, established a new competency-based bachelor's degree in business program in 2008, designed to serve students with an associate degree or equivalent educational attainment. The program has identified 70 competencies that a student must master in through a project-based curriculum.

Students come into the program with an associate degree, and over the course of 2 years, the students, many of whom are working professionals, are required to complete 20 projects that are organized into 5 separate project sequences:

- Professional Development
- Consumers and Markets

- Enterprise Performance
- Strategy and Leadership
- Business Planning

The program's website notes that each sequence provides multiple opportunities for students to demonstrate their skills through hands-on learning experiences. Student progress is not measured by grades but rather by successful completion of each sequence. Students start each sequence with a series of two to four smaller projects, which prepare them for a fifth capstone project sequence. (A depiction of the various projects in the Consumers and Market sequence is found in the Appendix.)

The projects are also linked to the traditional credit model for the purposes of calculating financial aid and satisfying other administrative purposes. Each of the five project sequences is worth 12 credit hours.

Dr. Aric Krause worked on the development of this program and explained that the projects are “real world applied projects that the students can do in the context of their current employer.” At the end of the project, the student's record shows the number of times that the student masters a specific competency. Krause estimates that through the course of completing the 20 projects, the students will touch each competency at least four times.

According to Krause, “Our whole goal with this program is to graduate students who can contextualize, who can think, and who can do. Real-world projects require students to apply, in multiple ways, the knowledge they are building and the nuance that comes with repeated application.”

Students do not attend lectures. Instead they are provided with a faculty “coach” and an online knowledge database. Across a full year, one FTE faculty member is budgeted to coach 40 students. The program typically uses part-time faculty, each of whom works with 5-10 students per semester. In addition, each project sequence has a full-time faculty expert who is in charge of that sequence. Those responsibilities include evaluating student learning and progress,

adjusting projects, and coaching other faculty coaches who work with students on an individual basis. This model, using full-time faculty experts with a cadre of part-time faculty coaches, allows the program to scale up as needed.

Each project sequence is preceded by a two-day, on-campus residency that includes workshops, seminars, and tool-building sessions. Students use these resources to learn on their own to complete each project. When a student completes a project, the coach determines whether the required competencies are met, and the student revises project documents until the student has sufficiently demonstrated mastery. Students are able to complete all five sequences in about 18 months, or they can spread them out over a longer period if needed.

Westminster has structured the curriculum in such a way that the institution cannot use PLA methods such as portfolios or challenge exams to award credit or provide advanced standing. Nevertheless, a student who comes to the program with significant prior learning will be able to complete the 20 projects more quickly by drawing on what they learned on the job, in the military, or from self-study. However, they must still complete each project to demonstrate their competencies; in essence, each project could be seen as a form of prior learning assessment.

A similar project-based program at the graduate level is designed around a set of 100 competencies. While the undergraduate projects are all performed individually, the graduate level activities include some group projects.

Southern New Hampshire University

Southern New Hampshire University (SNHU) also redesigned its business administration bachelor's degree around competencies and at the same time constructed a new curriculum that helps students master competencies in a deliberate way. In doing so, the institution found ways to eliminate redundancies in course content and streamline the entire learning process so that the full range of bachelor's level competencies could be mastered in 3 years instead of 4 (Bradley, Seidman, & Painchaud, 2012).

University leaders recognized that in a traditional 4-year degree program, a student might take several courses that cover some of the same content simply because the curriculum is designed around individual course objectives. Different courses may satisfy different degree requirements and yet have overlapping content. That redundancy, however, is more an accident than a planned part of the degree program.

SNHU's program breaks that mold by structuring the entire curriculum around a set of competencies that are "foundational to the students' educational experience." The curriculum was completely redesigned so that competencies are addressed in a deliberate way and "integrated wherever possible to maximize student learning opportunities" (Bradley, Seidman, & Painchaud, 2012, pp. 14-15).

In a new book describing the model, Bradley, Seidman, and Painchaud (2012) note that:

The competencies serve as guideposts for the content of all the academic experiences within the curriculum. Because the development of competencies occurs at varying levels of intensity throughout the three years, a key strategy is the use of master planning documents for each academic experience. For each of the educational experiences, an academic plan is developed that details the overarching strategy for addressing the competencies within the experience along with specific implementing activities that the faculty can employ. These academic plans are regularly reviewed and updated as part of an ongoing assessment of the program. (p. 15)

This approach requires faculty from different disciplines to work together and coordinate how the curriculum will meet the competencies. There is coordination between the various learning modules in any given program year, and there is also coordination between the learning modules from 1 year to the next. Periodic "synthesizing" activities are also included in the program design in order not only to "reinforce previously learned material and processes but also integrate new learning materials and pro-

cesses" (Bradley, Seidman, & Painchaud, 2012, p. 51). (Graphic depictions showing the scheduling of the modules and integrating experiences as well as how the instructional plan relates to competencies are provided in the Appendix.)

The program includes assessments to make sure that students are meeting the learning goals (Bradley, Seidman, & Painchaud, 2012).

Once the integrated, competency-based degree was developed, SNHU administrators and faculty discovered that the students could achieve the same knowledge and skills in 3 years as they could in a 4-year traditional program. Therefore, the students benefit not only because they can finish their degrees more quickly but also because they only pay for 3 years of college rather than 4. This is different from other accelerated degree programs, which may accelerate by compressing a traditional course format into a shorter period yet charge the same tuition for courses.

Because of the highly structured format of this business degree program, prior learning assessment is not an option for students. (SNHU does, however, offer a wide range of PLA options for other degree programs at the university.)

Western Governors University

Western Governors University is probably the best-known example of a competency-based degree program. For each degree, the institution describes a set of "domains" that make up the degree, and each domain consists of "subdomains" that list specific competencies the student must demonstrate in order to earn the degree. These domains and subdomains are developed by teams of experts and employers. (An example of the domains and subdomains for the Bachelor of Science in Accounting is provided in the Appendix.)

Students can demonstrate competencies at their own pace and are charged a flat rate for a term, rather than by the credit hour. How students gain those competencies is left up to them, in consultation with a faculty mentor. WGU has a team of staff that works on identifying and compiling learning resources from publishers, open educational resources, and so on.

Students use these resources to gain the skills and knowledge they can use to demonstrate the required competencies.

Students can demonstrate the competencies needed for their degrees through several different assessment methods, including problem-solving assignments, standardized exams, reflection essays about case studies, special projects, and research papers on topics within a particular field of study.

Entering students may already have some of the competencies from courses taken at other

institutions, from prior learning experiences, from online learning communities or study groups, from textbooks, and so on.

Figure 4 lists the various assessments that demonstrate mastery of the individual competencies, along with a suggested pathway and possible number of terms that a student may need in order to complete the assessments. The competency units (CUs) provide a way for students to measure their academic progress. The table also provides a suggested sequence for students to progress through the assessments.

