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# **Assessment Clear and Simple**

## **Practical Steps for Institutions, Departments, and General-Education**

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## **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

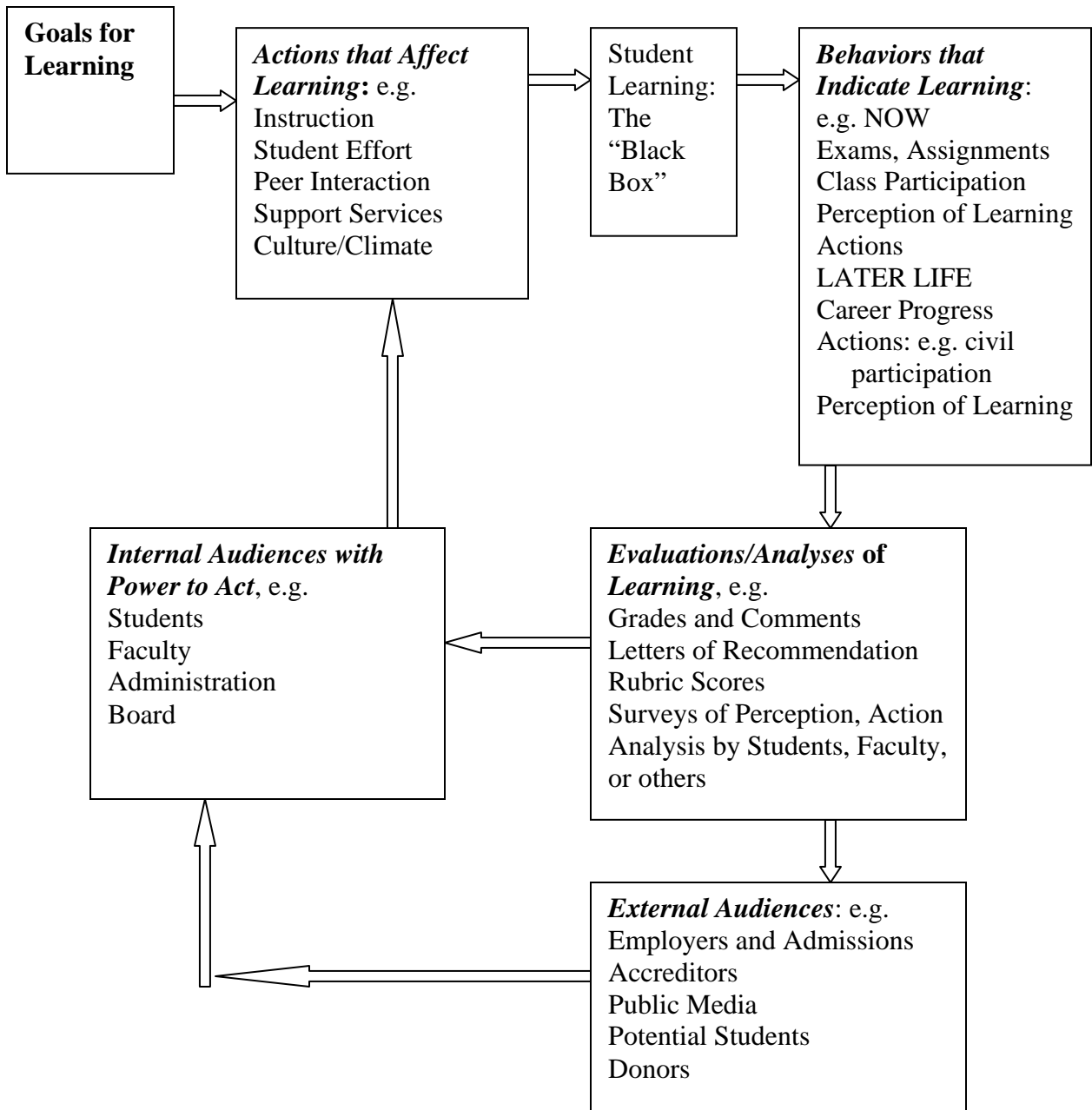
**The purpose of assessment is informed decision-making, including the use of information about student learning.**

**We are here to plan better decision-making, not to plan assessment as an end in itself.**

**Informed decision-making is what accreditors most want.**

**The goal is not merely to comply with accreditors but to establish healthy, information-based decision-making.**

**Then, when external audiences need to know what we do, we generate reports as efficiently as possible.**



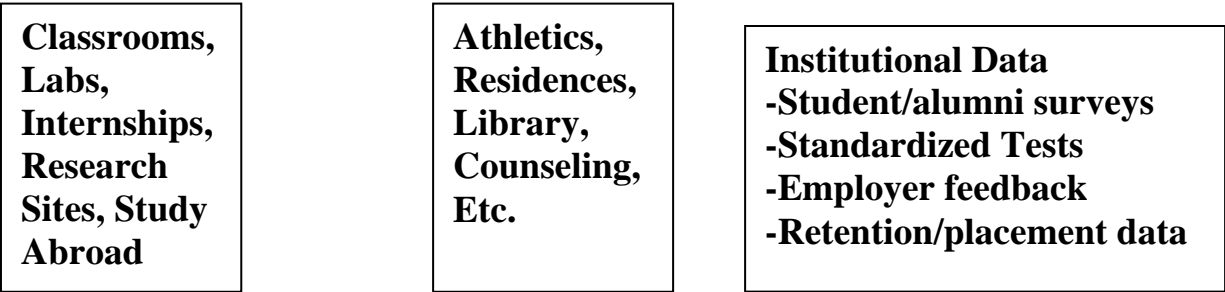
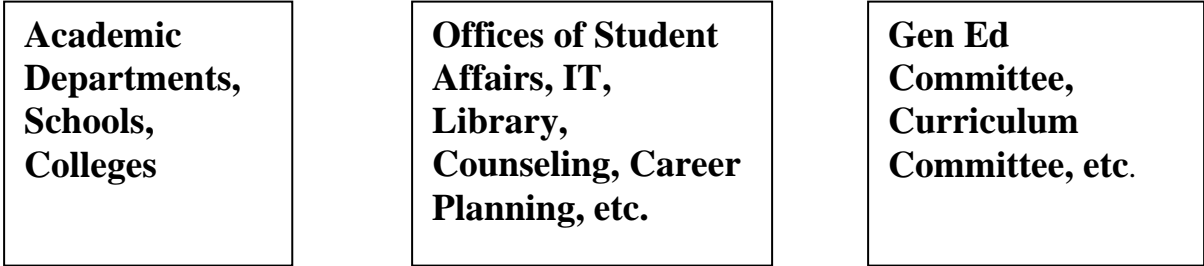
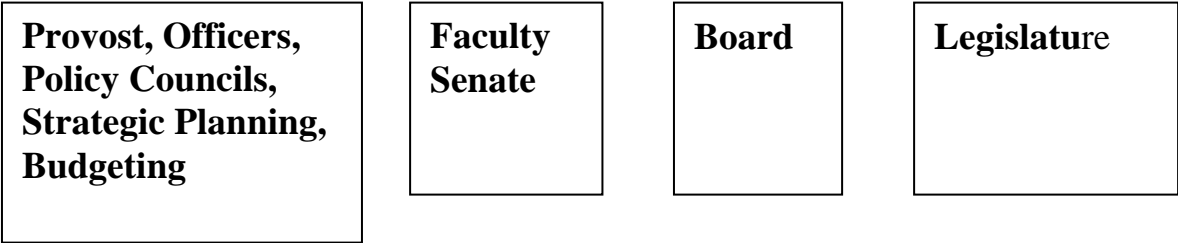
# The Big Picture

