

Oklahoma State University
Assessment Report
2003 - 2004

Submitted to
The Oklahoma State Regents for Higher Education
December 2004

Office of University Assessment and Testing
210 Public Information Building
Oklahoma State University
Stillwater, OK 74078-6043
405-744-6687
email: pam.lumpkin@okstate.edu
website: www.okstate.edu/assess

Contents

Executive Summary	1
What’s New in Assessment at OSU in 2003-04	5
Introduction	6
Entry-Level Assessment.	7
General Education Assessment	12
Program Outcomes Assessment	17
Table 12.1 Outcomes Assessment Methods for each OSU Academic Unit	19
Student & Alumni Surveys (Satisfaction Assessment)	39
Graduate Student Assessment	42
Special Assessment Projects	43

Appendix A. Report on Student Satisfaction with the Northern Oklahoma College / Oklahoma State University Gateway Program	
Appendix B. General Education Assessment Committee 2004 Annual Report	
Appendix C. General Education Courses Area Designations – Criteria and Goals	
Appendix D. 2004 OSU Undergraduate Program Alumni Survey Highlights	
Appendix E. Outcomes Assessment Reports by individual degree program *bound separately	

Oklahoma State University Annual Assessment Report, 2003-04

Executive Summary

Entry-Level Assessment

Three methods are used for entry-level assessment at Oklahoma State University (OSU): the ACT, a locally-developed predictive statistical model called Entry Level Placement Analysis (ELPA), and COMPASS, the ACT Computer Adaptive Placement and Support System placement tests. The first stage of entry-level assessment is the ACT subject area test scores; an ACT subscore of 19 or above (or SAT equivalent) automatically qualifies a student for college-level coursework in that subject area. The ACT Reading subscore is used to indicate readiness for courses in reading-intensive introductory courses in Sociology, Political Science, Psychology, History, Economics, and Philosophy. The second stage of entry-level assessment is ELPA; it is a multiple regression model that uses high school grades, high school class rank and size, and ACT scores to predict student grades in entry-level courses. Students scoring below a 19 on the ACT subject area test *and* with predicted grades from ELPA of less than "C" in a particular subject area are recommended for remedial coursework. All first-time OSU students are assessed using the ACT and ELPA prior to enrollment. The third level of assessment is the COMPASS placement tests; students who are not cleared for enrollment in college level courses via their ACT scores or ELPA results may waive a remedial course requirement by passing a COMPASS test. Students who are missing ACT information or high school grade information needed for ELPA may also take the COMPASS placement test to waive a remedial course requirement.

In 2003-04, entry-level assessment was conducted for all admitted and enrolled new freshmen and new transfer students with fewer than 24 credit hours (n=4,328). After all stages of entry-level assessment were completed, 617 new students (14.3% of the total number enrolled) were recommended to take at least one remedial course. Of these, 86 (2.0%) were recommended to enroll in remedial English (UNIV 0133); 515 (11.9%) needed remedial math (UNIV 0123); 173 (4.0%) needed remedial science (UNIV 0111), and 67 (1.5%) were recommended to enroll in a course focused on reading and study skills (CIED 1230) (note: some students are required to take remedial courses in more than one subject area).

Additional entry-level assessments used at OSU include the Cooperative Institutional Research Program (CIRP) Freshman Survey and the Noel-Levitz College Student Inventory. The CIRP Freshman Survey is a university-wide survey that is conducted in alternate years and will be conducted in Fall 2004. The College Student Inventory by Noel-Levitz, Inc., is a retention-management tool that may be used to identify potential problem areas for new students and is used each year in the College of Human Environmental Sciences.

General Education Assessment

OSU's assessment program uses three tools to evaluate student achievement of the expected learning outcomes for general education and the effectiveness of the general education curriculum: (1) institutional portfolios, (2) university-wide surveys, and (3) a general education course content database. Each of these three methods is aimed at evaluating expected student learning outcomes that are articulated in the *OSU General Education Course Area Designations Criteria and Goals* document (Appendix C). Revisions to this document were approved in 2004, to facilitate more effective assessment of student learning goals. General education assessment is also guided by the

university's mission statement and the purpose of general education as articulated in the OSU catalog.

Institutional Portfolios directly assess student achievement of the primary learner goals for general education. 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 assessment committee members and additional faculty members involved in undergraduate teaching) work in groups to evaluate the work in each portfolio and assess student achievement of the learner goal by using standardized scoring rubrics. The results provide a measure of the extent to which students are achieving OSU's expected general education competencies.

In 2003-04, institutional portfolios were used to evaluate student written communication skills and science problem solving skills, and a process to assess critical thinking skills was developed and tested. The writing skills portfolio includes student work from OSU students from all classes (freshmen through seniors) and disciplines; the student work included in the science portfolio is primarily from freshmen and sophomores taking lower division science courses. Each 'artifact' of student work in the institutional portfolios is evaluated by a team of faculty reviewers and scored using a 5-point rubric, where a score of 5 represents excellent work. For writing assessment, 69% of students received a score of 3 or higher (representing acceptable, good, or very good work). Portfolio results show that seniors demonstrate significantly better writing skills than freshmen. For science assessment, 69% of students received a score of 3 or higher. Each year, the use of institutional portfolios is expanded to cover additional general education student learner goals.

University-wide surveys such as the National Survey of Student Engagement and OSU Alumni Surveys indirectly assess student achievement of general education learner goals and are used to corroborate evidence collected from the institutional portfolio process. For example, the General Education Advisory Council (GEAC) used results from the National Survey of Student Engagement (conducted in 2000 and 2002), in conjunction with institutional portfolio results, to assess the general education program. After review of assessment results, GEAC implemented new standards to increase opportunities for students to develop written communication skills in general education courses.

The web-based General Education Course Database is used to evaluate how well each general education course is aligned with the expected learning outcomes for the general education program. 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. Instructors identify which general education learning goals are associated with the course and describe course activities that provide students with opportunities to achieve those learning goals. The database provides a tool for summarizing general education course offerings and evaluating the extent to which the overall general education goals are met across the curriculum.