Figure 4. Western Governors University Assessments for Bachelor of Science in Accounting
Standard Path for Bachelor of Science, Accounting

Code	Assessments	Cus	Term
BNC1	Organizational Behavior and Leadership	3	1
AGC1	Foundations of College Mathematics	3	1
BBC1	Communications Foundations	2	1
LIT1	Legal Issues for Business Organizations	3	1
LAE1	Language and Communication: Essay	2	1
LUT1	Language and Communication: Presentation	2	2
QBT1	Language and Communication: Research	3	2
LWC1	Fundamentals of Business Law and Ethics	6	2
INC1	Integrated Natural Sciences	4	2
INT1	Integrated Natural Sciences Applications	4	3
QAT1	Quantitative Analysis for Business	6	3
MGC1	Principles of Management	4	3
QLC1	Quantitative Literacy: College Algebra, Measurement and Geometry	3	4
QMC1	Quantitative Literacy: Statistics, Probability and Problem Solving	3	4
QLT1	Quantitative Literacy: Quantitative Problem Solving and Applications	3	4
EGC1	Fundamentals of Economics, Global Business and Quantitative Analysis	4	5
EGT1	Economics and Global Business Applications	4	5
BVC1	Geography	3	5
RWT1	Business Research and Writing	2	5
IWC1	Literature, Arts and the Humanities	2	6
IWT1	Literature, Arts and the Humanities: Analysis and Interpretation	2	6
FNC1	Fundamentals of Finance, Accounting and Information Technology	6	6
FNT1	Business Applications for Finance, Accounting and Information Technology	6	6
MKT1	Marketing Principles and Applications	2	6
CGC1	Concepts in Financial Accounting and Tax	6	7
AUO1	Concepts in Auditing and Information	4	7
ACA1	Problems in Accounting	6	8
CMO1	Concepts in Cost/Managerial Accounting	6	8
TPV1	Project Management	6	9
BGA1	Problems in Budgeting and Financial Statements	6	9
QCT1	Accounting Capstone Written Project	4	9

Source: WGU Bachelor of Science in Accounting Program Guide: http://www.wgu.edu/wgu/prog_guide/bs_acct.pdf

Although the WGU degree is based on competency units, the institution has also developed a process for equating the competencies to traditional credit hours. This allows students to be able to transfer easily from other colleges to WGU. WGU's Sally Johnstone notes that because of this ability to convert credit hours into competencies, WGU is the "proof of concept" that a competency-based program can exist within traditional higher education structures and be part of the standard path to a college degree.

Johnstone further notes that, compared to traditional institutions that typically rely on faculty instructors for every course, the WGU staffing model provides a way to scale up and serve growing numbers of students. Traditional higher education staffing models were not designed for scaling up in the same way.

DePaul University School for New Learning

The School for New Learning (SNL) was founded in 1972 as DePaul University's individualized, competency-based, liberal education college for adult learners. While SNL now offers multiple undergraduate and graduate programs representing various curricular models, competency-based programs remain the signature of SNL.

SNL's Bachelor of Arts degree with an Individualized Focus Area is the largest program, with an enrollment of over 2,000 students. The undergraduate program, offered both online and on the ground, is based on a competence framework of 50 competence statements. (Note: In the SNL context, the terms "competence" and "competency" have the same meaning.) There are three main competence areas in this framework:

1. **Lifelong Learning Area** is comprised of 12 competence statements that represent a variety of goal-setting, inquiry, and reasoning skills. These competencies are intended to serve the student in navigating school, work, and personal life. Nine of the competence statements are attached to required SNL courses. The

other competencies may be satisfied via SNL courses, approved transfer courses, or proficiency exams. Enhancements in the Lifelong Learning area (2012–2013) will include greater emphasis on *independent learning* and on *civic engagement*.

2. **Liberal Learning Area** is comprised of 26 competence statements, distributed across 3 main categories: Human Community, Arts and Ideas, and Scientific World. Within each liberal learning category, students elect to satisfy six competence statements from a menu provided by the college, with the option to craft their own. Two more competence statements within each of the three areas are required. In addition, two competence statements—Advanced Electives—are required so that students may examine complex topics and issues from multiple perspectives.
3. **Focus Area** consists of 12 competencies, individually developed by the student in consultation with her or his academic committee—a member of the SNL faculty and an expert practitioner in the student's area of focus. All students are required to design and carry out a final project—Advanced Project—in the student's focus area while enrolled at SNL.

Figure 5 shows the overall competency framework for the program.

Each student's curriculum is a unique combination of prior transfer coursework, SNL courses designed to satisfy given competencies, documented college-level learning from experience (including work-based learning and professional certifications), and variations of independent study along a continuum of student-directed to faculty-directed.

SNL's comprehensive system of learning advisement was featured in Maehl's (2000) *Lifelong Learning at Its Best* as an integral,

Figure 5. DePaul School for New Learning Bachelor of Arts Program Grid

LIFELONG LEARNING AREA (12 competencies)	LIBERAL LEARNING AREA (26 competencies)			FOCUS AREA (12 competencies)
	Arts & Ideas	The Human Community	The Scientific World	
L-1 Learning Assessment Seminar: Can assess one's strengths and set personal, professional, and educational goals. (2 hrs)	Competence in Interpreting the Arts (A-1-)	Competence in Communities and Societies (H-1-)	Competence in Experiencing Science (S-1-)	F-1 Focused Planning: Can design a plan for development in one's Focus Area based on an analysis of elements that comprise that area.
L-2 Foundations of Adult Learning: Can use one's ideas and those of others to draw meaning from experience. (3 hrs)	Competence in Creative Expression (A-2-)	Competence in Institutions and Organizations (H-2-)	Competence in Patterns and Processes (S-2-)	F-2 Focus Area Elective (written by student/faculty)
L-3 Foundations of Adult Learning: Can design learning strategies to attain goals for personal and educational development. (3 hrs)	Competence in Reflection and Meaning (A-3-)	Competence in Individual Development (H-3-)	Competence in Science, Technology, and Society (S-3-)	F-3 Focus Area Elective (written by student/faculty)
L-4 Academic Writing for Adults: Can use writing for college-level learning, thinking, and communicating. (4 hrs)	Any competence in Arts and Ideas (A--)	Any competence in The Human Community (H--)	Any competence in The Scientific World (S--)	F-4 Focus Area Elective (written by student/faculty)
L-5 Critical Thinking: Can analyze issues and reconcile problems through critical and appreciative thinking. (4 hrs)	Any competence in Arts and Ideas (A--)	Any competence in The Human Community (H--)	Any competence in The Scientific World (S--)	F-5 Focus Area Elective (written by student/faculty)
L-6 Quantitative Reasoning: Can use mathematical symbols, concepts, and methods to describe and solve problems. (4 hrs)	Any competence in Arts and Ideas (A--)	Any competence in The Human Community (H--)	Any competence in The Scientific World (S--)	F-6 Focus Area Elective (written by student/faculty)
L-7 Collaborative Learning: Can learn collaboratively and examine the skills, knowledge, and values that contribute to such learning. (2 hrs)	A-4 Ethics in the Contemporary World: Can analyze a problem using two different ethical systems.	H-4 Power and Justice: Can analyze power relations among racial, social, cultural, or economic groups in the United States.	S-4 Interconnections in the Natural World: Can describe and explain connections among diverse aspects of nature.	F-7 Focus Area Elective (written by student/faculty)
L-8 Research Seminar: Can pose questions and use methods of formal inquiry to answer questions and solve problems. (3 hrs)	A-5 Creativity: Can define and analyze a creative process.	H-5 Globalization: Can analyze issues and problems from a global perspective.	S-5 Information Technology: Can use current information technology for integrated solutions to problems.	F-8 Focus Area Elective (written by student/faculty)
L-9 Research Seminar: (written by student/faculty) (3 hrs)		E-1 Advanced Elective	E-2 Advanced Elective	F-9 Focus Area Elective (written by student/faculty)
L-10 Externship: Can reflect on the learning process and methods used in an experiential project. (2 hrs)				F-10 Focus Area Elective (written by student/faculty)
L-11 Externship: (written by student/faculty) (2 hrs)				F-11 Advanced Project: Can design and produce a significant artifact or document that gives evidence of advanced competence. (4 hrs)
L-12 Summit Seminar: Can articulate the personal and social value of lifelong learning. (2 hrs)				F-12 Advanced Project (written by student)

rather than supplemental, component of the program. Students are assigned an academic advisor at the point of admission. Full-time SNL faculty teach the required *Foundations of Adult Learning* course that orients students to the competence framework and individualized degree program planning. This faculty member becomes the mentor of those students through graduation. The student chairs her or his academic committee, which also includes a professional advisor. The academic committee supports the student in developing her or his customized program and figuring out how to use PLA, independent studies, coursework from other institutions, and SNL coursework to demonstrate the required competencies and earn a bachelor of arts degree.

