



Comprehensive Curriculum Assessment Plan

Proposal submitted by the University Assessment Committee
Fall 2008

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Comprehensive Curriculum Assessment Plan

I. Introduction and Statement of Purpose

In recent years, the University of New Haven has begun a quantum transformation, reflected in newly revised institutional mission and vision, a comprehensive strategic plan, new leadership, growing enrollments, better students, better reputation, significant investments, and many other ways. Fundamental to this transformation is an optimistic focus on the questions, “how are we doing?” and “how can we do even better?”

The comprehensive strategic plan for the University¹ includes specific objectives under two of the four strategic directions (*viz.*, I. Core Liberal Arts and Professional Programs, IV. Institutional Effectiveness) that relate to development of systems to support the cultivation of a culture of continuous improvement. The plan calls for mechanisms to evaluate *all* our academic programs—undergraduate, graduate, and certificate—and to inform decisions regarding curricular changes, the delivery of education, and the assessment processes we use.

Simultaneously, the higher education environment has escalated its emphasis on assessment. This is evidenced most clearly in standards for accreditation by both the regional and professional agencies, and the trends apparent in the publications and convention programs offered by professional societies. Throughout higher education, institutions are being asked to demonstrate to accreditors and to an increasingly sophisticated marketplace how effectively we deliver on our promises to provide a quality education. Every institution, program, and course is held to a higher standard of proof, and justifiably so.

As we anticipate that the higher education marketplace continues to become more competitive, we too are obligated to evaluate our effectiveness in a comprehensive, critical, and transparent fashion; the purposes for this self evaluation are to keep pace with market expectations, to improve the education we offer, and to generate evidence that we at the University of New Haven provide the sort of education we promise.

While it is true that some of our programs—particularly those that now enjoy professional agency accreditation—already have in place systems for assessment of learning outcomes, the most efficient and effective route to satisfy our needs is through a campus-wide, comprehensive system for assessing learning outcomes. Such a system must capitalize on our programs’ interdependencies, must focus on our general education program (“GE” or “Core Curriculum”) as intently as on our major programs, and must provide the backbone of a formalized and integrated process through which we routinely “close the loop” on self assessment—gathering data from multiple sources regarding our effectiveness and using the data to find ways to improve further. This introspective

¹ The University of New Haven (2006). *Preparing for the next hundred years: Strategies for our future*. (Author)

practice must become routine, not just for our professionally accredited programs, but for everyone.

In summary, a comprehensive program of curriculum assessment serves these goals:

- To support the objective of bona fide continuous improvement
- To further the inculcation of a “culture of assessment” campus-wide, and
- To satisfy the expectations of accreditors.

The following sections describe the *Comprehensive Curriculum Assessment Plan* (“C-CAP”) proposed by the University Assessment Committee (UAC). This system is intended to complement and support the Periodic Program Review and Evaluation Process (PPREP)—a related plan for the comprehensive and focused reviews of all academic programs on rolling five-year cycles. The assessment system described herein will provide information about the effectiveness of our programs directly to those responsible for their delivery on an ongoing basis, and will provide the information necessary to monitor the effectiveness of the assessment system including the provision of adequate resources for assessment and review of response to prior feedback efforts. The PPREP design will allow for follow-up and interim reports that may incorporate assessment data from the C-CAP. The program learning outcomes that are the foundation for this process will also guide the PPREP process.

II. Key Characteristics of a Successful Assessment Plan

In the judgment of the UAC, an effective system for assessing learning outcomes through a comprehensive plan will have these features:

- *The system must be formalized and involve the entire campus.*
We are best able to capitalize on our many interdependencies if all programs, including our core curriculum program, graduate and undergraduate, adopt comparable approaches so that weaknesses can be addressed in an efficient fashion. The system must be managed jointly by faculty governance and the administration with clearly established accountabilities.
- *The system must allow for the unique needs of a variety of programs.*
Although the system must be standardized across campus, the varieties of programs we offer argue for a program-based orientation. Different programs will require tailored approaches to collecting different data on varying competencies. The unique demands of professional accreditors will help to determine measurement approaches, and these differences cannot be ignored.
- *The principal accountability for developing and implementing a system for outcomes assessment must rest with departments.*
Insofar as assessment protocols will vary across programs, and those faculty associated with the programs are best suited to design and interpret their

assessment approaches, the department offering a given program must guide the assessment of the program. The content of these assessment systems will be discipline-specific, while the general architecture of our institutional system must be largely standardized. While support staff may assist with articulating and organizing learning outcomes and with data collection efforts, the faculty must ultimately bear the responsibility to determine learning objectives and interpret them. The assistance provided by support staff will be especially important in the areas of survey design and analysis and in lending expertise in the design of assessments, particularly for the benefit of those faculty with less exposure to such systems, for example, through the requirements of professional accreditors.

