GENERAL EDUCATION ASSESSMENT COMMITTEE ANNUAL REPORT, 2007

2007 General Education Assessment Committee Membership

Greg Wilber (Civil and Environmental Engineering), Chair; John Gelder (Chemistry); Frances Griffin (Business Management); Ed Walkiewicz (English), Rick Rohrs (History); Jon Comer (Geography); Pam Bowers (ex officio, University Assessment and Testing).

General Education Assessment Committee History

Assessment of OSU's general education program is required by the Higher Learning Commission of the North Central Association (HLC, OSU's accrediting body) and by the Oklahoma State Regents for Higher Education. OSU's general education assessment efforts have been motivated by these requirements. The Assessment Council and Office of University Assessment and Testing formed a faculty General Education Assessment Task Force in May 2000 for the purpose of developing and implementing a new plan to assess the effectiveness of OSU's general education program. Although general education and "mid-level" assessment methods such as standardized tests and surveys had been conducted intermittently at OSU since 1993, no sustainable approach to evaluating the general education curriculum had been established. The task force formed in 2000 was the first group of OSU faculty members who were paid to work on this university-wide assessment project and marked a renewed commitment to general education assessment at OSU.

Following the assessment standard of articulating desired student outcomes first, the Task Force started in 2000 by revising OSU's *Criteria and Goals for General Education Courses* document and identifying "assessable" outcomes for the general education program. After studying general education assessment practices at other institutions, the task group developed the following guidelines for effective and sustainable general education assessment for OSU:

- the process must not be aimed at individual faculty members or departments,
- the process should be led by faculty members, and faculty participation should be voluntary,
- the process should use student work already produced in courses, and
- the process should assess all undergraduates, including transfer students, because general education outcomes describe qualities expected for all OSU graduates.

After summer-long study and discussion, the 2000 task group agreed to initiate two assessment methods to evaluate general education that were consistent with these guidelines: institutional portfolios and a course-content database. Institutional portfolios directly assess student achievement of the expected learning outcomes for the general education program, and the course database evaluates how each general education course contributes to student achievement of those articulated outcomes. These methods were implemented in 2001.

In 2003, the Assessment Council and General Education Advisory Council approved the task force's name change to the General Education Assessment Committee. The Committee is charged with continuing to develop and implement general education assessment and reports to the Assessment Council and General Education Advisory Council; membership in these committees is intentionally overlapped. Committee members serve rotating 3-year terms, are extensively involved in undergraduate teaching at OSU, represent a range of disciplines, and are paid summer stipends for their work on general education assessment.

Institutional Portfolios. The Committee has developed institutional portfolios to assess students' written communication skills (data collection in 2001, 2002, 2003, 2004, 2005 and 2006), math problem solving skills (data collection in 2002, 2003 and 2005), science problem solving skills (data collection in 2003, 2004, 2005, and 2007), and critical thinking (data collection in 2005, 2006, and 2007). The Committee began developing a rubric for assessment of students' knowledge, skills and attitudes regarding diversity in 2006, pilot tested the rubric with a small group of samples of student work in Summer 2006, and conducted the first assessment using the rubric in 2007.

Separate portfolios are developed to evaluate each general education learner goal, and each portfolio includes students' work from course assignments collected throughout the undergraduate curriculum. Faculty members (including Committee members and additional faculty members involved in undergraduate teaching) work in groups to evaluate the work in each portfolio and assess student achievement relative to the learner goal that is being assessed by using standardized scoring rubrics. The results provide a measure of the extent to which students are achieving OSU's general education learning goals. The Committee plans to continue to develop institutional portfolios to assess the learner goals for general education as described in the *Criteria and Goals for General Education Courses*.

General Education Course Database. The General Education Course Database is a tool for evaluating how each general education course is aligned with the overall expected learning outcomes for the general education program as a whole. Instructors are asked to submit their course information online via a web-based form, and the General Education Advisory Council reviews the submitted information during regular course reviews. The database form requests information about what general education learning goals are associated with the course and how the course provides students with opportunities to achieve those learning goals. Instructors are also asked to describe how student achievement of those goals is assessed within the course. The database provides a useful tool for holistically evaluating general education course offerings and the extent to which the overall general education goals are targeted across the curriculum.

In addition to these two primary assessment tools, student surveys such as the National Survey of Student Engagement and OSU Alumni Surveys contribute to the general education assessment process and are considered in reviewing general education assessment results.

Status of Committee Goals for 2006-07

The Committee met in Fall 2006 to determine committee membership for work to be completed in summer 2007. All members will continue on the committee, and Greg Wilber agreed to serve as chair for 2006-07.

A. The committee continued the institutional portfolio for evaluating students' critical thinking skills. Two portfolio-scoring groups, consisting of six faculty members (three Committee members and four additional faculty reviewers), evaluated the critical thinking portfolio. These groups of reviewers evaluated a total of 164 samples of student work demonstrating critical thinking skills.

B. The committee continued the institutional portfolio for evaluating students' science problem-solving skills. One portfolio-scoring group, consisting of three faculty members (two committee members and one additional faculty reviewer), evaluated the science problem-solving portfolio. This group of reviewers evaluated 85 samples of student work demonstrating science problem-solving skills.

C. The committee presented a faculty development workshop in Fall 2006 to discuss the 2006 pilot study to design a rubric for assessment of students' achievement of the general education learning goal regarding diversity. The goals of the session were to seek faculty input into the development of the rubric, discuss the assessment method, and identify class assignments that could be used in the assessment.

   During the 2006-07 year, the committee collected 190 samples of student work for the institutional portfolio to assess students' knowledge, skills and attitudes regarding diversity. Using the rubric, the committee reviewed 69 samples of student work for the assessment. The remaining artifacts were not included in the assessment because the content of the assignments did not fit the components of the rubric. Committee members and faculty reviewers for this assessment agreed to work with faculty colleagues in 2007-08 to encourage development of assignments that can be evaluated using the rubric.

D. Members of the committee met with members of the Math Department faculty to review the math problem-solving assessment process. A senior member of the Math faculty reviewed the rubric and indicated that, in his opinion, the content appropriately represents expected learning outcomes. One of the Math faculty members offered to assist in obtaining appropriate assignments for the assessment when it is conducted next time.

E. A joint meeting of the General Education Assessment Committee, the Assessment Council and the General Education Advisory Council was held to conduct a review of General Education Assessment. This purpose of this meeting was to review the assessment process and results of assessments, and recommend action for improvement, if warranted. Minutes from the meeting are included in the next section of this report. Recommendations will be considered by the committee in 2007-08.

Minutes from Joint Meeting of Assessment Council, General Education Assessment Committee and General Education Advisory Council to Review General Education Assessment

April 6, 2007

Present:

Assessment Council: Bowers*, Comer*, Damron, Davis, Gates*, Hyle, Ivy, Lacy, Lage, Martin, Mowen, Ownbey, Thompson, Wilber*, Weir T.

General Education Assessment Committee: Comer*, Gelder, Griffin, Rohrs, Walkiewicz, Wilber*

General Education Advisory Council: Bowers*, Jones, Gates*, Comer*, Weir S.

* membership in multiple groups

The purpose of this joint meeting was to review the results of general education assessment, the rubrics used in the assessments, and recommend action for improvement. In advance of the meeting, participants received a copy of each of the rubrics, and the report of results of the assessments to date, 2001-2006. Participants were asked to review and comment on each rubric, the artifact collection process, the process used for faculty training for the assessment, the scoring process, the report of results, and preliminary recommendations for action provided to this group by the general education assessment committee.

Preliminary Recommendations of the General Education Assessment Committee:

After review and discussion of the results of the 2006 general education assessment process and results, the committee offers the following recommendations for further consideration by the Assessment Council and the General Education Advisory Council.

- Although action has been taken to improve students' writing ability (increased requirements for classes with general education designations), the group believes that additional steps should be taken. These suggestions are based on a review of the accumulated data, including the correlation between student achievement in writing and ACT scores, as well as particular deficiencies many students exhibit in the 'Style and Mechanics' aspects of the writing rubric. Therefore, the committee suggests that
    - New freshmen should be required to participate in the writing portion of the ACT test, and remediation required for those students who do not achieve a minimum score. (Perhaps achieving a high score could result in credit for English 1113).
    - An upper division writing course (or additional writing requirement within existing courses) should be reestablished as a requirement for all students.
    - More opportunities for assistance with development of writing skills should be provided to continuing students, perhaps through the Writing Center.

  The committee would like to explore these, and perhaps other, recommendations further by discussing its concerns with the Director of the Writing Center, the Director of Freshman Composition, and members of GEAC and the Assessment Council.

- For all portfolios, the committee continues to experience some difficulty in obtaining samples of student work from a variety of courses across the curriculum. To assist in making the sample more representative of the population, the committee recommends that

  - all instructors of courses with any general education designation be required to agree to provide samples of student work for the assessment process, if requested to do so.

- For some general education learning goals, such as math and science problem-solving, students choose from a small number of courses to meet the general education requirement, and many students do not take courses in these subject areas beyond the general education requirement. Students who transfer into OSU often have completed these requirements elsewhere, and do not take OSU courses from which artifacts would be selected for assessment. In other cases, students may be enrolled at OSU but take one or more general education courses elsewhere and transfer those course credits to OSU. In these cases, the extent to which these students are achieving general education learning goals may not be assessed through the existing portfolio process. The committee recommends that
  - data be collected and reported on the numbers of students who complete general education requirements at other institutions; that
  - modifications to the assessment process be considered, so that the process is inclusive of all OSU graduates; and, that
  - courses taken at NOC by OSU students to meet general education requirements be included in the OSU general education assessment process.

Meeting participants met in small groups to discuss their individual reviews of assessment documents and respond to the questions that head each group of comments below. The comments were provided in writing by the four discussion groups, and will be considered by the General Education Assessment Committee. Changes from italics to standard text indicate different groups.

Critical Thinking

1. Is the expected learning outcome clear, in terms of expected knowledge, skills and/or attitudes?
   a. We appreciate the outcomes being at the top of the rubric. *Please add learning outcome statement to the rubric.* We need to state the learning outcome on the rubric. *We've done our best.*
2. Does the institutional portfolio assessment method provide a credible measure of the general education learning goal?
   a. We are concerned that this rubric will produce low scores no matter the actual abilities. *Need freshman assignments to establish baseline.* Need freshman and sophomore assignments to get a baseline. Critical thinking exams. Can we do something in critical thinking in A&S 1111? *Need more freshmen in sample. Continue to tweak rubric – characteristic 2 is often not applicable; characteristic 3 is too weak – 1=no evidence critiqued; 3=some evidence critiqued.*
3. Are students achieving the expected learning outcome at an acceptable level?
   a. Show faculty what a "5" looks like. Many graduate students could not do a "5." "3" is a good kernel of critical thinking skills. "1" looks like the student did not even do the assignment. Only 15 our of 247 students scored a "5" – is the "5" too difficult to achieve? *No.*
4. Is additional analysis of results needed?
   a. *Need more data. Philosophy 1000-level needed.*
5. What action(s) should be taken to improve students' achievement of this learning outcome?
   a. Consider an oral evaluation method. Faculty need workshop on how to get critical thinking in their subject. Give feedback to student (show a rubric) so they can fix their work. *Not enough artifacts; not enough faculty make students learn to think and demonstrate in writing – especially at the lower division.*

Writing

1. Is the expected learning outcome clear, in terms of expected knowledge, skills and/or attitudes?
    a. A clear, concise statement should be included on the rubric rather than having to wade through the rubric to discover that. *Please include learning outcomes from the Criteria and Goals document in the rubric.* The learning outcome should be stated in the rubric. *Rubric is similar to SAT writing evaluation.*
2. Does the institutional portfolio assessment method provide a credible measure of the general education learning goal?
    a. *Sample selection should be representative of the student body.* Require an exam to become a major in a department. Not enough grammar in freshman composition (trading papers). Need better sample selection – more representative. *Need better distribution of classes and students from across colleges.*
3. Are students achieving the expected learning outcome at an acceptable level?
    a. Too many students are scoring in the "1" and "2" overall score brackets. *Evidence of growth should be present – seniors should be performing more in the 4-5 level rather than the bulk of scores across class level in the 3 range. 25% of seniors scored 1-2.* Would feel good about an average of "3" if freshmen have 1-2s and seniors 4-5s. Concerned that 25% of seniors scored 1-2. Not happy with performance. It is difficult to get a "5" – should some 4s be 5s? *Strive for "5" – staying at "3" is not OK.*
4. Is additional analysis of results needed?
    a. We doubt the data on transfer students (*believe their scores are different*). *Analysis would be more meaningful with a more representative sample. Analysis of transfer status averaged with native student status may be biasing results.* Analyzing native vs transfer averaged over all courses may bias the results. Better look at transfer students in terms of number of hours. *We could use (TX) students' SAT scores on writing tests to determine if this "sorts" students into remedial placement; if so, use ACT writing test.*
5. What action(s) should be taken to improve students' achievement of this learning outcome?
    a. Writing fellows – undergraduates to assist in courses. Trained TA's to grade/assess papers so that grading time can be resolved for instructors. *How are students being prepared? Assess learning outcomes for English 1113.* How do we catch the 1-2 at the senior level to help them? *We all agree (RR) that 16 hours of FLANG would help students understand mechanics better. Train faculty to use rubric in their own classes. Require ACT writing test; better remediation. More resources for the Writing Center. Need more time to see if increasing writing (10 pages) is working. Do English 1113 and 1213 meet the needs of the university?*

Diversity

1. Is the expected learning outcome clear, in terms of expected knowledge, skills and/or attitudes?
    a. Yes. *Still evolving – the overall goal and the rubric.*
2. Does the institutional portfolio assessment method provide a credible measure of the general education learning goal?
    a. Yes. *Still no where near enough artifacts/assignments.*
3. Are students achieving the expected learning outcome at an acceptable level?
    a. No data. *Is the rubric actually able to measure the outcome? Need baseline data. Need assignments that will be useful.* No data.
4. Is additional analysis of results needed?
    a. No data. *No data.*
5. What action(s) should be taken to improve students' achievement of this learning outcome?
    a. *Are we measuring the success of other general education goals? This goal cannot be assessed from an artifact of an assignment in a class. Can't get a measure from an assignment/paper.* Need better ideas on appropriate assignments.

Assessment of Critical Thinking Skills

2007 collection of critical thinking samples

The Office of University Assessment and Testing supervised the collection of student artifacts for the Critical Thinking Institutional Portfolio in Spring 2007. Instructors from the following undergraduate courses contributed random samples of student work to the portfolio:

Course No.	Course Name	General Education Designation (if any)	Number of artifacts randomly collected from one assignment	Number of artifacts reviewed	Number of artifacts used in data analysis
PHIL 3920	Ethics and Globalization in Foreign Film		25	25	25
MSIS 3223	Production and Operations Management		10	0	0
PHIL 3833	Biomedical Ethics	H	20	20	19
ANSI 1124	Introduction to Animal Science		20	20	20
NSCI 4643	Critical Issues in Nutrition and Health Care		18	18	16
MKTG 3613	Retailing Management		50	25	24
SCFD 3223	Social Foundations		12	12	12
DHM 1433	Innovation and Marketing Fashion Production		20	0	0
ARCH 4073	History & Theory: Early Modern Architecture	H	9	9	8
CIVE 3813	Environmental Engineering Science		16	16	15
ENGR 1111	Introduction to Engineering		25	25	25
	Total Number of Critical Thinking Artifacts (samples)		**225**	**170**	**164**

*The number of artifacts reviewed in 2007 was less than the number collected. More artifacts were collected than could be evaluated by the reviewers, so those artifacts were selected that reviewers found to be best suited for the assessment (n=170). The number of artifacts used in data analysis is less than the number reviewed because student completed a different assignment option (n=1), student did not do the assignment (n=1), students copied each other's work (n=2), there were language problems (n=1), or plagiarism was suspected (n=1).

Artifacts selected for the Institutional Portfolio were coded and all identifying information was removed from the samples. Demographic data were collected for each artifact using the OSU student database; these data were collected for analysis purposes only and the information cannot be used to identify an individual. The student demographic information associated with the samples was not shared with reviewers prior to the reviews.

2007 critical thinking portfolio reviews

Six faculty reviewers for the critical thinking skills institutional portfolio conducted this assessment in June and July 2007. Portfolio reviewers included Greg Wilber (Civil and Environmental Engineering), Frances Griffin (Management), Rick Rohrs (History), Doren Recker (Philosophy), Karen High (Chemical Engineering), and Jeff Hattey (Plant and Soil Sciences). Initially, the reviewers met for two training sessions where they received background information on the procedure and practiced scoring artifacts using the critical thinking rubric developed for this purpose in 2004. Then, reviewers independently evaluated a set of training artifacts using the critical thinking rubric. During these two initial sessions, reviewers discussed questions and concerns regarding the use of the rubric, discussed scores given to samples of student work, and developed a common approach for evaluating student critical thinking samples.

As with past groups of reviewers, by the end of the training sessions with all reviewers present, the reviewers were scoring fairly consistently with little variation among individual members. In addition to

scoring several artifacts from the previous year, a few artifacts from the 2007 sample were scored during the training session. The scoring committee then divided into two sub-groups, each of which undertook to score 85 artifacts. Scoring was done individually, and each sub-group then met to reach consensus scores in cases where there was variation across individual scores (for the same artifact). The final scores were then submitted to the office of University Assessment and Testing for initial interpretation.

Critical thinking skills scores from each review group

Review Group	Artifact Score	Number of Artifacts	Percent of Artifacts
#1 (83 artifacts scored)	1	4	4.8%
	2	32	39%
	3	40	48%
	4	7	8.4%
	5	0	0%
#2 (74 artifacts scored)	1	8	11%
	2	24	32%
	3	33	45%
	4	9	12%
	5	0	0%
Reviewer Training (7 artifacts scored)	1	1	14%
	2	3	43%
	3	3	43%
	4	0	0%
	5	0	0%

Except for those artifacts scored during the training sessions, reviewers scored each artifact independently and then met to develop a consensus overall score for each artifact. Each artifact received an overall, whole-number score from 1 to 5, as well as a sub-score for each rubric component that was determined to be appropriate for the assignment. All artifacts were scored on rubric components 1- 4, other components were only scored if the group agreed they were relevant for the assignment. Reviewers discussed sub-scores and came to agreement (within one point) on each component score.

Learning Outcome: Graduates will be able to critically analyze and solve problems.