Prior Learning Assessment (PLA) is a main component of the BA competence-based program. Assessment of students' prior learning is vetted through the college's Assessment Center. Students are introduced to PLA during the degree-planning course, *Foundations of Adult Learning*, where they identify potential competencies they might satisfy with prior learning, both sponsored and non-sponsored. With regard to non-sponsored learning, students work with their faculty mentors to develop documentation for a specified competence. The student's work is first assessed by the faculty mentor and then by an area expert from the full-time faculty who is assigned by the SNL Assessment Committee. SNL provides an assessment form template, with articulated criteria, for use by students and assessors.

With regard to sponsored learning, students may transfer in courses taken at other accredited institutions to satisfy given competencies. SNL maintains a master list of courses that have been determined to fit a given competence, e.g., Intro to Psychology for a HC competence, so this transfer can occur with minimum processing. For other courses, students provide a rationale, including course description or syllabus, for how the course subject matter relates to a selected competence statement.

SNL has developed criteria for assessment and narrative descriptions of each of the competencies. These criteria guide faculty in the

design of competence-based courses; students in constructing their independent learning activities, both prior and current; and, assessors in evaluating students' work.

A description of SNL's competency-based master's degree program is found in the Appendix.

Excelsior College School of Nursing

At Excelsior College, a private, nonprofit institution, all of its degree programs have clearly articulated competencies, and in most of its programs, competencies are assessed relative to course equivalent credit. However, Excelsior also offers its Associate Degree (AD) in nursing program, which features curriculum designed around the competencies required for entry-level practice as a registered nurse.

Excelsior has a long history of providing many exam-based options for fulfilling degree requirements. Most program requirements can be fulfilled through Excelsior College® Examinations, which are developed, maintained, and owned by the college. Students can also use Excelsior credit awarded for successful outcomes on UExcel® exams and its portfolio assessment program towards meeting program outcomes, and students can seek recognition to apply transfer credits, DSST exams, CLEP exams, or other approved sources of credit to demonstrate program outcomes.

At the conclusion of a student's degree program, successful completion of a capstone course, thesis, portfolio, or other form of direct assessment is required. For the Associate Degree (AD) in nursing program, a graduate must pass the Clinical Performance in Nursing Examination (CPNE®).

Excelsior's **School of Nursing** is where the institution's competence focus stands as a ground-breaking model in its use of assessments of clinical competence.

As described by Klein-Collins (2011), Excelsior College's AD in nursing program has offered students an accredited, competency-based approach for close to 4 decades. The curriculum is consistent with accepted standards for associate degree programs set by organizations such as the National Council of State Boards of

Nursing and the National League for Nursing. It is designed specifically for individuals who are transitioning from an LPN/LVN to an RN role or are coming to the nursing profession with significant experience in a clinically-oriented health care discipline (e.g., certain classifications of military service corpsmen and paramedics).

Building on students' previous clinical experience, Excelsior encourages students to apply their knowledge and practice clinical skills, and then requires them to build on prior knowledge by engaging with the curriculum and faculty. Students complete the general education component of the curriculum in a manner similar to all nursing students via campus-based or online courses or credit-by-examination. Students engage in the nursing component of the curriculum by successfully demonstrating achievement of learning outcomes. The goal is for the student to attain theoretical learning and clinical competence, including critical thinking, at a level required for beginning practice as an AD-prepared RN. Students demonstrate learning outcomes through their performance on a series of computer-delivered nursing theory examinations administered in secure, proctored facilities and through in-person clinical performance assessments in a simulation lab and with real patients.

All examinations are created and administered in a psychometrically sound manner. Performance assessments include a Focused Clinical Competencies Assessment (FCCA™)

and the Clinical Performance in Nursing Examination (CPNE®). The FCCA™ is a computer-delivered simulation examination measuring clinical competence in a number of essential areas of nursing practice.

The CPNE® is a criterion-referenced performance examination administered over a consecutive, 2-and-one-half-day period at 20 hospital test sites throughout the U.S. The performance examination takes place in the authentic patient care environment with actual patients and a faculty-to-student ratio of 1:1 throughout the entire examination process. The exam has been used in pre-licensure nursing education for over 35 years and is continually reviewed and refined by a national nursing faculty to reflect contemporary nursing practice.

School records show that Excelsior graduates pass the NCLEX-RN at a rate comparable to the national average. In addition, research shows that Excelsior graduates are successful working as nurses. In 2009, SRI International, LLC surveyed a panel of nurse supervisors and found that 82% rated Excelsior AD in nursing graduates as about the same or higher in terms of clinical competency compared to other AD in nursing graduates (Gwatkin, Hancock, & Javitz, 2009).

Currently, 37 U.S. jurisdictions deem Excelsior graduates eligible for licensure by examination and endorsement, without additional conditions or stipulations.

The Use of Competencies and Progress toward a Degree

The system envisioned by Johnston, Ewell, and Paulson in their "Student Learning as Academic Currency" paper is one in which degrees are not only defined in terms of learning outcomes, but also one in which students earn the degree through demonstration of competencies alone. A student progresses toward a degree by demonstrating competencies, not by earning credit hours or other seat-time-based measures. This allows for learning to occur any-

where and yet be formally counted in the credentialing process.

From the institutional examples described above, the good news is that yes, it is possible for students to earn degrees by demonstrating competencies alone. At DePaul University's School for New Learning (SNL), students progress toward a degree by demonstrating the competencies required of the degree. They can do this by taking courses that are related

to those competencies or by preparing portfolios that demonstrate mastery of those competencies through prior learning (with minimal required coursework). At Western Governors University (WGU), there are no required courses, just required competencies. Students gain knowledge and skills on their own, with the help of faculty mentors, but they can demonstrate competencies at their own pace and earn a degree based on what they have learned from a variety of sources, including work and other life experiences.

It should be noted that, although not profiled here, programs at **Empire State College** (New York) also allow students to earn degrees by demonstrating competencies, but the competencies are student-defined rather than part of an institutionally-defined standard.

In contrast, in the competency-based business programs at SNHU and Westminster, traditional forms of PLA (e.g., standardized exams, challenge exams, evaluation of external training, and portfolio assessments) are not options, and yet the focus on competencies, rather than seat time, allows the student to progress

toward a degree more efficiently. SNHU's business degree, by designing a curriculum that removes unnecessary redundancies and includes activities that strategically reinforce important competencies, has been able to shorten the program by an entire school year. In being intentional about what students learn, the program also saves students time and money. Westminster's business degree program does not offer options that we have come to see as standard for PLA—portfolio assessment, standardized exams, challenge exams—but rather allows students to draw on what they already know to complete required projects in a shorter period of time.

