

UCLA

**Guidelines for
Developing and Assessing
Student Learning Outcomes
for Undergraduate Majors**

1st Edition

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Preface

UCLA is currently in the process of its accreditation review by the Western Association of Schools and Colleges (WASC). This process necessitates our responsiveness to new expectations for documenting effectiveness in undergraduate education.

Historically, judgments regarding educational quality and institutional effectiveness within higher education have been based heavily on informal perceptions of institutional characteristics, reputation, and resources. Students' grades, perspectives on curricular content, and self-perceptions of their learning have also figured prominently. These types of indicators are no longer sufficient in meeting federal expectations for accountability and quality assurance in undergraduate teaching and learning. In response, regional accrediting agencies have revised their criteria to more clearly emphasize assessment of student learning outcomes. Explicit evidence from data driven assessment of student learning coupled with sustainable institutional processes for enhancing student learning now figure prominently in determining educational effectiveness.

WASC's current accreditation evaluation criteria require each academic unit within an institution to assess its educational effectiveness by gathering and evaluating assessment data that are used in an ongoing cycle of planning and evaluation. Consequently, as part of its current accreditation process, UCLA has joined other colleges and universities nationally in pledging to document learning outcomes and provide associated assessment plans for each undergraduate major. The specific assessment methods used are to be determined at the departmental/program level. In support of this commitment, UCLA's Undergraduate Council is also in the process of revising guidelines for the eight-year review.

This guidebook is designed to help your department/program establish and assess student learning outcomes as well as summarize and apply your findings. Information contained here was drawn from a variety of sources, annotations for which are included in the reference section. Dr. Jennifer Lindholm (jlindholm@college.ucla.edu), Special Assistant to the Vice Provost for Undergraduate Education, is available to answer questions you may have about this requirement and to consult with you and your colleagues as you develop your plans.

Thank you for your attention to this important matter. We look forward to working with you to accomplish this endeavor.

Judith L. Smith
Dean/Vice Provost
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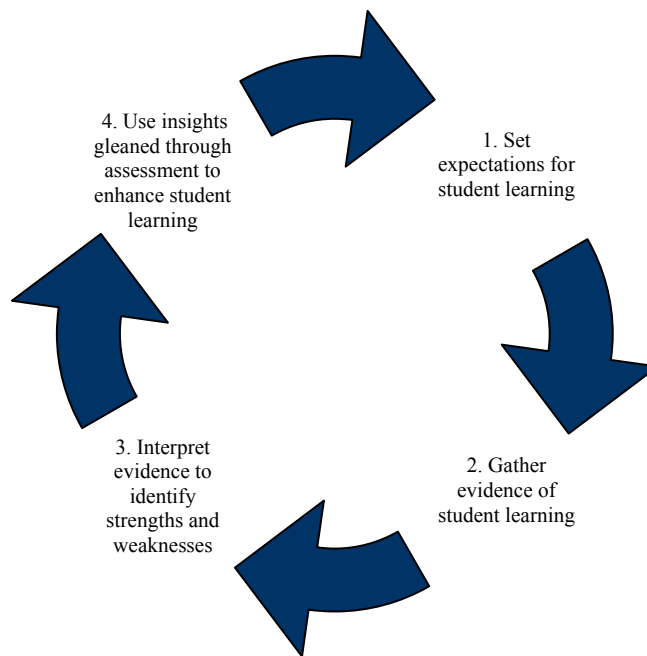
INTRODUCTION.

Basic Concepts and Processes

Documenting Educational Effectiveness

In light of current federal expectations for documenting educational effectiveness, there is broad consensus within today's higher education community that emphasis must be placed on transforming the academy into a "culture of evidence." Within assessment contexts, this "outcomes" orientation has led to *process* being as important as *product*. Even the most successful academic programs are believed to benefit from an ongoing process of inquiry and reflection that focuses on growth, renewal, and continuous improvement. Assessing student learning is linked inextricably to the teaching-learning process as part of the "feedback loop" that can enhance institutional efficacy (see Figure 1). The coherence of this loop constitutes a critical component for determining educational effectiveness based on the Western Association of Schools and College's (WASC) current accrediting standards.

Figure 1. The Outcomes Assessment Feedback Loop



The distinguishing feature of outcomes assessment at the department/program level is that it addresses student learning across multiple courses in the curriculum. Assessment activities are geared toward determining the extent to which students completing the program can demonstrate proficiency on expected "learning outcomes." This approach also links campuses to their external stakeholders by providing evidence of accountability and enabling programs to demonstrate student learning. Two questions lie at the heart of outcomes assessment: Are students learning what faculty want them to learn? and Are faculty learning from that? In other words, how are faculty using the findings from their assessment efforts to enhance student learning?

What does this mean for UCLA faculty?

In accordance with WASC accreditation expectations, UCLA is required to show that faculty who are responsible for each undergraduate major have:

- established core student learning outcomes for the major (#1 in Figure 1);
- developed plans for assessing students' achievement of learning outcomes (#2 and #3 in Figure 1); and
- used assessment findings (as applicable given the timing of the program's 8-year Academic Senate Review) to enrich the curriculum review and development process in the interest of improving undergraduate student learning (#4 in Figure 1).

While accrediting bodies like WASC are responsible for ensuring that campuses provide evidence of student learning and for reviewing campus accomplishments in this realm, they do *not* mandate a focus on particular learning outcomes, nor do they dictate what assessment methods should be used. Those decisions are left to individual academic units.

It is also important to remember that the focus here is on the entire program; individual students, faculty, or courses are not the point of emphasis, nor is the goal to seek out problems and assign blame. Rather, the overarching goal is to identify program strengths and areas of concern and to use insights gleaned through the assessment process to inform discussions about pedagogical or curricular changes. It is *not* necessary to assess every learning outcome in *every* student *every* year. Instead, faculty should develop a flexible, multi-year plan that results in incremental program improvement.

Who is responsible for creating learning outcomes and assessment plans?

Conversations about the program's learning outcomes should engage, as broadly as possible, those who are invested in the success of the program's students. Faculty should work together to develop consensus on expected learning outcomes, curriculum alignment, and assessment, and they should collaborate to determine the implications of results. This requires collegiality, trust, and flexibility, and it requires program faculty to regularly discuss student learning. These conversations are an essential component of effective assessment. Other campus professionals are also available to consult on assessment plan development and implementation.

How can this guidebook help?

This guidebook was developed to help your department/program understand what constitutes sound "evidence" of student learning within the current assessment movement. It is also intended to aid you in developing student learning outcomes and assessment plans that are grounded in the alignment between core curricular offerings and expected student learning outcomes; generate meaningful data; are manageable; and are sustainable.

The sections that follow introduce key concepts and considerations to inform your work on establishing learning outcomes, determining which of the above approaches for collecting evidence of student learning is most feasible given program structure, size, philosophy, etc., assessing student learning outcomes, and using findings to enhance your academic program.

Evidence for Student Learning

As noted in the Introduction, one cornerstone of effective educational assessment today is gathering *evidence* of student learning. Evidence, of course, is not an unfamiliar construct to those of us who are researchers. And, at first impression, it may seem unnecessary within the context of a research university, to discuss what constitutes “good” evidence. It is important, however, that we develop a shared institutional understanding of how accrediting agencies, including WASC, define evidence. At the program level, decisions about how to most appropriately collect necessary evidence of student learning must also be made.

How does WASC define “evidence” of student learning?

According to WASC, evidence should:

- cover core knowledge and skills that are developed throughout the program’s curriculum.
- involve multiple judgments of student performance.
- provide information on multiple dimensions of student performance.

Good evidence is also relevant, verifiable, representative or typical, cumulative, actionable, and reflectively analyzed.

What is the difference between “direct” and “indirect” evidence?

Traditional approaches to educational assessment have relied disproportionately on *indirect* evidence pertaining to students’ self-perceptions of their learning and their perspectives on program structure and curricular content. Examples include survey responses and results of focus groups or interviews. While it provides potentially very useful information to faculty, indirect evidence is simply not designed to provide answers to fundamental questions about the degree to which students have met specific learning outcomes.

In accordance with changing federal expectations, effective assessment plans today thus necessarily also involve collecting *direct* evidence of student learning. Direct measures are those derived through the faculty’s systematic analysis of student projects, exams, or sets of specified course assignments. As such, they can make a compelling case for the extent to which students have achieved expected learning outcomes. Today, the most powerful components of educational effectiveness within undergraduate teaching and learning are: (a) thoughtfully constructed direct *and* indirect measures of student learning that are (b) assessed by program faculty as a collective body of evidence pertaining to educational effectiveness and considered for purposes of curricular review and development.

Shouldn’t grades suffice as the primary indicator of learning?

In recent years, the usefulness of passing grades as indicative of the amount and quality of student learning has been questioned by various higher education stakeholders based on the national phenomena of grade inflation, the potentially great variability between instructors in terms of how grades are assigned, and the belief that grades are too global an indicator to provide the type of detailed feedback that is required for individual or program level improvement. Assigning grades in individual courses is

still important, but no longer endorsed by accrediting agencies as sufficient independent evidence of learning quality. The availability of other, direct types of evidence is critical.

How do we gather “direct” evidence of student learning?

There are many approaches to gathering direct evidence of student learning. The utility, and feasibility, of any particular approach varies depending on program structure, size, philosophy, etc. At UCLA, we have identified three main pathways by which we believe that academic programs can most effectively, and efficiently, meet current federal and associated accreditation expectations for engaging in outcomes-based assessment that provides direct evidence of undergraduate student learning:

- **Assessing final products from capstone experiences.** UCLA has recently implemented a process for certifying “Capstone Majors” (all students completing the major have a required capstone experience). Beginning in the 2009-2010 academic year, “Capstone Programs” (at least 60% of students in the major complete a capstone) will also be certified. For programs that offer capstones, learning outcomes that are specifically tailored to that culminating academic experience necessarily reflect valued program goals. Departmental evaluation of samples of students’ capstone projects, papers, performances, or other products subsequently provides direct evidence of student learning.
- **Creating program portfolios based on course-embedded assessment.** Traditionally, portfolios have been conceived as student compiled collections of their work. However, rather than ask students to prepare individual portfolios, faculty can create “program portfolios” composed of samplings of students’ work related to specific learning outcomes. Relevant student material (e.g., course assignments, exam questions, entire tests, in-class activities, fieldwork activities, and/or homework assignment) from selected courses can be identified, a sampling scheme can be decided upon, and relevant items can be collected and evaluated.
- **Administering standardized tests, licensure exams, or program-developed senior exit exams.** The Educational Testing Service and other companies offer standardized tests for various types of learning outcomes such as critical thinking or mathematical problem solving. Scores on tests such as the GRE or various licensure exams also can be used as direct evidence of student learning. Program faculty might also decide to develop a test for majors that is reflective of the program’s mission and learning outcomes.

Please keep in mind that none of these approaches is inherently “better” than any of the others. Decisions about which to use should be determined by program faculty based on feasibility and manageability. Remember, too, that while direct evidence is essential, supporting evidence that is indirect in nature (e.g., that provided by student responses on the UCLA Senior Survey, other departmental surveys of student perceptions, exit interviews, and alumni or employer surveys) can also provide valuable indicators of educational effectiveness.

In the next section of this guidebook, we address how to establish “learning outcomes.” General information about the usefulness of learning outcomes in analyzing evidence of student learning is provided. Sample learning outcomes from UCLA Capstone Majors are also provided along with recommendations for developing learning outcomes that may be useful for programs that elect to rely on program portfolios or various types of exams.

PART I.

Establishing Student Learning Outcomes

Introduction

The first step in creating a foundation for making more comprehensive sense of student work and performance within the major is developing desired student learning outcomes. Breaking down general programmatic goals for student learning into specific, measurable expectations that link directly to key aspects of the core curriculum establishes a foundation for providing the direct evidence that is critical today in meeting federal expectations for demonstrating educational effectiveness.

What are student learning outcomes?

Student learning outcomes describe what students should know, be able to do, and value by the end of their educational program. Within undergraduate education, four general dimensions of learning outcomes are commonly identified:

- ***Knowledge outcomes*** pertain to grasp of fundamental cognitive content, core concepts or questions, basic principles of inquiry, a broad history, and/or varied disciplinary techniques.
- ***Skills outcomes*** focus on capacity for applying basic knowledge, analyzing and synthesizing information, assessing the value of information, communicating effectively, and collaborating.
- ***Attitudes and values outcomes*** encompass affective states, personal/professional/social values, and ethical principles.
- ***Behavioral outcomes*** reflect a manifestation of knowledge, skills, and attitudes as evidenced by performance, contributions, etc.

While all of these dimensions represent important aspects of undergraduate student learning, some types of outcomes (e.g., knowledge, skills, and behavioral) tend to more readily lend themselves to evaluation based on “direct” evidence than do others, such as attitudes and values outcomes. This does not mean that attitudes and values outcomes should be viewed as inherently less important than other types of learning outcomes. Rather, this is simply a consideration to keep in mind when developing your program’s assessment plan. Certainly, indirect evidence pertaining to all types of learning outcomes can be used to augment analysis of direct evidence and to enrich program faculty’s understanding of student learning within the major and related implications for educational practice.

How are learning outcomes different than goals?

Program goals reflect broad, non-specific categories of learning (e.g., critical thinking, communication, science literacy, multicultural literacy) that provide context for curricula, teaching, and student learning. Within academic programs, goals are the most prevalent source of learning outcomes. Students’ achievement of these goals is impossible to assess, however, unless they are broken down into smaller, more specifically measurable parts. Learning outcomes represent those parts. They describe, in concrete terms, what program goals mean and provide a mechanism that enables faculty to determine whether

students have mastered key program goals. As such, learning outcomes serve as an essential tool for gathering evidence of student learning.

Why are learning outcomes important?

Apart from their rather utilitarian value within assessment contexts, learning outcomes are increasingly embraced within the higher education community for a variety of reasons:

- When students know what is expected of them, they tend to focus their studying time and energy better, thus improving learning.
- Student learning outcomes support a “learner-centered” approach to instructional activity; emphasis is on the types of experiences students must have to be able to achieve expected outcomes rather than “coverage of topics” within the curriculum.
- Once published (e.g., on the department/program website, in program literature, in the UCLA general catalog), student learning outcomes communicate to prospective students, their parents, and the public what is valuable about academic program.
- Assessing student learning outcomes can provide information to students on their strengths and weaknesses in relationship to specific learning dimensions.
- Assessing student learning outcomes can provide faculty with information that can be used to improve educational programs and demonstrate their effectiveness.

Beyond pedagogical value, UCLA’s accreditation agency, WASC, expects that all educational programs (i.e., majors and the general education program) will establish their own student learning outcomes, develop plans for assessing their learning outcomes, and use the results for the improvement of student learning.

In developing learning outcomes for programs, where do we start?

The particular process you engage in drafting your program’s learning outcomes will depend, in large part, on whether your primary source of evidence for student learning is capstone-based (**Path 1**), or whether you are relying instead on portfolio or exam-based approaches (**Path 2**).

Path 1. Establishing Learning Outcomes for UCLA Majors with Capstones

For Capstone Majors (all students completing the major have a capstone requirement) or Capstone Programs (at least 60% of majors complete a capstone experience), learning outcomes for the capstone will already have been developed as part of the Undergraduate Council Certification Process. Learning outcomes that are tailored to that culminating experience necessarily draw upon skills learned in the major’s core curriculum and reflect valued program goals.

Sample learning outcomes for Capstone Majors within UCLA’s College of Letters and Science that have been recently approved by the Undergraduate Council are provided in Table 1. Notice that the learning outcomes are specific to the capstone experience. There are typically 4 to 6 outcomes that are clearly stated and measurable. Not all aspects of the curriculum are captured by these outcomes. This is ok.

What is critical is that the capstone experience captures key expectations for student learning as reflected within the core courses of the major. As such, evaluating these components of students' capstone performances provides direct evidence of the degree to which key learning outcomes for the program are being achieved.

Table 1. Sample Capstone Learning Outcomes from UCLA Departments/Programs

Major	Learning Outcomes for the Capstone
<p>Department: Classics</p> <p>Capstone Major: Classical Civilization B.A. Greek B.A. Greek and Latin B.A. Latin B.A.</p>	<p>Capstone description: Advanced Departmental Seminar with Paper or Project. Within thematically designed seminars that reflect current trends in the discipline, students work closely with a faculty member on a focused topic of research, engage in presentations and weekly discussions, and complete a written paper or project.</p> <p>Students are expected to:</p> <ul style="list-style-type: none"> • demonstrate, within the context of a specialized topic in classical studies, specific skills and expertise acquired in earlier coursework, including research, analysis, and writing. • identify and analyze appropriate ancient sources, material evidence, and/or other forms of primary documents appropriate to the study of classical antiquity and its reception. • acquire a working knowledge of scholarly discourse relative to a specialized topic. • conceive and execute a project that identifies and engages with a specialized topic. • engage with a community of scholars, presenting one's own work to peers and helping to further the work of others through discussion and critique.
<p>Department: Ecology and Evolutionary Biology</p> <p>Capstone Majors: Ecology, Behavior, and Evolution B.S. Marine Biology B.S.</p>	<p>Capstone description: Field Research with Paper. Students apply theory and technique learned through four years of classroom and laboratory experience in their own independent projects. The main purpose of the capstone is to provide a unique field experience that involves designing and executing a research project. Students are aided in the scientific process of learning about a new ecosystem, developing relevant questions, designing conceptually-based projects, troubleshooting and completing work, and writing a publication-caliber manuscript.</p> <p>Students are expected to:</p> <ul style="list-style-type: none"> • demonstrate broad-based knowledge of the fundamentals acquired through coursework, including general knowledge as well as developing skills in library research, interpreting data, synthesis, and scientific writing. • utilize the current primary scientific literature, including searching data bases, identifying appropriate sources, and reading and understanding papers. • use knowledge gained in classroom and during discussions to conceive and execute their own project. • communicate original scientific work to colleagues and mentors in oral and written form. • exhibit strong teamwork and problem solving skills.
<p>Department: Statistics</p> <p>Capstone Major: Statistics B.S.</p>	<p>Capstone description: Real-world Team Project/Statistical Consulting Clinic. Students work in small groups to solve problems posed by real community-based or campus-based clients. The capstone gives students an opportunity to put into practice some concepts and ideas that might otherwise remain theoretical and/or abstract and to synthesize many topics and ideas they have studied with the goal of solving a real-life problem.</p> <p>Students will:</p> <ul style="list-style-type: none"> • be able to restate an investigative question in terms of a statistical model or algorithm. • verbally communicate statistical results clearly to a non-technical audience. • successfully relate theoretical concepts to a real-world problem in a written report. • demonstrate the ability to find appropriate research literature appropriate to the investigative task.
<p>Center for Interdisciplinary Instruction: Institute of the Environment (IoE)</p> <p>Capstone Major: Environmental Science B.S.</p>	<p>Capstone description: Real-world Team Project with Paper. In collaboration with a local agency or nonprofit institution, students work individually and in groups to complete projects that require them to integrate many of the skills and principles they have learned throughout the curriculum and apply them to real systems. Students attend lectures and presentations on common tools and methodologies; then they work on an environmental case study.</p> <p>Students graduating with a B.S. in Environmental Science should:</p> <ul style="list-style-type: none"> • be able to apply the theories or concepts from courses within their major to the analysis of environmental science issues. • be able to contribute meaningfully to the analysis and solution of particular environmental science issues involving multiple disciplines and multiple stakeholders with different perspectives. • possess critical thinking skills, problem solving abilities, and familiarity with the computational and data collection and analysis procedures essential to the field. • be able to identify ethical issues raised by a particular environmental science issue and analyze the consequences of various professional dilemmas. • possess effective oral and written communication skills. • be capable of working productively with others as part of a team.

Once learning outcomes have been established, program faculty can turn to developing a plan for gathering evidence regarding the extent to which students completing the major have achieved these learning outcomes. Part III of these guidelines contains general recommendations for directly assessing student learning outcomes within the capstone.

Path 2. Establishing Learning Outcomes for UCLA Majors without Capstone Experiences

For departments relying on program portfolios or exams to illustrate educational effectiveness, student learning outcomes should be derived from the program's core curriculum. Reviewing written descriptions of the program, departmental mission statements and goals, course syllabi, and other related information may be helpful starting points. Many disciplinary associations also now offer guidelines for writing and assessing learning outcomes. The following types of questions may help stimulate productive dialogue among colleagues:

- What are the most important things we want our students to accomplish? What do we want them to remember or be able to do once they have completed our program?
- What do we want all of our students to know and be able to do, regardless of the particular course or track they take through the program?
- What skills and knowledge will our students need after they graduate? What will facilitate their success (in a job, in graduate school, in life, etc.)?
- To what extent do our program's core courses and other required courses for the major provide opportunities for students to learn and practice these important outcomes?

How are student learning outcomes written?

Statements of intended learning outcomes should focus on desired outcomes with all of their complexities, addressing integrated skills and abilities. At the program level, they are typically written using a stem such as: "*Students who complete this program will...*" or "*Graduates of this program will be able to...*" followed by a list of 4-6 specific learning outcomes. Examples drawn from a variety of fields include:

- demonstrate an understanding of culture and society.
- critically analyze a literary text.
- distinguish among a variety of genres or primary and historical texts and use them appropriately and effectively in academic work.
- apply physical principles to real-world problems.
- write persuasively using a variety of rhetorical strategies (e.g., expository, argumentative, descriptive).
- communicate orally in clear, coherent, and persuasive language appropriate to purpose and audience.

- be an effective member of a team.
- value the scientific approach to understanding the natural world.

As you work on establishing your program's learning outcomes, the following recommendations may also be useful:

- Attend to the most important goals for undergraduates in your major, framing outcomes in terms of what students will be able to demonstrate rather than on what faculty teach.
- Focus on what students should know, be able to do, and/or be like *after* they have successfully completed your program, not on what they do on the way to completing the program.
- Aim for establishing outcomes that are neither too broad nor too specific. Consider general skills such as critical thinking, writing, and research competency, as well as discipline-specific knowledge, concepts, theories, methods, etc.
- Use concrete “action” words that describe desired outcomes in explicit, observable terms (e.g., design, produce, demonstrate, create, etc.).
- Avoid using fuzzy terms. For example, in the context of writing learning outcomes, *think critically* could be more clearly stated as *analyze and evaluate arguments*.
- Make sure that each learning outcome is measurable (i.e., that evidence to document student achievement of that outcome can be readily collected).

Once faculty have agreed upon the core learning outcomes for the major, the outcomes should be publicized (e.g., on the department/program website, in program literature, in the UCLA general catalog, etc.). This will enable current and prospective students, as well as others who may be interested in the academic program, to understand what types of learning are expected of those who complete their undergraduate studies with a major in that program.

PART II.

Assessing Student Learning Outcomes

Introduction

Once program faculty have established and operationalized learning outcomes for the major, the next step is to create an assessment plan that will support student attainment of those outcomes.

What are the core elements of an effective learning outcomes assessment plan?

An effective outcomes assessment plan is:

- grounded in the alignment between core curricular offerings and expected student learning outcomes;
- designed to generate meaningful evidence that can be readily evaluated;
- developed so that it is both manageable in scale and scope and adaptable to support evolving program needs and interests;
- accompanied by a timeline that helps program faculty prioritize various aspects of the assessment work and meet key target dates relative to the timing of departmental self-reviews and 8-year program reviews.
- endorsed by the program faculty at large as a potentially valuable mechanism for sharing insights about teaching and learning and creating processes for linking these insights with continuous program improvement.

Attending to these important sustainability considerations will serve your program well both for internal curriculum review purposes and for preparing to meet the revised 8-year program review requirements that UCLA is designing to support new federal (and corresponding WASC accreditation) expectations for providing evidence of educational effectiveness within undergraduate education.

How do WASC outcomes assessment expectations fit UCLA's assessment framework?

As part of the Western Association of Schools and Colleges (WASC) accreditation process, UCLA has developed a tiered framework for assessing student learning and applying assessment findings that is generally applicable across UCLA's undergraduate programs (see Table 1). Bulleted points in the left hand column of the table below are ordered such that the focus of the evaluative process moves from the level of the individual (i.e., faculty assessing student performance; students evaluating their own experiences, including the quality of faculty instruction) to the departmental level (i.e., curricular review), to the university level (i.e., Academic Senate review). For some programs, additional tiers may be included based on uniquely applicable external review processes. The right hand column contains standardized descriptions of how findings gleaned at each of the evaluative levels delineated in the left hand column are used to measure program success and facilitate educational improvement. Within this general framework, it is the third set of bullet points (bolded) that address the new WASC expectations for demonstrating educational effectiveness.

Table 2. UCLA’s Framework for Assessing Student Learning Outcomes and Using Assessment Findings

What is the process for determining that graduates have achieved stated outcomes for the degree?	How are the findings used?
<ul style="list-style-type: none"> • Instructor evaluates and grades each student’s performance in each course and provides feedback to the student. • Student reflects on program experiences and provides feedback via course evaluations and UCLA Senior Survey. • Program faculty evaluate the curriculum and the students’ collective performance with respect to stated learning outcomes and report their evaluation to the department. Summative assessment findings are also reported within the 8-year program review. • Internal and external reviewers provide feedback regarding the overall quality of the program and the experiences that relate most directly to student achievement of stated learning outcomes as part of the Academic Senate review. 	<ul style="list-style-type: none"> • To foster students’ academic, personal, and professional development. • To inform faculty members’ course development and teaching methods and to inform personnel evaluations for faculty merit and promotion. • To assess whether departmental/program learning outcomes are being met, to ensure continuity of performance standards, and to inform curriculum development. • To determine whether program quality and student performance are appropriate for an elite research university.

The template depicted in Table 2 is part of a larger “Inventory of Educational Effectiveness Indicators” exhibit that WASC requires campuses to complete for each undergraduate major as part of the accreditation review process. Sample exhibits—one for a UCLA Capstone Major (Musicology), and one for a hypothetical Chemistry major using a program portfolio to provide direct evidence of student learning are provided in Appendices A and B.

In the next part of this section, we provide examples for how your program can build upon the fundamental information contained in the WASC exhibit as you develop specific plans for assessing student learning outcomes. The specific course your program follows in preparing to provide outcomes-based evidence of student learning depends on whether you will be using a capstone product (Path 1) or program portfolio (Path 2). Standardized, licensing, or program-developed exams provide a third set of options for producing direct evidence of student learning.

Path 1. Assessment Plan for Majors with Capstones

For departments with Capstone Majors or Capstone Programs, the assessment of student learning outcomes should revolve around the final capstone product (e.g., performance, project, paper, etc.). Once the defining characteristics and levels of achievement for each learning outcome that will be featured within a particular assessment cycle have been operationalized (see p. 13), program faculty are ready to evaluate capstone products for evidence of student learning within a given realm. Typically, a faculty curriculum or assessment subcommittee would be responsible for this evaluation.

Sampling decisions are left to the discretion of the faculty. Within a given program, faculty may decide to review all capstone products from a particular student cohort. Or they may elect to review the work of random samples of students within or across cohorts; take systematic samples (e.g., every 5th student in a particular cohort); or draw purposeful samples of student work based on some pre-determined criteria (e.g., lowest, middle, and highest 10% of performers).

The next two-step process is to operationally defining the characteristics of each learning outcome:

Step 1: For each learning outcome that will be featured within a particular assessment cycle, clearly define each characteristic to be assessed. This will enable faculty who are responsible for conducting the evaluation will to work from a common frame of reference when evaluating student work. Take, for example, the learning outcome “Students completing the major will demonstrate effective written communication skills.” Effective writing could be illustrated by the following five characteristics:

- Presentation: How clear and concise is the argument?
- Development: How effective is the structure?
- Persuasiveness: How well does the student defend the argument?
- Mechanics: What is the quality of the student’s writing?
- Interest: How well does the student maintain the reader’s interest?

Step 2: Describe the different levels of achievement for each characteristic of the learning outcome(s) that will be assessed during a particular assessment cycle. For example, what do faculty concur constitutes “excellent,” “good,” “fair,” or “poor” performance within each of the five characteristics of writing noted in Step 1? For instance, excellent performance in writing “development” might be defined by logical and cohesive organization of an argument; seamless development of the argument; lack of significantly extraneous elements; and inclusion of evidence that contributes to persuasiveness of the argument.

Upon completing their review of student work, program faculty are advised to:

1. Reflect on how assessment findings may inform pedagogical practice and/or curricular planning. An important part of this process involves engaging faculty colleagues and, as applicable, students and/or other educational partners in discussing the results before final interpretations are formed. Questions you may want to address include:
 - What are the most valuable insights gained from the assessment results?
 - What are the most important conclusions about the results?
 - What strengths (and weaknesses) in student learning do the results indicate?
 - What implications are there for enhancing teaching and learning?
2. Determine the effectiveness and limitations of the assessment process. Questions to consider could include:
 - Did the process define, as well as answer, questions that are important to understanding and enhancing student learning? If not, why?
 - Were faculty and students motivated to participate in the assessment process? If not, why?
 - Were the assessment methods easily implemented? If not, what improvements could be made?

- In what ways was the assessment process especially effective?
 - What should (or will) change about the process? Why?
3. Communicate findings and associated implications with those who are involved with the program.
 4. Incorporate discussion of assessment process and findings within 8-year program review (see Part III of these guidelines).

Path 2. Assessment Plan for Majors using Program Portfolios

In establishing their assessment plans, programs that elect to use program portfolios to assess student learning outcomes are advised to engage in a two-part preparatory process, 1) developing a curriculum map and 2) determining assessment and evaluation methods for learning outcomes.

1. Developing a Curriculum Map

Checking the alignment between your program's existing curricular offerings and expected learning outcomes is an important part of the process for clarifying *what* and *how* students are learning. A relatively easy way to do this is by organizing the information into a matrix, indicating when a particular outcome is addressed in a given course. This illustration, sometimes called a "curriculum map," provides a view of how individual courses are related to the program learning outcomes (see Table 3). Once completed, this map can serve as a tool for determining what type of evidence can be collected to most effectively assess student learning and where it can be found efficiently.

Table 3. Sample Learning Outcomes and Curriculum Map for the Chemistry Major

A. Learning Outcomes for Chemistry				
Students completing the major will be able to:				
1. master a broad set of chemical knowledge concerning the fundamentals in the basic areas of the discipline (organic, inorganic, analytic, physical, and biological chemistry);				
2. solve problems by identifying the essential parts of a problem and formulating a strategy for solving the problem;				
3. understand the objective of their chemical experiments, properly carry out the experiments, and appropriately record and analyze the results;				
4. communicate the concepts and results of their laboratory experiments through effective written and oral communication skills.				
B. The Curriculum Map for Chemistry (L=low emphasis; M=moderate emphasis; H=high emphasis)				
Required Major Courses	Learning Outcome #1	Learning Outcome #2	Learning Outcome #3	Learning Outcome #4
Chem 18	L	H		
Chem 101	L		M	H
Chem 102	M	L	H	
Chem 145	H			M
Chem 163	L	M	H	
Chem 180				H

2. Determining Assessment and Evaluation Methods for Learning Outcomes

Once learning outcomes have been "mapped" with required courses for the major, the next step is to identify appropriate assessment and evaluation methods for those learning outcomes. For example, in the case of our hypothetical chemistry major, program faculty have determined that the department will set up an electronic portfolio of work for each student majoring in chemistry. The department's assessment committee, which will be formed with rotating membership, will determine what materials (including copies of final exams, laboratory reports, term papers, etc.) will be electronically collected each quarter and placed by the department in the student's electronic file. Assessments of student learning outcomes will use the materials in the student portfolios, as well as other individual student activities (e.g., oral presentations, poster sessions, etc.). The specific assessment and evaluation methods for each learning outcome can be summarized in table form (see Table 4).

Table 4. Sample (Hypothetical) Assessment and Evaluation Measures for Chemistry Major

Learning Outcomes	Assessment & Evaluation Methods
1	Final exams in Chem 18, 102, and 145 will be reviewed for randomly selected students for appropriate content knowledge
2	A program portfolio of final exams in Chem 102 and 163 and laboratory reports in Chem 18 will be evaluated.
3	A program portfolio of laboratory reports in Chem 163 will be reviewed.
4	Sample experimental reports in Chem 101, 145, and 180 will be compiled and evaluated. Student presentations will be evaluated.

The assessment and evaluation methods indicated in Table 4 all focus on direct evidence of student learning. However, various types of indirect evidence (i.e., that provided by current and former students via survey or interview regarding to their perspectives on curricular content, self-perceptions of their learning, preparation for disciplinary-based careers, etc.) may also provide valuable information to program faculty and complement well your program's assessment plan.

3. Establishing Operational Definitions for Learning Outcomes

The next two-step process is to operationally defining the characteristics of each learning outcome:

Step 1: For each learning outcome that will be featured within a particular assessment cycle, clearly define each characteristic to be assessed. This will enable faculty who are responsible for conducting the evaluation will to work from a common frame of reference when evaluating student work. Take, for example, the learning outcome "Students completing the major will demonstrate effective written communication skills." Effective writing could be illustrated by the following five characteristics:

- Presentation: How clear and concise is the argument?
- Development: How effective is the structure?
- Persuasiveness: How well does the student defend the argument?
- Mechanics: What is the quality of the student's writing?
- Interest: How well does the student maintain the reader's interest?

Step 2: Describe the different levels of achievement for each characteristic of the learning outcome(s) that will be assessed during a particular assessment cycle. For example, what do faculty concur constitutes "excellent," "good," "fair," or "poor" performance within each of the five characteristics of writing noted in Step 2? For instance, excellent performance in writing "development" might be defined by logical and cohesive organization of an argument; seamless development of the argument; lack of significantly extraneous elements; and inclusion of evidence that contributes to persuasiveness of the argument.

What's next?

Once selected student learning outcomes have been linked with curricular offerings that are required for the major; preferred assessment and evaluation methods have been determined for learning outcomes that are a focal point during a given assessment period; and consensus on operational definitions for selected learning outcomes has been achieved, the faculty who are responsible for completing the evaluation

(typically those who serve, on a rotating basis, on the department's curriculum or assessment committees) are ready to begin their evaluation.

Upon completing their review of student work, next steps for program faculty are to:

1. Reflect on how assessment findings may inform pedagogical practice and/or curricular planning. An important part of this process involves engaging faculty colleagues and, as applicable, students and/or other educational partners in discussing the results before final interpretations are formed. Questions you may want to address include:
 - What are the most valuable insights gained from the assessment results?
 - What are the most important conclusions about the results?
 - What strengths (and weaknesses) in student learning do the results indicate?
 - What implications are there for enhancing teaching and learning?
2. Determine the effectiveness and limitations of the assessment process. Questions to consider could include:
 - Did the process define, as well as answer, questions that are important to understanding and enhancing student learning? If not, why?
 - Were faculty and students motivated to participate in the assessment process? If not, why?
 - Were the assessment methods easily implemented? If not, what improvements could be made?
 - In what ways was the assessment process especially effective?
 - What should (or will) change about the process? Why?
3. Communicate findings and associated implications with those who are involved with the program.
4. Incorporate discussion of assessment process and findings within 8-year program review (see Part III of these guidelines).

Part III.
Summarizing Assessment Activities for the Program Review

[to be completed Fall 2009]

CLOSING REMARKS

These guidelines were developed to help departmental/program faculty and staff address a new and very important component of UCLA's accreditation process that affects all of us who are involved with undergraduate education. In closing, a few final reminders:

- **We're all in this together.** New accreditation-related requirements for documenting and assessing student learning outcomes are now a fact of academic life not only for those of us at UCLA, but at all colleges and universities across the country.
- **Establish a solid foundation.** Time spent working collaboratively with faculty colleagues to establish clear student learning outcomes and assessment plans will serve your program well when it comes to time to analyze the information that has been collected and to use resulting insights to inform curricular development.
- **Keep it simple.** Keep your assessment plan simple and focused so that it is meaningful, manageable, and sustainable. A series of simple, well-conceived assessment studies that can be completed under realistic constraints are much more likely than complicated study designs to result in the incremental improvements that characterize sustainable assessment programs
- **Be flexible.** There is no "one plan fits all" approach to assessment effectiveness. What works well for faculty in one program may not be useful for those in another. If a particular assessment study, or parts thereof, turn out not to work well, refine or find a better strategy.
- **Don't hesitate to ask for help.** For all of us, this is a new and sometimes frustrating, or otherwise perplexing, undertaking. Comments, questions, and requests for assistance are all very much welcomed!

REFERENCES

(working draft)

Allen, M.J. (2004). *Assessing academic programs in higher education*. San Francisco, CA: Jossey-Bass.

Allen's book addresses how assessment is a critical component of the teaching and learning process and guides readers through all steps of the assessment process, providing perspective on different types of assessment strategies and offering examples to facilitate practice in different educational contexts. This material was especially helpful in creating multiple sections within the *UCLA Guidebook*.

Bresciani, M.J. (2006). *Outcomes-based academic and co-curricular program review: A compilation of institutional good practices*. Sterling, VA: Stylus.

Within a structured framework, this book illustrates the components of outcomes-based assessment program, presents criteria for identifying good practices, and suggests steps for implementing sustainable assessment programs. Samples of "best practices" from roughly 40 institutions are also provided. [We can potentially indicate use of this material in framing Part III of these *UCLA Guidebook*.]

Bridgewater State College. (no date). Assessment guidebook. (available online: <http://www.bridgew.edu/assessmentguidebook>).

This guidebook provides an overview of various dimensions of learning outcomes assessment and addressed multiple considerations for assessing undergraduate education. Particularly helpful in developing the *UCLA Guidebook* were the sections on assessment tools and implementation.

Driscoll, A. and Cordero de Noriega, D. (Eds.) (2006). *Taking ownership of accreditation: Assessment procedures that promote institutional improvement and faculty engagement*. Sterling, VA: Stylus.

The contributors to this edited volume offer readers insights for using accreditation as a positive impetus for engaging faculty in scholarly inquiry about teaching and learning that can offer long-term educational benefits for students and faculty. These ideas were incorporated throughout the *UCLA Guidebook*.

Driscoll, A. and Wood, S. (2007). *Developing outcomes-based assessment for learner-centered education: A faculty introduction*. Sterling, VA: Stylus.

Driscoll and Wood provide a resource for helping faculty to develop and maintain ownership of assessment by articulating expectations, defining criteria and standards, and aligning course content with desired outcomes. Their recommendations provide a foundation for several sections of our *UCLA Guidebook*.

Hernon, P. and Dugan, R.E. (Eds.) (2004). *Outcomes assessment in higher education: Views and perspectives*. Westport, CT: Libraries Unlimited.

This edited volume consists of contributions from individuals affiliated with assessment associations and regional accrediting bodies, faculty members, and others involved in different aspects of campus assessment activities. This information was instrumental in providing a foundation for the Introduction of the *UCLA Guidebook*.

Hernon, P., Dugan, R.E., and Schwartz, C. (Eds.). (2006). *Revisiting outcomes assessment in higher education*. Westport, CT: Libraries Unlimited.

Like Hernon and Dugan's 2004 work, this volume offers a cross-campus array of perspectives on outcomes assessment at the postsecondary level. Attention is specifically directed toward the increasing emphasis on outcomes assessment and on institutional progress in evaluating and reporting student learning. In creating the *UCLA Guidebook*, we found this information especially useful in framing portions of the Introduction.

Hersh, R. H. (2007). *Collegiate learning assessment (CLA): Defining critical thinking, analytical reasoning, problem solving, and writing skills*.
(available online: www.minotstateu.edu/pio/inside/2007_10_17.pdf)

This article addresses establishing criteria for defining selected student learning outcomes. Included from this source as an example in the *UCLA Guidebook* are Hersh's categories for evaluating writing skills.

Huba, M.E. and Freed, J.E. (2000). *Learner-centered assessment on college campuses: Shifting the focus from teaching to learning*. Needham Heights, MA: Allyn & Bacon.

Grounded in the principles of constructivist learning theory and continuous improvement, Huba and Freed provide an introduction to learner-centered assessment, including practical, ready-to-implement assessment techniques. Their suggestions for formulating learning outcomes, gathering evidence, and developing criteria for evaluating student informed multiple sections of the *UCLA Guidebook*.

Jonson, J. (2006). *A guidebook for programmatic assessment of student learning outcomes: University of Nebraska, Lincoln*. University of Nebraska, Lincoln: office of Undergraduate Studies.

Adapting and incorporating material from a variety of other sources, this guidebook address principles and practices for assessing student learning. Most useful in creating the UCLA guidebook was the section on "Sharing Assessment Results/Evidence" (based on material adapted from *The Ball State Assessment Workbook* (1999); Southeast Missouri State University's *Busy Chairperson's Guide to Assessment* (2001); and the University of Massachusetts, Amherst's *OAPA Handbook* (date?). Specifically, we incorporated from this source the questions on reporting results and evaluating the assessment process that are included in Part II of the *UCLA Guidebook*.

Shoemaker, J. (2008). *Guidelines for writing student learning outcomes*. University of California, Irvine: Assessment & Research Studies, Division of Undergraduate Education. Irvine, CA.

This four-page document addresses questions that have been incorporated into our UCLA guidelines, adapting and/or directly extracting selected questions and content included in Part I of our *UCLA Guidebook*.

Western Association of Schools and Colleges (2002). *Evidence guide: A guide to using evidence in the accreditation process: A resource to support institutions and evaluation teams*. Western Association of Schools and Colleges Accrediting Commission for Senior Colleges and Universities.

(available online: http://www.wascsenior.org/findit/files/forms/Evidence_Guide__Jan_02_.pdf)

This report addresses the nature and uses of evidence for accreditation purposes and was used as a reference in creating the *UCLA Guidebook* with respect to defining what constitutes evidence from WASC's perspective and delineating differences between direct and indirect evidence.

Wright, B. D. (no date). *More art than science: The postsecondary assessment movement today*. (available online: www.apsanet.org/imgtest/MoreArtThanScience.doc).

Wright explains how assessment of student learning within postsecondary education has evolved significantly over the last 15-20 years. She addresses new conceptualizations of assessment as a tool for continuous improvement and considers the role accreditation has played in facilitating that shift. Also considered are the challenges associated with new expectations for assessing undergraduate student learning. This content was incorporated in various sections of the *UCLA Guidebook*, most notably the introduction, which includes an adapted version of "The Assessment Loop" highlighted in Wright's piece.

Appendix A
UCLA's WASC Exhibit 7.1
Inventory of Educational Effectiveness Indicators for a Capstone Major

Academic Program	(1) Have formal learning outcomes been developed?	(2) What are the learning outcomes? <hr/> Where are they published? (Please specify)	(3) Other than GPA, what data/evidence is used to determine that graduates have achieved stated outcomes for the degree? (e.g., capstone course, portfolio review, licensure examination)	(4) Who interprets the evidence? What is the process?	(5) How are the findings used?	(6) Date of last Academic Senate review?
<p>Department: Musicology</p> <p>Capstone Major: Music History B.A.</p>	<p>Yes</p>	<p>Students completing the capstone should be able to:</p> <ul style="list-style-type: none"> • demonstrate, within the context of a specialized topic in music history, specific skills and expertise acquired in earlier coursework, including research, analysis, writing, and general knowledge of music and music history. • identify and analyze appropriate primary sources and musical scores. • acquire a working knowledge of scholarly discourse relative to a specialized topic. • conceive and execute a project that identifies and engages with a problem within a specialized topic. • engage with a community of scholars, presenting one's own work to peers and helping to further the work of those peers through discussion and critique. <p>Learning outcomes published:</p> <ul style="list-style-type: none"> • in general catalog • on the department website: (in process) • in course syllabi • in town hall meeting documents 	<p style="text-align: center;">Capstone: 2-course sequence: MH 191T and MH 190 Senior Thesis</p> <p>Description: Students not pursuing departmental honors must complete a senior thesis. During their senior year, students take a capstone seminar (MH 191T) in which they formulate their thesis. In addition, they must enroll in a colloquium (MH 190) which brings together students taking supervised tutorial research. Students are expected to present their work and to discuss and help critique the work of their peers.</p>	<ul style="list-style-type: none"> • Instructor evaluates and grades each student's capstone thesis as well as his/her performance within the capstone course sequence, and any associated tutorials. Feedback on each is provided to the student. Students are also invited to submit their capstone project for the Herb Alpert Prize. • Student reflects on capstone experience and provides feedback via course evaluation and UCLA Senior Survey. • Departmental subcommittee reviews all capstones as part of the department's self review. • Internal and external reviewers provide feedback regarding the overall quality of the program and the capstone experience as part of Academic Senate review. 	<ul style="list-style-type: none"> • To foster students' academic, personal, and professional development. • To inform faculty members' course development and teaching methods and to inform personnel evaluations for faculty merit and promotion. • To assess whether departmental learning outcomes are being met, to ensure continuity of performance standards, and to inform curriculum development. • To determine whether program quality and student performance are appropriate for an elite research university. 	<p>2003-2004</p>

Appendix B
UCLA's WASC Exhibit 7.1
Inventory of Educational Effectiveness Indicators for a (Hypothetical) Major Using Program Portfolio

Academic Program	(1) Have formal learning outcomes been developed?	(2) What are the learning outcomes? <hr/> Where are they published? (Please specify)	(3) Other than GPA, what data/evidence is used to determine that graduates have achieved stated outcomes for the degree? (e.g., capstone course, portfolio review, licensure examination)	(4) Who interprets the evidence? What is the process?	(5) How are the findings used?	(6) Date of last Academic Senate review?
<p>Department: Chemistry</p> <p>Capstone Major: Chemistry B.S.</p>	Yes	<p>Students completing the major will be able to:</p> <ul style="list-style-type: none"> ● master a broad set of chemical knowledge concerning the fundamentals in the basic areas of the discipline (organic, inorganic, analytic, physical, and biological chemistry). ● solve problems competently by identifying the essential parts of a problem and formulating a strategy for solving the problem. ● use computers in data acquisition and processing and use available software as a tool in data analysis. ● use modern library search tools to locate and retrieve scientific information about a topic, chemical, chemical technique, or an issue relating to chemistry. ● understand the objective of their chemical experiments, properly carry out the experiments, and appropriately record and analyze the results. ● communicate the concepts and results of their laboratory experiments through effective written and oral communication skills. <hr/> <p>Learning outcomes published:</p> <ul style="list-style-type: none"> ● on the department website 	<p style="text-align: center;">Program Portfolio</p> <p>Description: Student learning outcomes will be evaluated by examining portfolios of student work products within required courses for the major. An electronic portfolio of student work will be set up for each student majoring Chemistry. The department's Assessment Committee will determine which materials (including copies of final exams, laboratory reports, term papers, etc.) will be electronically placed in the student's electronic file. Assessments of student learning outcomes will use the materials in the student portfolios, as well as other individual student activities (e.g., oral presentations, poster sessions, etc.)</p>	<ul style="list-style-type: none"> ● Instructor evaluates and grades each student's performance in each course and provides feedback to the student. ● Student reflects on program experiences and provides feedback via course evaluations and UCLA Senior Survey. ● Program faculty evaluate the curriculum and the students' collective performance with respect to stated learning outcomes and report their evaluation to the department. Summative assessment findings are also reported within the 8-year program review. ● Internal and external reviewers provide feedback regarding the overall quality of the program and the experiences that relate most directly to student achievement of stated learning outcomes as part of the Academic Senate review. 	<ul style="list-style-type: none"> ● To foster students' academic, personal, and professional development. ● To inform faculty members' course development and teaching methods and to inform personnel evaluations for faculty merit and promotion. ● To assess whether departmental/program learning outcomes are being met, to ensure continuity of performance standards, and to inform curriculum development. ● To determine whether program quality and student performance are appropriate for an elite research university. 	2005-2006