OSU's general education assessment methods are aimed at holistically evaluating student achievement of general education outcomes and critically evaluating the curriculum itself by evaluating how each course incorporates general education learner goals. Institutional portfolios and university-wide surveys are implemented such that student participants are anonymous; therefore, these methods do not permit tracking individual students into future semesters. Information from general education assessment is presented annually to the General Education Advisory Council, Assessment Council, Instruction Council, and Faculty Council. The process has generated attention to student learning, general education outcomes, and how individual general education courses provide opportunities for students to develop general education knowledge and

skills. Four years after implementation, these assessments are yielding interesting results and influencing change at several institutional levels.

Program Outcomes Assessment

All OSU degree programs, including undergraduate and graduate programs, must have an outcomes assessment plan and must submit an annual assessment report describing assessment activity. Assessment plans and reports may be submitted by colleges, schools, departments, or by individual degree programs, depending on the organizational level that faculty from these programs have elected to use for assessment. The Assessment Council periodically reviews all assessment plans and reports; this year the schedule for these reviews was modified to support the Academic Program Review (APR) process. Since documentation of the use of assessment results for program development is now requested for the APR process, the Assessment Council will review and provide feedback on outcomes assessment one year in advance of the program's participation in Academic Program Review.

Academic units use a broad range of methods to assess student achievement of the learning outcomes articulated in assessment plans, and these are described in detail in the individual assessment reports submitted by each unit. The most commonly used program outcomes assessment methods reported in 2003-04 were:

- Capstone course projects, papers, presentations evaluated by faculty or by outside reviewers
- Senior-level projects & presentations
- Course-embedded assessments & classroom assessment techniques
- Exams – local comprehensive exams, local entry-to-program exams
- Exams – standardized national exams, certification or licensure exams,
- Exit interviews
- Internships – evaluations from supervisors, faculty members, student participants
- Portfolios - reviewed internally or externally
- Projects, portfolios, exhibits, or performances – evaluated by professional jurors or evaluators
- Student performance in intercollegiate competitions
- Surveys - alumni
- Surveys - employers / recruiters
- Surveys – students, esp. seniors
- Surveys – faculty
- Enrollment data, student academic performance in particular courses, student participation in extracurricular activities related to the discipline, degree completion rates, time-to-degree completion
- Alumni employment tracking

Graduate programs reported the following outcomes assessment methods *in addition to* the methods described above:

- Qualifying exams
- Theses / dissertations / creative component papers, projects, presentations, and defenses
- Comprehensive exams
- Research activity / publications / professional presentations / professional activity

In addition to these outcomes assessment methods, the Office of University Assessment and Testing coordinates alumni and student surveys and provides program-specific results of these surveys to academic programs so that faculty may use this information for program outcomes assessment.

In keeping with the guidelines of the Higher Learning Commission of the North Central Association and the policy of the OSU Assessment Council, faculty are encouraged to develop effective program outcomes assessment methods that will provide meaningful information for program development and improvement. The Assessment Council reviews of outcomes assessment programs show that most degree programs are satisfactorily implementing their assessment plans and using assessment results for program development and improvement. Academic units are encouraged, but not required, to use assessment methods that may provide comparison of student performance with statewide or national norms. Programs that use such assessments report their findings in their individual annual outcomes assessment reports (Appendix E).

The number of individuals who participate in each outcomes assessment method within each academic unit is shown in Table 12.1 and is described in detail in the individual assessment reports submitted by each academic unit (Appendix E). Academic units are required to report the number of individuals assessed *in each assessment method*. Because the same students are assessed by multiple methods, the reporting process does not provide an accurate count of the total number of students that participated in outcomes assessment. Outcomes assessment reports demonstrate that academic programs use multiple assessment methods and a majority of students within each program participate in outcomes assessment measures. The sum of all individuals who participated in all assessment methods is 22,564, but this total includes multiple counts of the same students (because students participate in multiple assessment methods) and also may include non-students (because, the ‘number of individuals assessed’ in an alumni survey or employer survey, for example, would reflect numbers of alumni or employers, respectively, rather than current students).

Uses of assessment results are unique to each program but can be generally categorized as sharing assessment information with faculty members, developing curriculum changes in response to assessment findings, and using assessment results to justify curriculum changes that have recently been implemented. The most commonly cited uses of assessment results in 2003-04 were:

- Changes in course content
- Addition / deletion of courses
- Changes in degree requirements or degree sheet options
- Development of tutorial and academic services for students
- Justification of past curriculum changes and to show program improvement resulting from those changes
- Refinement of the assessment methods or to implement new assessment methods
- Changes in course sequences
- Changes in advising processes
- Facilitate curriculum discussions at faculty meetings, curriculum committee meetings, and faculty retreats
- Changes to student facilities such as computer labs and science labs
- Development of program-based websites to provide students with academic and program information

Student and Alumni Satisfaction Assessment

Student and alumni surveys are conducted to evaluate student and alumni perceptions of academic and campus programs and services, and the results are used in developing and improving those programs and services. The surveys complement program outcomes assessment because they are designed to provide feedback from students and alumni for use in continuous quality improvement in academic and student programs.

Alumni surveys are conducted every year at OSU; undergraduate program alumni and graduate program alumni are surveyed in alternate years. The surveys are intended to identify institutional strengths and areas for improvement as perceived by recent graduates; to track the careers and continuing education of recent OSU graduates; and to evaluate achievement of learning outcomes as perceived by alumni from individual academic programs. The alumni surveys target alumni who are 1- and 5-years post-graduation. The surveys are conducted as telephone interviews, and the questionnaire covers employment, continued education, and general satisfaction. Also, individual academic programs may include program-specific questions in the questionnaire for their program alumni; these data are used in program outcomes assessment as well as assessing alumni satisfaction. Alumni surveys have become a cornerstone of assessment at the university-, college- and program- level by providing regular feedback from OSU graduates about their perceptions of their educational experiences at OSU and its impact on their career and personal development.

The Undergraduate Program Alumni Survey was conducted in January 2004, and 2,520 alumni responded to the survey out of a target population of 5,875 graduates (response rate = 43%). Most alumni (94%) stated that they were satisfied or very satisfied in their educational experiences at OSU, and 93% indicated that their undergraduate program prepared them very well or adequately for their current career. About 68% of the alumni contacted for the survey were residing in Oklahoma, and about 32% were contacted out of state.

Graduate Student Assessment

Student outcomes assessment in graduate programs is part of Program Outcomes Assessment and is reported in that section of this report. In addition, a Graduate Student Satisfaction Survey is conducted in alternate years and the Office of University Assessment and Testing conducts the Survey of Alumni of Graduate Programs in alternate years. These university-wide assessments provide university- and program-level assessment information about graduate students. A Graduate Student Satisfaction Survey will be conducted in Fall 2004, and the third Survey of Alumni of Graduate Programs will be conducted in spring 2005.