While neither the SNHU nor Westminster business program model offers the same kind of transferability of learning between institutions that is possible at DePaul's SNL or WGU, their examples show that competency-based education is not just about moving beyond a credit-based system. It is also about advancing multiple visions for what postsecondary education could be in the future.



Lessons and Suggestions for Implementation

Institutions and state higher education systems interested in developing and implementing competency frameworks of their own can learn from the experiences of the colleges and universities that have pioneered the kind of approaches described in this paper. Suggestions for implementation come from literature on this subject as well as from the individuals we interviewed, and they include the following:

- Ensure strong leadership and vision
- Develop a system of reliable assessments
- Rethink the traditional models for staffing and courses

- Establish pathways to other degree programs.

Ensure Strong Leadership and Vision

As with any significant change introduced in higher education, strong leadership is essential. Jones and Voorhees (U.S. Department of Education, National Center for Education Statistics, 2002) note that: "A senior administrator is the public advocate, leader, and facilitator for creating an institutional culture that is open to change, willing to take risks, and fosters innovations by providing real incentives for participants" (p. viii). As Catherine Marienau of DePaul's SNL program notes, "Keeping everyone oriented to the same mission can be a

challenge in any program model. Competency-based models provide unifying frameworks.” Administrators at Southern New Hampshire University also recognized the importance of keeping everyone focused on the goal as reflected in their process recommendations, which include creating a vision statement, continually repeating the vision statement, and regularly keeping people informed about what has been accomplished and what remains to be done (Bradley, Seidman, & Painchaud, 2012).

Develop a System of Reliable Assessments

Competency frameworks on their own can certainly provide direction to faculty in designing courses, but to understand whether competency frameworks are affecting student learning outcomes, there must be some way to assess whether students can demonstrate the competencies. Successful implementation of competency frameworks requires the development of reliable assessments of learning outcomes, as well as a clear understanding of the desired learning outcomes by students, administrators, faculty, and employers as well (Voorhees, 2001).

Several institutions have shown success in developing competency assessments that students need to pass in order to earn degrees from that institution. Alverno and SNL have developed student-centered approaches to assessing competencies throughout their degree programs. WGU assesses for competency using standardized assessment tools in its degrees in teaching, information technology, business, and health professions. Excelsior offers an assessment-based approach using standardized exams with a required capstone experience for degrees in nursing, business, liberal arts, technology, and health sciences.

Other institutions profiled above have been, or are now, testing various assessment rubrics and methods to ensure the quality of their programs. Approaching assessment through the use of rubrics rather than standardized exams may be preferred in many programs because that approach provides transparency to the stu-

dent about the assessment process and allows faculty to maintain control over their course content and assignments, while also addressing some of the criticisms of traditional course grade awards. The main criticism of the traditional grade-award process is that it lacks validity and reliability. Johnstone, Ewell, and Paulson explain that: “Lacking rubrics or similar tools to help ensure consistency, different grades may be awarded for the same level of performance by different instructors—or even by the same instructor on different days” (2010, p. 6).

While some institutions have settled the question of how to assess competencies, and others continue to explore how best to assess student outcomes, it is clear that some form of assessment is important for the effectiveness of a competency framework in communicating what it means for the student to have earned a degree.

Rethink the Traditional Models for Staffing and Courses

Implementing a competency framework will require the entire institution to examine what needs to change in order to ensure its success. Southern New Hampshire University offers an example of how an institution can completely redesign its programs and courses around a competency framework. Not every institution may choose to take the same approach, and yet faculty and administration may still need to make important changes.

Teaching and learning activities, for example, may need to change in order to achieve particular student learning objectives (Johnstone, Ewell, & Paulson, 2010; and Bernstein, 2009). Administrators may also need to rethink programmatic delivery needs. In the case of SNHU, this meant making changes in classroom space, the awarding of credit hours, and the coordination of the course registration processes (Bradley, Seidman, & Painchaud, 2012).

In addition, the role of the faculty needs to be redefined so that there is recognition of the time spent by faculty in curricular and instruc-

tional design activities (Johnstone, Ewell, & Paulson, 2010). A representative of one public institution not profiled here explained that his institution had virtually abandoned its competency framework because of the amount of faculty time it was taking, not only for defining the competencies but also for designing and refining the assessment tools to be used.

WGU's Sally Johnstone explains that the challenge of managing the time of faculty is one reason why WGU has achieved success in implementing its model. Traditional institutions wanting to make a transition to competency frameworks have difficulty because their faculty are used to the traditional roles of teaching and knowledge dissemination. WGU had the advantage of "starting from scratch" without having to make changes to an existing model. WGU could define the role of its faculty differently from the start, while other institutions need to reallocate existing resources in new ways that do not disrupt the learning experiences of its students.

Establish Pathways to Other Degree Programs

Many of the programs profiled in this paper are implementing *competency-focused* programs rather than purely *competency-based* programs. In other words, they are applying a competency focus to their existing credit hour-based programs rather than stepping away from credit-based systems entirely.

Those programs that are more competency-based, that take steps away from seat-time based approaches, nevertheless find that they need to find ways for their programs to exist within credit-hour systems so that their students are able to transfer to other institutions, receive financial aid, and have their degrees recognized by advanced degree programs. For example, WGU has developed a process for converting its competency units into credit hours. On the other hand, about one-third of DePaul's SNL graduates go on to graduate school (including medical school, law school, and PhD programs) without any difficulty; however, SNL provides special guidance to students wanting to pursue advanced study in subjects like psychology or counseling because of difficulties in translating the competency approach into licensure programs.

Excelsior's School of Nursing faces similar challenges. Excelsior College's School of Nursing graduates are eligible to pursue licensure in 37 states without additional conditions or stipulations. While the vast majority of boards of nursing deem Excelsior's program as substantially equivalent to traditional programs approved in their home state, some boards of nursing require graduates to meet certain conditions for licensure or deem some graduates ineligible for licensure. This is often because Excelsior focuses on assessment of clinical competence rather than requiring a specific number of clinical hours to be completed by the student. This is the kind of barrier that emerges within a system that uses seat time measurements as proxies for student learning.

A View to the Future

There are clearly many benefits when postsecondary institutions become more focused on defining and documenting student competencies. Students and employers both understand better what a college degree means, faculty and administrators have a better understanding of what quality means in their degree programs,

and the entire system is better equipped to move away from seat-time focused approaches to postsecondary education.

This paper has shown various ways in which institutions have been working with competency frameworks. Some have used them primarily to communicate what students are expected

to learn, and some have used them to redesign degree programs in ways that are clear departures from the traditional seat-time, credit-based model.

The steps taken to move beyond the credit hour framework for higher education are helping colleges rethink higher education in terms of efficiency, effectiveness, and fairness. They are more **efficient** in that they are focused on how best to help students demonstrate competence, even if it means eliminating redundant coursework or unnecessary degree requirements. They are more **effective** in that they develop methods to validate that student learning has occurred and competencies have been achieved, rather than merely assuming that such learning has taken place if a student has taken a certain number and series of courses. They are **fairer** because they recognize learning that the student may have acquired outside of a classroom. Learning is what counts, and not the time spent in a classroom.