	Characteristics 1 -4: Essential Characteristics	Level of Achievement				
		1	2*	3	4**	5
1	**Identification** and/or summary of the **problem/question** at issue.	No identification and/or summary of the problem.		The main question is apparent or implied, but not clearly stated.		The main question and subsidiary, embedded, or implicit aspects of a question are identified and clearly stated.
2	Presentation of the **STUDENT'S OWN perspective and position** as it is important to the analysis of the issue.	The student's own position relative to the question is not provided.		The student's own position on the question is implied or unclearly stated.		The student's own position on the issue is clearly stated.
3	Use of **supporting data/evidence.**	No supporting data or evidence is used.		Evidence is used but source(s) of evidence are not evaluated for accuracy, precision, relevance, and completeness. Inferences of cause and effect are stated, but not completely or entirely accurately. Facts and opinions are stated although not clearly distinguished from value judgments.		Evidence is identified and carefully examined. Source(s) of the evidence are questioned for accuracy, precision, relevance, and completeness. Accurately observes cause and effect. Facts and opinions are stated and clearly distinguished, and value judgments are acknowledged.
4	Discussion of **conclusions**, implications and consequences.	Conclusions are not provided.		Conclusions are provided without discussion of implications or consequences. Some reflective thought is provided with regards to the assertions.		Conclusions are clearly stated and discussed. Implications and consequences of the conclusion are considered in context, relative to assumptions, and supporting evidence. The student provides reflective thought with regards to the assertions.
5 – 7: Optional Characteristics (evaluated where appropriate)						
5	Consideration of **OTHER salient perspectives and alternate positions** that are important to the analysis of the issue.	Does not acknowledge possible alternate perspectives.		Acknowledges possible alternate perspectives although they are not clearly stated.		Uses alternate perspectives and additional diverse perspectives drawn from outside information.
6	Assessment of the key **assumptions and the validity of the supporting/ background information**.	Does not identify the key assumptions and/or evaluate the given information that underlies the issue.		The key assumption(s) that underlies the issue is clearly stated. Necessary data or other background data is identified but not evaluated for validity, relevance or completeness.		The key assumption that underlies the issue is clearly stated and the validity of the assumption that underlies the issue is assessed. Key data and background information is evaluated for validity and used in a way consistent with this evaluation.
7	Consideration of the influence of the **context** on the issue (including, where appropriate, cultural, social, economic, technological, ethical, political, or personal context).	The problem is not connected to other issues or placed in context.		The context of the question is provided although it is not clearly analyzed. Limited consideration of the audience is provided. Little consideration of other contexts is provided.		The issue is clearly analyzed within the scope and context of the question. An assessment of the audience is provided. Consideration of other pertinent contexts is provided.

* 2 - Exhibits most characteristics of '1' and some characteristics of '3'
** 4 - Exhibits most characteristics of '3' and some characteristics of '5'

***** adapted from Washington State University revised 12-7-07

Student demographics associated with critical thinking skills artifacts, 2007

		2007	
		no. of artifacts	pct
Number of Artifacts	# collected	225	-
	# scored	164	-
	# used in analysis	164	-
Class	Freshman	44	27%
	Sophomore	23	14%
	Junior	33	20%
	Senior	64	39%
College	CAS	33	20%
	CASNR	19	12%
	SSB	21	13%
	COE	14	8.5%
	CEAT	50	30%
	CHES	24	15%
	UAS	3	1.8%
Gender	Female	90	55%
	Male	74	45%
Admit Type	Regular (A, AR, L)	116	71%
	Alternative Admit (F)	7	4.3%
	Adult Admit (G)	1	0.6%
	"Third Door" Admit (K)	0	0%
	International (J)	3	1.8%
	Transfer (M, MR)	36	22%
	Other or Blank	1	0.6%
ACT	<22	43	32%
	22 to 24	32	24%
	25 to 27	34	25%
	28 to 30	21	15%
	>30	6	4.4%
OSU GPA	<2.0	9	5.5%
	2.0 to 2.49	19	12%
	2.50 to 2.99	57	35%
	3.00 to 3.49	46	28%
	3.50 to 4.00	32	20%

Student demographics associated with critical thinking skills artifacts, 2005-2007

		2005-06		2007		Total Years	
		No. of artifacts	pct	No. of artifacts	pct	no. of artifacts	Pct
Number of Artifacts	# collected	316	-	225	-	541	-
	# scored	251	-	164	-	415	-
	# used in analysis	247	-	164	-	411	-
Class	Freshman	1	0.4%	44	27%	45	11%
	Sophomore	26	11%	23	14%	49	12%
	Junior	93	38%	33	20%	126	31%
	Senior	127	51%	64	39%	191	46%
College	CAS	57	23%	33	20%	90	22%
	CASNR	13	5.3%	19	12%	32	7.8%
	SSB	27	11%	21	13%	48	12%
	COE	3	1.2%	14	8.5%	17	4.1%
	CEAT	55	22%	50	30%	105	26%
	CHES	92	37%	24	15%	116	28%
	UAS	0	0%	3	1.8%	3	0.7%
Gender	Female	141	57%	90	55%	231	56%
	Male	106	43%	74	45%	180	44%
Admit Type	Regular (A, AR, L)	157	64%	116	71%	273	66%
	Alternative Admit (F)	6	2.4%	7	4.3%	13	3.2%
	Adult Admit (G)	1	0.4%	1	0.6%	2	0.5%
	"Third Door" Admit (K)	0	0%	0	0%	0	0%
	International (J)	5	2.0%	3	1.8%	8	1.9%
	Transfer (M, MR)	77	31%	36	22%	113	27%
	Other or Blank	1	0.4%	1	0.6%	2	0.5%
ACT	<22	59	29%	43	32%	102	30%
	22 to 24	47	23%	32	24%	79	23%
	25 to 27	47	23%	34	25%	81	24%
	28 to 30	24	12%	21	15%	45	13%
	>30	25	12%	6	4.4%	31	9.2%
OSU GPA	<2.0	7	2.8%	9	5.5%	16	3.9%
	2.0 to 2.49	40	16%	19	12%	59	14%
	2.50 to 2.99	52	21%	57	35%	109	27%
	3.00 to 3.49	77	31%	46	28%	123	30%
	3.50 to 4.00	71	29%	32	20%	103	25%

Critical thinking skills scores, 2005-2007 (years combined)

			Score						
			1	**2**	**3**	**4**	**5**	**Avg**	**N**
Overall Scores	Overall	n	19	128	202	61	1	2.75	411
		%	4.6%	31%	49%	15%	0.2%		
By Class	Freshmen	n	1	14	19	11	0	2.89	45
		%	2.2%	31%	42%	24%	0%		11%
	Sophomores	n	1	17	28	3	0	2.67	49
		%	2.0%	35%	57%	6.1%	0%		12%
	Juniors	n	8	37	59	22	0	2.75	126
		%	6.3%	29%	47%	18%	0%		31%
	Seniors	n	9	60	96	25	1	2.73	191
		%	4.7%	31%	50%	13%	0.5%		46%
By Class (regular admit only)*	Freshmen	n	0	14	18	10	0	2.90	42
		%	0%	33%	43%	24%	0%		15%
	Sophomores	n	0	8	20	2	0	2.80	30
		%	0%	27%	67%	6.7%	0%		11%
	Juniors	n	7	21	45	19	0	2.83	92
		%	7.6%	23%	49%	21%	0%		34%
	Seniors	n	2	33	60	14	0	2.79	109
		%	1.8%	30%	55%	13%	0%		40%
By Transfer Status*	Native Students**	n	9	88	151	49	0	2.81	297
		%	3.0%	30%	51%	16%	0%		72%
	Transfer Students	n	9	40	51	12	1	2.61	113
		%	8.0%	35%	45%	11%	0.9%		28%

*Admission type unknown for one student.
**Native students refers to freshmen who started at OSU as first-time freshmen.

Component scores for critical thinking skills assessment

In addition to providing an overall score for each artifact, reviewers assigned scores to four components of each artifact and to three additional components where it was appropriate to do so - corresponding to the components of the rubric. When a larger number of artifacts have been evaluated, the component scores will more precisely indicate areas for focusing efforts to improve students' critical thinking skills. The table below provides average component scores for the 2005-07 sample.

Average Component and Overall Scores for Sub-areas of Critical Thinking for 2005-2007:

Component:	Problem	Perspective	Support	Conclusion	Others	Assumptions	Context
Average Score:	2.86 (N=411)	2.97 (N=411)	2.79 (N=411)	2.63 (N=411)	2.51 (N=65)	2.32 (N=45)	2.49 (N=137)

Key findings

- The committee experienced difficulty in obtaining artifacts that could be used for the assessment, especially from lower-division courses.
- Average scores by classification were compared using ANOVA, and no statistically significant differences were found between groups.
- Overall scores were found to be correlated with ACT composite scores and sub-scores, as well as with OSU GPAs.
- Students highest average rubric criteria score (2.97, N = 411) was on "Presentation of the student's own perspective and position as it is important to the analysis of the issue," Although many artifacts were not scored on this criteria, the lowest average criteria score (2.32, N = 45) was on "Assessment of the key assumptions and the validity of the supporting background information."

Assessment of Diversity Learning Goal

2007 collection of diversity samples

The Office of University Assessment and Testing supervised the collection of student artifacts for the Diversity Institutional Portfolio in Spring 2007. Instructors from the following undergraduate courses contributed random samples of student work to the portfolio:

Course No.	Course Name	General Education Designation (if any)	Number of artifacts randomly collected from one assignment	Number of artifacts reviewed	Number of artifacts used in data analysis
EDUC 4443	Cultural Diversity in Professional Life	D	40	40	40
POLS 3193	Latin American Politics	I, S	32	0	0
ENGL 3813	Race and Reproduction in the U.S.		10	0	0
NSCI 3543	Food and the Human Environment	I, S	20	0	0
NSCI 3812	Nutrition Assessment & Counseling Skills		25	0	0
HIST 3980	Modern Black History		13	9	5
GEOG 3713	Geographies of the US and Canada	D, S	20	20	19
CIVE 3813	Environmental Engineering Science		5	5	5
ANSC 3903	Animals of the World	I	25	0	0
	Total Number of Diversity Artifacts (samples)		**190**	**74**	**69**

*The number of artifacts reviewed in 2007 was less than the number collected. Artifacts that reviewers found to be best suited for the assessment method were included (n=74). Artifacts were not included in the assessment if the students' performance did not demonstrate the knowledge, skills and attitudes described in components of the rubric to an extent that reviewers felt they could make a fair evaluation. The number of artifacts used in data analysis is less than the number reviewed because students did not complete a portion of the assignment (n=4), or the paper completed was not about diversity (n=1).

Artifacts selected for the Institutional Portfolio were coded and all identifying information was removed from the samples. Demographic data were collected for each artifact using the OSU student database; these data were collected for analysis purposes only and the information cannot be used to identify an individual. The student demographic information associated with the samples was not shared with reviewers prior to the reviews.

2007 diversity portfolio reviews

Four faculty reviewers for the diversity institutional portfolio conducted this assessment in June and July 2007. Portfolio reviewers included Jon Comer (Geography), John Gelder (Chemistry), Patricia Bell (Sociology), and Jean Van Delinder (Sociology). Initially, the reviewers met for two training sessions where the one new member to group received background information on the procedure (the others had worked on the development of the rubric in the previous year) and all practiced scoring artifacts using the diversity rubric developed for this purpose in 2006. Then, reviewers independently evaluated a set of training artifacts using the diversity rubric. During these two initial sessions, reviewers discussed questions and concerns regarding the use of the rubric, discussed scores given to samples of student work, and developed a common approach for evaluating student diversity samples.

Following the training sessions, each member of the group took copies of the 74 papers to score individually. The group then met to reach a consensus scores in cases where there was variation across individual scores (for the same artifact). The group also worked to agree within one point on sub-scores for each artifact. The final scores were then submitted to the office of University Assessment and Testing for data entry and initial analysis.

As indicated in the table above, some artifacts were excluded from the assessment. The decision to include or exclude an assignment was not intended as a judgment about the quality of the assignment itself, but was a judgment about the "fit" or "match" of the content of the papers to the components of the rubric. Faculty reviewers described papers that work well for the assessment as having some critical analysis of a cultural or diversity-related issue; describing some reflection on the issue or related personal experience; and often including comparison of two or more cultures or diverse groups.

The criteria and goals for General Education state that the curriculum is intended to "assist students in understanding and respecting diversity in people, beliefs and societies." A new general education designation for courses with this focus was implemented in Fall 2007. In Fall 2008, all incoming students will be required to take at least one course with this designation as part of the general education curriculum. However, assessment of students' achievement of the learning goal regarding diversity will not be limited to these designated courses. It is expected that many courses provide experiences to help students achieve this goal, and that students' activities outside of class, such as interacting with others in student organizations, living environments, and participating in other extra-curricular activities also contribute to their achievement.

Statement of Learning Outcome: "Graduates will understand and respect diversity in people, beliefs and societies."

Outcome Components:		Level of Achievement				
		1	2*	3	4**	5
A	**Conceptual understanding**	Understands diversity to mean differences among people. The lowest level of achievement is one that recognizes difference in a superficial and one-dimensional manner (catalogues differences). Can only evaluate others in comparison to herself and in an implied hierarchical manner (exhibits ethnocentrism).		Understands diversity as knowledge of differences in cultural practices, attitudes, and beliefs. Moderate appreciation for the value of any of this understanding in application or in navigating the social and cultural environment. Goes beyond "cataloguing" differences		Understands diversity as multidimensional in nature. Strong appreciation for the value of knowledge and understanding in application and in navigating the social and cultural environment.
B	**Values diversity**	Demonstrates minimal tendency to try to understand and to value multiple perspectives. Is unable to draw on diverse opinion when making decisions.		Demonstrates moderate tendency to try to understand and to value multiple perspectives. Demonstrates ability to examine more than one opinion and consider relevant cultural differences when making decisions.		Demonstrates a strong perspective of inclusion. Demonstrates strong tendency to try to understand and to value multiple perspectives.
C	**Knowledge of historical context**	Student's work demonstrates minimal knowledge of history of racial, ethnic or other relevant groups. Lacks perspective on the issue.		Student's work demonstrates moderate knowledge of historical context and how that historical context is important to the issue.		Student's work demonstrates substantial knowledge of historical context and how that history applies to present-day situations relating to inter-group relations.
D	**Sources of understanding, value, and knowledge**.	Student's understanding and values regarding diversity are based primarily on limited factual knowledge and personal observation; little apparent influence of personal experience outside own immediate environment.		Student's understanding and values regarding diversity are based primarily on moderate factual knowledge and personal observation; some apparent influence of personal experience outside own immediate environment.		Student's understanding and values regarding diversity are based on reflection and integration of substantial factual knowledge and personal observation; strong apparent influence of personal experience outside own immediate environment.

* Exhibits most characteristics of '1' and some of '3'
** Exhibits most characteristics of '3' and some of '5'

Student demographics associated with diversity artifacts, 2007

		2007	
		no. of artifacts	pct
Number of Artifacts	# collected	190	-
	# scored	69	-
	# used in analysis	69	-
Class	Freshman	5	7.2%
	Sophomore	13	19%
	Junior	25	36%
	Senior	26	38%
College	CAS	19	28%
	CASNR	0	0%
	SSB	4	5.8%
	COE	30	44%
	CEAT	6	8.7%
	CHES	0	0%
	UAS	10	14%
Gender	Female	16	23%
	Male	53	77%
Admit Type	Regular (A, AR, L)	19	28%
	Alternative Admit (F)	8	12%
	Adult Admit (G)	0	0%
	"Third Door" Admit (K)	0	0%
	International (J)	2	2.9%
	Transfer (M, MR)	39	57%
	Other or Blank	1	1.4%
ACT	<22	18	49%
	22 to 24	13	35%
	25 to 27	3	8.1%
	28 to 30	1	2.7%
	>30	2	5.4%
OSU GPA	<2.0	4	5.8%
	2.0 to 2.49	20	29%
	2.50 to 2.99	18	26%
	3.00 to 3.49	15	22%
	3.50 to 4.00	12	17%

Diversity scores, 2007

			Score						
			1	**2**	**3**	**4**	**5**	**Avg**	**N**
Overall Scores	Overall	n	9	35	18	7	0	2.33	69
		%	13%	51%	26%	10%	0%		
By Class	Freshmen	n	1	3	1	0	0	2.00	5
		%	20%	60%	20%	0%	0%		7.2%
	Sophomores	n	2	7	4	0	0	2.15	13
		%	15%	54%	31%	0%	0%		19%
	Juniors	n	4	12	5	4	0	2.36	25
		%	16%	48%	20%	16%	0%		36%
	Seniors	n	2	13	8	3	0	2.46	26
		%	7.7%	50%	31%	12%	0%		38%
By Class (regular admit only)*	Freshmen	n	0	2	1	0	0	2.33	3
		%	0%	67%	33%	0%	0%		16%
	Sophomores	n	0	2	2	0	0	2.50	4
		%	0%	50%	50%	0%	0%		21%
	Juniors	n	0	1	2	2	0	3.20	5
		%	0%	20%	40%	40%	0%		26%
	Seniors	n	0	4	2	1	0	2.57	7
		%	0%	57%	29%	14%	0%		37%
By Transfer Status*	Native Students**	n	3	16	7	3	0	2.34	29
		%	10%	55%	24%	10%	0%		43%
	Transfer Students	n	6	19	10	4	0	2.31	39
		%	15%	49%	26%	10%	0%		57%

*Admission type unknown for one student.
**Native students refers to freshmen who started at OSU as first-time freshmen.

Component scores for diversity assessment

Average Component and Overall Scores for Sub-areas of Diversity for 2007:

Component:	Conceptual Understanding	Values Diversity	Knowledge of Historical Context	Sources of Understanding
Average Score:	2.31 (N=69)	2.39 (N=69)	2.36 (N=69)	2.35 (N=69)

Key Findings

- Too few artifacts have been evaluated for results to be useful for generalizations about student learning; the committee will continue to increase the number of artifacts in this portfolio next year.
- It was difficult or impossible to apply the rubric to many of artifacts collected. The committee will ask faculty to consider developing assignments that will ask students to demonstrate the knowledge, skills, and attitudes represented in the learning outcome being assessed.
- Although some faculty instructions for the assignments asked students to address diversity issues in their papers, many students tended to focus more on other components of the assignments and somewhat avoid the diversity aspect. Students' work often indicated limited experiences with diversity.

Committee plans for diversity assessment

The committee concluded that additional campus-wide discussion(s) about faculty expectations for students' knowledge, skills and attitudes about diversity and methods to assess students' achievement of those expectations are needed to develop an effective assessment process. One or more faculty workshops will be held during the 2007-08 academic year to continue the discussion about the development of the diversity assessment rubric, and engage faculty members in discussions about development of assignments to help students achieve this learning goal as well as providing artifacts for the assessment process.

Assessment of Science Problem-Solving Skills

2007 collection of science samples

The University Assessment and Testing Office supervised the collection of artifacts for the Science Problem-Solving Skills Institutional Portfolio in Spring 2007 using methods described in previous annual reports. As with the other portfolios, the artifacts were collected from introductory-level sciences courses that are part of the general education course offerings. Instructors from the following courses contributed artifacts to the 2007 science problem-solving skills institutional portfolio.

Course No.	Course Name	General Education Designation (if any)	Number of artifacts randomly collected	Number of artifacts reviewed	Number of artifacts used in data analysis
ENTO 2003	Insects and Society	N	25	25	25
PSYC 3073	Neurobiology Psychology	N	20	20	20
NSCI 2114	Principles of Human Nutrition	N	25	0	0
PHYS 1214	General Physics	L, N	24	0	0
GEOL 1014	Geology and Human Affairs	L, N	42	0	0
HORT 1013	Principles of Horticulture Science	L, N	26	26	25
BIOL 1114	Introductory Biology	L, N	15	15	15
	Total Number of Science Artifacts (samples)		**177**	**86**	**85**

*The number of artifacts reviewed in 2007 was less than the number collected. More artifacts were collected than could be evaluated by the reviewers, so those artifacts were selected that reviewers found to be best suited for the assessment (n=86). The number of artifacts used in data analysis is less than the number reviewed because an assignment was illegible (n=1).

Rubric for evaluating students' science problem-solving skills

Three faculty reviewers for the science problem-solving skills institutional portfolio met and completed their work in June and July 2007. The portfolio reviewers included John Gelder (Chemistry), Ed Walkiewicz (English), and Bruce Ackerson (Physics). Reviewers met for a training session to review all artifacts collected and make decisions about which assignments could be used for the assessment. Reviewers then independently evaluated the artifacts using the rubric developed for this purpose (following page). Reviewers then met to develop a consensus score for each artifact.

For the first time since this process was initiated in 2001, reviewers experienced some difficulty in reaching consensus scores on some artifacts in the science portfolio. Finally, artifacts for which they could not reach consensus were excluded from the sample. Reviewers agreed that in future years, reviewer training sessions for the science portfolio should be more closely modeled after those used for other portfolios, and should include scoring of several artifacts to assure consistency of scoring across reviewers. Reviewers also agreed to begin recording component scores, which should aid the process of reaching consensus on the overall score for each artifact.

Learning Outcome: Graduates will understand the scientific inquiry process and be able to critically analyze the physical world using the methodologies and models of science.

Aspects	1	2*	3	4**	5
Understanding of problem	Student does not exhibit a clear understanding of the problem; Displays little comprehension of the important elements of the problem; Failed to understand enough to start to work the problem.		Response is free of misconceptions that lead to wrong answers; Student grasps basic parts of the problem as well as the general framework; Understands enough to work most of the problem; Can make a diagram that exhibits some understanding of the model; Can demonstrate some conceptualization of the model.		Student manifests a thorough understanding of concepts and relationships between concepts; Identifies all the important elements of the problem; Organization of the response demonstrates clarity of understanding.
Use of terms and symbols	Student is unable to communicate scientific concepts through terminology; Fails to employ technical, mathematical, or scientific terms or employs them inappropriately; Fails to use symbols or uses them incorrectly.		Student uses most terminology and symbols correctly; Provides evidence of reasonable understanding of terms and symbols.		Student explains thoughts thoroughly using correct terminology and clearly displayed, appropriate symbols; Communicates ideas clearly and concisely; Demonstrates superior knowledge of scientific language and symbolic usage; Knows all the symbols and terms in a mathematical relationship and their association with the scientific model of interest.
Calculations and graphical data presentation	Student provides no evidence of manipulation of mathematical expressions; Commits numerous arithmetic errors; Fails to present data in graphical or tabular format.		Response is mainly accurate with some minor arithmetic errors; Student has sufficient understanding to work the problem, but presentation is not sophisticated; Provides graphical representation but cannot extract abstract information or interpretation; Presents calculations in an orderly manner, but misses some details; Represents data graphically but commits minor errors.		Response is fully mathematically accurate; Solution is clearly displayed with various computation steps shown; Student executes algorithms completely and correctly; Presents data in appropriate graphical or tabular format; Provides clear interpretation and conceptualization of results; Displays results graphically in a clear and illuminating way.
Solution and graphical data interpretation	Student shows significant misunderstanding of the process; Does not correctly apply or even attempt to apply appropriate solution; Adopts inappropriate strategy for solving the problem; Attempts to use irrelevant information; Fails to provide, or provides incorrect, graphical representation of the mathematical thought process		Student shows understanding of the process; Adopts a reasonable strategy for solving most of the problem; Displays solution in a rote manner indicating a simple conceptualization of the problem; Shows understanding of some of the problem's concepts.		Student shows mastery of the process; Presents a detailed solution characterized by logical sequencing and systematic progression; Offers strong supporting arguments; Uses relevant outside information; Solution reflects excellent problem-solving skills.
Answer and conclusions	Answer lacks units or units are stated incorrectly; Student offers an invalid answer; Fails to offer any empirical findings.		Answer is stated in correct units; Student expresses empirical findings but is limited in identification of related issues; Is unable to demonstrate complete understanding of the mathematical result and its relationship to the conceptual model.		Answer is stated in correct units with any unit changes clearly illustrated; Student provides a complete response with a clear, unambiguous, accurate explanation; Fully describes findings in words; Convincingly connects the numeric results and the conceptual model.
Evidence of higher level thinking	Student is unable to plug values directly into equation; Seems incapable of mathematical manipulation.		Student combines two related concepts; Substitutes correct values and manipulates equation but still has some difficulty with more complicated relationships or model; Has some difficulty in developing a mathematical relationship from the written form.		Student can solve problems requiring multiple steps with development of concepts evolving into the solution; Can clearly synthesize information and organize it in a path through multiple steps to arrive at the solutions; Has no difficulty connecting mathematical relationships or expressing ideas mathematically; Is capable of interpreting and applying results in a new or modified situation.

- 2 - Exhibits most characteristics of '1' and some characteristics of '3' revised 12-2007
- ** 4 - Exhibits most characteristics of '3' and some characteristics of '5'

Student demographics associated with science problem solving skills artifacts, 2003-05, 2007

		2003-05		2007		Total Years	
		No. of artifacts	pct	No. of artifacts	pct	no. of artifacts	Pct
Number of Artifacts	# collected	634	-	177	-	811	-
	# scored	340	-	86	-	426	-
	# used in analysis	338	-	85	-	423	-
Class	Freshman	117	35%	18	21%	135	32%
	Sophomore	117	35%	14	17%	131	31%
	Junior	67	20%	23	27%	90	21%
	Senior	37	11%	30	35%	67	16%
College	CAS	127	38%	33	39%	160	38%
	CASNR	69	20%	23	27%	92	22%
	SSB	26	7.7%	19	22%	45	11%
	COE	77	23%	2	2.4%	79	19%
	CEAT	17	5.0%	0	0%	17	4.0%
	CHES	16	4.7%	4	4.7%	20	4.7%
	UAS	6	1.8%	4	4.7%	10	2.4%
Gender	Female	222	66%	49	58%	271	64%
	Male	116	34%	36	42%	152	36%
Admit Type	Regular (A, AR,L)	238	70%	60	71%	298	70%
	Alternative Admit (F)	13	3.8%	5	5.9%	18	4.3%
	Adult Admit (G)	0	0%	0	0%	0	0%
	"Third Door" Admit (K)	1	0.3%	0	0%	1	0.2%
	International (J)	7	2.1%	0	0%	7	1.7%
	Transfer (M, MR)	78	23%	19	22%	97	23%
	Other or Blank	1	0.3%	1	1.2%	2	0.5%
ACT	<22	85	30%	26	38%	111	32%
	22 to 24	83	30%	22	32%	105	30%
	25 to 27	62	22%	13	19%	75	22%
	28 to 30	34	12%	4	5.8%	38	11%
	>30	15	5.4%	4	5.8%	19	5.5%
OSU GPA	<2.0	22	6.5%	6	7.1%	28	6.6%
	2.0 to 2.49	47	14%	14	16%	61	14%
	2.50 to 2.99	85	25%	19	22%	104	25%
	3.00 to 3.49	84	25%	22	26%	106	25%
	3.50 to 4.00	100	30%	24	28%	124	29%

Science problem-solving skills scores, 2003-2005, 2007

			Score						
			1	**2**	**3**	**4**	**5**	**Avg**	**N**
Overall Scores	Overall	n	27	150	161	78	7	2.74	423
		%	6.4%	36%	38%	18%	1.7%		
By Class	Freshmen	n	9	52	49	23	2	2.68	135
		%	6.7%	39%	36%	17%	1.5%		32%
	Sophomores	n	10	44	50	25	2	2.73	131
		%	7.6%	34%	38%	19%	1.5%		31%
	Juniors	n	7	29	32	20	2	2.79	90
		%	7.8%	32%	36%	22%	2.2%		21%
	Seniors	n	1	25	30	10	1	2.78	67
		%	1.5%	37%	45%	15%	1.5%		16%
By Class (regular admits only)	Freshmen	n	7	46	46	21	2	2.71	122
		%	5.7%	38%	38%	17%	1.6%		41%
	Sophomores	n	9	33	37	19	1	2.70	99
		%	9.1%	33%	37%	19%	1.0%		33%
	Juniors	n	1	15	16	13	2	3.00	47
		%	2.1%	32%	34%	28%	4.3%		16%
	Seniors	n	0	9	13	7	1	3.00	30
		%	0%	30%	43%	23%	3.3%		10%
By Transfer Status	Native Students*	n	21	113	123	63	6	2.75	326
		%	6.4%	35%	38%	19%	1.8%		77%
	Transfer Students	n	6	37	38	15	1	2.67	97
		%	6.2%	38%	39%	16%	1.0%		23%

*Native students refers to freshmen who started at OSU as first-time freshmen

Key findings

- The committee experienced some difficulty in obtaining artifacts that could be used for the assessment.
- Average scores by classification were compared using ANOVA, and no statistically significant differences were found between groups.
- Overall scores were found to be correlated with ACT composite scores and sub-scores, as well as with OSU GPAs.

General Education Institutional Portfolios Overview

The numbers of samples scored and used in analysis for each institutional portfolio developed in 2001-2007 are shown below. Institutional Portfolios for written communication skills assessment were developed in 2001 (pilot test year), 2002, 2003, 2004, 2005 and 2006; portfolios for math problem-solving skills were developed in 2002 (pilot test year), 2003, 2005 and 2007; and portfolios for science problem-solving skills were developed in 2003 (pilot test year), 2004, 2005 and 2007. An Institutional Portfolio for assessment of critical thinking was assessed in 2004 (pilot test year), 2005, 2006 and 2007. Samples sizes have been increased in each year of portfolio development to work toward sufficient samples sizes for data analysis. An Institutional Portfolio for assessment of students' achievement of the diversity learning goal was pilot tested in 2006 and the first assessment conducted in 2007; 2006 results are not reported because the primary work of the committee was to develop a rubric for the assessment.

Number of samples in each portfolio, 2001 – 2007

	Portfolio Type					Total number of samples - all portfolios
Year	**Written Communication Skills**	**Math Problem-Solving Skills**	**Science Problem-Solving Skills**	**Critical Thinking Skills**	**Diversity Learning Outcomes**	
2001	86	-	-	-	-	86
2002	111	76	-	-	-	187
2003	225	268	68	-	-	561
2004	140	-	141	-	-	281
2005	142	189	129	141	-	601
2006	109	-	-	106	-	215
2007	-	-	85	164	69	318
All Years	**813**	**533**	**423**	**411**	**69**	**2249**

Overall portfolio scores for subject-area portfolios, years combined

		Score				
	Artifacts	**1**	**2**	**3**	**4**	**5**
Written Communication Skills (2001-2006)	N	36	221	357	169	30
	%	4.4%	27%	44%	21%	3.7%
Science Problem-Solving Skills (2003, 2004, 2005, 2007)	N	27	150	161	78	7
	%	6.4%	36%	38%	18%	1.7%
Math Problem-Solving Skills (2002, 2003, 2005)	N	60	155	159	118	41
	%	11%	29%	30%	22%	7.7%
Critical Thinking Skills (2005, 2006, 2007)	N	19	128	202	61	1
	%	4.6%	31%	49%	15%	0.2%
Diversity Learning Outcomes (2007)	N	9	35	18	7	0
	%	13%	51%	26%	10%	0%

The process of development of the critical thinking skills institutional portfolio has provided opportunities for useful discussion among faculty about ways to develop and assess students' critical thinking skills in the classroom. With this year's portfolio, the sample size is sufficient for more in-depth analysis. The committee will engage other faculty members in interpretation and analysis of the results, and discussion about action for improvement of students' achievement. The component scores should result in especially useful information for focusing efforts to improve students' critical thinking skills.

The portfolio for science also has the potential to provide useful information for assessing student achievement of general education learner goals, and results will be discussed with faculty for development of recommendations for improvement. The science portfolio is different from the critical thinking and diversity portfolios in some important ways. Unlike critical thinking and diversity samples, which are collected from courses across the undergraduate curriculum, science artifacts can only be obtained from a limited number of lower division courses. Students in some majors that are not related to science may choose to take as few as two science courses to meet general education requirements, and would generally not be expected to demonstrate science problem-solving skills in other courses. Also, the variation in the level of difficulty of the problems presented to students in courses from which artifacts can be obtained adds to the difficulty in holistically evaluating these skills using work produced in a range of courses. In contrast, courses in both upper and lower division and across all majors require students to demonstrate critical thinking skills and knowledge about diversity. The General Education Assessment Committee will further consider these unique characteristics in the continued development of these and other institutional portfolios.

Proposed General Education Assessment Activity for 2007-08

A. The Committee plans to continue the institutional portfolio for assessing student critical thinking skills. The committee recommends that two portfolio-scoring groups each review about 60 samples of randomly collected student work demonstrating critical thinking skills. Because each group consists of three faculty members, this will require six faculty reviewers

for the 2008 critical thinking portfolio (two Committee members and four additional faculty reviewers).

B. The Committee plans to expand the institutional portfolio to evaluate students' written communication skills. The Committee recommends that 2 portfolio-scoring groups, consisting of 3 faculty members, evaluate the written communication skills portfolio (two Committee members and four additional faculty reviewers).

C. The Committee plans to develop the institutional portfolio to evaluate students' learning about diversity. The Committee recommends that 2 portfolio-scoring groups, each consisting of 3 faculty members, evaluate the diversity portfolio (two Committee members and four additional faculty reviewers).

E. The Committee plans to present information sessions for faculty to describe the process and results of assessment of students' achievement of general education learning goals since the committee began its work in 2000.