What's New in Assessment at OSU in 2003-04:

- *Continued Development of General Education Assessment.* OSU is in its fourth year of implementing a general education assessment plan that was developed in 2000. The process uses three methods (institutional portfolios, university-wide surveys, and a course content database) to evaluate the extent to which students are achieving the articulated learning goals for the general education program. Results of the assessment of students' written communication skills prompted the General Education Advisory Council to increase requirements for writing assignments in some general education courses. A process for assessment of students' critical thinking skills was tested in 2003-04, and an institutional portfolio of student work samples will be developed for assessment in 2005.
- *Professional Development Sessions for Faculty and Assessment Coordinators.* The General Education Assessment Committee and the Assessment Council plan to provide a series of professional development sessions for faculty and assessment coordinators in 2004-05. In Fall 2004, these groups are scheduled to present sessions titled "Developing and Assessing Critical Thinking," "Using Portfolios for Outcomes Assessment," "Effective Departmental Outcomes Assessment," and "Regional Accreditation with the Higher Learning Commission." Additional sessions are planned on the process and results of general education assessment since its inception in 2000, and effective outcomes assessment for graduate programs. In addition, the Assessment Council agreed to provide additional funding to support faculty travel to conferences and workshops on assessment.
- *Assessment Council Reviews of Outcomes Assessment Programs Integrated with Academic Program Review Process.* In Spring 2004, the OSU Assessment Council approved a modification to its schedule for review of program outcomes assessment. Beginning in Fall 2004, outcomes assessment for each degree program will be reviewed one year in advance of the program's participation in the Academic Program Review (APR) process. The APR process now requests documentation of each program's assessment activities, so this schedule modification will allow for feedback from the Assessment Council well in advance of the Academic Program Review. Past assessment reviews have resulted in greater communication and understanding of outcomes assessment and what academic units should be doing. Almost three-quarters of the academic units have revised their assessment plans or otherwise demonstrated greater commitment to outcomes assessment in their programs as a result of feedback received from the Assessment Council Reviews.
- *Student Satisfaction with the Northern Oklahoma College / Oklahoma State University Gateway Program* (Appendix A). An important special assessment project in Spring 2003 was the development of an assessment plan for evaluating the impact of remedial courses offered to OSU students by NOC faculty at their new Stillwater campus. This assessment process will be tracked through future OSU Annual Assessment Reports.
- *2004 Survey of Alumni of Undergraduate Programs* (Appendix D). The Office of University Assessment conducted the second university-wide survey of alumni of OSU undergraduate programs in January 2004. Results from these alumni surveys have become a cornerstone of the assessment efforts for most OSU academic units and provide valuable information about the career patterns of recent graduates.

Additional information about OSU's assessment program is available on the Internet at www.okstate.edu/assess.

Introduction

Assessment is an integral part of Oklahoma State University's commitment to continuous program improvement and sustaining and enhancing academic quality and the student experience. OSU's assessment program is divided into four primary areas as directed by the Oklahoma State Regents for Higher Education: entry-level assessment, general education assessment, program outcomes assessment, and assessment of student and alumni satisfaction. All of these assessment efforts span multiple institutional levels - from university-wide assessments to assessments conducted by individual academic programs and student service areas. Formally initiated in 1992, OSU's assessment program has evolved into a matrix of evaluation and monitoring aimed at improving students' educational experiences.

Assessment at OSU permeates all levels within the institution and includes assessments focused on the entire student body or on issues of concern to the central administration, as well as hundreds of projects aimed at individual college- and program-level assessments. The Associate Vice President for Academic Affairs oversees OSU's assessment program, supervises the Office of University Assessment and Testing, and communicates assessment information to campus leaders. The faculty Assessment Council guides university-wide assessment efforts and monitors the use of student assessment fees to support assessment initiatives at the university-level and within individual colleges and academic programs. The Office of University Assessment and Testing conducts university-wide assessment projects, allocates funding and provides information for the development of successful assessment programs, and coordinates annual reporting and the dissemination of assessment information. The Office of Institutional Research and Information Management works closely with the Office of University Assessment and Testing and administers entry-level assessment and provides data for all other assessment areas. The Division of Student Affairs collaborates on student surveys and coordinates assessments within student affairs units and service areas. The Admissions Office, University Testing Center, and the OSU Bureau for Social Research also assist in collecting assessment data at the university level. At the program level, administrators and faculty members within each academic unit are responsible for assessing student achievement of expected program outcomes. Each OSU academic unit has a faculty Assessment Coordinator who is responsible for guiding outcomes assessment in their academic program(s). For purposes of program outcomes assessment, an academic unit may refer to a college, school, department, or degree program. Each academic unit has an outcomes assessment plan and submits annual assessment reports.

This annual OSU Assessment Report is prepared in compliance with the State Regents' *"Policy Statement on Assessment of Students for the Purposes of Instructional Improvement and State System Accountability"* and annual guidelines from the OSRHE. The report summarizes all assessment activity from the Stillwater and Tulsa campuses of Oklahoma State University. As instructed by the State Regents, the report provides responses to specific questions in the areas of entry level assessment, mid-level assessment, program outcomes assessment, assessment of student and alumni satisfaction, and assessment of graduate programs. The report also provides an overview of OSU special assessment projects and new developments in assessment for 2003-04.

Entry-Level Assessment

The purpose of entry-level assessment is to assist academic advisors in making placement decisions that will give the student the best possible chance of academic success.

1. What methods were used for entry-level course placement? What were the instruments and cut-scores used for each subject area and course?

The offices of University Assessment and Testing, Institutional Research and Information Management, Undergraduate Admissions, and the University Testing Center jointly accomplish entry-level assessment at Oklahoma State University (OSU). Three methods assess students' readiness for college level coursework: the ACT (consisting of four subtests in English, Reading, Mathematics, and Science Reasoning), results of the Entry-Level Placement Analysis (ELPA; developed by OSU), and the COMPASS placement test (Computer Adaptive Placement and Support System, produced by ACT).