Our scan of higher education institutions suggests that institutions like Western Governors University, DePaul's School for New Learning, and Excelsior College provide models for programs in which students can progress towards a degree by demonstrating, through various forms of assessment, required competencies alone. And yet it is also clear that other models for competency-based degrees hold value as well. Southern New Hampshire's accelerated business degree, for example, offers a highly structured and integrative approach to learning that was designed with a sharp focus on competencies, and Westminster offers a similarly focused project-based approach.

These are all important applications of competency frameworks that contribute to our broader understanding of how to emphasize quality and learning over seat time. The challenge is ensuring that our higher education environment is one that encourages continued exploration of how competency frameworks can enhance student learning and credentialing. Several policy changes can help to create a more welcoming environment for these approaches:

- **Support further adoption of competency-based degree programs.** Public officials and policy makers can provide incentives for colleges and universities to design their programs around well defined and assessed student competencies, in an effort to promote higher quality, effectiveness, and fairness.
- **Support research that results in a greater understanding of competency-based degree programs and how they might be used.** The U.S. Department of Education has the opportunity to explore new models for competency-based programs (as well as prior learning assessment) as part of its "experimental sites" for student financial aid. Such explorations, and the documentation of those innovations, will be invaluable for understanding the full range of options for implementation within higher education.

In addition, more information is needed to understand existing models better. More information is needed to capture the costs associated with competence-based programs compared to current credit-based models. This includes more research on what it takes to develop and maintain effective assessment methods tied to competency frameworks and the costs to the student when competencies are not recognized at a given institution. Additional research is needed to evaluate the benefits to the student, particularly any improvements in persistence and degree completion that may be directly or indirectly associated with competency-based programs.
- **Identify and promote quality principles for competency-based programs.** Institutions interested in developing and implementing programs designed around competencies need flexibility to pursue innovative approaches, but there should also be guidelines for ensuring high quality and academic rigor. Leaders in higher education should work together to identify a set of quality principles for competency-based programs

that provide guidance on developing competency frameworks, implementing assessments, and designing curriculum around competencies. Such a framework would be used similarly to the voluntary system of PLA quality principles developed by CAEL and used by colleges and universities in the development of their PLA programs.

- **Align degree-based competencies with workplace skill requirements.** As more colleges adopt competency frameworks and further define what students are expected to know and do upon graduation, employers need to see clear links between those frameworks and their own workplace skill needs. Colleges need to collaborate more closely with workforce systems, industry associations, and regional employers to ensure that the competencies assessed are meaningful in the world of work. In addition, schools should consider offering skills guarantees so that students can rely on their investment in education and training meant to equip them with the skills needed to succeed.
- **Remove existing policy barriers.** Federal and state higher education policy makers need to consider how existing policy, regulatory language, and stated rules may serve as barriers to institutions interested in developing new programs. A newly issued definition regarding the credit hour, for example, has language that may suggest in some interpretations that seat time—the time a student spends in learning activities—is the primary consideration in determining whether a postsecondary program qualifies for federal financial aid. A revision of this definition that validates competency-based programs as well would be an important step for encouraging more innovation in the use of competency-based assessments and frameworks.
- **Promote valid approaches to recognizing and awarding credit for prior learning.** Employers do not care how many credit

hours a student earns or how many weeks a student's course lasted. They care about a job candidate's competence and what that person has actually learned and can do. This is one reason why the use of assessment as part of a competency-based approach to education is important. One way to promote this focus on learning outcomes and competence is to encourage greater use of assessment within higher education to validate student learning, regardless of how that learning is acquired.

Many institutions already award credit or advanced standing for some forms of prior learning assessment (PLA). However, PLA is still underutilized by students and underappreciated by faculty. Federal and state policies that encourage greater access to and use of PLA options would help to advance a broader understanding of why it is efficient, effective, and fair to focus on what a student has learned rather than how that learning was acquired. A broader acceptance of PLA can provide a pathway for institutions and accrediting bodies to implement innovative approaches to competency-based degree programs.

Federal student financial aid should be redesigned so that it may cover the costs associated with PLA (primarily the cost of assessing student learning), provided that PLA is done according to established standards. (For example, many colleges adhere to CAEL's voluntary system of quality standards, and they design their programs based on accepted practices, such as those outlined in Fiddler, Marienau, & Whitaker, 2006.)

- **Use competency frameworks to support statewide transfer and articulation agreements.** Many states have recognized that as students move between and among postsecondary institutions, better policies for transfer and articulation can help make sure the student does not lose earned credit

or standing in the process. Transfer and articulation policies can benefit from a focus on competencies because it makes the process of comparing a course at one institution with a course at another institution more straightforward. State higher education leaders should encourage all institutions within a state system to specify the competencies acquired in each course, and then those competencies can be used to develop clearly-understood transfer and articulation policies within that system. This kind of

policy change will encourage a greater focus on competencies throughout the system and create an environment in which new competency-based programs can emerge.

These policy changes can provide a starting point for what could ultimately be a transformed system of higher education that is focused on student learning above all. Degree completion without such transformation is but a hollow goal.

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Contents

A-1. University of Maryland University College Computer and Information Science Program Outcomes Guide	38
A-2. University of Maryland University College Institutional Level Learning Outcomes: Student Learning Expectations	39
A-3. Alverno College Social Science Example of Relationships among Outcomes	39
A-4. Brandman University's Degree Qualifications	40
A-5. Marylhurst University's Liberal Arts Core Outcomes	41
A-6. Westminster College Consumers and Markets Sequence	41
A-7. Southern New Hampshire University Year One Modules, Themes, and Integrating Experiences	42
A-8. Southern New Hampshire University Year One Competency Reinforcement Plan	43
A-9. Western Governors University Domain for Bachelor of Science in Accounting	44
A-10. Western Governors University Subdomains and Competencies for Accounting Domain	44
A-11. DePaul University School for New Learning's Master of Arts in Applied Professional Studies (MAAPS)	45

A-1. University of Maryland University College Computer and Information Science Program Outcomes Guide

Intended Program Outcomes	Hallmarks	Key Assessment Tasks		Core Concepts, Issues, and Skills		
What must the learner be able to do as a result of this program?	Which SUS Hallmarks are addressed by this program outcome?	What key assessment task(s) will provide evidence that the learner can demonstrate proficiency in this program outcome? In which course is the task embedded?		What core concepts, issues, and skills must the learner acquire to demonstrate proficiency in program outcomes?		
		(Assessment Task)	(Course)	(Concepts)	(Issues)	(Skills)
Design, implement, secure, and maintain databases that meet user requirements for both transaction processing and data warehouses	H6=TECH, H5=CRIT, H3=INFO, H8=QUAN	Database design and implementation project	CMIS320	Database applications Secure applications and reports Modular software Algorithms Open source projects Web-based applications	Security Scalability Time management Reliability Customer relationship Ethics Risk management	Write mobile, distributed, and web applications Solve problems Work in a team Discuss emerging trends, ethics, and history of computers Secure private, sensitive information Debug and troubleshoot computer applications
Design, develop, implement, secure, and maintain software applications that meet user requirements, using current best practices and tools for all application interfaces and domains	H1=HIST, H6=TECH, H5=CRIT, H2=WRIT, H8=QUAN	Final programming project	CMIS242	User guides - documentation Requirements and software lifecycle		
Design, implement, and maintain a reliable and secure network and services infrastructure	H6=TECH, H5=CRIT, H2=WRIT	Design and implement 3-tier distributed application	CMIS485	Team player Quality assurance Emerging technologies Object oriented tech Data warehouses		
Plan, manage, and provide appropriate documentation and communication through all phases of the software development life cycle to ensure successful implementation of an information technology (IT) project that is on time and within budget	H6=TECH, H2=WRIT	Requirements and software design plan	CMIS330			
Identify, learn, and adapt to local and global IT trends, technologies, legalities, and policies, as well as appropriately communicate their impact to key stakeholders	H6=TECH, H2=WRIT, H4=ETH	Conference discussions on emerging technologies	CMSC495			
Work independently or as an effective member of an application development team to determine and implement systems that meet customer requirements	H2=WRIT, H4=ETH, H3=INFO	Final team project	CMIS330			