- *Accountability for the Core Curriculum must be shared by everyone.*
No one department ‘owns’ the Core, and many departments contribute courses that satisfy Core requirements. The competencies that underlie the Core, however, are established so that assessment of the competencies must be based on data collected from a multitude of courses and other experiences. While departments are responsible for assessment activities in their respective Core courses, the overall evaluation of our effectiveness with general education is a collaborative undertaking.
- *Assessment must be based on competencies—knowledge, literacies, and skills a student is expected to have as they complete a program curriculum.*
Course grades alone are not enough. A program is designed around what a student is expected to know or be able to do. Assessments conducted in courses and for programs as a whole must address these demonstrated abilities. These abilities can be determined by standards promulgated by professional societies, employers, advisory boards, alumni, employers, accreditors, and other stakeholders. As opposed to merely documenting that a student has been exposed to course material, we must demonstrate the learning outcomes in terms of evidence of student capabilities.
- *Assessments must be based on data and follow established rubrics.*
Evidence of learning outcomes cannot rely only on the impressions of course instructors. Evidence must be transparent, verifiable, and reproducible. Multiple evaluators confronted with similar data should reach similar conclusions; thus, a method for collecting and evaluating assessment evidence should be based on an established rubric.
- *A campus-wide system should be based on established, understood, and accepted definitions and concepts.*
To enable evaluation of the results of assessments, discussion should be anchored in a common lexicon of assessment. Terms such as objectives, outcomes, criteria, competency, literacy, rubric, and taxonomy of mastery should be understood similarly by everyone. Evaluation of assessment results and subsequent plans for continuous improvement require such a common language.

- *The system must provide for feedback of assessment results so that we routinely “close the loop” with evaluation and planning.*
The hallmark of an effective institution is that it monitors and measures its ability to reach its objectives, and considers past self-evaluation in planning. The results of curriculum assessment must play a central role in driving improvements.
- *The system must reinforce that its purpose is to evaluate the curriculum and not to appraise either individual faculty or individual students.*
A predictable source of resistance to assessment systems is the suspicion that its data will be used for appraising faculty or that the measurements will constitute hurdles that students must pass in order to progress or graduate. An effective system must focus objectively on how well we are educating our students, but is not to be used for individual appraisals. Participation in the assessment system is a faculty responsibility in itself, however.
- *The system must lend itself to periodic focused program review as well as informing ongoing adjustments.*
It is commonplace in higher education that each program will undergo a thorough review on a periodic basis (typically every five years or so). The self study step of this review process should be informed by data that address the objectives of the program and that reflect the ongoing adjustments made to improve the program and maintain its currency. Such periodic reviews should not need to trigger a one-time intensive effort to collect data, but should rely on an archive of information gathered on a routine basis, such as through the system described here.
- *The assessment system, having been developed in response to strategic needs, must provide information to inform continued strategic planning.*
As noted earlier, the expansion of our self-assessment processes on campus has been prompted by the strategic importance of a culture of continuous improvement and, relatedly, the cultivation of rich data sets that can inform strategic decision making. Assessment of our curricula thus should play a significant role in the identification and prioritization of development objectives and allocation of resources. The follow-through of curriculum assessment must include both feedback to faculty regarding the effectiveness of the curriculum and feed-forward to those guiding strategic planning efforts.

III. Addressing the Core Curriculum

Of special importance in this system—at least for courses and programs at the undergraduate level—is the assessment of general education. Not only do accreditors uniformly place great emphasis on the “GE” portion of a university education, employers also have high expectations of college graduates with respect to the fundamental competencies in areas such as critical and reflective thinking, communication skill, global

awareness, ethicality, appreciation of culture, citizenship, problem solving, and teamwork. The UNH mission is to produce professional career education with a strong liberal arts foundation. All departments share in the responsibility for the assessment of our Core Curriculum.

The University ad hoc Committee on Core Learning Outcomes (CCLO) developed measurable learning outcomes for the core competencies and to recommend to the UAC and UUCC a process for implementing these learning outcomes at UNH. The following items provide a summary of the work of the CCLO to date:

- The Committee has re-examined UNH’s Core Competencies in light of UNH’s mission and culture as well as national trends, most recently discussed in *College Learning for the New Global Century* (AAC&U, 2007).
- The CCLO believes that UNH’s competencies address both knowledge and skill acquisition and that both should be addressed in courses that are considered to fulfill the Core Curriculum requirements.
- Learning outcomes that are definable and measurable have been crafted for each of the competencies (see Appendix A). These definitions are shaped by Bloom’s Taxonomy of educational objectives (Appendix B). Bloom identifies increasingly more complex levels of cognitive functioning. For instance, the CCLO believes that knowledge acquisition must meet the “Comprehend” level of Bloom’s Taxonomy, while skill levels should focus on the higher “Apply” and “Analyze” levels.
- The CCLO believes the achievement of the core competencies extends beyond the core curriculum requirement of 40 credits and should be infused within each program so that students can provide evidence of “Synthesize” and “Evaluate”—Bloom’s highest level of development—throughout their coursework and culminating in a capstone experience. The emphasis on a capstone experience is important for several reasons:
 1. It enables programs to integrate essential components of the major with core competencies.
 2. It allows students to see the relationships among a number of courses in the major. This self-reflection and self-realization is crucial to learning effectively.
 3. It provides a department with an important assessment opportunity to examine the integration and potential application of program material and concepts.
- Assessment of the core competencies would be achieved through a variety of methods (see below). The first—course-embedded assessments—will be required, whereas the remaining methods are optional.
 - Course Embedded Assessments. The most important method is course-embedded assessment. The CCLO believes that courses meeting a core competency must specifically address the learning outcomes of that competency in the course objectives and course requirements. The responsibility for ensuring that this objective is met lies with the UUCC.

- *Establishing learning outcomes.* For a course identified as meeting a core competency (or competencies), the offering department would (1) identify the learning outcomes in the course syllabus and (2) would outline how these outcomes will be measured in the course (e.g., examinations, term papers, presentations, etc.). Wherever possible, such assessments should be based on “pre-post” evidence of improvement during the course.
 - *Collecting samples of student work.* Student work meeting these outcomes would be made available to the department, to relevant UNH committees and offices, and to accreditors for assessment purposes. The CCLO recommends the use of E-portfolios as a potential vehicle for collecting these data.
 - *Examining and evaluating samples of student work.* Samples of student work would be examined on a systematic basis by departments to ensure that the core competencies are being achieved. By placing this activity within departments, there is the opportunity to develop these competencies in department-specific courses beyond the core.
- Capstone Assessments. Carefully constructed capstone experiences may provide the best data for assessing the student achievement of core competencies. Capstone experiences and assignments can provide for the integration of competencies that specifically speak to departmental, college, and University goals. Systematic collection and evaluation of products from capstone experiences should be an integral part of the assessment of core competencies.
 - Reflection Assignments. The use of student “self-reflections” should be considered as another component for assessing progress on these competencies. It has been recommended nationally that core competencies be accepted by students as an integral and ongoing part of their education and systematic self-reflection assignments can encourage student acceptance and also provide evidence for assessment.
 - Student Surveys. Surveys of students at graduation, of alumni, and of employers can also provide valuable information regarding the success of UNH students in meeting the core competencies.

It is likely that the assessment methods above that are not course-specific will vary in feasibility and relevance across disciplines and programs. It is premature to establish at the outset that any of these non-course-specific methods must be used in standardized form across the University. The UUC should consider how to coordinate our efforts with regard to these alternatives as a longer-term objective. To the extent that useful information is generated from these measures that can inform our assessment of the Core Curriculum, the departments should inform the UUC of the availability of the information.

Responsibility for assembling, evaluating, and reporting on the results of the general education assessments will reside with the UUCC, the custodial committee for the Core Curriculum. Departments will supply the UUCC with the results of their respective assessments, who will in turn report aggregated results to the faculty and to the UAC together with recommendations for the improvement of shortcomings detected.

The UUCC will be expected to establish policy and procedure for maintaining a demonstrable linkage between core competencies and specific courses that are intended to support them: a) inclusion of new courses in the Core Curriculum will be based in part upon a plan to assess one or more competencies; and b) continued inclusion of a course in the Core Curriculum will be based in part upon the course's demonstrated success in strengthening one or more competencies.

Most courses in the Core Curriculum plan will be expected to support the general education competencies at the lower levels of Bloom's Taxonomy, while some will extend to deeper levels. These foundation courses may serve as foundation courses upon which departments may build in order to allow their major programs to reach more sophisticated levels of competency development.

IV. General Timetable for Implementation: The Next Six Years

The UAC considered a range of models for the phased implementation of a unified assessment plan. The most sensible option is an adaptation of one recommended by Nichols². His 4-year cycle includes as first-year foundation work a set of planning activities that will have been largely completed during 2007-08, the remainder of which necessarily will be delayed until 2008-09. Implementation milestones are presented below.

Year 1	2007-08	Building the Foundation	<ul style="list-style-type: none"> • Establish purpose statements • Inventory current practices • Gain approvals (See Section VI) • Plan training, orientation (See Section VI)
Year 2	2008-09	Detailed Design by Departments of Program Assessment Plans	<ul style="list-style-type: none"> • Preliminary Faculty training on use of assessment system • Identify intended outcomes for programs and courses and establish associated metrics • Adopt proposed learning outcomes for Core

² Nichols, J. O. (1991) *A practitioner's handbook for institutional effectiveness and student outcomes assessment implementation*. New York: Agathon Press.

			<p>Curriculum</p> <ul style="list-style-type: none"> • Design assessment methods for review by colleges, UAC • Development by UCC of procedures for review and feedback of general education assessment results
Year 3	2009-10	Initial Implementation	<ul style="list-style-type: none"> • Trial implementation of assessment procedures • Initial feedback of results • Establish administrative support for activities
Years 4 – 7	2010-13	Establishing Feedback Cycles, Running the System	<ul style="list-style-type: none"> • Initial review of purpose statements and intended outcomes statements • Refinement of assessment methods • Continue regular operation of assessment system using refined methods • Second feedback of results
Year 8	2013-14	Critical Process Evaluation	<ul style="list-style-type: none"> • Comprehensive process evaluation and adjustment

The annual goals for the Academic and Student Affairs division include the initiation of periodic 5-year program reviews. Each year, approximately one-fifth of our degree programs will undergo comprehensive review. While the detailed plans for the Periodic Program Review and Evaluation Process are still in development, it is apparent that the C-CAP will play a pivotal role in informing those reviews. The first wave of comprehensive reviews should be included in activities for AY2008-09, and focus first on those programs for which outcomes assessment systems are relatively well evolved, typically having been developed in response to professional accreditation requirements. By AY2009-10, all programs will be poised to present at least their preliminary data for their next scheduled periodic reviews.

AY2009-10 is also the year during which our self study will be finalized in preparation for our comprehensive reaccreditation review by our regional accrediting agency, NEASC (Commission on Institutions for Higher Education, New England Association of Schools and Colleges). At this point, we will have established the design of the C-CAP, and will have completed the first wave of feedback and system adjustment. New to the routine NEASC self-study process beginning in 2008 is the required use of standardized forms provided by CIHE, two sets of which relate to the reporting of outcomes for programs, the “Gen Ed” curriculum, and for the university as a whole. The forms will

need to be completed early in the self-study process—both for use by the self study teams and to be included with the final self study document³.

The CCAP process will generate the information required for the program- and GenEd-related portions of these forms. Whereas the NEASC forms do not lend themselves to direct use in the CCAP, transposing the information from the CCAP databases to the NEASC forms is relatively direct. The creation of a system to prepare the necessary information for the NEASC forms is thus a high priority.

V. Design of the Plan

Consistent with the logic of continuous improvement systems, the premise of the C-CAP is that a program should lead to identifiable outcomes in terms of student competence, and that those outcomes may be measured through predetermined methods. In order to contribute to a comprehensive and coordinated university-wide process, all programs must adopt a common nomenclature and general procedure. Within that framework, however, it is acknowledged that programs will vary in both their key outcomes and in the nature of their measurements.

A. A Common Language

While the language of assessment is imprecise and potentially confusing, the UNH community will adopt the following definitions in order to standardize terminology and ease communication:

Term	Definition	Often Confused With...
Objectives	<u>For a Program:</u> Statements describing the expected <i>accomplishments of graduates the first few years after graduation.</i> <u>For a Course:</u> Statements describing the expected accomplishments of students <i>following course completion.</i>	Goals, outcomes, standards
Outcomes	<u>For a Program:</u> Statements describing what students are <i>expected to know and be able to do by the time of graduation.</i> <u>For a Course:</u> Statements describing what students are expected to know and be able to do by the time of <i>course completion.</i>	Objectives, standards, goals

³ The forms referenced are not included with this proposal. The three sets are: a) “Data First” forms keyed to the 11 *Standards for Accreditation* and which are to be included in the Self Study; b) the “E Series” to document program-specific processes for assessment of learning outcomes; and c) the “S Series” to document university- and program-level performance in terms of graduation, retention, placement, and other statistics reflecting curriculum effectiveness.

Performance Criteria	Specific, <i>measurable</i> statements identifying the performance required to meet the outcome, as confirmed through evidence	Standards, rubrics, metrics, objectives, specifications
Assessment	Processes that <i>identify, collect, analyze, and report data</i> that can be used to evaluate achievement	Evaluation
Evaluation	Process of <i>reviewing the results of data collection and analysis</i> and making a determination of the value of findings and actions to be taken	Assessment
Based on Rogers, G, <i>The language of assessment</i> , in Communications Link , www.abet.org.		

Appendix C presents useful examples of objective, outcome, and performance criteria statements for a program and for a course included in the Core Curriculum.

B. Preparing a Program Assessment Plan (AY 2008-09)

For the purpose of this assessment plan, a “program” is defined as a free-standing disciplinary degree or certificate program of study. Concentrations within a degree program are considered to be focused subdomains of a program—while further articulation of the distinctive learning outcomes for concentrations is desirable, it is optional under this plan. For professionally accredited programs, the level of aggregation observed for this plan should correspond to that observed by the accreditor.

Each undergraduate and graduate degree program will assemble a Program Assessment Plan that will comprise these elements:

1. A set of (typically 5 to 10) program objectives
2. A set of (typically 5 to 10) program outcomes each expressed in terms of Bloom’s Taxonomy.
3. For each stated program outcome, a presentation of the assessment data sources through which proficiency will be assessed—this is accomplished best through a chart that maps learning outcomes to data sources, including both course-embedded and other sources.
4. For each assessment data source, an indication of at least one performance criterion through which to assess the outcome.
5. Regarding the Core Curriculum:

- a. For Program Assessment Plans. Most programs will establish learning outcomes in general education areas that are included in the Core Curriculum but which reach to levels of competence that extend beyond that required by the Core Curriculum. Such outcomes should be identified on the program assessment plan, along with measures for these outcomes (this is included in the template presented in Appendix D and introduced below). This information will be archived by the UUCC for later use in assessing general education.
 - b. On Assessment Plans for Courses included in the Core Curriculum. For those courses included in the Core Curriculum, a presentation of the core competencies addressed by the course and the assessment plan for the courses. Note that the Core Curriculum does not require program-specific objectives statements—only course-specific outcomes statements related to the competencies included in Appendix A are required. The performance criteria supplied by departments offering Core courses will be provided to the UUCC for review, who may offer feedback or request revision.
6. Those programs with concentrations optionally may identify what unique objectives and outcomes apply to each concentration, and display the assessment plan for the concentration in an additional assessment map.
 7. Those programs and courses offered through alternative delivery methods such as on-line, accelerated, or academic service learning, are expected to be assessed against the same outcomes and objectives as those delivered through standard methods; however, if adjustments are expected in the desired outcomes, these should be noted.

Appendix D presents a template to be used to organize the learning outcomes for each program, and a companion template for the display of outcomes for courses that contribute to the Core Curriculum (undergraduate only). Those programs that already have documented assessment plans as required by external professional accreditation agencies should consult the University Assessment Committee to determine whether their existing plan may be substituted for the displays required by the CCAP. This decision will be based on whether the information presented in the existing plan is compatible with the requirements of the CCAP, and whether the data assembled under the existing plan are transposable to formats required by the UUCC and by NEASC.

The table below lists some possible data sources for inclusion in assessment plans.

Possible Data Sources		
Alumni Surveys	Student Exit Surveys	Employer Surveys
Student Presentations	Writing Samples	Student Projects
Team Projects/Presentations	Placement Exams	Graduate School Acceptances
Portfolio Evaluations	Exit Interviews	Lab Reports
Reflection Papers	Bb Discussion Forums	Standardized Achievement Tests
Theses/dissertations	Internship reports	ASL Project Reports

Guided self assessments	Comprehensive exams (grad)	Case analyses
Journals, reflective diaries		

C. *Submitting the Program Assessment Plan*

Each department offering a) an undergraduate degree or certificate program, b) a graduate degree or certificate program, or c) courses that contribute to the Core Curriculum will submit their assessment plans to the UAC for preliminary review. Due dates for these submissions will be announced. The UAC may recommend revisions. The assessment plans may include identification of areas where support from others—either cooperating departments or staff units, e.g. Alumni or Experiential Learning—is likely to be required.

For the initial assessment plans designed by departments, it is recommended that each program's plan would identify the *two top priority* assessment methods they will concentrate assessment efforts on first. It is further recommended that one of the two methods flagged as the initial methods will be a survey of alumni. Organizing one centralized effort will offer potential efficiencies as this program begins, and offers some degree of comparability and wider interpretability through the use of a single method by all departments.

D. *Management of the C-CAP Process*

The C-CAP is designed to operate chiefly at the department level so that feedback regarding program effectiveness is immediate and actionable for those faculty responsible for the program. It is further understood that programs are to undergo thorough periodic review. Reporting outside of the department on C-CAP findings then may be minimized.

The University Assessment Committee maintains responsibility for oversight of the assessment system, and as such must receive useful information on the effectiveness of the assessment system itself. Further, the UAC may identify systemic or policy issues that it deems provide opportunities to strengthen our effectiveness across a multitude of programs through recommendations to the Faculty Senate and/or the Provost⁴. College deans and the Provost also share responsibility for the effectiveness of our programs.

⁴ The full charge of the UAC appears in the *Faculty Handbook* as follows:

4.4.12 University Assessment Committee—

- a. **Charge:** The University Assessment Committee provides university-wide leadership in the development and strengthening the university's assessment of education outcomes. The committee provides a university-wide perspective on student assessment as carried out in undergraduate and graduate programs. Specifically, the UAC (1) reviews, develops, and recommends institutional assessment procedures and policies; (2) develops mechanisms for using assessment data in decision making; (3) reviews the usefulness of assessment strategies, reporting strategies, and feedback processes; (4) provides opportunities to strengthen UNH faculty's uses of assessment to support student

To provide this information that “closes the loop” in the assessment process, each department that qualifies under section “C” above will provide a brief report each year to the UAC, copied to its dean, that summarizes the important findings of its assessments, their next assessment objectives, and comments on the effectiveness of the assessment system. (A recommended format for these reports appears in Appendix E.) The UAC may request further information from departments based upon its review of annual departmental reports and other sources of information such as data from Institutional Research or from reports of best practices elsewhere.

Further, the UAC will make periodic reports and recommendations to the Senate and Provost regarding the status and effectiveness of the assessment systems and about patterns they have observed in the assessment data. The Committee is free to call the attention of departments or groups of departments to patterns of deficiencies or to synergies in assessment objectives and related program improvement objectives.

VI. First Steps for Implementation of the Plan

1. To assure the two committees working on assessment are producing compatible recommendations, the first step was a joint planning discussion of the UAC and the Ad Hoc Joint Committee on Core Competencies. The details of the assessment plan for the Core are to be integrated into the C-CAP, overseen by the UAC and the University Undergraduate Curriculum Committee, and will serve as a model for program and course assessment protocols designed by departments. It is critical these oversight bodies are in agreement before proceeding. The initial focus of the C-CAP should be to concentrate on a few key outcomes for which assessment is most direct and accessible, so as to afford an opportunity to learn and debug our processes.
2. This plan will be reviewed by the Academic Leadership Council, with a special focus on the administrative requirements for its implementation. Of central importance will be appropriate support through deans’ offices and from the Provost’s Office. Adjustments may be suggested and further administrative review may follow. Of critical importance in this regard is the recognition of the significant additional design, clerical, analytic, and

learning; (5) highlights best assessment practices, and (6) facilitates periodic evaluation of academic assessment efforts at UNH.

- b. **Membership:** Eight full-time faculty—four of whom are elected by the full-time faculty of each college and four of whom are appointed by the college deans. The Director of Institutional Research and the associate provost for undergraduate studies, accreditation, and assessment serve as ex officio members. The committee is chaired by the associate provost.
- c. **Reporting:** Reports to the provost and vice president for academic affairs. The committee forwards academic policy recommendations through the Faculty Senate.

technical support required by the system proposed. In addition to the routine support provided through deans' offices, the need for centralized resources—budget, personnel—is readily apparent, and these resources must be planned for from the outset (see below).

3. The plan will be reviewed by the Faculty Senate and other faculty governance bodies as necessary. The University Undergraduate and Graduate Curriculum Committees must be fully informed of their obligations under the plan with respect to oversight of course and program documentation and related procedures. The UGCC in particular must become fluent in the learning outcomes proposed for the Core Curriculum and understand the mechanics of the evaluation of assessment plans and subsequent management of the Core.
4. Preliminary faculty training is necessary in order to assure that departments understand the plan, the lexicon and concepts of assessment, and their obligations with respect to designing and implementing their systems. Special attention will be directed towards our shared responsibility for assessment of general education.

Estimated Resource Requirements

As noted above, the system proposed here engages the faculty in substantial activity that is labor intensive and that requires support in the form of personnel and other resources. While assessment activities are ultimately the responsibility of the faculty, the necessary support for these activities should be provided centrally through the deans' and Provost's offices. The following needs are predictable in light of the plan's design:

1. Personnel

- An assessment specialist with professional experience who can coordinate faculty efforts with data collection, consultation with external constituencies, conduct of data analysis and interpretation, training, and related activities. This should be a full-time administrative staff position. As noted in Section V.C., it is recommended that the initial identification of program assessment methods by departments include an alumni survey; the design and management of this survey offers potential efficiencies, but should be managed centrally by an individual well versed in survey methods and analysis.
- Graduate assistants will provide useful support with management of data bases and with clerical tasks required by the departments and by the UGCC and UAC.
- Assigned Time for selected full-time faculty is worthy of consideration as well. Those who are assigned assessment responsibilities may spearhead efforts in their respective colleges, and may serve as coaches and resources for their colleagues.

2. *Budget*

- Training resources including documentary support, webinars, and support for selected faculty to attend assessment-related conferences.
- Surveys including alumni tracking, employer feedback, and best practice research.
- data collection and analysis activities, including support for involvement by external constituents in evaluating our progress.
- advisory group outreach including hosting of focus groups and other gatherings to solicit input and feedback from employers, field placement supervisors, and others.

Appendix A: The UNH Core Curriculum Competencies and Definitions

Proposed Learning Outcomes

1. *Communication Skills*

A. *Written*

1. The student can formulate his or her own ideas based on insights gained through critical reading.
2. The student can express ideas clearly and coherently with an awareness of audience and rhetorical purpose.
3. The student can demonstrate versatility by adapting to the conventions for tone, format, and style associated with various genres or disciplines.

B. *Oral*

1. The student can create a coherent and informative oral presentation to convey a key message.
2. The student can deliver an oral presentation that is appropriate to the intended audience.

2. *Science*

1. The student can identify, describe, and illustrate the relevant principles and techniques of a scientific discipline.
2. The student can explain and apply the scientific method.
3. The student can assess and critique the role and use of science in society.

3. *Mathematics*

1. The student can use and interpret quantitative information.
2. The student can use and interpret symbolic representations of mathematical and qualitative data.

4. *Technological Literacy*

1. The student can use current forms of technical communication effectively.
2. The student can discern the quality and accuracy of information obtained through technology.
3. The student can apply the ethical and socially acceptable standards for the use of technology.
4. The student can assess and critique the role and use of technology in society.

5. *Problem Solving and Critical Thinking*

1. The student can apply general problem-solving principles to successfully solve problems within a discipline.

2. The student can explain the appropriateness of algorithmic and heuristic approaches to decision making.
3. The student can identify critical components in a complex problem and generate possible strategies for solving the problem.

6. *History and Effective Citizenship*

1. The student can discuss the development of cultures and significant institutions of a defined time period in proper historical context.
2. The student can compare major historical approaches and theories to explain the development of relevant cultures and institutions.
3. The student can recognize and describe the impact of significant social causes and political movements on the present human condition.
4. The student can explain the importance of civic responsibility and community engagement.

7. *Social Interaction and Global Perspective*

1. The student can discern the ethical consequences of decisions and actions.
2. The student can work effectively on a team.
3. The student can articulate his or her self-identify and demonstrate interpersonal awareness.
4. The student can interpret the interrelations within and among global and cross-cultural communities.

8. *Aesthetic Responsiveness*

1. The student can identify and describe forms of creative and artistic expression.
2. The student can recognize the aesthetic value of artistic works and express an informed response to them.
3. The student can assess and critique the role and contribution of the arts within cultures.

NOTE THAT GENERALLY CORE CURRICULUM COURSES WOULD REACH TO LEVEL 3 (“APPLY”) OF BLOOM’S TAXONOMY.

Appendix B: Categories in the cognitive domain of Bloom's Taxonomy

Skills in the **cognitive domain** revolve around knowledge, comprehension, and "thinking through" a particular topic. Traditional education tends to emphasize the skills in this domain, particularly the lower-order objectives.

There are six levels in the taxonomy, moving through the lowest order processes to the highest:

Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation.

Each level is discussed in turn, with examples.

Knowledge

Exhibit memory of previously-learned materials by recalling facts, terms, basic concepts and answers

- Knowledge of specifics - terminology, specific facts
- Knowledge of ways and means of dealing with specifics - conventions, trends and sequences, classifications and categories, criteria, methodology
- Knowledge of the universals and abstractions in a field - principles and generalizations, theories and structures

Questions like: What is...?

Comprehension

Demonstrative understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas

- Translation
- Interpretation
- Extrapolation

Questions like: How would you compare and contrast...?

Application

Using new knowledge. Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way

Questions like: Can you organize _____ to show...?

Analysis

Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations

- Analysis of elements
- Analysis of relationships
- Analysis of organizational principles

Questions like: How would you classify...?

Synthesis

Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions

- Production of a unique communication
- Production of a plan, or proposed set of operations
- Derivation of a set of abstract relations

Questions like: Can you predict an outcome?

Evaluation

Present and defend opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria

- Judgments in terms of internal evidence
- Judgments in terms of external criteria

Questions like: Do you agree with.....?

Some critique on Bloom's Taxonomy ('s cognitive domain) admit the existence of these six categories, but question the existence of a sequential, hierarchical link⁵. Also the revised edition of Bloom's taxonomy has moved Synthesis in higher order than Evaluation. Some consider the three lowest levels as hierarchically ordered, but the three higher levels as parallel. Others say that it is sometimes better to move to Application before introducing Concepts. This thinking would seem to relate to the method of Problem Based Learning.

Productive domain: Productive domain [cf. Stress: Understanding and Management: Author: Dr. Shriniwas Kashalikar] is not mentioned in most books of educational technology, philosophy, curricula etc. But it is important because a) it imparts economic freedom to individual student, his or her family, his/her school and his/her nation; b) this leads to prevention of dependence on public money or money from individual donations or other nations and thus being parasitic; c) this leads to blossoming of students and avoids production of diffident and unproductive graduates, their unemployment, their

⁵ Paul, R. (1993). *Critical thinking: What every person needs to survive in a rapidly changing world (3rd ed.)*. Rohnert Park, California: Sonoma State University Press.

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frustration and their deterioration in terms of turning into criminals or mental wrecks; and
d) productive domain gives freedom of work to billions of children condemned to
inaction in the schools and freedom to go to schools to billions of children condemned
and compelled to inhuman labor outside the schools.

The table on the following page displays examples of verbs that illustrate the
competencies at each level of Bloom's Taxonomy.

Reference: *A Taxonomy for Learning, Teaching, and Assessing — A Revision of Bloom's Taxonomy of Educational Objectives*; Lorin W. Anderson, David R. Krathwohl, Peter W. Airasian, Kathleen A. Cruikshank, Richard E. Mayer, Paul R. Pintrich, James Raths and Merlin C. Wittrock (Eds.), Addison Wesley Longman, Inc. 2001.

KNOWLEDGE		COMPREHEND	
Count	Read	Classify	Interpret
Define	Recall	Cite	Locate
Describe	Recite	Conclude	Make sense of
Draw	Record	Convert	Paraphrase
Enumerate	Reproduce	Describe	Predict
Find	Select	Discuss	Report
Identify	Sequence	Estimate	Restate
Label	State	Explain	Review
List	Tell	Generalize	Summarize
Match	View	Give examples	Trace
Name	Write	Illustrate	Understand
APPLY		ANALYZE	
Act	Imitate	Break down	Focus
Administer	Implement	Characterize	Illustrate
Articulate	Interview	Classify	Infer
Assess	Include	Compare	Limit
Change	Inform	Contrast	Outline
Chart	Instruct	Correlate	Point out
Choose	Paint	Debate	Prioritize
Collect	Participate	Deduce	Recognize
Compute	Predict	Diagram	Research
Contribute	Produce	Discriminate	Separate
Control	Provide	Distinguish	Subdivide
Demonstrate	Relate	Examine	
Determine	Report		
Develop	Select		
Discover	Show		
Dramatize	Solve		
Draw	Transfer		
Establish	Use		
Extend	Utilize		
SYNTHESIZE		EVALUATE	
Adapt	Intervene	Appraise	Interpret
Anticipate	Invent	Argue	Judge
Categorize	Make up	Assess	Justify
Collaborate	Model	Choose	Predict
Combine	Modify	Compare/contrast	Prioritize
Communicate	Negotiate	Conclude	Prove
Compare	Organize	Criticize	Rank
Compile	Perform	Critique	Rank
Compose	Plan	Decide	Reframe
Construct	Pretend	Defend	Select
Contrast	Produce	Evaluate	Support
Create	Progress		
Design	Propose		
Develop	Rearrange		
Devise	Reconstruct		
Express	Reinforce		
Facilitate	Reorganize		
Formulate	Revise		
Generate	Rewrite		
Incorporate	Structure		
Individualize	Substitute		
Initiate	Validate		
Integrate			

Taken from: <http://www.teachervision.com>, © Pearson Education, Inc. 2007.

Appendix C: Sample Objective, Outcome, and Performance Criteria Statements

On the following pages are two examples of displays for objectives and learning outcomes statements:

- Those for a *program* that would guide a department's evaluation of the program as a whole; and
- Those for a *course included in the Core Curriculum* for which there are both discipline-specific outcomes and itemized Core-relevant outcomes identified.

Appendix C (1): Sample Program Objectives and Outcomes: BSME Program
(example only—not exhaustive and not approved by department)

Program Objectives (what a student is expected to have accomplished a few years following graduation)

a. Utilize modern techniques to solve mechanical engineering problems with the context of engineering practice
b. Design, develop, test, and analyze mechanical engineering components, systems, and processes
c. Function productively as a team member
d. Appreciate and address contemporary issues including ethical, safety, and environmental concerns related to mechanical engineering
e. Strive for continuous self improvement

Program Outcomes (what a student is expected to be able to know or do by graduation)

Outcome	Data Sources for Assessment	Performance Criteria	CC Competence (#) Beyond Minimal CC Requirement
1. Students can effectively apply knowledge in engineering, including the formulation and solution of engineering problems	Courses: ME305; ME321; ME344	80% of students earn a grade of C or better on assignments that require written or oral presentation of problem solution in communication-intensive courses.	
	Student Exit Survey	Mean ratings of 2.0 or less* on item 7.	
2. Students can design, conduct, and analyze results of experiments	Courses: ME315; ME415;	80% of students earn a grade of C or better on lab assignments focused on experimental design and analysis	CC2 Analysis and Problem Solving (e.g., ME415) CC3 Using Technology (e.g., ME315)
	Student Exit Survey	Mean ratings of 2.0 or less* in item 12	

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3. Students have the ability to effectively participate in teams, including multi-disciplinary teams	Courses: ME415; ME431; ME432	80% of students earn a grade of C or better in team or group assignments in courses using project teams.	
	Student Exit Survey	Mean ratings of 2.0 or less* on item 17.	
4. Students can communicate effectively	Courses: ME431; ME432;	80% of students earn a grade of C or better on assignments that require papers and presentations in selected communication-intensive courses.	CC1 Communication
	Student Exit Survey	Mean ratings of 2.0 or less* on item 16	

*Rating scale: 1 = Excellent; 2 = Good; 3 = Adequate; 4 = Fair; 5 = Poor.

Appendix C (2): Example for a Course Included in Core Curriculum

B. Course Objectives and Outcomes PSY 111 Introduction to Psychology
(example only—not approved by Psychology Department)

Objective	CC (#) Relevance	Outcomes	Data Sources for Assessment (multiple sources may apply to each outcome identified)	Performance Criteria
1. Students will recognize the complexity of sociocultural and global diversity. (Sociocultural and Global Awareness)	7.3, 7.4	Student can explain the sociocultural and global contexts that influence individual differences.	Research papers that examine diversity issues (e.g., gender socialization, stereotyping).	At least 80% of students properly characterize modal sex roles in other cultures used as examples.
		Students can explain how individual differences influence identity, affect, beliefs, values, and interactions with others.	Evaluation of learning related to diversity-oriented exercises.	At least 75% of students can discuss in a focus group the sources of their beliefs about race.
		Students can define diversity and its role in psychological research.	Focus groups dedicated to solving problems related to diversity.	At least 80% of student papers properly define and use the term diversity.
2. Students identify and apply relevant ethical issues, as addressed by the APA code of ethics. (Role of Ethics)	7.1	Students can describe relevant ethical issues, as addressed by APA code of ethics.	In-class exams to capture student learning of APA code of ethics.	At least 75% of students correctly define terms relevant to the key ethical dilemmas discussed in class.
		Students can apply relevant ethical principles, as addressed by the APA code of ethics.	Case studies to demonstrate effective application of APA code of ethics.	At least 75% of students correctly identify the proper behavior for the psychologist as suggested by the APA for the same key ethical dilemmas.
3. Students will develop insight into their own and others' behavior and mental processes and apply effective strategies for self-management	7.3	Students can reflect on his or her experiences and find meaning in them.	Pre-and-post assessments. Student journals or observational diaries.	At least 90% of students identify at least one way in which the course has provided insight into their selves.

and self-improvement. (Personal development)		Students can apply psychological theories and principles to promote personal development.	Reflection papers.	At least 80% of students can describe at least one method they can apply to self-improvement that is based on psychological theories of learning or personality.
		Students can demonstrate insightful awareness of feelings, emotions, attitudes, and behaviors based on psychological principles.		At least 80% of students accurately apply terms and concepts from theory on emotion and personality to explain their perceptions.
4. Students will develop an appreciation of the scientific methods used by psychologists to establish the facts, principles, and theories for the field. (Research methods in psychology)	5.1 – 5.3	Students can explain different basic research methods used by psychologists.	Critical papers evaluating specimens of psychological research. Participation in ongoing psychological research as part of their course requirements, and debriefing regarding their experience as subjects in research. Case studies (group, individual) critiquing research reviewed in the course.	At least 80% of students can identify the principal methods used by psychologists and their relative strengths.
		Students can evaluate the appropriateness of conclusions derived from psychological research.		At least 80% of students appropriately identify the limits to conclusions drawn in samples of research.
Based on the current guidelines for undergraduate psychology curriculum promulgated by APA. American Psychological Association (2007). <i>APA guidelines for the undergraduate psychology major</i> . Washington DC (Author). Retrieved from www.apa.org/ed/resources.html .				

Appendix D: Program and Course Assessment Plan Templates

A. Program Objectives and Outcomes

1. **Program Objectives** (what a student is expected to have accomplished a few years following graduation)

a.
b.
c.
d.
e.

2. **Program Outcomes** (what a student is expected to be able to know or do by graduation)

Outcome	Data Sources for Assessment	Performance Criteria	CC Competence (#) Beyond Minimal CC Requirement (UG only)
1.			
2.			
3.			

B. Course Objectives and Outcomes

Objective	CC (#) Relevance (UG only)	Outcomes	Data Sources for Assessment	Performance Criteria
1.				
2.				
3.				

Appendix E: Sample Format for Annual C-CAP Report

Departmental Annual Report
Comprehensive Curriculum Assessment Plan
University Assessment Committee

Date _____ Chair Submitting Report _____
Department _____ Next Scheduled Comprehensive Review _____

List degree and certificate programs covered by this report (*both graduate and undergraduate*):

- 1.
- 2.
- 3.

Please briefly address the following general questions. This document should provide a succinct overview of curriculum assessment activities in your department. These reports are used by the UAC to monitor the use and effectiveness of our curriculum assessment systems. It is not necessary to attach additional evidence, but doing so is permitted. This document should be returned to the Chair of the UAC by [DATE], copied to the appropriate academic college dean.

- A. Has your department completed the initial establishment of objectives and learning outcomes for all programs and courses? If not, please describe what stage you are in and what progress is being made.
- B. What were the top few assessment objectives for your department this year?
- C. Please describe the important findings of your curriculum review during this cycle, noting the objectives and learning outcomes to which they relate.
- D. Briefly, what sorts of curricular changes will be made on the basis of these findings?
- E. What are the top assessment objectives your department will pursue during the next year?
- F. What important findings relate to other units you rely upon to deliver your program(s)?
- G. What important findings relate to your department's courses included in the Core Curriculum? What action steps (if any) are planned with regard to your Core courses?
- H. What obstacles highlighted by this process require urgent attention by your dean?
- I. Feel free to provide feedback to the UAC on the effectiveness of the C-CAP.