Each enrolled new student (new freshmen and transfer students with fewer than 24 credit hours) receives a Student Assessment Report that summarizes information used for entry-level assessment:

- the student's academic information (ACT scores, high school GPA and class rank),
- the results of ELPA (described below),
- curricular and performance deficiencies that require remediation, and
- recommendations and requirements for course placement as per OSU guidelines that have been approved by the Oklahoma State Regents for Higher Education.

ACT Scores. ACT subscores in Reading, English, Mathematics, and Science Reasoning are used for the first level of assessment. An ACT subscore of 19 or above (or SAT equivalent) automatically qualifies a student for college-level coursework (1000-level university courses) in that subject area. The ACT subscore in Reading is used to indicate readiness for introductory college courses that require extensive reading (Sociology, Political Science, Psychology, History, Economics, and Philosophy).

Entry-Level Placement Analysis (ELPA). All students, regardless of ACT subscores, are also assessed using Entry-Level Placement Analysis (ELPA), a multiple-regression model that uses high school grades (overall grades and grades in each subject area), high school class rank, and ACT composite and subject area scores to predict student grades in selected entry-level OSU courses. These predictions are based on the success of past OSU freshmen with similar academic records. The predictive models for ELPA are updated annually. For each student, ELPA produces a predicted grade index (PGI) that represents the grade that the student is predicted to obtain in selected entry-level courses. A PGI of 2.0 or higher indicates a predicted grade of 'C' or better. The PGI serves to alert the student and advisor of potential problems when predicted grades are low. The PGI is also used to recommend college level placement for students with ACT subscores below 19. Students with ACT subscores below 19 may be cleared for enrollment in 1000-level university courses if their predicted grade in the subject area (from ELPA) is 2.0 or higher.

COMPASS. Students with ACT subscores below 19 and with predicted grades of less than 2.0 in a particular subject area (from ELPA) may take the ACT COMPASS placement test to qualify for

college-level courses. COMPASS placement tests are available in the subject areas of Mathematics, Reading, and English. Students may also take a science placement test that combines elements from the COMPASS mathematics and reading subject tests.

The cut-scores for the COMPASS tests in each subject area are shown in Table 1.1

Table 1.1. Cut-scores for the COMPASS placement test (revised March 2004).

Math Placement:

<i>ALGEBRA Score</i>	<i>Course Placement</i>
0 – 54	UNIV 0023 or UNIV 0123 required
55-71	UNIV 0123 recommended
72 - 100	No enrollment restrictions

English Placement:

<i>WRITING Score</i>	<i>Course Placement</i>
0 - 55	UNIV 0133 required
56 - 100	No enrollment restrictions

Reading Placement:

<i>READING Score</i>	<i>Course Placement</i>
0 - 70	UNIV 0143 strongly recommended
71 - 100	No enrollment restrictions

Science Placement:

*Must pass COMPASS math *and* reading tests for placement into college-level science

<i>ALGEBRA Score</i>	<i>READING Score</i>	<i>Course Placement</i>
55 - 100	71-100	No enrollment restrictions
55 - 100	0 - 70	UNIV 0111 required
0 - 54	71-100	UNIV 0111 required
0 - 54	0 - 70	UNIV 0111 required

2. How were instruments administered? Which students were assessed? Describe how and when they were assessed, including options for the students to seek retesting, tutoring, or other academic support.

All first-time entering students (new freshmen and transfer students with fewer than 24 hours) are assessed using Entry-Level Placement Analysis (ELPA), and all students are provided a Student Assessment Report describing the entry-level assessment results. The Student Assessment Reports are produced by the Office of Institutional Research and Information Management and are distributed to students by the Admissions Office. The reports are included in each student's file and are available when the student meets with their advisor for enrollment; hence, this assessment primarily occurs just prior to the spring and fall enrollment periods.

In 2003-04, a total of 4,328 admitted and enrolled new freshmen and transfer students with fewer than 24 credit hours were assessed via entry-level placement analysis.

Students who were not cleared for 1000-level courses have several options. They may enroll in the remedial (zero-level, non-credit) course that is recommended; they may take the ACT test again, or they may take the COMPASS placement test to demonstrate proficiency in the subject area. Students may take the COMPASS test in any subject area twice free of charge at the University Testing Center. Students may prepare for the COMPASS placement test by visiting the ACT COMPASS website and viewing sample questions and information on COMPASS test content.

The entry-level assessment process also includes evaluation of educational readiness, educational goals, study skills, values, self-concept, and motivation, as per the State Regents' Assessment Policy. These important aspects of entry-level assessment are included in the advising process when students meet with their advisors prior to enrollment.

Many resources are available to OSU students for academic support. *University Academic Services (UAS)* offers free tutoring services to all OSU students. The *Math Learning Resources Center* provides individual tutoring in mathematics. The *Writing Center* provides tutors, writing coaches, a grammar hotline, and assistance with word processing. *University Counseling* provides services to help students improve their study habits, deal with test anxiety, develop better time management skills, and explore careers. The *College of Engineering, Architecture, and Technology* provides students with additional academic support by offering tutoring in entry-level calculus, physics, chemistry, and engineering science courses for all students enrolled in these classes. The *College of Agricultural Sciences and Natural Resources* also offers a special program, Freshman in Transition (FIT), aimed at providing new students with academic support services to facilitate their first year experience.

3. What were the analyses and findings from the 2003-04 entry-level assessment?

In 2003-04, Student Assessment Reports were produced for all admitted and enrolled new freshmen and new transfers with fewer than 24 credit hours (n=4,328). Each Student Assessment Report contained the student's high school data, ACT scores, results of Entry-Level Placement Analysis (ELPA), and course placement recommendations and requirements. Table 3.1 shows the number of enrolled students who had performance deficiencies in each subject area based on ACT scores alone (i.e., ACT subscores <19) and the number of these deficiencies that were cleared using ELPA (i.e., cleared based on high school performance in particular core curriculum areas).

Table 3.1. Number of enrolled new students with ACT scores below 19 in each subject area and number of these students who were cleared for college-level coursework by Entry-Level Placement Analysis (ELPA) in 2003-04.

Subject Area	# of Students with ACT subscores <19*	# of Students cleared for college-level coursework by ELPA
English	455	338
Mathematics	747	232
Reading	377	298
Science	234	61

*Some students had ACT subscores <19 in more than one subject area. The following numbers of students were missing ACT subscores in these subject areas: English – 446, mathematics – 447, reading – 624, science – 646.