Source: Cynthia Davis, University of Maryland University College

A-2. University of Maryland University College Institutional Level Learning Outcomes: Student Learning Expectations

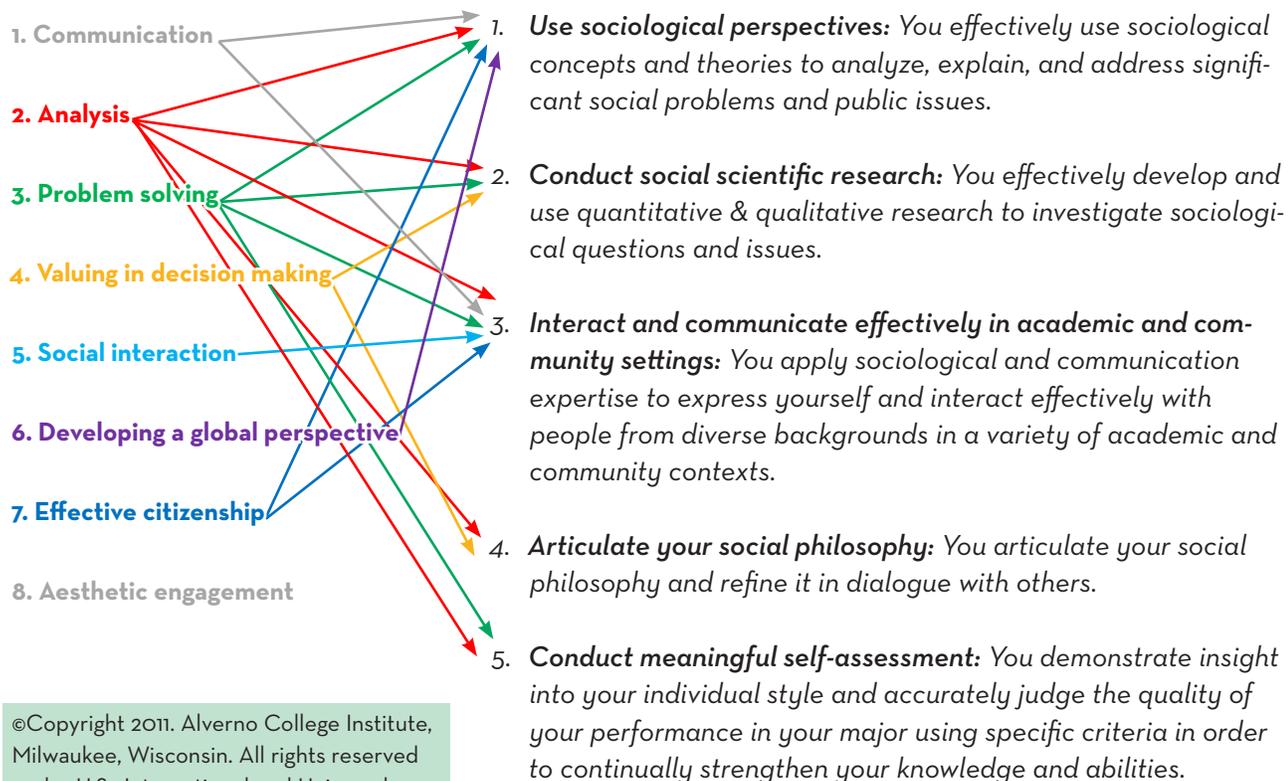
Student Learning Expectations (SLEs)	
Written Communication (COMM)	Produce writing that meets expectations for format, organization, purpose, and audience.
Technology Fluency (TECH)	Demonstrate an understanding of information technology broad enough to apply technology productively to academic studies,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

*Not assessed in the graduate school.

Source: University of Maryland University College Institutional Plan for the Assessment of Student Learning Outcomes, January 2010.

A-3. Alverno College Social Science Example of Relationships among Outcomes

INSTITUTIONAL OUTCOMES PROGRAM OUTCOMES



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Source: Jeana Abromeit, Associate Vice President for Academic Affairs, Alverno College, 2012, personal correspondence.

A-4. Brandman University's Degree Qualifications

Applied Learning: The most dynamic education experience for students is making the connections between life experience and theory. Applied Learning courses provide students an opportunity to design a project, paper, performance, or other appropriate task that links knowledge and skills from work, experiential learning, or community activities with knowledge acquired in academic disciplines.

- Outcome - Design a project, paper, performance, or other appropriate task linking knowledge and skills from work, experiential learning, or community activities with knowledge acquired in academic disciplines.

Innovation & Creativity: The most important changes to our daily lives and global culture are the result of creative thinkers who recognized the potential of a different way of understanding the world. Innovation and Creativity designated courses encourage students to approach problems or assignments through novel solutions or out-of-the-box thinking.

- Outcome - Construct a novel or unique idea, question, format, or product.

Civic Engagement: Every human being is shaped by and shapes the communities in which he or she participates. Engagement with our communities involves understanding and demonstrating the values, duties, skills, and responsibilities that are part of positively shaping our communities. Courses designated as fulfilling the Civic Engagement competency requirement encourage students to describe insights gained from engaging physically and/or intellectually with activities of personal and public concern that are both individually life enriching and socially beneficial to the community.

- Outcome - Describe insights gained from engaging physically and/or intellectually with activities of personal and public concern that are both individually life enriching and socially beneficial to the community.

Global Cultures: A Global Culture course exposes students to the increasingly complex relationships among people, ideas, and heritage. Students in these courses learn to explain the relationship between a global issue and the history, values, politics, economy, communication styles, or beliefs and practices of one or more cultures affected by that issue.

- Outcome - Explain the relationship between a global issue and the history, values, politics, economy, communications styles, or beliefs and practices of one or more cultures affected by that issue.

Integrated Learning: Although universities are often organized around traditional departments and ways of thinking—science, psychology, marketing, health—life is rarely so neatly segmented. The most important questions can only be answered by drawing on knowledge from multiple fields or ways of thinking. Integrated Learning courses devise connections among experiences inside and outside the formal classroom, or connections among multiple fields of study.

- Outcome - Devise connections among experiences inside and outside the formal classroom, or connections among multiple fields of study.

Source: Brandman University 2011-2012 Course Catalog

A-5. Marylhurst University's Liberal Arts Core Outcomes

ACADEMIC LEARNING (AL), 1 outcome			
LIFE & LEARNING SKILLS (LL) 10 outcomes	ARTS & IDEAS (AI) 5 outcomes	HUMAN COMMUNITY (HC) 6 outcomes	NATURAL WORLD (NW) 3 outcomes
LLA: Computer Literacy 1 outcome	AIA: Making Ethical Decisions 1-3 outcome	HCA: Identity & Differences 1-3 outcomes	NWA: Scientific Method & Natural Systems 1-2 outcomes
LLB: Information Studies 1 outcome	AIB: Creating & Interpreting the Arts 1-3 outcomes	HCB: People & Power 1-3 outcomes	NWB: Science & Society 1-2 outcomes
LLC: Listening & Speaking 2 outcomes	AIC: Understanding Values & Beliefs 1-3 outcomes	HCC: Individuals & Systems 1-3 outcomes	
LLD: Quantitative Skills 2 outcomes		HCD: Cultures & Media 1-3 outcomes	
LLE: Writing & Critical Thinking 4 outcomes			
CAREER TRANSITION AND MAP COMPLETION (MAP), 1 outcome			
SENIOR SEMINAR (SS), 3 outcomes			

Source: Marylhurst University 2011-2012 Catalog

A-6. Westminster College Consumers and Markets Sequence

Project 2-1:

External Market Influences

Classify external environmental factors that may limit or enable the firm's future decision making, specifically analyzing competition, changes in demand determinants and supply conditions, complementary and substitute good markets, national macroeconomic conditions and policy responses, and in the upstream/downstream value chain. You prepare environmental analysis reports to prioritize external events as they impact firm operations, present and future.

Project 2-2:

Consumers and Products

Analyze consumer decision making and how internal, situational, and social influences shape behavior in the marketplace. Paying special attention to the deconstruction of the product's components and basic pricing issues, you explore the primary principles of marketing (product, price, promotion, and place). Finally, you create a new product demonstrating your understanding of how consumers make decisions in the marketplace.

Project 2-3:

Segmentation, Targeting, and Promotion

Explore the consumer market with an eye toward understanding how that market can be segmented by demographic, psychographic, geographic, and behavioral characteristics. You use segmentation techniques to develop strategies for targeting specific segments and develop a promotion plan focusing on advertising to reach a target market. You develop a television advertisement to illustrate your understanding of the target market.

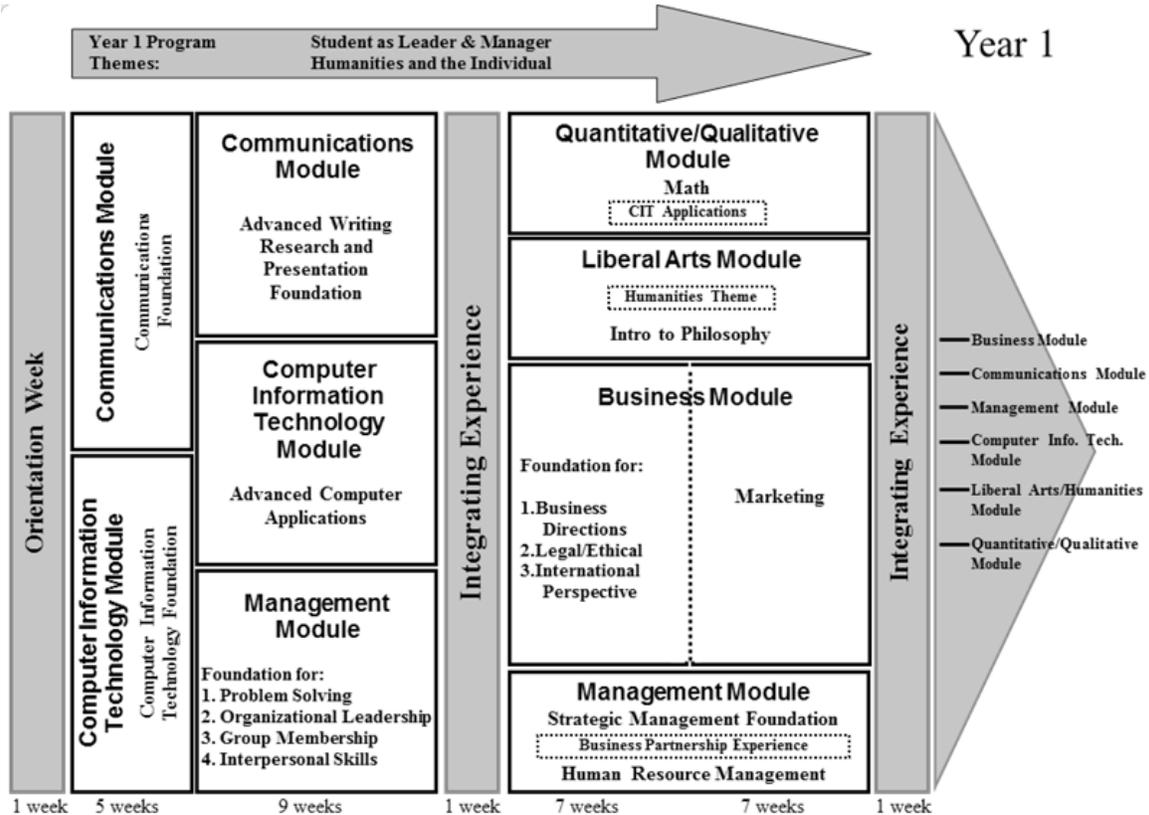
Project 2-F:

Doing Business in the Global Market

Extend your environmental analysis capabilities by including international factors in the context of risks and opportunities. You analyze global currency and capital markets, social and cultural constructs, economic and demographic conditions, political and legal frameworks, and ethical and environmental realities. You explore business opportunities from the viewpoint of a firm owning a sustainable competitive advantage and evaluate techniques used to mitigate risks that may arise through their environmental analysis.

Source: www.westminstercollege.edu

A-7. Southern New Hampshire University Year One Modules, Themes, and Integrating Experiences



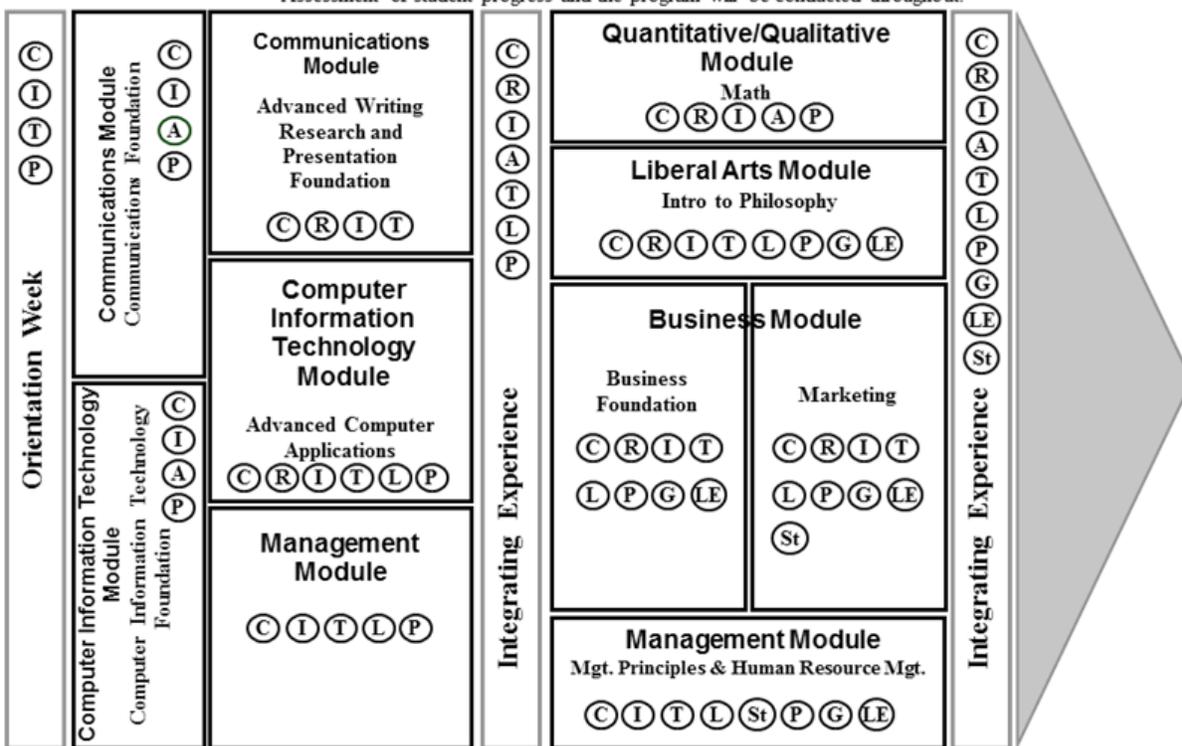
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A-8. Southern New Hampshire University Year One Competency Reinforcement Plan

Year 1 Competency Reinforcement Plan

Assessment of student progress and the program will be conducted throughout.



Reinforcement Legend

- (C) Communication
- (I) Information Technology
- (T) Teamwork
- (P) Problem Solving
- (LE) Legal & Ethical Practices
- (R) Research
- (A) Analytical Skills
- (L) Leadership
- (G) Global Orientation
- (St) Strategic Mgt

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A-9. Western Governors University Domain for Bachelor of Science in Accounting

Domains for Bachelor of Science in Accounting

1. Accounting
2. Accounting/Finance and Information Technology
3. Business Law and Ethics
4. Cost/Managerial Accounting
5. Economics, Global Business, and Quantitative Analysis
6. Foundations
7. Liberal Arts
8. Marketing and Communication
9. Organizational Behavior and Management
10. System Administration and Management (for Business)

Source: WGU website, <http://www.wgu.edu/program/500>

*See A-10 for subdomains and competencies for the Accounting domain.

A-10. Western Governors University Subdomains and Competencies for Accounting Domain

Accounting Information Systems

- The student understands the nature and purpose of information systems.
- The student understands the need for and uses of internal control systems.
- The student understands information system auditing.

Auditing

- The student understands the roles, responsibilities, and professional standards of the Public Accountant.
- The student understands the Code of Professional Conduct for public accountants.
- The student understands Internal Control Structure.
- The student understands how to audit financial statements.
- The student understands what information to include in each form of audit documentation.
- The student is knowledgeable about assurance services unrelated to auditing but provided by auditors.

Federal Income Tax

- The student understands the nature, purpose, and scope of the current U.S. tax system.

- The student determines the tax treatment for partnerships, estates, and trusts.
- The student determines tax treatments for individual income tax returns.

Financial Accounting

- The student understands the scope and purpose of accounting standards.
- The student reconciles the differences between rules for accounting and rules for income tax.
- The student can record leases and pensions.
- The student can use various methods to value receivables and inventories.
- The student can perform accounting for long term assets.
- The student can use various methods of depreciation.
- The student can account for the issuance of bonds.
- The student can value liabilities.
- The student accounts for the effects of stock and retained earnings on stockholder's equity.
- The student understands recording for investments.
- The student can account for income.

Source: WGU website, <http://www.wgu.edu/program/500>

A-11. DePaul University School for New Learning's Master of Arts in Applied Professional Studies (MAAPS)

Since 1984, the competency-based, individualized Master of Arts in Applied Professional Studies program has been serving practicing professionals in uniquely designed areas of study that cannot be pursued through curricula of other colleges.

Master of Arts in Applied Professional Studies (MAAPS)

(excerpted from MAAPS Program Overview, 2011-2012)

SNL's first graduate program, a customized competence-base program, was initiated in 1984 supported by a three-year grant from FIPSE. Current enrollment is about 200 students. The MAAPS program serves adults who wish to design and execute their graduate study in a personally-relevant area that is otherwise not served by typical course-based, already structured programs. These "entrepreneurial learners" come with a personal/professional area of study they want to pursue, a desire to build and manage their own learning processes, and a goal to both learn and shape their learning into contributions that make a difference.

LEARNING PLAN

The MAAPS Program begins with the Learning Plan Research & Development Seminar. This initial step helps the student begin to develop her/his idea into a graduate area of study. Assisted by a Faculty Mentor, each student explores the aims of graduate education and the purpose, scope, philosophy, key roles, and processes of the MAAPS Program. Each student develops a working draft of her/his **Graduate Learning Plan**—a plan that guides the student's program of study through each of the program's components. In light of the "applied" emphasis in the MAAPS Program, students bring to their graduate study a practice setting (work or volunteer-based) in which to apply their learning and further integrate it into their personal and professional practice. Development and review of students' learning plans occurs over a two-quarter period, for a total of six credit hours.

ACADEMIC COMMITTEE (student, faculty mentor, professional advisor)

Early in the MAAPS Program, students are guided through a process of identifying a Professional Advisor. This individual is an accomplished practitioner in the student's area of study drawn from local, national and/or international professional communities—from corporations, nonprofits, government agencies, professional associations. The Faculty Mentor (drawn from SNL's full-time faculty) and Professional Advisor join the student in forming an Academic Committee to provide support and guidance throughout the program.

PROFESSIONAL CORE

Each student's learning plan is designed around eight competence areas (26 credit hours): main theories; methods of research; specialized skills; communication modes; organizational/interpersonal dynamics; challenges from larger contexts; ethical issues; and, reflection in/on practice. For each competence area, students craft a specific competence statement, identify learning activities and learning products, name an assessor, and target a completion date. Students elect to demonstrate either 13 competencies or 9 competencies and an integrating project.

LIBERAL LEARNING

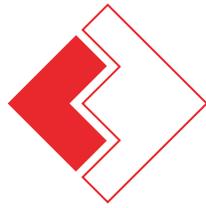
Targeting personal development, the MAAPS Program assists students in exploring and enhancing key personal skills and topics (18 credit hours) of importance across all professional fields. The six seminars are in areas of: systematic inquiry; personal and organizational change; interpersonal dynamics; human differences; ethical reasoning; and effective leadership. Revisions to the liberal learning seminars will be in effect Winter 2013.

Ongoing Assessment, Integration & Review (2 credit hours total)

Interspersed throughout the MAAPS Program, students meet (individually and/or with a small group of other graduate learners) with their Faculty Mentor to assess progress, integrate learning, realign the Learning Plan and, eventually, to review accomplishments for graduation.

As in the SNL undergraduate program, students may demonstrate competencies in their professional core (focus area) through prior learning assessment, graduate coursework, industry certifications, and independent learning pursuits. Assessment is the responsibility of the student (self-assessment), a designated assessor, and the faculty mentor. At least one-half of the student's competencies must be satisfied via practice-based learning activities (i.e., non-coursework).

Source: Catherine Marienau, DePaul University School for New Learning



CAEL

Linking Learning and Work

We advocate and innovate on behalf of adult learners to increase access to education and economic security. We provide adults with career guidance and help them earn college credit for what they already know. We equip colleges and universities to attract, retain, and graduate more adult students. We provide employers with smart strategies for employee development. We build workforce organizations' capacity to connect worker skills to employer demands.

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