## ***The Ideal System for Information-Gathering and Improvement of Student Learning***

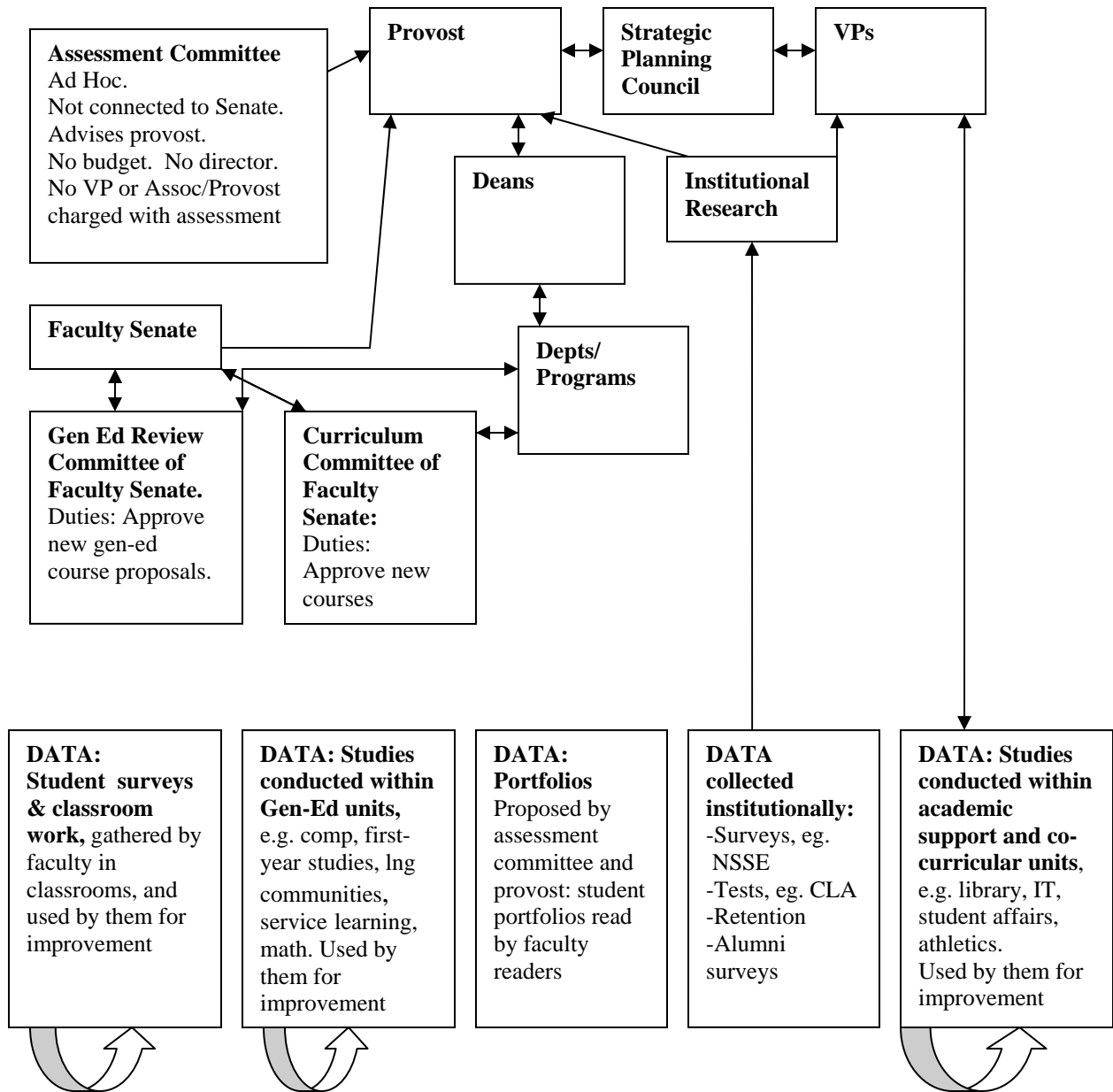
1. Exams, assignments, and classroom participation are valid indicators of the actual learning that the teacher desires
2. Evaluations/analyses accurately reflect learning and are appropriately diagnostic and explicit for their purposes
3. The system promotes healthy motivation and fair treatment at every level
4. Evaluations/analyses are communicated appropriately to their various audiences and serve their purposes
5. The system is efficient: no valuable information is lost; no useless information is communicated
6. The system is sustainable in terms of time and resources
7. Autonomy is appropriately protected at every level

# Tracing the Flow of Information and Decisions

How does information about student learning reach the decision-makers?

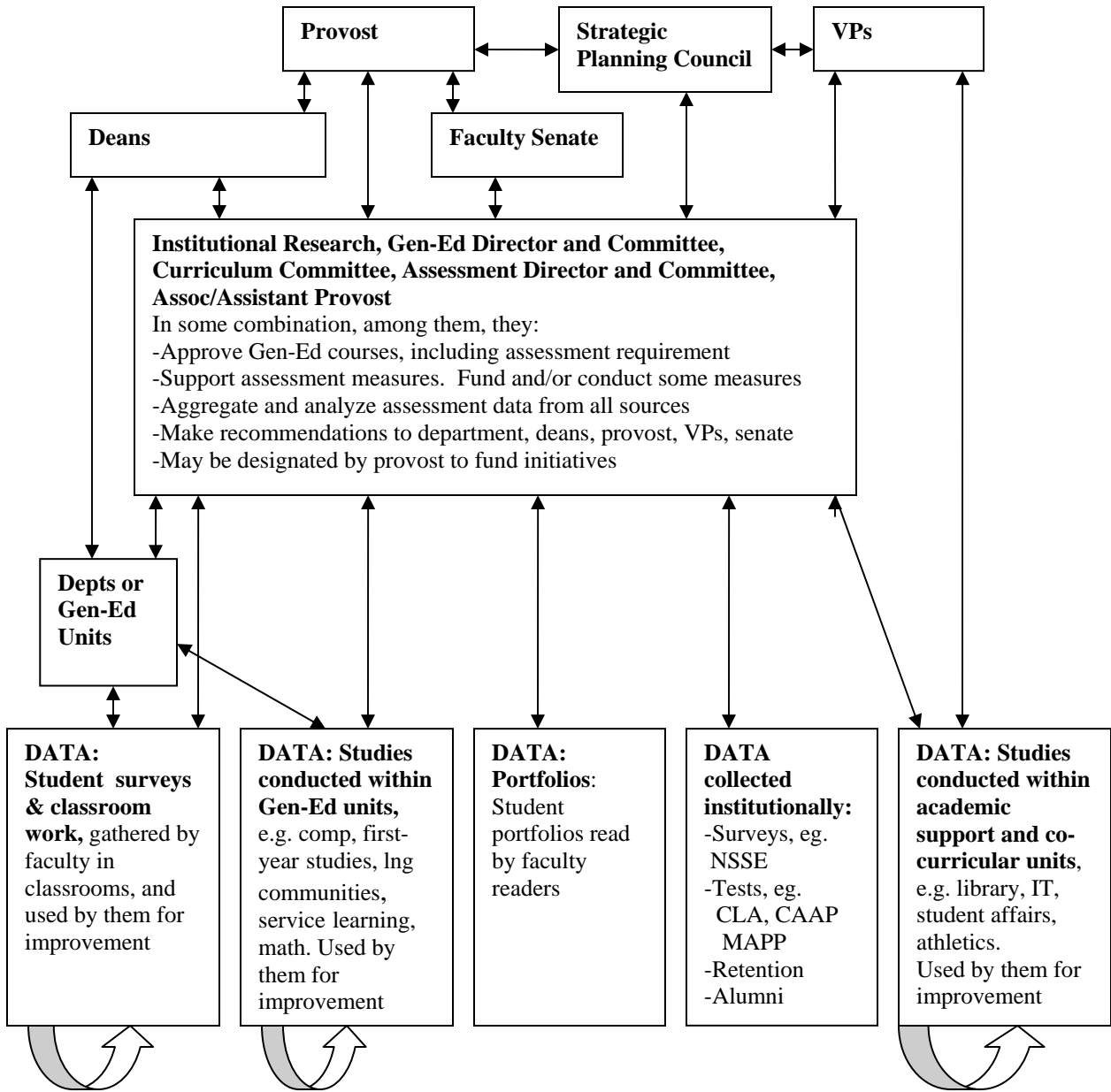


## Example: A Problematic Assessment Process



**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? Are the proposed portfolios 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?

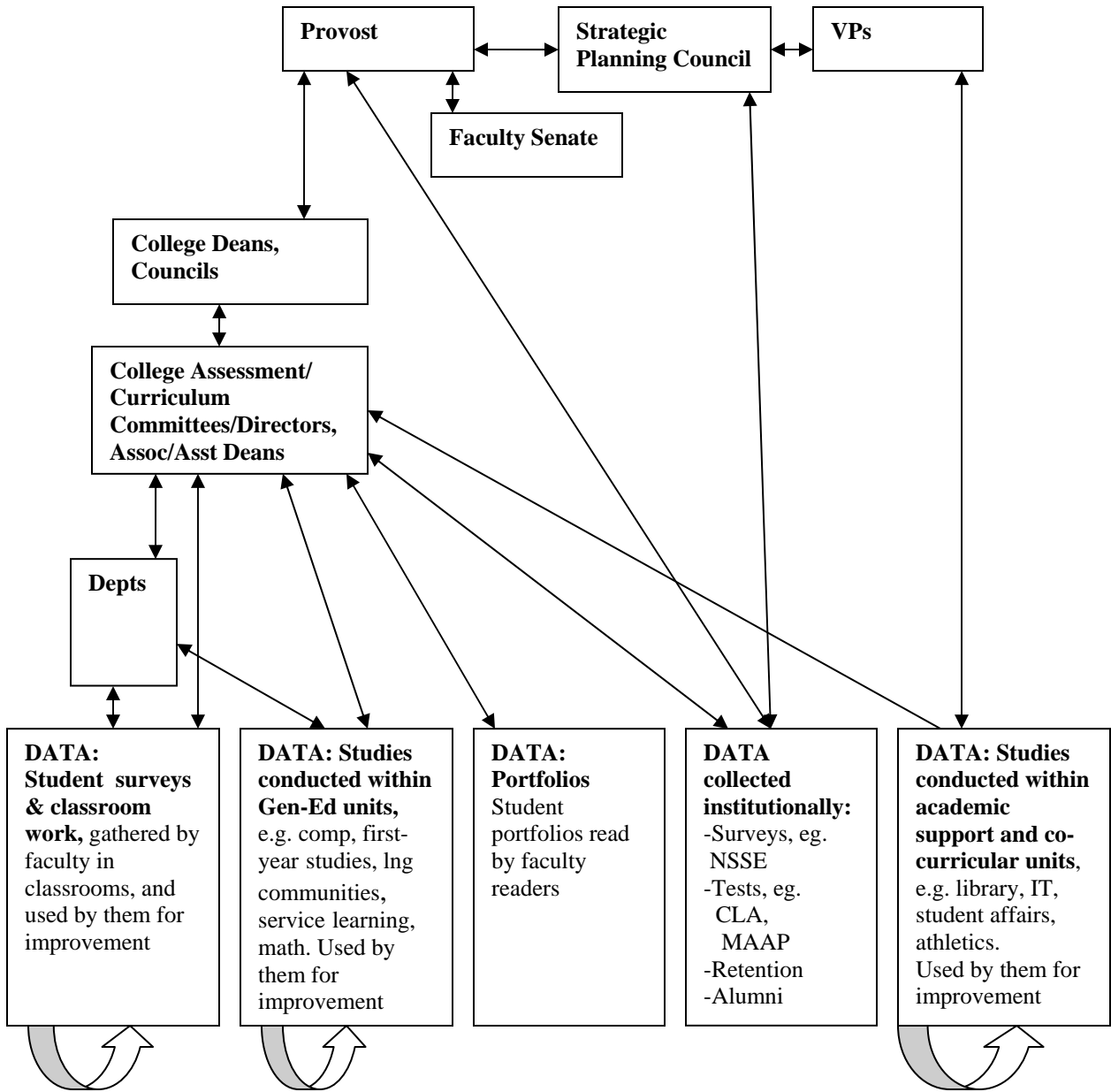
**Figure 11.2: Providing for Aggregation, Analysis, and Use of Data**



**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.

**Example: Providing for Aggregation, Analysis, and Use of Gen-Ed 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

The basic, no-frills departmental assessment process is not perfect, nor does it yield as full an array of data as might be optimally desirable. However, it provides a starting point for departments that are just beginning assessment or that are limited in time and resources.

In the basic no-frills process, the department needs three components, corresponding to the three steps of assessment. However, the department should not wait for the perfect data set before it moves to step 3—the annual meeting in which the department analyzes whatever data it has, no matter how incomplete, and identifies one action item for follow-up. At the same meeting, the department may decide on steps to collect more useful data in the future. However, remember that the end of assessment is action. The department does not need a perfect data set or publishable research; it needs a reasonable, data-based indication of some action it might take to improve student learning.

The basic, no-frills plan includes the following three components, which will eventually be implemented for each of the department's separate courses of study (e.g. the certificate, undergraduate major, and graduate program, and, within each of those, any distinct tracks, such as the music performance track and the music history track).

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.

# General-Education/Core Assessment

## Assessing General-Education

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### 1. State Gen-Ed Learning Goals

#### *Options*

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: Accreditation Body***

(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.”

#### ***Example: General-Education Goals from a Religiously-Affiliated University***

1. To demonstrate the habit of reflective self-assessment aimed at developing self-knowledge, taking responsibility for one’s own learning, monitoring one’s intellectual and personal growth, and acting thoughtfully on one’s beliefs
2. To participate competently in academic and civic discourse by writing and speaking effectively, by thinking critically and imaginatively, by conducting purposeful inquiry, and by using appropriate technological tools for research and analysis
3. To understand key concepts, perspectives, and methods in philosophy, religious studies, and mathematics and in representative disciplines in the natural sciences, the social sciences, and the humanities
4. To integrate and consolidate knowledge and learning from various Core courses, co-curricular experiences, and courses in the major into a world view that is open to new ideas and persons, understands diversity and multicultural perspectives, and tolerates ambiguity

5. To articulate one’s vision of social and environmental justice, to assess one’s own personal commitment to justice, and to demonstrate actions taken to ameliorate injustice and to promote a better world
6. To demonstrate the ability to work with and for others; to translate beliefs, thoughts, values and commitments into action, thereby becoming responsibly empowered in the world

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 A).

## 2. Audit: Record Your Current Practices:

### What Information is Gathered? How Is It Used?

***Example: Audit based on interviews by assessment director***

#### Institution-wide Learning Goals

Students will be able to:

1. Pursue knowledge and evaluate its consequences
  - Think critically, abstractly and logically to evaluate and solve problems
  - Integrate new information to formulate principles and theories and display an openness to different viewpoints
  - Share the desire for intellectual creativity and the acquisition of knowledge
2. Communicate clearly and effectively in both written and oral forms
3. Appreciate their social and moral responsibilities
  - Reflect upon the spiritual, moral, and ethical dimensions of life
  - Display the moral dimensions of their decisions and actions
  - Contribute to society as an active member

#### University-Wide Measures to Assess University-Wide Learning Goals

Based on interviews conducted by assessment director.

University-Wide Measures That Transcend a Single Department’s Students (Site Where Data are Generated)	Goals Addressed	How Data Are Used for Improvement	Observations, Problems Noted by Interviewer
<b>Direct:</b> Study of Writing & Thinking in Composition and Across Curriculum calculates the types of thinking and writing required in papers written by sample of 29 students, in all their courses, across all four years (Writing Program)	1,2	Study not yet complete. Will be distributed to university community. Preliminary results already used by Arts/Sciences College committee to help departments adhere to spur greater adherence to “intensive writing” requirements	Findings are quite surprising and striking. Point to some ways we could improve. How can we ensure that this information reaches faculty and decision-makers? This study could get lost or be dismissed. How do these results correspond

University-Wide Measures That Transcend a Single Department's Students (Site Where Data are Generated)	Goals Addressed	How Data Are Used for Improvement	Observations, Problems Noted by Interviewer
			to student survey data? Is the sample of 29 students too small? Do we need further information?
Faculty surveys on how their teaching and student learning had changed as a result of past teaching-center programs, and aspects of their teaching and student learning with which they most wanted help (Teaching/Learning Center)	1, 2, 3	Data informed major changes in TL Center direction, esp. attention to depts..	Could officers, deans, dept. chairs, and Board use these data?
Student evaluations including whether students believe they met the learning goals of the course: data aggregated by department, college, and for entire institution (Institutional Research)	1, 2, 3	Data reported twice annually to departments and colleges, and to Provost and Provost's Advisory Committee. Used for institution-wide decisions and budgeting on quality of teaching and learning. Used by departments & colleges for personnel decisions, course assignment, and unit policies.	Uniformly high scores here. Do the high scores indicate real achievement? Students not taking the question seriously, poor instrument? This question is not reported back to faculty; seems ignored by everyone.
Advising interviews with all first-year students, including difficulties in learning; also tutoring and collaborative study groups, which reveal problems (First Year Studies)	1, 2, 3	Information informs First Year Studies policy and is shared with officers, Academic Council, and departments as appropriate for action to improve first-year student learning.	This information appears to be used very effectively in First Year Studies. How do officers and Academic Council use it?
Enrollment, retention, placement, and time-to-degree data for graduate and undergraduate (Institutional Research; Grad School)		Shared regularly with Graduate Council and departmental Directors of Graduate Study for their action	A number of actions have resulted from these data
Exit survey of doctoral students (Graduate School; Institutional Research)	1, 2	Shared regularly with Graduate Council and departmental Directors of Graduate Study for their action	“
Exit interviews with select graduate students (Graduate School)	1, 2	Shared regularly with Graduate Council and departmental Directors of Graduate Study for their action	Departments say the sample size is too small to support conclusions about their OWN grad students.
Graduate students' professional activities and impact on their field (Graduate School)	1, 2	Shared regularly with Graduate Council and departmental Directors of Graduate Study for their action	These data are required as part of departmental program review and are taken seriously
Information Technology surveys of faculty & students, including how technology helps or hinders learning (Office of Information Technology)	1, 2, 3	Data informed TL Center consultations and grants to faculty for technology; also reported to Provost and Chief Information Officer/Vice President to inform decisions	Can faculty use these data? How did officers, etc. use them?
Center for Community-Based Learning alumni surveys of learning and factors affecting learning, for social concern, civic and moral development (CCBL;	3	Informs CCBL program decisions; Shared with campus via CCBL reports	How widely read and use are these reports?

<b>University-Wide Measures That Transcend a Single Department's Students (Site Where Data are Generated)</b>	<b>Goal s Addressed</b>	<b>How Data Are Used for Improvement</b>	<b>Observations, Problems Noted by Interviewer</b>
Institutional Research)			
Student-conducted surveys of students, including factors that affect learning (Student Govt & Grad Student Union)	1, 2, 3	Annual report by students to Board of Trustees and campus, to inform decisions at all levels	Board has a history of taking these student reports very seriously. Quality of data varies.
Senior student surveys of perceptions of learning and factors affecting learning, using HERI, CIRP, and NSSE national surveys (Institutional Research)	1, 2, 3	Shared regularly with deans, department chairs, officers. Regular reports from OIR to entire campus.	Do faculty generally know the student strengths and weaknesses that show up on these surveys?
Your First Year of College survey administered to all first-year students (Institutional Research)	1, 2, 3	Shared with First Year Studies, reported to officers and campus.	“
Alumni surveys of perceptions of learning and factors affecting learning (Institutional Research)	1, 2, 3	Shared regularly with deans, department chairs, officers. Regular reports from OIR to entire campus	“
Survey and focus groups of students on meaning of student evaluation question whether the course “stimulates creative and analytical thinking” (Scholarship of Teaching and Learning; Institutional Research)	1	Use by OIR in presentations to faculty and promotion/tenure committees on evaluation of teaching.	Not widely disseminated
Student alcohol use, using national instrument from Harvard. Student eating disorders. (Student Affairs)	3	Data shared with Academic Council, university-wide in special reports, and with Student Affairs staff and officers to inform decisions	Campus has focused heavily on this issue; many actions have resulted.
Student participation in volunteer service, service-learning, and for-credit community-based learning (Institutional Research; Center for Community-Based Learning, Student Affairs)	3	Shared with campus community and with organizations involved, esp. Student Affairs and CCBL. Recognition at Commencement.	How widely are these data known and used?
Student participation in internships, faculty-sponsored research (Institutional Research, Comm-Based Learning)		Student reports used by departments and colleges for decision-making	We don't examine what students LEARNED in these experiences, nor how students think the experience could be improved
Graduation rates for groups such as minorities, athletes (Institutional Research)	1, 2	Shared with campus community and with organizations involved, esp. Academic Council, Athletics, Student Affairs. Nationally publicized.	
Student self-reports on aspects of extra-curricular life, e.g. drinking, participation in service, life in residence hall, etc. (Student Affairs)	3	Used by Student Affairs for improvement; Shared with campus, officers, Trustees	Faculty and departments could benefit from these data, but do not receive or use them.
4-year longitudinal study of how student students' spirituality, personality, and attitude are associated with adjustment to college environments, satisfaction with college life, and psychological well-being (Student Affairs)	3	Study is in process. Results will be used by Student Affairs and entire campus	Will the campus be able effectively to USE these data?

## **Details: Managing Classroom Measures**

### **Decide Which Classes will be Sites of Assessment**

- **Key required courses** (e.g. composition, languages, math). Assessment leads to:
  - Changes in those courses
  - Transfer of information to appropriate decision-makers
    - What are the most salient strengths and weaknesses of the students?
    - What factors appear to help/hinder learning?
    - What issues need to be addresses beyond the course level?
- **AND/OR All Gen-Ed courses**
  - At point of acceptance and/or periodic review. Department that sponsors the course must (see Appendix B for sample departmental proposal):
    - State course learning goals consonant with Core/Gen-Ed goals
    - State the types of assessment (tests, exams, assignments) that test the goals
    - Describe how the information is used by the faculty member(s) for improvement in the course
    - Describe how the department will ensure reasonable consistency and quality across multiple sections of the course
    - Describe how aggregated classroom information will inform departmental decisions about the gen-ed course
    - Describe how the department will submit reports and data about its courses.
  - AND/OR Portfolios of student work, read by faculty or other readers external to the course(s)
    - Selected faculty volunteer to turn in student responses to an assignment, which are scored by a group of readers using a rubric (for example of a rubric, see Appendix C)
      - Gen Ed Committee may give guidance, or require, a type of assignment or rubric
    - OR selected students are asked or rewarded or required (usually in a capstone gen-ed course) to submit portfolios

### **Decide How to Aggregate and Report Classroom Data**

1. Teacher or department reports of student strengths and weaknesses, collected and analyzed by committee
2. OR scores from the readers, collected and analyzed by committee

### **Construct a system for communicating these findings to decision-makers**

# Appendix A: Department of Biology Assessment Report

## 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 \_\_\_\_\_

<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.
Alumni survey asks		X	X	Data reviewed annually by department for

<i>Measures</i>	<i>Goal 1</i>	<i>Goal 2</i>	<i>Goal 3</i>	<i>Use of the information</i>
how well alums thought they learned to conduct and communicate scientific research				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.

### **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.

## Appendix B: Criteria for a Department's Report on Its Assessment

Possible Audiences:

- Internal committee or director charged with oversight for assessment
- Inclusion in institution's report to regional accreditors
- Basis for program review, strategic planning, and/or budget requests

<b><i>CRITERIA</i></b>
<b>Learning Goals</b>
Learning goals are stated (or a URL is provided) for each degree or program of study
Learning goals are stated as "Students will..."
Learning goals are readily available to students and faculty
The goal statement is limited to the learning goals; no other extraneous material is included.
<b>Methods for Collecting Information about Student Achievement of the Goals</b>
The dept uses at least one direct and one indirect method for each degree/ program of study.
The dept collects only data that is will actually use for decision-making and that it deems reliable and valid for those purposes. No data are being collected that are not also being used.
The report makes clear the relationship between the goals and the methods of collecting information.
The methods of collecting information, taken together, address all the learning goals, or, if not, then the department explains its strategic choice about which goals to assess first or which ones have top priority.
The report includes ONLY methods in which information from students is considered by the dept as a whole or a relevant group/ committee. The report does not include assessments that are considered only by a teacher to make improvements in his/her classroom, nor does it include explanations of requirements students must complete or other methods of individually grading students or determining their progress through the degree program, unless data from those assessments are aggregated and presented to the dept or a relevant committee for action.
Assessments are based on whole populations (e.g. all majors) or on samples of reasonable size.
<b><i>Direct Methods</i></b>
Direct assessment does not depend on grades or other very broad evaluations, but is diagnostic and specific, yielding information about specific student strengths and weaknesses, so the dept knows what to work on. (Example: NOT "The students' average grade on the capstone research project was 3.5," but "In the capstone research project, the weaknesses of senior students as a whole were A,B, and C, and their strengths were X, Y, and Z.")
If the department relies on faculty members' individual reports about student work in the faculty members' own classrooms, the dept takes steps to encourage the objectivity of

<b>CRITERIA</b>
those reports by, for example, asking faculty to explicitly state and share the assignments or tests on which the assessment is based and the criteria and standards (perhaps in rubric form) that the faculty member has applied.
The dept does not merely list all tests and assignments as the basis of assessment, but focuses only on those that the whole dept can reasonably consider.
<b>Indirect Measures</b>
The dept's indirect measure(s) seem reasonable given the resources at hand and the kinds of information the dept needs for its decisions.
For surveys, the dept has achieved a reasonable response rate
<b>Using Assessment Information for Dept Action</b>
Dept clearly describes its mechanism for considering assessment data and using data to make decisions at the dept level
Description includes the types of data reviewed
Description includes the frequency of meetings
Description includes the persons who will participate
Dept gives examples of decisions that have been made on the basis of assessment data; these descriptions, often about a paragraph long, show how the decision is connected to the assessment data.
The dept demonstrates that it continuously considers the quality of its assessment data and strives to improve that quality, given its limitations of time and resources.

## Appendix C: 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).

### **Rubric for Written Scientific Report**

#### **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**

Ho institution current.4

- 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**

<b>Trait</b>	<b>Year 1</b>	<b>Year 2</b>
<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.

<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<p><b>Thesis:</b> 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><b>Complexity and Originality:</b> 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><b>Organization and Coherence:</b> 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</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</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
counter-evidence and alternative viewpoints. Sub-points are fashioned so as to open up the topic in the most effective way.		generally follows a logical line of reasoning to support its thesis.		
<b>Evidence, Support:</b> 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.
<b>Style:</b> 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.
<b>Sources:</b> 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	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
stuck into the text without explanation.				
<b>Grammar, Punctuation:</b> 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.

## Appendix D: 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

<b>General-Education Learning Goals This Course Will Address</b>	<b>Course Objectives</b>	<b>How is Student Achievement of the Objective Measured?</b>
#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

# Appendix E: Sample General Education Goals and Student Learning Outcomes Established by the University

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**MISSION: The General Education Program at XX University is committed to the ideal of liberal education that provides knowledge, skills and experience and promotes critical thinking and ethical values for a lifetime of integrative learning in a diverse and changing society.**

\*\*\*\*\*

## **Goal Area 1: Communicate Orally and in Writing**

To develop, convey, and critique effective oral and written messages for various academic, professional and personal contexts. To evaluate received messages through active listening and critical skills. To use oral and written communication characterized by clarity, critical analysis, logic, coherence, precision, and rhetorical awareness.

### **Student Learning Outcomes:**

Student will be able to...

1. Demonstrate and apply knowledge of writing and speaking processes by using invention, organization, drafting, revision, editing, and presentation when appropriate for specific tasks and audiences.
2. Use knowledge of group process to participate effectively in a variety of group settings by listening, thinking critically and creatively, reflecting, and responding in ways appropriate to group tasks and relationships.
3. Locate, evaluate, and synthesize material from diverse sources (print and non-print) and multiple points of view, using them in a responsible and ethical manner.
4. Evaluate communicative situations and use rhetorical tools appropriate for those situations.
5. Construct logical and coherent arguments, recognizing the role and value of credibility (ethos), point of view, emotional appeals (pathos), and individual voice and style in writing and in speaking.
6. Employ syntax, usage, and style appropriate to academic disciplines, for professional environments, and for personal expression and interpersonal exchange.
7. Describe, summarize, and analyze written and spoken discourse, noting how language affects and reflects our perception of human values, cultural perspectives, and gender identities.
8. Identify and use appropriate skills for diverse types and levels of listening.

\*\*\*\*\*

**Goal Area 2: Mathematical Thinking and Quantitative Reasoning**

Apply mathematics to analyze numerical relationships, solve problems, explain processes and interpret results.

**Student Learning Outcomes:**

Students will be able to ...

1. Demonstrate knowledge of the basic theories and methods of mathematics.
2. Use quantitative methods to test hypotheses and to construct quantitative solutions to problems.
3. Apply mathematical skills and knowledge to their academic disciplines.
4. Communicate quantitative ideas, both orally and in writing.

\*\*\*\*\*

**Goal Area 3: Critical Reasoning**

To identify, analyze, and critically evaluate reasoning. Reasoning is unavoidable in almost everything we do and reasoning well is essential to acquiring well-founded beliefs, which in turn is necessary for acting rationally and effectively. *[Revised]*

**Student Learning Outcomes:**

Student will be able to...

1. Distinguish between arguments and other types of discourse.
2. Analyze arguments, distinguishing premises and conclusions.
3. Distinguish different types of reasoning.
4. Evaluate inductive and deductive reasoning.
5. Distinguish between the evaluation of the acceptability of premises and the evaluation of the support those premises give to the conclusion.
6. Apply basic logical techniques.
7. Identify and avoid fallacies.

\*\*\*\*\*

#### **Goal Area 4: Civic Engagement**

To provide the knowledge and skills required to understand the multiple facets of effective citizenship. And, to provide opportunities to practice skills of active citizenship that foster competence and efficacy as students learn to monitor and influence public policy decisions.

#### **Student Learning Outcomes:**

Students will be able to...

1. Understand and appreciate that an important and primary purpose of higher education and of general education is preparation for citizenship and for participation in a democratic society.
2. Explain the economic, political, and social context of public action in both historical and contemporary settings.
3. Explore the various rights and obligations that citizens may be said to have in their communities, nations and in global society with a recognition of an increasingly pluralistic society and world where the rights and responsibilities of citizenship are open to important debates among citizens of different nationalities, races, colors, creeds, genders, religions, abilities and disabilities, and sexual orientations.
4. Locate information from a variety of sources, identify underlying values and investigate the veracity of information in order to be able to identify and investigate problems, examine underlying assumptions, synthesize information, formulate solutions, identify constituencies, compose arguments and identify appropriate forums for taking Individual and collective actions designed to identify and address issues of public concern.
5. Demonstrate skill development in participatory democracy by the completion of service learning, community service, citizen participation or social action project in order to develop a sense of personal agency in a public domain.

\*\*\*\*\*

#### **Goal Area 5: Humanities**

To expand students' appreciation and critical understanding of changing modes of human expression and systems of thought, and to foster their abilities in the production and performance of meaning. These goals will be realized through developing students' creativity, their critical analysis of symbolic systems, and their ability to contribute to the cultural lives of our communities.

#### **Student Learning Outcomes:**

Students will be able to...

1. Demonstrate awareness of the scope and variety of works in the arts and humanities.
2. Understand and respect those works as expressions of individual and collective values
3. within an intellectual, cultural, historical and social context.
4. Interpret and respond critically to works from various cultures in the arts and humanities.
5. Explore intellectually the ideas expressed in such works.
6. Engage in the creative process or interpretive performance.
7. Articulate an informed personal reaction to works in the arts and humanities.
8. Analyze the diverse means of communication in such works.

\*\*\*\*\*

### **Goal Area 6: Reason Scientifically & Understand the Natural World**

To foster an understanding of physical and life sciences. To explore scientific principles, processes, and methods of inquiry. To discover knowledge by formulating hypotheses and testing them with observations and experimentation. To emphasize curiosity as the driver of scientific inquiry.

#### **Student Learning Outcomes:**

Students will be able to...

1. Demonstrate knowledge of scientific principles within the physical and biological sciences.
2. Recognize both basic and applied science.
3. Demonstrate understanding of the requirements of a scientific theory in the context of scientific methods.
4. Understand the necessity of testable hypotheses, observations and experimental design, gathering of evidence (data) whether in the laboratory or in the field, data analysis and interpretation.
5. Illustrate the importance of creativity within scientific methods.
6. Make observations, collect, analyze, and interpret data to test hypotheses.

7. Evaluate societal issues from a natural science perspective, question the evidence presented, and make informed judgments about these issues.

\*\*\*\*\*

**Goal Area 7: Discover and understand social and historical structures of human societies**

To increase students’ knowledge of how historians and social and behavioral scientists discover, describe, and explain the behaviors and interactions among individuals, groups, institutions, events, and ideas.

Student Learning Outcomes:

Students will be able to...

1. Use the methods and data that historians or social or behavioral scientists use to investigate human conditions.
2. Examine and analyze social institutions and processes in the contexts of historical periods or cultures.
3. Apply and critique alternative explanatory systems or theories in the social sciences.
4. Develop and communicate explanations of or solutions for contemporary social or historical issues.
5. Reflect upon self in relation to others, historically, socially, or culturally.

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**Goal Area 8: Understand and Respect Values of a Racially and Ethnically Diverse U.S. Society.**

Understanding the patterns of racial and ethnic inequality in the United States and fostering awareness about the heritage, culture, and contributions of racially subordinated groups, while engaging in self-reflection about how race and ethnic relations are embedded in the institutions that structure our lives.

Student Learning Outcomes:

Students will be able to...

1. Produce written work that reflects an understanding of historical and current race relations in the United States.
2. Explain orally and in writing the concept of “race.”
3. Apply key concepts addressed by course to current events and situations at the local, statewide, and national levels.

4. Identify forms of institutional discrimination in education, housing, economics, politics, and the legal system.
5. Describe basic history in regards to discrimination against and contributions of African Americans, Asian Americans, American Indians, Latinos and recent immigrants of color.
6. Participate in classroom discussions and dialogues on topics such as racism, racial oppression, and white privilege.

\*\*\*\*\*

**Goal Area 9: Demonstrate Concern for Individual Worth and Human Rights**

To promote respect for human dignity and differences on local, national and global levels, through strengthening the cognitive, affective, and critical abilities of students by way of study, dialogue, and examinations of facts and beliefs. To foster a sense of social responsibility and respect for persons across differences of nationality, religion, age, physical abilities, gender, sexual orientation, race and ethnicity.

**Student Learning Outcomes:**

Students will be able to...

1. Demonstrate knowledge about the history of civil rights legislation in the U.S., and the current state and federal laws regarding human and civil rights.
2. Examine both local global human rights issues.
3. Learn how different human rights are interconnected through issues of gender, race, class, sexuality, age, religion, and national location.
4. Analyze how the international agreements on human rights shape individual lives in our country and globally.
5. Apply concepts about human rights and individual worth to their own lives in order to learn about active and responsible citizenship.
6. Discuss and debate how individuality and community values can be balanced.
7. Produce oral and written presentations regarding the impact of poverty, hunger, and homelessness on children and elders in our society.
8. Examine ethics issues concerning social justice in the legal system, such as capital punishment, trying minors as adults for crimes, and unequal access to legal representation

\*\*\*\*\*

**Goal Area 10: Approach Issues from a Global Perspective**

To gain a comparative and interdisciplinary understanding of global issues in such areas as environmental change, economic development, world health, governance, peace and security.

**Student Learning Outcomes:**

Students will be able to...

1. Describe and analyze political, economic, and cultural elements which influence relations of states and societies in their historical and/or contemporary dimensions.
2. Demonstrate knowledge of cultural, social, religious and/or linguistic differences.
3. Analyze specific international problems, illustrating the cultural, economic, and/or political differences that affect their solution.
4. Understand the role of a world citizen and the responsibility world citizens share for their common global future.

\*\*\*\*\*

**Goal Area 11: Understand the Inter-relatedness of Humans and the Natural Environment**

To foster critical thinking about this relationship integrating bio-physical and socio-cultural perspectives.

**Student Learning Outcomes:**

Students will be able to...

1. Explain the basic structure and function of various ecosystems and human adaptive strategies within those systems.
2. Discern patterns of interrelationships of bio-physical and socio-cultural systems.
3. Describe the human institutional arrangements (social, legal, political, economic, and religious) that deal with environmental and natural resource challenges.
4. Evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems, and institutions.
5. Propose and assess alternative solutions to environmental problems including issues involving sustainability.
6. Articulate and defend the actions they would take on various environmental issues.

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**Goal Area 12: Integrative Learning**

To connect skills and knowledge from multiple sources and experiences; to apply theory to practice in various settings; to utilize diverse and even contradictory points of view; and, to understand issues and positions contextually. [American Association of Colleges and Universities Statement on Integrative Learning]

**Student Learning Outcomes**

Students will be able to...

1. Demonstrate the ability to take charge of their own thinking and pursue learning in an engaged, intentional, and connected way.
2. Translate theory into practice by engaging in hands-on experiences such as service learning, volunteering, internships, work experience, case studies, etc.
3. Summarize important relationships and interdependencies within general education such as between student’s major and other academic disciplines, world events or life endeavors
4. Describe how disciplines are interwoven to obtain new perspectives and solutions
5. Adapt skills learned in one situation to problems encountered in another using multiple perspectives and modes of inquiry
6. Demonstrate real world problem solving

*Notes: Integrative learning should be in both general education and in discipline. Can be indicated by first year experience, interdisciplinary experiences, and/or capstone courses in major that apply theory to practice in various settings.*

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**Goal Area 13: Collaborate with Others**

To interdependently bring together diverse skills, knowledge and appreciative inquiry in order to achieve collective results and shared visions in complex environments and systems.

**Student Learning Outcomes:**

Student will be able to...

1. Demonstrate knowledge of what collaboration means, why it is important, and how community conditions can be improved by employing collaborative process.
2. Demonstrate the ability to build agreement and sustain participation within and between groups by using effective decision-making and problem-solving strategies and, thus,

creating shared vision and joint action that extends beyond the purview of any particular party.

3. Demonstrate flexibility in promoting change and collaboration within and outside the organizational structure.
4. Maintain goal orientation when defining objectives by developing plans that work toward a common mission and collaborative strategy, and by sharing responsibility, authority, and accountability for achieving results.
5. Create models and procedures to distribute work effectively among participants of a collaborative and provide encouragement and support to partners to empower them to take action.
6. Gain the support of people by including them in the decision making process and securing the contribution of their diverse assets and resources.
7. Evaluate the effectiveness of collaboration, recognizing when modifications are needed to improve a collaborative process.

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#### **Goal Area 14: Information Literacy & Technology**

To effectively research topics using a variety of resources. To think critically as they gather, evaluate and use information.

#### **Student Learning Outcomes:**

Students will be able to...

1. Recognize an information need, construct an effective search strategy, and locate information using appropriate sources.
2. Critically evaluate information and its sources in order to judge information reliability and accuracy, and discern its point of view, bias, and authority.
3. Categorize, synthesize, and interpret information and data, and use appropriate technologies to communicate with an intended audience.
4. Demonstrate information technology's impact on society (e.g., the economic, legal, social and ethical issues surrounding the creation, dissemination, and use of information).
5. Demonstrate the technology skills necessary to accomplish the tasks described above.
6. Apply information literacy skills and knowledge to appropriate academic disciplines.

\*\*\*\*\*

### **Goal Area 15: Ethics**

To develop understanding and capacity for the evaluation of ethical issues and theories. Ethics is concerned with normative concepts such as morality, justice, virtue, rights and duties, good and evil. These concepts are used to examine fundamental issues of human concern, for example, capital punishment, corporate responsibility, animal rights, war and violence.

#### **Student Learning Outcomes:**

Student will be able to...

1. Demonstrate understanding of ethical theories of the Western tradition such as consequentialism, deontology, cultural relativism, virtue ethics, and natural law.
2. Demonstrate understanding of world ethical traditions such as those developed in Asian, African, South American, Indian philosophies.
3. Apply ethical theories to personal and public issues.
4. Analyze and evaluate alternative theoretical approaches to ethical problems.
5. Examine the ethical dimensions of their own lives and circumstances.
6. Demonstrate understanding of the relationships between ethics and other sources of normativity such as law, religion, and cultural conventions.

## Resources

### The Short List

- Walvoord, B. E. *Assessment Clear and Simple: A Practical Guide for Institutions, Departments, and General Education*. Jossey-Bass, 2004. In 79 pages plus appendices, I try to give institutions, departments, and gen ed programs all they will need.
- 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 this volume, and it is organized as a manual of advice to practitioners. The single most useful reference as an accompaniment to Walvoord's short guide.
- Suskie, L. *Assessing Student Learning: A Common Sense Guide*. Anker, 2004. A 300-page guide with many good ideas and illustrations.
- Banta, T. W., Lund, J. P., Black, K. E., and Oblander, F. W. *Assessment in Practice: Putting Principles to Work on College Campuses*. San Francisco: Jossey-Bass, 1996. Contains 82 case studies of best practice, each in 2-3 pages. Though now nine years old, still a wealth of practical ideas. 350 pages.
- Banta, T. W., Jones, E. A., and Black, K. E. *Designing Effective Assessment: Principles and Profiles of Good Practice*. San Francisco: Jossey-Bass, 2009. Combines principles and specific case studies. Focuses on alternatives to sole reliance on standardized testing.
- Walvoord and Anderson, 1998. Walvoord, B. E., and Anderson, V. J. *Effective Grading: A Tool for Learning and Assessment*. San Francisco: Jossey-Bass, 1998. Shows how the classroom grading process can be enhanced and how it can be used for assessment. Helps classroom teachers make the grading process fair, time-efficient, and conducive to learning. Contains a case study of how a community college used the grading process for general-education assessment.
- Web pages and publications of your regional and professional accreditors

### 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](http://www.aacu.org).

## Additional Resources

- Astin, A. W. *Assessment for Excellence: The Philosophy and Practice of Assessment and Evaluation in Higher Education*. American Council on Education Series on Higher Education. Phoenix: Oryx Press, 1993. A thoughtful treatment of the values and theoretical frameworks behind various assessment practices, as well as very practical advice about gathering and interpreting data, from one of the most respected higher education researchers.
- Banta, T. W. & Associates. *Building a Scholarship of Assessment*. San Francisco: Jossey-Bass, 2002. Essays by leaders in the field, addressing practical issues, but focusing on developing a “scholarship of assessment.” Bibliography provides recent references to more specialized works on designing and selecting assessment instruments and other topics. 300 pages.
- Huba, M. E., and Freed, J. E. *Learner-Centered Assessment on College Campuses: Shifting the Focus from Teaching to Learning*. Needham Heights, MA.: Allyn & Bacon, 2000.
- Lucas, A.F., and Associates. *Leading Academic Change: Essential Roles for Department Chairs*. San Francisco: Jossey-Bass, 2000. Collection of essays on leading change in departments. Essays by Gardiner and Angelo are especially valuable for guiding assessment.
- Messick, S. J., ed. *Assessment in Higher Education: Issues of Access, Quality, Student Development, and Public Policy*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999. Places assessment in broader social and political contexts.
- Nichols, J. L. *Assessment Case Studies: Common Issues in Implementation with Various Campus Approaches to Resolution*. New York: Agathon Press, 1995. Nichols, J.O. *The Departmental Guide and Record Book for Student Outcomes Assessment and Institutional Effectiveness*, 2<sup>nd</sup> ed. New York: Agathon Press, 1995. Nichols, J.O. *A Practitioner’s Handbook for Institutional Effectiveness and Student Outcomes Assessment Implementation*, 3<sup>rd</sup> ed. New York: Agathon Press, 1995. These are practical guides to an extensive assessment process, with illustrative case studies.
- Peterson, M. S. Augustine, C. H., Einarson, M.K., and Vaughan, D. S. *Designing Student Assessment to Strengthen Institutional Performance in Associate of Arts Institutions*. Stanford, CA: Stanford University, National Center for Postsecondary Improvement, 1999. Similar volumes, also 1999, on Baccalaureate, Comprehensive, and Doctoral/Research universities.
- Upcraft, M. L. and Schuh, J. H. *Assessment in Student Affairs: A Guide for Practitioners*. San Francisco: Jossey-Bass, 1996.
- Walvoord, B. E. “Assessment in Accelerated Learning Programs.” In R. J. Wlodkowski and C. E. Kasworm (eds.), *Accelerated Learning for Adults: The Promise and Practice of Intensive Educational Formats*. New Directions for Adult and Continuing Education, no. 97. San Francisco: Jossey-Bass, 2003. An 11-page summary of an early version of Walvoord’s *Assessment Clear and Simple*, applicable not only to accelerated learning but also to traditional higher education.
- <http://ericae.net>: provides links to what the sponsors consider some of the best full-text books, reports, journal articles, newsletter articles, and papers on the Internet that address educational measurement, evaluation and learning theory

- <http://ts.mivu.org>: The on-line journal, *The Technology Source*, sponsored by Michigan Virtual University, contains an online index: look under “assessment—past articles.” Practical ideas for classroom and institutional assessment of online courses as well as other computer-based applications such as on-line testing.
- [www2.acs.ncsu.edu/upa/assmt/resource.htm](http://www2.acs.ncsu.edu/upa/assmt/resource.htm). North Carolina State University maintains a website with links to numerous resources on assessment.
- Subscribe to *Assessment Update* for the most recent examples and developments in assessment. Published monthly, it contains brief case studies of successful practice, updates on new developments, and reflections on issues of theory and practice. Order from the web page ([www.josseybass.com](http://www.josseybass.com)) or by phone, 888-481-2665. Back issues are available.
- Conferences:
  - National Assessment Institute, held in Indianapolis under the auspices of the Indiana University-Purdue University Indianapolis, organized by Trudy Banta, one of the leading experts in assessment ([www.planning.iupui.edu](http://www.planning.iupui.edu). Click on conferences).
  - North Carolina State University annual assessment conference.  
<http://www.ncsu.edu/assessment/symposium/>
  - Annual conferences of your regional or disciplinary accreditor