Students who were not cleared for college-level courses via ELPA and were required to take one or more remedial classes could take a COMPASS placement test in their area(s) of deficiency. The number of students who took the COMPASS test in each subject area and the number who passed are described in Table 3.2.

Table 3.2. Number of students who took COMPASS placement tests in 2003-04.

Subject Area	# of Enrolled Students who took a COMPASS placement test*	# of Students who passed COMPASS and were cleared for college-level coursework
English	57	48
Mathematics	52	8
Reading	39	35

*Some students took COMPASS tests in more than one area

*cut-scores are shown in Table 1.1.

*this table differs from previous years because only students enrolled at OSU are included

*some students took a COMPASS test although they were not required by ELPA to take remedial courses

After all entry-level assessments were completed, 617 new students (14.3% of the total number enrolled) were recommended to take at least one remedial course. This percentage is consistent with previous years: in 2002-03, 14.8% of new students were recommended for at least one remedial course; in 2001-02, 16.7% of new students were recommended for at least one remedial course; in 2000-01, 17.0% of new students were recommended for at least one remedial course; and in 1999-00, 15.9% of new students were recommended for at least one remedial course.

Of the 4,328 enrolled new students in 2003-04, 86 (2.0%) were recommended to enroll in remedial English classes; 515 (11.9%) in remedial math classes; 173 (4.0%) in remedial science classes, and 67 (1.5%) in remedial reading classes. These findings are also similar to previous years. Note that some of the students who are recommended for remedial classes are students with less than 24 hours of transfer credit (i.e., considered as new, first-time freshmen for the purpose of entry-level assessment) who have satisfied their remedial course requirement with transfer courses. For this reason, the number of students who are recommended to enroll in remedial classes may differ from the number of students enrolled in those classes in their first year at OSU.

4. How was student progress tracked? Describe analyses of student success in both remedial and college-level courses, effectiveness of the placement decisions, evaluation of cut-scores, and changes in the entry-level assessment process as a result of findings.

Tracking of student success in remedial and college-level courses. Annual trends in grades, drops, withdraws, and failure rates in common freshman courses are monitored each semester by Institutional Research and Information Management and University Academic Services. Results of this tracking are shared each semester with the Directors of Student Academic Services and the Instruction Council. The offices of University Assessment and Testing and Institutional Research

and Information Management work cooperatively to evaluate the entry-level assessment and track student success in remedial and college-level courses.

Student satisfaction with NOC/OSU Gateway Program. In March 2004, 248 students (56%) who had enrolled in at least one course through the NOC/OSU Gateway program in Fall 2003 participated in a telephone survey to assess their satisfaction with the program and to determine their perceptions about their preparation for college-level courses. Nearly all (96%) students who participated in the survey had taken Math through the Gateway program. Students reported high levels of satisfaction with the quality and method of instruction. Responses of satisfied and very satisfied were given by 91% of students for overall instruction, 88% for self-paced instruction, and 84% for computer-based instruction. More than half (60%) of those surveyed said they were well-prepared or very well-prepared as a result of taking the Gateway course. Additional survey results are provided in Appendix A.

Changes in entry-level assessment. No changes were made to entry-level assessment procedures, the Entry-Level Placement Analysis program, or COMPASS testing procedures in 2003-04.

5. What other studies of entry-level assessment have been conducted at the institution?

The CIRP Freshman Survey. The CIRP Freshman Survey is conducted in alternate years at OSU as part of a nationwide study conducted jointly by the American Council on Education and the University of California at Los Angeles' Higher Education Research Institute. The study provides information about the expectations, attitudes, and experiences of OSU freshmen and college freshmen nationwide. The survey results help identify areas that may become problems for students during their first year, and these areas can then be addressed in orientation classes and by academic advisors. Results of the study also help in developing programs for students by providing current information about what is important to students, what they hope to accomplish, what they are concerned about, and how they hope to become involved in campus life. The Office of University Assessment and Testing will conduct the next CIRP Freshman Survey in Fall 2004.

The College Student Inventory. The College Student Inventory (CSI) is part of the Retention Management System developed by Noel-Levitz, Inc. The survey is given to new students during their first few days on campus and measures specific motivational variables that are closely related to persistence and academic success in college. The College of Human Environmental Sciences uses this survey each year at the beginning of fall semester. The college combines the CSI data with other background and academic information and tracks the academic success of these students. Information from the survey is used in student-advisor conferences and is used to identify problems that could impede academic success. Overall results of the CSI are used to identify the factors that contribute to persistence or withdrawal among incoming students and to develop programs and strategies to enhance student retention.

Student satisfaction with NOC/OSU Gateway Program. In March 2004, 248 students (56%) who had enrolled in at least one course through the NOC/OSU Gateway program in Fall 2003 participated in a telephone survey to assess their satisfaction with the program and to determine their perceptions about their preparation for college-level courses. Nearly all (96%) students who participated in the survey had taken Math through the Gateway program. Students reported high levels of satisfaction with the quality and method of instruction. Responses of satisfied and very satisfied were given by 91% of students for overall instruction, 88% for self-paced instruction, and 84% for computer-based instruction. More than half (60%) of those surveyed said they were well-

prepared or very well-prepared as a result of taking the Gateway course. Additional survey results are provided in Appendix A.

6. What instructional changes occurred or are planned due to entry-level assessment?

Entry-level assessment information is used in a variety of ways in OSU colleges. Continued demand for the entry-level Student Assessment Reports and information on entry-level assessment processes indicates that results of entry-level assessment are integral to the process of advising new students prior to enrollment.

Colleges use the results of the CIRP Freshman Survey in freshmen orientation courses to stimulate discussion about student expectations about college and common problems that students face in their first semester. The *Freshman Success @ OSU* brochure incorporates information from these OSU surveys and is used as a tool to disseminate assessment information to OSU students.

- The *Freshmen in Transition* (FIT) program for College of Agricultural Sciences and Natural Resources students is in its third year and is aimed at developing a supportive academic community for new students. This program resulted partly from prior assessments in the college such as the College Student Inventory.
- The College Student Inventory will continue to be used by the College of Human Environmental Sciences to identify students who may need additional assistance in their first college year and to develop courses, programs, and services for new students.

General Education Assessment

The purpose of general education assessment at OSU is to evaluate students' achievement of institutionally recognized competencies in general education, including communication, analytical, and critical thinking skills. OSU students typically take general education courses throughout their undergraduate degree program. For this reason, the process is not referred to as '*Mid-Level Assessment*' as described by the State Regents. OSU's general education assessment program focuses on student attainment of general education competencies throughout the undergraduate curriculum and not necessarily at the mid-point of students' careers.

OSU's general education assessment program has been developed under the direction of three faculty groups: the General Education Assessment Committee, the Assessment Council, and the General Education Advisory Council. General Education assessment is aimed at evaluating student achievement of the institution's articulated general education competencies that are described in the OSU catalog and in the *OSU General Education Courses Area Designations – Criteria and Goals* document.

The history of OSU's general education assessment efforts and data collected to date are described in detail in **Appendix B** (the 2004 Annual Report from the General Education Assessment Committee).

7. What measures were used to assess reading, writing, mathematics, critical thinking, and other institutionally recognized general education competencies? Describe how assessment activities were linked to the institutional general education program competencies.

OSU's assessment program uses three tools to evaluate student achievement of the general education program competencies and the effectiveness of the general education curriculum:

(1) *Institutional Portfolios*. The General Education Assessment Committee has developed institutional portfolios to assess students' written communication skills (data collection in 2001, 2002, 2003, and 2004), math problem solving skills (data collection in 2002 and 2003), and science problem solving skills (data collection in 2003 and 2004). Details about the portfolios developed in 2004 (to evaluate students' written communication skills and science problem solving skills) are described in Appendix B. The report in Appendix B also describes the work done this year to develop a process and evaluation rubric to assess students' critical thinking skills. An institutional portfolio will be developed for assessment of critical thinking in 2005. 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 assessment committee members and additional faculty members involved in undergraduate teaching) work in groups to evaluate the work in each portfolio and assess student achievement of 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 competencies as described in the *OSU General Education Course Area Designations Criteria and Goals* (Appendix C).

Institutional portfolios represents a holistic approach to general education assessment. The assessment is not aimed at individual courses, departments, or faculty. Rather, it utilizes work produced by students in their OSU courses and evaluates those 'artifacts' to gauge how successful students are in achieving the institution's general education learner goals. The student work that is

included in the portfolios has no identifying information, so the process protects student anonymity. The process is minimally intrusive to faculty, transparent to students, and utilizes work that is already produced in general education courses and other courses throughout the curriculum.

(2) *General Education Course Database.* The General Education Course Database is a tool for evaluating how each general education course is aligned with the expected learning outcomes for the general education program as a whole. Instructors are asked to submit course information online via a web-based form, and the General Education Advisory Council reviews the submitted information during regular course reviews. Instructors identify which general education learning goals are associated with the course and discuss the course activities that provide 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. When completed, the database will provide a useful tool for holistically evaluating general education course offerings and the extent to which the overall general education goals are achieved across the curriculum.

During the past academic year the General Education Designation Request Form was updated to include the new general education criteria and goals (see OSU General Education Course Area Designations Criteria and Goals - Appendix C). This form provides the data that comprise the General Education Course Database. The existing database is currently being merged into the new database so that future analysis can include information gathered prior to conversion of the General Education Designation Request Form.

(3) *University-wide surveys.* Surveys such as the National Survey of Student Engagement (NSSE), the College Student Survey, and Alumni Surveys (Appendix D) provide indirect measures of the extent to which students' have achieved general education competencies and information that helps corroborate evidence collected from the institutional portfolios. For example, OSU's NSSE data show that OSU seniors write fewer papers than seniors at peer institutions, and this has corroborated results of the written communication skills institutional portfolio. Results of these surveys are described in other sections of this annual report.

In addition to these university-level assessments of general education learner goals described in this section of the report, many individual academic programs incorporate general education or mid-level assessment of writing, mathematic, science, problem solving, and critical thinking skills into their program outcomes assessment efforts. These are described in the program outcomes assessment reports for individual academic programs (Appendix E).

8. Which and how many students participated in general education assessment? Describe how the instruments were administered and how students were selected. Describe strategies to motivate students to participate meaningfully.

In 2003-04, institutional portfolios were developed to evaluate student written communication skills and science problem solving skills, and a process was developed for assessment of critical thinking skills. The portfolios included student work from 448 students from all classes (freshmen through seniors) and disciplines. Work from 152 students was contributed to the writing portfolio, and work from 296 students was contributed to the science portfolio. The work included in the portfolios was randomly selected from assignments in 25 OSU courses, including general education courses and upper division courses from across the curriculum. The courses represented a convenience sample because faculty members volunteered course assignments for the project. From each course assignment, a fixed number of 'artifacts' of student work were randomly selected

for the portfolio (approximately ten samples per course for the writing portfolio, 10 to 25 samples per course for the science portfolio).

The development of institutional portfolios is transparent to students; students are not aware when their work is randomly selected for inclusion in an institutional portfolio. Therefore, motivating students to participate is not an issue. The artifacts are coded immediately after they are collected, and information that identifies individual students is removed after minimal demographic information is obtained from institutional records for analysis purposes (e.g., major, class, gpa, and transfer credit hours). This protects student anonymity in the process, but also prohibits the use of the resulting data for tracking students into future semesters.

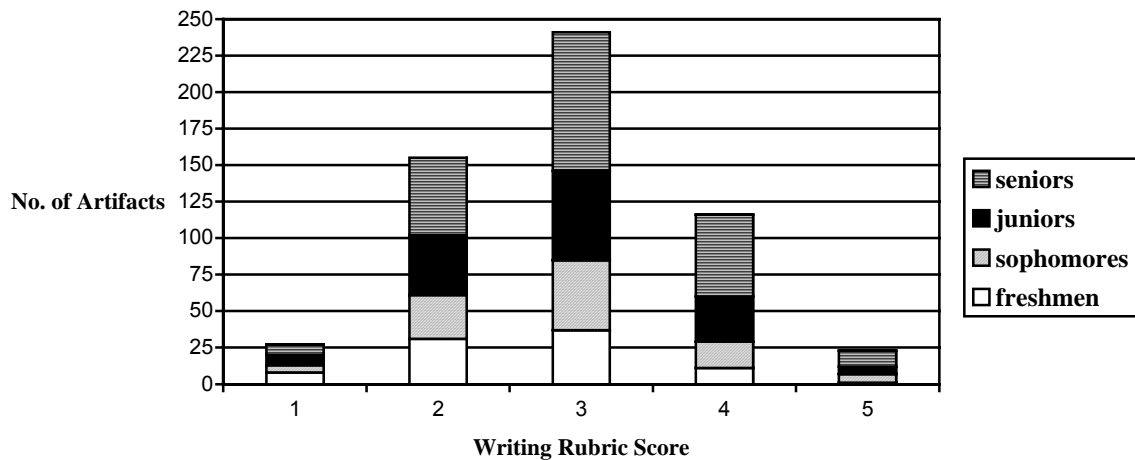
9. How was student progress tracked into future semesters and what were the findings?

OSU’s General Education Assessment program is aimed at holistically evaluating student achievement of the expected learning outcomes for general education. Institutional portfolios essentially give a ‘snapshot’ of students’ competencies at the time the portfolio is assembled, and university-wide surveys provide an overview of student achievement of general education outcomes. Because individual student information is not captured and recorded in either of these methods, the processes do not permit tracking students into future semesters. However, because portfolios are assembled each year, the process does allow us to detect changes in student general education competencies over time.

10. What were the analyses and findings from the 2003-04 general education assessment?

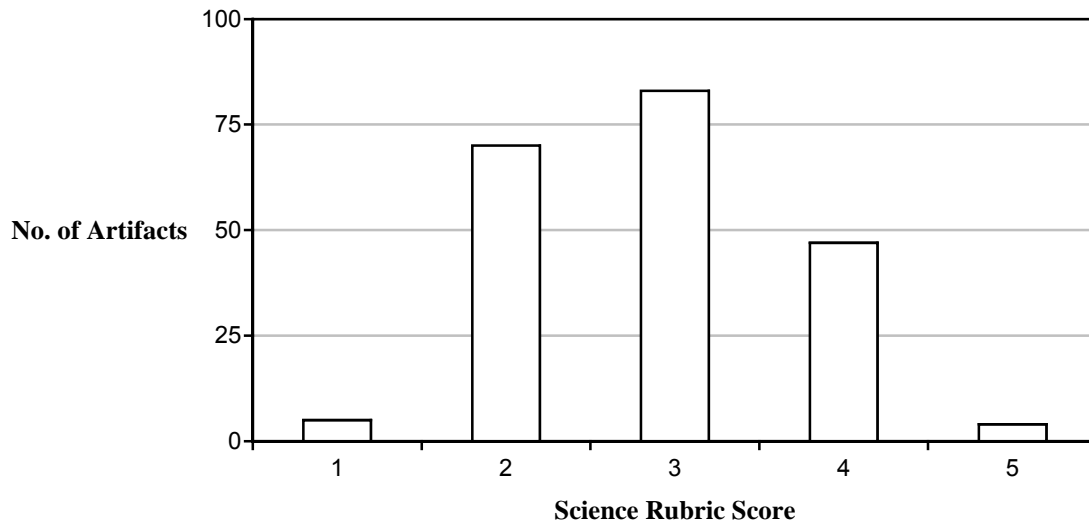
The analysis and findings from the 2004 institutional portfolios are described in detail in the General Education Assessment Committee’s annual report (Appendix B).

Institutional portfolio – writing skills assessment. Results of this year’s assessment of students’ written communication skills build on data collected in 2001, 2002, and 2003. The distribution of writing assessment scores from the 2001-04 institutional portfolios for writing assessment (total n=562) is shown below:



Each sample of student work was scored using a rubric with a 5-point scale. Writing scores on artifacts produced by freshmen had significantly lower scores than writing samples from seniors. About 73% of samples produced by seniors received a score of 3 or higher, and 56% of work produced by freshmen received scores of 3 or higher. When only regularly admitted students are evaluated (excluding transfer students, international students, and students admitted to the institution under alternative admission policies), more than 77% of work produced by seniors received scores of 3 or higher. Although students who start their career at OSU ('native' OSU students) are slightly more likely to receive high scores on their writing samples, there was no statistically significant difference between the writing scores of native and transfer students, even when only regularly-admitted native students are considered in the comparison.

Institutional portfolio – science problem-solving skills assessment. Results of this year's assessment of students' science problem-solving skills builds on data collected in 2003, but the sample size in the portfolio (n=209 artifacts) is still too small to make meaningful inferences. The distribution of scores from the 2003-04 institutional portfolio for science problem-solving skills assessment (total n=209) is shown below:



As with the writing portfolio, each sample of student work is scored using a Science Problem-Solving Skills Rubric with a 5-point scale. The overall distribution of scores indicates that 69% of students in science courses sampled for the portfolio demonstrate science problem-solving skills at the mid-point of the rubric (a score of '3') or higher.

11. What instructional changes occurred or are planned in the general education program due to general education assessment?

Information from the General Education Assessment Program is shared annually with the faculty who serve on the Assessment Council, Instruction Council, Faculty Council, and the General Education Advisory Council. The latter group is charged with the development and review of the general education curriculum; they consider general education assessment information in their review and approval of general education courses and in developing the criteria for those courses.

In Spring 2004, the General Education Advisory Council approved a new policy increasing requirements for written assignments in courses with general education designations; the policy is

described in the document, "Oklahoma State University General Education Courses Area Designations – Criteria and Goals" (Appendix C). Effective August 2004, new requests for General Education designations must meet criteria and goals in this document.

The writing requirement for H, S and I courses is defined as follows:

Lower division courses - outside of class writing assignments appropriate to the discipline that are graded with feedback on writing. Minimum of 5 pages of writing assignments during semester.

Upper division courses - outside of class writing assignments that give students the opportunity to incorporate feedback in subsequent writing assignments (by revising and resubmitting one assignment or submitting more than one assignment). Minimum of 10 pages of writing assignments during semester.

Faculty who teach "N" and "L" courses will describe writing assignments that are appropriate to the discipline.

The General Education Assessment Committee plans to evaluate the effect of the new writing requirements in 2004-05, and will continue the development of institutional portfolios to assess students' general education outcomes in 2005.

Program Outcomes Assessment

All OSU degree programs are required to develop and implement an assessment plan, and faculty in those programs are responsible for determining the expected student outcomes for their degree program(s) and how student achievement of those outcomes should be assessed.

12. Attach a table listing the assessment measures and number of individuals assessed for the degree program or department.

Table 12.1 summarizes the assessment methods and number of individuals that participate in each method for each undergraduate and graduate degree program at OSU. Details about assessment methods and numbers of individuals assessed are provided in the individual assessment reports or summaries submitted by each college, department, or degree program (Appendix E).

The number of individuals who participate in each outcomes assessment method within each academic unit is shown in Table 12.1 and is described in detail in the individual assessment reports submitted by each academic unit (Appendix E). Outcomes assessment reports demonstrate that academic programs use multiple assessment methods and a majority of students within each program participate in outcomes assessment measures.

Academic units use a variety of methods to assess student-learning outcomes. The most commonly reported assessment methods in 2003-04 were:

- Capstone course projects, papers, presentations evaluated by faculty
- Senior projects & presentations
- Course-embedded assessments & Classroom Assessment Techniques (CATs)
- Exams – local comprehensive exams, local entry-to-program exams
- Exams – standardized national exams, certification or licensure exams,
- Exit interviews
- Internships – evaluations from supervisors, faculty members, student participants
- Portfolios - reviewed internally or externally
- Focus groups
- Projects, portfolios, exhibits, or performances evaluated by professional jurors or evaluators
- Student competitions - intercollegiate
- Surveys - alumni
- Surveys - employers / recruiters
- Surveys – students, esp. seniors
- Surveys – faculty
- Enrollment data, student academic performance (GPA in particular courses), degree completion rates
- Time-to-degree completion
- Alumni employment tracking
- Student symposia and conference presentations
- Student honors, awards, scholarships

Graduate programs reported the following assessments *in addition to* the methods described above:

- Qualifying exams
- Theses / dissertations / creative component papers, projects, presentations, and defenses
- Comprehensive exams
- Tracking research activity / publications / professional presentations / professional activity

13. What were the analyses and findings from the 2003-04 program outcomes assessment?

Analyses and findings are described in the individual assessment reports or report summaries submitted by each college, department, or degree program (Appendix E).

14. What instructional changes occurred or are planned in the programs due to program outcomes assessment?

The uses of assessment results are described in the individual outcomes assessment reports submitted by each college, department, or degree program (Appendix E). The uses of assessment results are unique to each program but can be generally categorized as curricular changes, changes to academic programs or student support services, discussion assessment information with faculty members in the context of curriculum planning, and using assessment results to evaluate curriculum changes were recently implemented.

The most commonly cited uses of assessment results in 2003-04 were:

- Changes in course content
- Addition / deletion of courses
- Changes in course sequences
- Changes in degree requirements or degree sheet options
- Development of tutorial and academic services for students
- Justification of past curriculum changes and to show program improvement resulting from those changes
- Refinement of the assessment methods or to implement new assessment methods
- Changes in advising processes
- Facilitate curriculum discussions at faculty meetings, curriculum committee meetings, and faculty retreats
- Changes to student facilities such as computer labs and science labs
- Development of program-based websites to provide students with academic and program information

Table 12.1. Assessment methods and numbers of individuals assessed for each college, department, and degree program at OSU, including graduate degrees, reported for 2003-04. Details about assessment methods and individuals assessed are described in the individual assessment reports provided in the Assessment Report 2003-04, Appendix I.

College of Agricultural Sciences and Natural Resources

Academic Unit / Degree Program Assessed	Assessment Methods	Numbers of Individuals Assessed
<u>Ag Education, Communication, and 4-H Youth Development</u>		
B.S., Ag Communication option	• Senior Capstone Course	• 35
	• Student Internships	• 88
	• National competition (National Agricultural Communicators of Tomorrow Critique & Contest)	• 39
B.S., Ag Education, Professional Service option	• Internship - Seminar Presentation	• 27
	• Portfolio Submission #1	• 13
	• Portfolio Submission #2	• 30
	• Portfolio Submission #3	• 28
	• Exit Interviews	• 18
	• Cooperator's/Supervisor's Final Evaluation and University Coordinator's Visitation Record/Report	• 19
B.S., Ag Education, Teaching option	• Portfolios	• 133
	• Results from State Licensure exams – OSAT test & OK General Education Test	• 72
	• Results from State Licensure exams - OPTE test	• 36
	• Admission to Professional Schools	• 36
	• Student Teacher Site Visits and follow up Oklahoma Resident Teacher Program	• 94
M.S., PhD.	• Graduation Rates	• 38
	• Student Research, Publication, and Awards	• 15
	• Internship	• 9
	• Dissertation/Thesis and Oral Defense	• 18
	• Comprehensive Final Examination	• 2

<u>Agricultural Economics</u>		
• B.S., M.S., PhD.	• Alumni Survey (Alumni of Undergraduate Programs) • Exit interviews • Team Competition at Regional and National meetings	• In progress • 84 • 23
<u>Animal Science</u>		
B.S.	• Oral and written communication skills • Capstone course assignments used to evaluate communication skills (papers and oral presentations) • Student satisfaction survey in capstone course • Knowledge in specific field of Animal Science • Intercollegiate academic competition - Animal Science Quadrathlon • Intercollegiate Judging Teams • Institute of Food Technology Regional Quiz Bowl	• Approx. 200
M.S., PhD.	• Oral and written communication skills • Thesis or dissertation with defense • Final exam seminar and thesis defense • Knowledge in specific field of Animal Science • Comprehensive exams (PhD)	• 1 (M.Agr) • 17 (MS) • 4 (PhD)
<u>Biochemistry & Molecular Biology</u>		
B.S.	• Standardized exams - American Chemical Society exam in Biochemistry • Publications and presentations • Student exit interviews • Number of degrees • Program Alumni Survey • External consultant	• 2 • 268 • 6 • 149 • 11 • 30
M.S., PhD.	• Student degree completion tracking • Publications and presentations • Alumni placement • Cumulative examinations • Program Alumni Survey • External Consultant	• 14 • 92 • 9 • 7 • 10 • 35

<u>Biosystems Engineering</u>		
B.S.	<ul style="list-style-type: none"> Exit interview and Alumni survey Fundamentals of Engineering Examination (national) Senior design experience ABET accreditation review 	<ul style="list-style-type: none"> 17 50 7
M.S., Ph.D.	<ul style="list-style-type: none"> Graduate program alumni survey Graduate student satisfaction survey 	<ul style="list-style-type: none"> 12 5
<u>Entomology and Plant Pathology</u>		
-B.S., M.S., and Ph.D.-- