
Assessment Clear and Simple

Barbara E. Walvoord, Ph.D.

Acting Director, Center for Excellence in Teaching, Simmons College, Boston

Professor Emerita, University of Notre Dame, Notre Dame IN

Mailing Address: 45 Huckleberry Lane, Easthampton, MA 01027

Walvoord@nd.edu

Mobile: 574-361-3857

Definition

Assessment of student learning is the systematic gathering of information about student learning and the factors that affect learning, undertaken with the resources, time, and expertise available, for the purpose of improving the learning.

The Three Basic Steps of Assessment

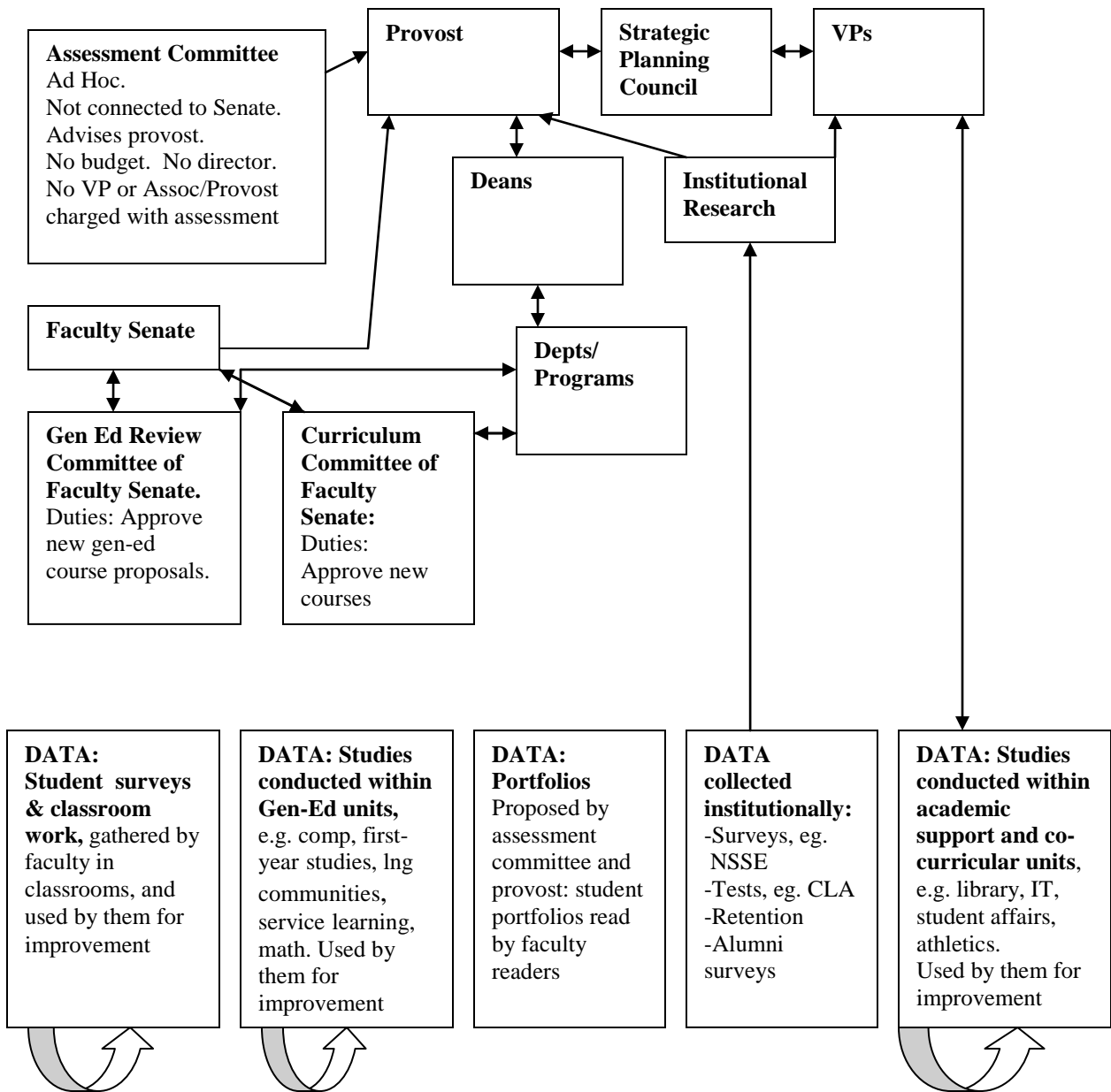
1. Articulate learning goals
“When students complete this [course, major, gen-ed program] we want them to be able to...”
2. Gather information about how well students are achieving the goals and why
3. Use the information for improvement

The End of Assessment is Action

The purpose of assessment is informed decision-making, including the use of information about student learning.

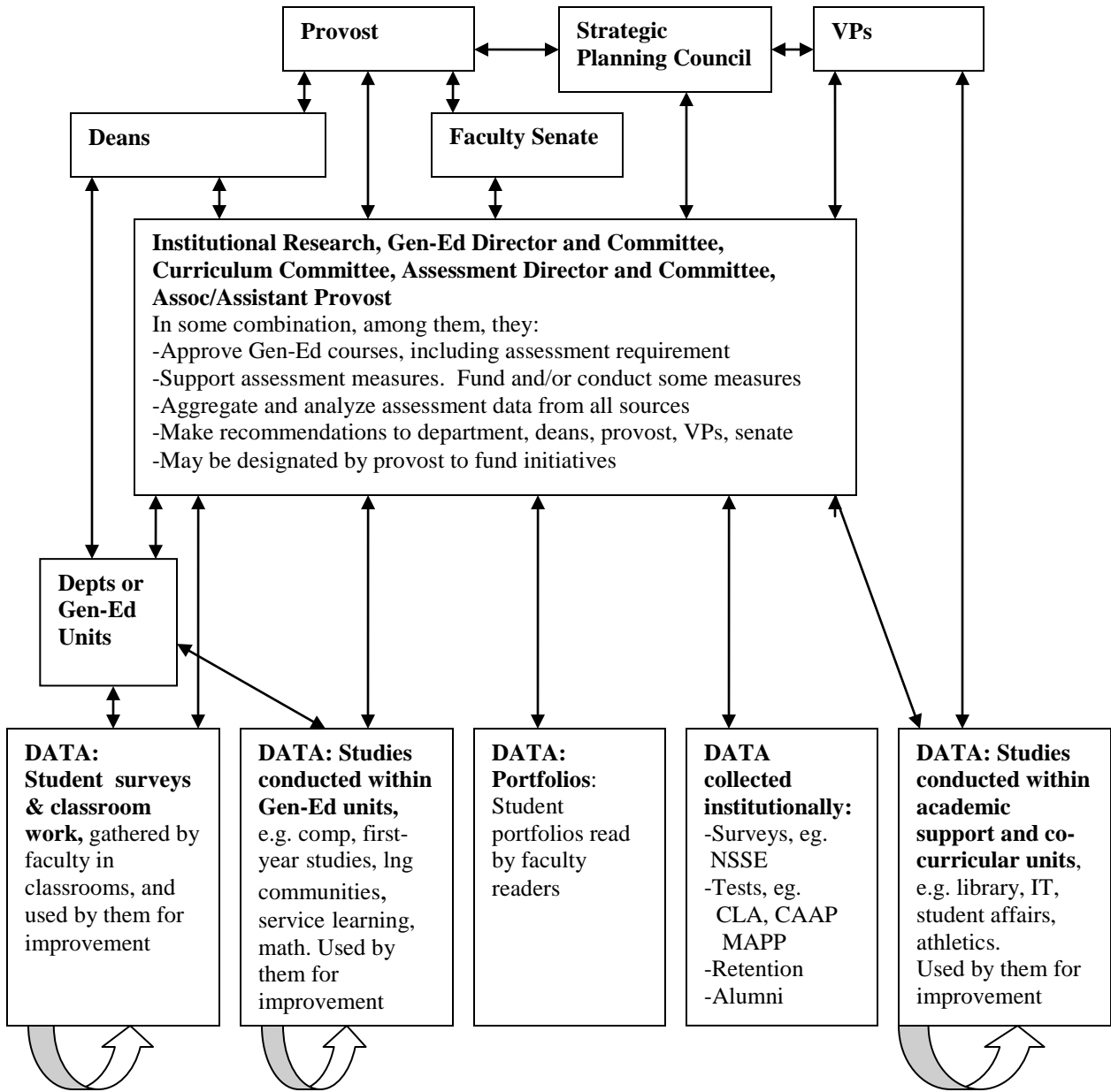
Institution-Wide Assessment System

Example: A Problematic Assessment Process



Questions: How could classroom data and data collected in classrooms be used? Who could aggregate and interpret those data? How could data collected at the institutional level be better distributed and used? How could the assessment committee function more effectively? What power would it have to have? How could the proposed portfolios be a good idea for this institution? What are the pros and cons? What information about student learning does the strategic planning process need? How could that information be provided?

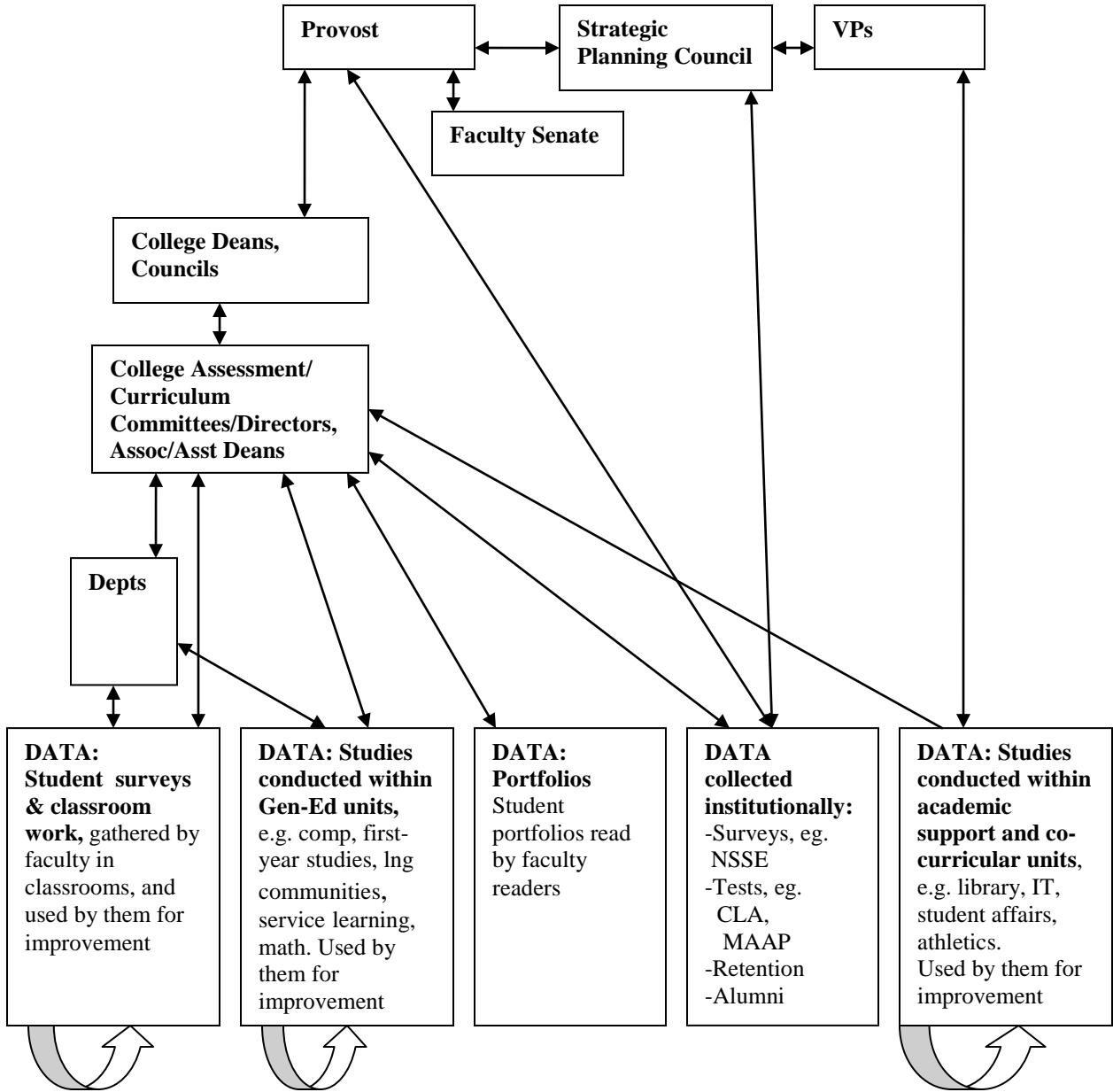
Providing for Aggregation, Analysis, and Use of Data



What happened?

1. Institutional Research, Gen-Ed committee, Curriculum Committee, and Assessment Committee acquire additional resources/personnel. They work together to oversee assessment, aggregate and analyze data from all sources, disseminate information, and shape recommendations.
2. Departments play a stronger role in collecting, analyzing, reporting, and using data from their own programs.

Providing for Aggregation, Analysis, and Use of Data
High Autonomy/Responsibility for Individual Colleges



What happened?

1. Each individual college takes responsibility for assessing its own students' learning.
2. Each college may constitute its assessment in its own way.
3. Colleges are responsible to the provost for the quality of their students' learning, and for reporting issues that need institution-wide attention.

Effective Assessment in Departments

The Basic, No-Frills Departmental Assessment Plan

1. Learning goals (at the end of the program, students will be able to...)
2. Two measures:
 - a. One direct measure (direct means student performance is directly evaluated, as in tests, exams, projects, interactions with clients, etc.)
 - i. Review of student work by faculty teaching students near the end of their course of study
 - ii. If students take a licensure or certification exam, this will be added as a second direct measure
 - b. One indirect measure (indirect means an intervening step, such as asking students what they thought they learned, or tracking their career or graduate school placement)
 - i. My preference: student surveys and/or focus groups asking three questions:
 1. How well did you achieve each of the following departmental learning goals [use scale such as “extremely well, very well, adequately well, not very well, not at all”]
[list each department goal, with scoring scale for each]
 2. What aspects of your education in this program helped you with your learning, and why were they helpful?
 3. What might the department do differently that would help you learn more effectively, and why would these actions help?
 - ii. Second choice: Alumni surveys
 - iii. In some fields, job placement rates will be important
3. Annual meeting to discuss data and identify action items.
 - a. Set aside at least 2 hours to discuss ONE of your degree programs (you can rotate, discussing one a year, or handle several in one year).
 - b. Put the annual meeting in place NOW, without waiting for the perfect data.
 - c. At the meeting, consider whatever data you have about learning, no matter how incomplete or inadequate.
 - d. Outcomes of the meeting:
 - i. ONE action item to improve student learning, with a timeline and assignment of responsibility
 - ii. ONE action item to improve the quality of data, if needed, with a timeline and assignment of responsibility
 - e. Keep minutes of the meeting
 - i. To serve as your own record and reminder
 - ii. To document for accreditors that assessment is taking place
 - f. Feed recommendations and actions into your planning and budgeting processes, your program review, and institutional decision-making processes.

Case Study #1: Annual Meeting with Oral Reports from Faculty

- Department of Political Science, very successful, very busy, with growing numbers of majors and among the highest teaching evaluations at the university.
- Hated assessment, thought it was a waste of time and a plot to destroy faculty autonomy.
- But recognized that, in all the busyness, there was a danger that the undergraduate major was not getting enough attention. Were willing to institute the 2-hour annual meeting.
- At the meeting, no preparation had been done, no rubrics (most faculty hated them or did not know what they were).
- They went around the table, each faculty member who supervised or taught seniors named two strengths and two weaknesses that s/he observed in senior student work.
- One member kept a list on a flip chart.
- They decided to focus on one item that had come up a number of times: the inability of senior students, as they began their senior research projects, to construct a question for inquiry in the discipline.
- They decided first to examine their curriculum prior to the senior year, to see where they were giving instruction, practice, and feedback in constructing questions for inquiry. They completed the meeting by assigning responsibility and a time line for this investigation of the curriculum.
- At this meeting, they also decided they should conduct a short, 3-question survey of senior students, during one class day in the senior year, to ask them how well they thought they were prepared to construct questions for inquiry, what pedagogical strategies in their past courses had been most helpful, and what changes they would suggest.
- The curriculum committee constructed and administered the student survey and also mapped those points in the present curriculum where students received instruction, practice, and feedback in constructing questions for inquiry. The committee prepared recommendations for the department.
- At the end of that year, the department acted on these recommendations, making some changes to the curriculum, so as to give more instruction, practice, and feedback.
- The following year, they continued to implement the changes and to observe whether student skills improved. Meanwhile, they took up one of their other degree programs and began a similar assessment process.
- They kept minutes and records of their actions.

This system relies on tacit, rather than explicit goals, and on faculty reports of student strengths and weaknesses, without systematic written criteria. It trusts the observations of faculty, presented orally. In time, this faculty may find that this method is too informal, not sufficiently systematic or scholarly, and they may move to write explicit goals for student learning and criteria for the senior projects.

The next example demonstrates a department that took those two additional steps.

Case Study #2: Add Rubric-Based Faculty Evaluation of Student Work

- Department of biology.
- The department articulated a set of learning goals for undergraduate majors (Appendix A)
- They had a capstone course called “Biological Research.” To evaluate student work, the teacher developed a rubric (Appendix C)
- The department instituted the annual meeting.
- At the meeting, the capstone teacher(s) reported students’ strengths and weaknesses, using rubric scores (Appendix A, C). They also considered other evidence.
- The department decided to focus on students’ ability to design experiments.
- They did as the political science department had done.
- They reported their assessment process (Appendix A, B)

Case #3: Variations of the Department Meeting

Department of English at a community college

- They wanted to assess their literature courses, which students took as part of their Associate’s degree.
- The department had generated a list of goals for these courses.
- The courses were taught by many adjuncts, teaching at all times of the day and night, in several different locations; any single meeting could gather only a few of them.
- The department assigned its adjuncts and full-time faculty to small groups of 3-4 people, according to the time they could meet (e.g. the Wed., Oct. 12, 5 p.m. group). They asked the group to meet at a location of their own choosing for one hour and generate a list of two strengths and two weaknesses they saw in students, evaluated against the written goals for the core lit course. The group’s “recorder” then sent in the list.
- A committee compiled these lists and made recommendations for departmental action.

Example: Organization of Assessment Data for Economics Departmental Discussion

Measures

- Direct: **Analysis of the senior capstone research** projects (written papers plus oral presentations). Three faculty examined a sample of written papers and attended oral presentations for a sample of senior students. These faculty produced written analyses of the student work, using the learning goals as criteria. These analyses were submitted to the assistant chair.
- **Focus groups of current students**, who met for an hour with the assistant chair
- **Alumni Survey**, conducted by the department under the leadership of the assistant chair, asking alumni to
 - Rate how important each of the learning goals were to them in their careers. 5 = essential; 4 = very important; 3 = important; 2 = slightly important; 1 = not important
 - Rank how well they had achieved this goal during their major. 7th = highest; 1st = lowest.

Goals, Assessment Methods, and Findings

Goal: Critical thinking (analytical) and communication skills, to enable undergraduate students to think and communicate like economists (in other words, to become skilled in the logic and rhetoric of economics)

Sub-Goals/ Objectives	Alumni Survey: Importance (5 = Essential; 1 = not important)	Alumni Survey: Achieve- ment (7th = highest)	Analysis of Capstone Student Projects	Focus Groups Current Students
A. Mathematical Methods: The use of mathematical methods to represent economic concepts and to analyze economic issues	4.33 Very important	2 nd of 7 objectives. Low	None included math.	Amount of math varies among classes. Maybe calculus should be required.
B. Theoretical Models: To represent economic relationships in terms of theoretical models	4.33 Very important	3rd of 7 objectives. Low	Models used in papers and presentations with reasonable success.	Achievement is enhanced by having TA sessions. Theory course is good foundation if taken before other courses.

Sub-Goals/ Objectives	Alumni Survey: Importance (5 = Essential; 1 = not important)	Alumni Survey: Achieve- ment (7th = highest)	Analysis of Capstone Student Projects	Focus Groups Current Students
C. Gather Data: To gather economic data pertinent to economic theories in order to analyze economic questions	4.17 Very important.	5 th of 7 objectives. High	Students showed an ability to collect data but over-relied on the web	Library research used in a few classes only.
D. Statistics: To use statistical methods to analyze economic questions	3.83 Very important	6 th of 7 objectives. High	Little evidence of statistical methods	Limited exposure. Complaint about book used.
E. Software. To use statistical computer software to analyze economic issues	3.33 Important	7 th of 7 objectives. Highest	Little evidence of use	Concern that software used in career will be different
F. Writing. To express economic ideas succinctly and professionally in writing	4.17. Very important	4 th of 7 objectives. Medium	Writing skills of students generally acceptable, but not “very good” or “excellent”	Writing required more than speaking. In particular, research papers required in 588 and 575
G. Oral. To express economic ideas succinctly and professionally orally	4.5. Very important/ essential	1 st of 7 objectives. Lowest.	Presentations revealed a lack of training in how to present, as well as nervousness.	Most courses do not involve oral communication, although it would be useful after graduation in the workforce. One idea was a sequence of courses in communication as part of the Arts and Sciences college requirements. More discussion and presentations were advised.

General-Education/Core Assessment

Options for Gen-Ed Learning Goals

1. Adopt some of the institution-wide learning goals
2. Aggregate learning goals from Gen-ed courses
3. Adopt goals stated by accreditation body

Example: (From NEASC Guidelines #4.18): “Graduates successfully completing an undergraduate program demonstrate competence in written and oral communication in English; the ability for scientific and quantitative reasoning, for critical analysis and logical thinking; and the capability for continuing learning, including the skills of information literacy. They also demonstrate knowledge and understanding of scientific, historical, and social phenomena, and a knowledge and appreciation of the aesthetic and ethical dimensions of humankind.”

How General Should the Goals Be?

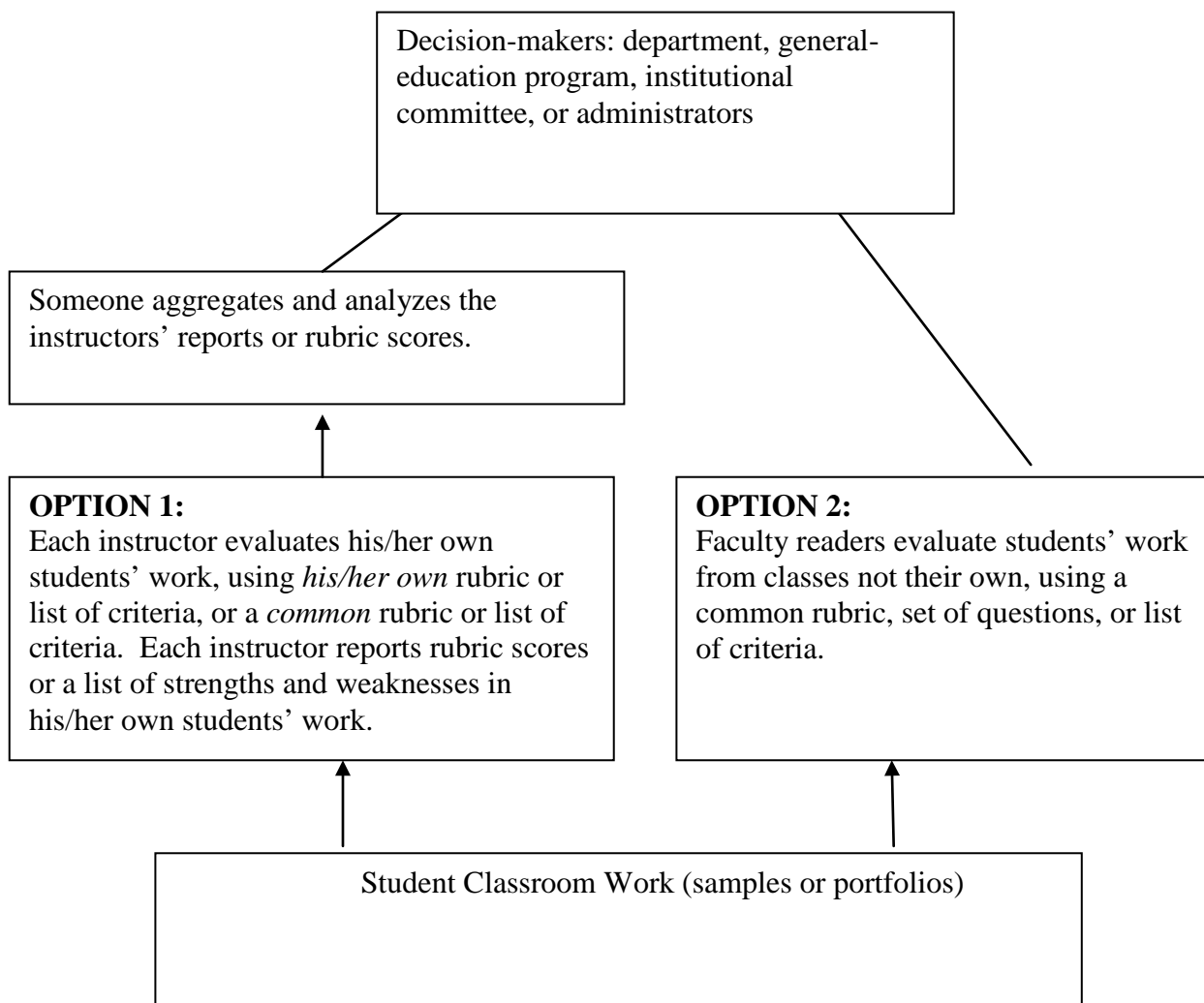
The university may communally establish only the highest level of goals, and leave the more specific goals/objectives/learning-outcomes to be developed by departments and/or gen-ed courses, OR the university may communally establish both general goals and also more specific goals (example, Appendix E).

The Basic, No-Frills General-Education Assessment System

1. A set of gen-ed goals
2. Some way of examining student classroom work
 - a. Gather a sample of student work
 - i. Student work from a random sample of gen-ed courses at one point in time
 - ii. Student work from key gen-ed courses, e.g. composition, learning communities
 - iii. Portfolios: samples of students’ work over time
 - b. Construct meaningful faculty groups to read and evaluate this work
 - i. Departments that offer gen-ed
 - ii. Groups within gen-ed, e.g. all writing-intensive courses or all courses that emphasize diversity goal
 - iii. Readers unconnected with the program produce a report for consideration by above groups
 - c. Construct criteria against which to evaluate the work
 - i. Single rubrics used for multiple courses/assignments
 - ii. Multiple rubrics, compiled by departments or individual instructors, for common goals
3. Some way of gathering students’ evaluation of their learning and the factors that affect their learning
 - a. Survey administered in gen-ed classes
 - b. National survey administered to all (or a sample of) students, e.g. NSSE

4. A meaningful forum in which to discuss findings and identify actions
 - a. Departments offering gen-ed courses
 - b. Gen-ed groups, e.g. learning communities, or writing-intensive courses
 - c. Gen-Ed Committee or other relevant faculty committees
 - d. Other?
5. A meaningful way of integrating information about student learning into decision-making and budgeting at all levels
6. A way of documenting and reporting assessment activities to various audiences

Evaluating Student Classroom Work: Two Options



Appendix A: Assessment Reports

Example: Department of Political Science Majors

Goals for Learning

1. Critically and objectively analyze political information; demonstrate understanding of the theoretical, structural, historical, and scientific dimensions of politics
2. Communicate effectively orally and in writing
3. Demonstrate sensitivity and tolerance of racial, cultural, and other human differences
4. Demonstrate commitment to being politically responsible citizens

Measures and Use of Information

Measure	Goals	How Information is Used
In senior courses students are asked to conduct research projects. These are evaluated by the instructor(s) of senior courses, using specific criteria, to identify strengths and weaknesses of students as a group.	1, 2, 3	At annual departmental assessment meeting, faculty report student strengths and weaknesses on senior research projects. Based on this evidence, faculty identify action items.
Annually, in senior courses, a questionnaire is administered to students, asking them how well they believe they have achieved each learning goal, what aspects of the program most helped them, and what suggestions they have for improvement.	1,2,3,4	Results are presented at annual assessment meeting, as above.

Examples of Changes Based on Assessment

- At last year's annual assessment meeting, faculty identified a problem with students' ability to frame a question for inquiry in the discipline, as they began their senior research projects. A committee examined the curriculum to see where these skills were being taught, practiced, and receiving feedback. As a result, the curriculum for 120, 301, and 335 has been changed to add more instruction, practice, and feedback on framing questions for inquiry. As the new cohorts of students come through, faculty will observe whether they are better able to frame questions.

Alternative: Plans Based on Current Assessment Data

Suggestions for Change in the Assessment Process

None are anticipated at the moment.

Example: Department of Biology Majors

(Note: similar matrices would be produced for general-education and graduate programs in the department)

Learning Goals for Majors

1. Describe and apply basic biological information and concepts
2. Conduct original biological research and report results orally and in writing to scientific audiences
3. Apply ethical principles of the discipline in regard to human and animal subjects, environmental protection, use of sources, and collaboration with colleagues

Website and/or other avenues by which these are readily available to students, prospective students, and faculty _____

Measures and Use of Information

<i>Measures</i>	<i>Goal 1</i>	<i>Goal 2</i>	<i>Goal 3</i>	<i>Use of the information</i>
Standardized test given to all seniors AND Final exams of three basic biology courses required of all majors	X			Data are reported to the department annually by the standardized exam committee and the instructors of the three basic courses. The department supports and encourages the instructors, takes any appropriate department-level actions, and reports meeting outcomes to dean or other body which has resources to address problems, and to those composing reports for accreditation or other external audiences. All data are reviewed as part of program review every seven years.
In senior capstone course, students complete an original scientific experiment, write it up in scientific report format, and also make an oral report to the class. The instructor(s) use explicit criteria to evaluate student work.	X	X	X	Annually, the senior capstone instructor(s) share students' scores with the department. The department takes action as above.

<i>Measures</i>	<i>Goal 1</i>	<i>Goal 2</i>	<i>Goal 3</i>	<i>Use of the information</i>
Alumni survey asks how well alums thought they learned to conduct and communicate scientific research		X	X	Data reviewed annually by department for action, as above
Sample of regional employers gathered two years ago to reflect how well our majors are doing and give advice to dept.	X	X	X	Data reviewed annually by department for action, as above

Examples of Changes Based on Assessment

- Two years ago, our advisory council of regional employers recommended that our majors had a good level of biological knowledge but needed stronger skills in actually conducting biological research. Data from the alumni survey also mentioned this problem. We instituted the required capstone course, which requires students to conduct original scientific research, and we asked the instructor(s) annually to report to the department on student research and communication skills demonstrated by their capstone projects. In three years, when several cohorts of majors have passed through the capstone, we will again survey alumni and employers to see whether student skills have increased, and we will review data from all years of the capstone projects.
- The capstone instructor(s) last year reported low graphing skills in seniors; we arranged with the mathematics department for greater emphasis on graphing and better assessment of graphing, in the required math course. The capstone instructor(s) will report next year whether graphing skills are stronger. Prof. Brody is currently developing a rubric to assess graphing skills more systematically in the capstone.

Alternate Ending for Program Review, Budget Requests, Strategic Planning

- Most recent findings
- Action plan

Recommendations for Improving Assessment Processes

- Standardized national test is costly and time-consuming to administer, has low student motivation in its current format, and results are difficult to map to our curriculum. Committee should review usefulness of the national test.

Example: Department of Theater Majors

1.Learning Goals:

All theater majors should be able to:

1. Apply fundamental critical thinking skills to the analysis and interpretation of dramatic literature with particular attention to acting, designing, or technical production. Such skills to include close reading of dramatic texts, analysis of genre, written and verbal presentations, and cross-cultural and cross-period research and analysis. Students must use both verbal and non-verbal aspects of communication in the presentation of resulting creative works.
2. Select and use, with safety and efficiency, the tools and equipment basic to theatre production technology including those required for both set and costume construction.
3. Communicate to an audience through at least one of the components of theatrical art: acting, designing, stage managing, or technical production.
4. Function effectively as a member of a theatre production team in the preparation of regularly scheduled public productions.

2.Gathering and Using Information about Student Achievement of the Goals

Measure	Goal	Use
Capstone Senior Project. Every senior student makes 10-12-minute presentation of work in his/her area (e.g. acting, design/production) before the entire faculty.	1, 3	Following each round of senior project presentations, faculty each complete evaluation in his/her own discipline, shared with other faculty and with the student. Faculty award grades. When significant number of student fail to pass or overall quality is low, faculty hold separate meeting to identify causes and take action.
Student Acting Auditions presented by each acting- emphasis student before members of acting faculty.	1, 3	Acting faculty meet following the auditions to consider quality of student work and make needed changes.
Production and Design Gateway Assessment through final exams in Scenography and Costume.	1, 2, 3	Faculty in Production/Design track student performance on these exams and make adjustments as needed
Performance Gateway Assessment through performance at middle and end of first two semesters.	1, 3	Faculty in Performance view the assessment and take notes, guided by competencies stated in the acting curriculum documents. When a significant number of students are found to be unprepared for

Measure	Goal	Use
		promotion through these gateway courses, faculty consider causes and takes action.
Theatre Productions. Each major participates in at least one production of a live theatre performance for the public. Students are evaluated by faculty in their discipline at the end of each scheduled production on their ability to work effectively as a team member and communicate with the audience through their chosen medium. Faculty in all the disciplines collaborate to reach composite understanding of the student's overall performance and the performance of the students as a group.	1, 2, 3, 4	When a negative pattern emerges, faculty meet to diagnose any problems in curriculum, course sequencing, and/or instruction methods.
Exit Surveys and Interview. All graduating seniors are encouraged to meet with the chair for an exit interview. Students are asked to share their general impressions about the program.	1, 2, 3, 4	Results from interviews are shared with full time faculty at each annual faculty retreat.

3.Examples of Change Based on Assessment Information

- Acting faculty concluded that many seniors were failing to organize their senior projects to best reflect their actual skills. Faculty reconstructed the course so that it is now under the guidance of a single instructor (as opposed to individual academic advisors), and guided by a more detailed syllabus with progressive deadlines to keep students on track.
- In the acting auditions, in 2008, faculty noted that many first year students were performing poorly in the area of audience communication, referred to as “poise, clarity and brevity of introduction.” The following year, the instructors for Craft of Acting I adjusted their lesson plans to include exercises addressing this specific issue at the end of the semester prior to auditions. Acting faculty have since noted a substantial improvement in first year students’ auditions in this area.
- In 2007, in evaluating the student productions, design/production faculty pointed out that otherwise strong student designers sometimes failed to act as good team members because they had varying notions of their duties and expectations. Faculty responded by researching other university theatre department guidelines for student designers and developing their own. These universal guidelines have greatly improved communication and resulted in much better teamwork among production/design students.

4.Recommendations for Changes to the Assessment Process

To make the interview data more clear and specific, we intend to begin asking standardized questions.

Example: Ph. D. Program

1. Goals

When students complete the Ph.D. they should be able to:

1. Conduct original, publishable research in the field.
2. Demonstrate a broad knowledge of theory and research across several sub-disciplines in the field.
3. Demonstrate in-depth knowledge of one area of expertise.
4. Follow ethical guidelines for work in the field.
5. Write and speak effectively to professional and lay audiences about issues in the field.
6. For those entering teaching: grade and comment effectively on undergraduate student work, lead discussion and recitation effectively for undergraduates, demonstrate familiarity with the literature on learning and pedagogy, write a thoughtful teaching philosophy, and plan an effective undergraduate course in the field.

2. Gathering and Using Information about Student Achievement of the Goals

Measures	Goals Addressed	Use of the Information
Each January the Graduate Committee reviews all theses and dissertations produced during the previous year for originality and cogency of the theoretical and empirical work, and clarity of the presentation. The committee produces a report of overall strengths and weaknesses, as well as recommendations for the program.	1, 2, 3, 4	The report is presented annually to the graduate faculty for discussion and action as appropriate. Summaries are presented for review and recommendations every 7-8 years as part of academic review.
The department tracks graduates' employment and placement for a period of 5 years.	1, 2, 3, 4	As above
The department tracks students' presentations and publications.	1,2,3,4	As above
The university's Graduate School conducts student exit interviews that ask students about their learning and	all	As above

the factors that influenced their learning. These are reported annually to the Director of Graduate Studies.		
For those entering teaching: Each faculty member with an assigned TA writes an annual report that evaluated the quality of work the TA has done. The instructor of the one-credit graduate teaching course analyzes strengths and weaknesses of students' written teaching philosophy statements and their course plans.	5	As above. Reports by faculty with TA's and by the teaching course instructor are presented annually to the Graduate Director, who summarizes them in a report to the Grad Committee.

3. Examples of Changes Based on Assessment Information

- In 2001, an analysis of student publications and presentations, compared to those of peer departments, showed the number of publications was not as high as the department wished. We instituted a one-credit required seminar for all graduate students focusing on the production and placement of articles and presentations. Since then, the number of articles and presentations has risen 32%.
- Analysis of theses over several years raised faculty concerns about the quality of the writing. In response, the department hired a writing coach to work individually with each candidate on his/her writing.

4. Recommendations for Changes in the Assessment Process

- Faculty have requested more guidance in writing their reviews of TA work, and the Graduate Director has asked for more unanimity in those reports, to facilitate the work of analyzing them. A sub-committee has been formed to draft guidelines for students' work in grading papers and in leading discussion/recitation sections.

Appendix B: Rubrics

Example #1: Rubric for Senior Biology Scientific Report

by Virginia Johnson Anderson, Towson University, Towson, MD

Assignment: Semester-long assignment to design an original experiment, carry it out, and write it up in scientific report format. This is the major assignment in this course, titled “Scientific Research.” The course was instituted recently as a result of employer feedback that students were insufficiently prepared to really understand and carry out the scientific method. The goal of the course is to prepare students to conduct original scientific research and present it orally and in writing. There were no resources to make this a lab course, so the students had to conduct research outside the lab. Most student graduates will be working with commercial products in commercial labs in the area, e.g. Noxell. In the assignment, students are to determine which of two brands of a commercial product (e.g. two brands of popcorn) are “best.” They must base their judgment on at least four experimental factors (e.g. “% of kernels popped” is an experimental factor. Price is not, because it is written on the package).

Title

- 5 - Is appropriate in tone and structure to science journal; contains necessary descriptors, brand names, and allows reader to anticipate design.
- 4 - Is appropriate in tone and structure to science journal; most descriptors present; identifies function of experimentation, suggests design, but lacks brand names.
- 3 - Identifies function, brand name, but does not allow reader to anticipate design.
- 2 - Identifies function or brand name, but not both; lacks design information or is misleading
- 1 - Is patterned after another discipline or missing.

Introduction

- 5 - Clearly identifies the purpose of the research; identifies interested audiences(s); adopts an appropriate tone.
- 4 - Clearly identifies the purpose of the research; identifies interested audience(s).
- 3 - Clearly identifies the purpose of the research.
- 2 - Purpose present in Introduction, but must be identified by reader.
- 1 - Fails to identify the purpose of the research.

Scientific Format Demands

- 5 - All material placed in the correct sections; organized logically within each section; runs parallel among different sections.
- 4 - All material placed in correct sections; organized logically within sections, but may lack parallelism among sections.
- 3 - Material placed in right sections but not well organized within the sections; disregards parallelism.
- 2 - Some materials are placed in the wrong sections or are not adequately organized wherever they are placed.
- 1 - Material placed in wrong sections or not sectioned; poorly organized wherever placed.

Materials and Methods Section

- 5 - Contains effective, quantifiable, concisely-organized information that allows the experiment to be replicated; is written so that all information inherent to the document can be related back to this section; identifies sources of all data to be collected; identifies sequential information in an appropriate chronology; does not contain unnecessary, wordy descriptions of procedures.
- 4 - As above, but contains unnecessary information, and/or wordy descriptions within the section.
- 3 - Presents an experiment that is definitely replicable; all information in document may be related to this section; however, fails to identify some sources of data and/or presents sequential information in a disorganized, difficult pattern.
- 2 - Presents an experiment that is marginally replicable; parts of the basic design must be inferred by the reader; procedures not quantitatively described; some information in Results or Conclusions cannot be anticipated by reading the Methods and Materials section.
- 1 - Describes the experiment so poorly or in such a nonscientific way that it cannot be replicated.

Non-experimental Information

- 5 - Student researches and includes price and other non-experimental information that would be expected to be significant to the audience in determining the better product, or specifically states non-experimental factors excluded by design; interjects these at appropriate positions in text and/or develops a weighted rating scale; integrates non-experimental information in the Conclusions.
- 4 - Student acts as above, but is somewhat less effective in developing the significance of the non-experimental information.
- 3 - Student introduces price and other non-experimental information, but does not integrate them into Conclusions.
- 2 - Student researches and includes price effectively; does not include, or specifically excludes, other non-experimental information.
- 1 - Student considers price and/or other non-experimental variables as research variables; fails to identify the significance of these factors to the research.

Designing an Experiment

- 5 - Student selects experimental factors that are appropriate to the research purpose and audience; measures adequate aspects of these selected factors; establishes discrete subgroups for which data significance may vary; student demonstrates an ability to eliminate bias from the design and bias-ridden statements from the research; student selects appropriate sample size, equivalent groups, and statistics; student designs a superior experiment.
- 4 - As above, but student designs an adequate experiment.
- 3 - Student selects experimental factors that are appropriate to the research purpose and audience; measures adequate aspects of these selected factors; establishes discrete subgroups for which data significance may vary; research is weakened by bias OR by sample size of less than 10.
- 2 - As above, but research is weakened by bias AND inappropriate sample size
- 1 - Student designs a poor experiment.

Defining Operationally

- 5 - Student constructs a stated comprehensive operational definition and well-developed specific operational definitions.
- 4 - Student constructs an implied comprehensive operational definition and well-developed specific operational definitions.
- 3 - Student constructs an implied comprehensive operational definition (possible less clear) and some specific operational definitions.
- 2 - Student constructs specific operational definitions, but fails to construct a comprehensive definition.
- 1 - Student lacks understanding of operational definition.

Controlling Variables

- 5 - Student demonstrates, by written statement, the ability to control variables by experimental control and by randomization; student makes reference to, or implies, factors to be disregarded by reference to pilot or experience; superior overall control of variables.
- 4 - As above, but student demonstrates an adequate control of variables.
- 3 - Student demonstrates the ability to control important variables experimentally; Methods and Materials section does not indicate knowledge of randomization and/or selected disregard of variables.
- 2 - Student demonstrates the ability to control some, but not all, of the important variables experimentally.
- 1 - Student demonstrates a lack of understanding about controlling variables.

Collecting Data and Communicating Results

- 5 - Student selects quantifiable experimental factors and/or defines and establishes quantitative units of comparison; measures the quantifiable factors and/or units in appropriate quantities or intervals; student selects appropriate statistical information to be utilized in the results; when effective, student displays results in graphs with correctly labeled axes; data are presented to the reader in text as well as graphic forms; tables or graphs have self-contained headings.
- 4 - As 5 above, but the student did not prepare self-contained headings for tables or graphs.
- 3 - As 4 above, but data reported in graphs or tables contain materials that are irrelevant and/or not statistically appropriate.
- 2 - Student selects quantifiable experimental factors and/or defines and establishes quantitative units of comparison; fails to select appropriate quantities or intervals and/or fails to display information graphically when appropriate.
- 1 - Student does not select, collect, and/or communicate quantifiable results.

Interpreting Data: Drawing Conclusions/Implications

- 5 - Student summarizes the purpose and findings of the research; student draws inferences that are consistent with the data and scientific reasoning and relates these to interested audiences; student explains expected results and offers explanations and/or suggestions for further research for unexpected results; student presents data honestly, distinguishes between fact and implication, and avoids overgeneralizing; student organizes non-experimental information to support conclusion; student accepts or rejects the hypothesis.
- 4 - As 5 above, but student does not accept or reject the hypothesis.
- 3 - As 4 above, but the student overgeneralizes and/or fails to organize non-experimental information to support conclusions.

- 2 - Student summarizes the purpose and findings of the research; student explains expected results, but ignores unexpected results.
- 1 - Student may or may not summarize the results, but fails to interpret their significance to interested audiences.

Student Scores on Rubric for Science Reports

Trait	Year 1	Year 2
<u>Title</u>	<u>2.95</u>	<u>3.22</u>
<u>Introduction</u>	<u>3.18</u>	<u>3.64</u>
<u>Scientific Format</u>	<u>3.09</u>	<u>3.32</u>
<u>Methods and Materials</u>	<u>3.00</u>	<u>3.55</u>
<u>Non-Experimental Info</u>	<u>3.18</u>	<u>3.50</u>
<u>Designing the Experiment</u>	<u>2.68</u>	<u>3.32</u>
<u>Defining Operationally</u>	<u>2.68</u>	<u>3.50</u>
<u>Controlling Variables</u>	<u>2.73</u>	<u>3.18</u>
<u>Collecting Data</u>	<u>2.86</u>	<u>3.36</u>
<u>Interpreting Data</u>	<u>2.90</u>	<u>3.59</u>
<u>Overall</u>	<u>2.93</u>	<u>3.42</u>

(From Walvoord and Anderson, *Effective Grading: A Tool for Learning and Assessment*, 1998, pp. 197-201, 147).

Example #2: Rubric for Evaluating Student Literary-Critical Essays

Note: such a rubric may be developed for use by all faculty teaching the gen-ed literature course, or faculty may be free to develop their own rubrics, perhaps using this as a guideline, or faculty may be asked to incorporate one or two common items into their own rubric.

5	4	3	2	1
<p>Thesis: The thesis of the paper is clear, complex, and challenging. It does not merely state the obvious or exactly repeat others' viewpoints, but creatively and thoughtfully opens up our thinking about the work.</p>	<p>The thesis is both clear and reasonably complex.</p>	<p>The thesis of the paper is clear. It takes a stand on a debatable issue, though the thesis may be unimaginative, largely a recapitulation of readings and class discussion, and/or fairly obvious.</p>	<p>Thesis is relevant to the assignment. It is discernible, but the reader has to work to understand it.</p>	<p>Thesis is irrelevant to the assignment and/or not discernible.</p>
<p>Complexity and Originality: The essay is unusually thoughtful, deep, creative, and far-reaching in its analysis. The writer explores the subject from various points of view, acknowledges alternative interpretations, and recognizes the complexity of insider and outsider issues in literature and in life. Other works we have read and ideas we have discussed are integrated as relevant. The essay shows a curious mind at work.</p>	<p>The essay is thoughtful and extensive in its analysis. It acknowledges alternative interpretations and recognizes complexity in literature and in life. Some other works are integrated as relevant.</p>	<p>The writer goes somewhat beyond merely paraphrasing someone else's point of view or repeating what was discussed in class. AND/OR the essay does not integrate other relevant works we have read.</p>	<p>Writer moves only marginally beyond merely paraphrasing someone else's point of view or repeats what was discussed in class.</p>	<p>The paper is mere paraphrase or repetition.</p>
<p>Organization and Coherence: The reader feels that the writer is in control of the direction and organization of the essay. The essay follows a logical line of reasoning to support its thesis and to deal with counter-evidence and</p>	<p>As for "5" but sub-points may not be fashioned to open up the topic in the most effective way.</p>	<p>The reader feels that the writer is in control of the direction and organization of the essay most of the time. The essay generally follows a</p>	<p>The essay has some discernible main points.</p>	<p>The essay has no discernible plan of organization.</p>

5	4	3	2	1
alternative viewpoints. Sub-points are fashioned so as to open up the topic in the most effective way.		logical line of reasoning to support its thesis.		
Evidence, Support: The writer's claims and interpretations are backed with evidence from the literature, works we have read, secondary sources, and sensible reasoning. The writer assumes the reader has read the work and does not need the plot repeated, but the writer refers richly and often to the events and words of the novel to support his/her points.	As for "5" but the writer may occasionally drop into mere plot summary	The writer's claims and interpretations about the works are generally backed with at least some evidence from the works. The writer assumes the reader has read the work and does not need the plot repeated.	The writer's claims are sometimes backed with evidence. The paper descends at times into plot summary.	The paper is primarily plot summary.
Style: The language is clear, precise, and elegant. It achieves a scholarly tone without sounding pompous. It is the authentic voice of a curious mind at work, talking to other readers of the novel.	The language is clear and precise.	The language is understandable throughout.	The language is sometimes confusing. Sentences do not track.	The language is often confusing. Sentences and paragraphs do not track.
Sources: The essay integrates secondary sources smoothly. It quotes when the exact words of another author are important, and otherwise paraphrases. It does not just string together secondary sources, but uses them to support the writer's own thinking. Each source is identified in the text, with some statement about its author; there are no quotes just stuck into the text without explanation.	As for "5" but sources may be quoted with no contextual explanation AND/OR writer may use direct quotation and paraphrase in less than optimal ways.	The essay does not just string together secondary sources, but uses them to support the writer's own thinking.	The essay strings together secondary sources.	There is no use of secondary sources.

5	4	3	2	1
Grammar, Punctuation: There are no discernible departures from Standard Edited Written English (ESWE)	There are a few departures from ESWE	There are no more than an average of 2 departures from ESWE per page in the critical areas listed below.	There are more than 2.	Some portion of the essay is impossible to read because of departures from ESWE.

Critical Areas:

- Spelling or typo
- Sentence boundary punctuation (run-ons, comma splices, fused sentences, fragments)
- Use of apostrophe, -s, and -es
- Pronoun forms
- Pronoun agreement, and providing antecedents for pronouns
- Verb forms and subject-verb agreement
- Use of gender-neutral language
- Capitalization of proper nouns and of first words in the sentence

Example #3: Rubric for Journals in English Literature

Assignment: Journals are to record students’ questions about the literature and to consider how the literature relates to their own lives and values.

To achieve a C or above, the journal must be handed in on time, must contain the required number of daily entries, and each entry must be at least 250 words.

The faculty member collects and grades the journal entries periodically throughout the course; thus each grade reflects a number of journal entries.

The faculty member grades the journal entries on only two criteria: posing questions and connecting the literature to the students’ own lives and values.

Posing Questions

1. The journal entries do not pose any questions
2. The journal entries pose only factual or obvious questions
3. The journal entries pose a few questions that address larger issues of the work of literature, beyond what is factual or obvious.
4. The journal entries pose a number of questions that address larger issues.
5. The journal entries pose a number of questions that address larger issues, and when a question is posed, the student almost always muses in creative ways about the question, extending it to related areas, bringing in other readings, noting underlying assumptions, or in other ways deepening the inquiry, showing a curious mind at work.

Connecting literature to students’ own lives and values

1. Journal entries merely summarize the literature OR merely reflect on the student's own life and values
2. Journal entries summarize the literature AND reflect on the student's life and values, but make little or no explicit connection between the two
3. Entries use the literature in a very simple way to draw "lessons" to apply to the student's own life
4. A few entries make thoughtful links between the literature and the student's own life and values. They use the literature as a vehicle for pushing and exploring the student's own life and values. They recognize the complexity both of the literary work and of life and values.
5. All of the entries do as in 4 above. The students' musings are rich and deep, showing a thoughtful, reflective mind at work.

Example #4: Rubric for Online Discussion

- 1 Responder addresses the issue and includes at least one question.
- 2 As for 1, AND responder uses at least one of the critical thinking strategies we have been discussing: identifying assumptions, discussing multiple perspectives, raising and answering counter-arguments, offering evidence, questioning evidence, drawing analogies, evaluating quality according to clear criteria, and exploring implications, causes, or consequences; OR the responder addresses other students' views in a way that goes beyond merely "I agree" or "I disagree."
- 3 As for 1, but the responder BOTH uses critical thinking strategies and also refers to other students' views.
- 4 This one knocks my socks off. The response does everything for 3, but the thinking is creative and exploratory. The writer recognizes the complexity of issues and raises provocative questions for further discussion. The writer may bring in material from outside readings in this or other classes. Response shows a highly creative, engaged, and curious mind at work.

For Generic Rubrics, see www.aacu.org. LEAP program.

Appendix C: Sample Application from a Department for a Gen Ed Course

Department: English

Course Title: Introduction to Literature

Learning objectives for this course, related to Gen-Ed learning goals

General-Education Learning Goals This Course Will Address	Course Objectives	How is Student Achievement of the Objective Measured?
#1 Students will think critically and analytically about an issue, idea, or problem	Students will write an essay using literary critical techniques to establish and defend an interpretation of literature, and will address counter-interpretations.	Students in all sections will write at least one literary-critical essay in which they establish and defend an interpretation of literature and address counter-interpretations.
#2 Students will communicate effectively orally and in writing to various audiences	Students will express their ideas about literature in written essays. The writing will be well-organized, clear, and consonant with Edited Standard Written English (ESWE)	Faculty will evaluate students' organization, clarity, and use of ESWE
“	Students will participate effectively in class discussion of literature	Faculty will evaluate student work for this aspect.
#5 Students will follow ethical principles for academic work	Students will appropriately cite sources for their work. They will avoid plagiarism.	Faculty will evaluate student work for this aspect.
#6 Students will demonstrate appreciation for cultures different from their own	Students' interpretations of literature will demonstrate appreciation for the cultures, contexts, and literary conventions from which the literature arises.	Faculty will evaluate student work for this aspect.

How will classroom evaluations be used for classroom decision-making? Departmental decision-making?

Each semester, faculty teaching general-education courses will submit to the department a report on students' strengths and weaknesses measured against the objectives. The faculty will meet to share their own plans for change and to recommend changes to the department as needed. The department will act as needed to address difficulties. The

department will keep minutes of these meetings and records of its actions based on classroom assessment.

If more than one faculty member is teaching the course, how does the department assure that all sections follow the guidelines explained above?

Annually, the department distributes to all its gen-ed faculty a copy of the objectives and guidelines for assessment. At the annual meeting, faculty share their findings about student strengths and weaknesses, and exchange ideas and best practices.

Will the department be willing to submit an annual report to the General Education Committee reporting (in the aggregate) its faculty's findings about students' strengths and weaknesses, and its own actions?

Yes

Resources

- Banta, T. W., Jones, E. A., and Black, K. E. *Designing Effective Assessment: Principles and Profiles of Good Practice*. San Francisco: Jossey-Bass, 2009. Case studies combined with principles extracted from those studies, by preeminent experts in the field.
- Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., and Hayek, J. C. *Piecing Together the Student Success Puzzle: Research, Propositions, and Recommendations*. ASHE Higher Education Report: Volume 32, no. 5. San Francisco: Jossey-Bass, 2007. Sensible, useable, and well-informed summary of research on what really matters to student success.
- National Survey of Student Engagement (NSSE). *Using NSSE to Assess and Improve Undergraduate Education: Lessons from the Field 2009*. Bloomington, IN: National Survey of Student Engagement, 2009. How to use survey results (and by implication, other assessment data) for improvement of student learning.
- Suskie, L. *Assessing Student Learning: A Common Sense Guide*. (2nd ed.) San Francisco: Jossey-Bass, 2009. Twice as long as Walvoord's *Assessment Clear and Simple*. A sensible and comprehensive guide by an experienced leader in the field.
- Stevens, D.D. and Levi, A.J. *Introduction to Rubrics*. Sterling, VA: Stylus, 2005.
- Walvoord, B. E. and Anderson, V. J. *Effective Grading: A Tool for Learning and Assessment in College*. (2nd ed.) San Francisco: Jossey-Bass, 2010. A guide for the classroom instructor to grading and its contexts, including making assignments, communicating with students, and guiding the learning process. Final sections discuss how to use student classroom work for assessment in one's own classroom, in grant-funded projects, in departments, general education, and the institution.
- Walvoord, B.E. *Assessment Clear and Simple*. (2nd ed.) San Francisco: Jossey-Bass, 2010.
- Web pages and publications of your regional and professional accreditors, Association of American Colleges and Universities (www.aacu.org), Teagle Foundation (www.teagle.org), & Wabash Center for the Study of the Liberal Arts (www.liberalarts.wabash.edu).

Assessment in Departments

- Palomba, C. A., and Banta, T.W., eds. *Assessing Student Competence in Accredited Disciplines: Pioneering Approaches to Assessment in Higher Education*. Sterling, VA: Stylus Publishing, LLC, 2001. At 350 pages, it gives more extensive details on many of the subjects covered in the Walvoord volume, and it is organized as a manual of advice to practitioners.

General Education Assessment

- Banta, T.W. (ed.). *Assessing Student Achievement in General Education: Assessment Update Collection*. San Francisco: Jossey-Bass, 2007. Banta's opening essay is very helpful as an overview of gen-ed assessment and a sensible evaluation of possible approaches. The rest of the volume contains essays from the newsletter *Assessment Update*.
 - Bresciani, M.J. (ed). *Assessing Student Learning in General Education*. Boston, MA: Anker, 2007. Very useful case studies.
 - Leskes, A., and Wright, B. *The Art and Science of Assessing General Education Outcomes: A Practical Guide*. Washington: Association of American Colleges and Universities, 2005. www.aacu.org.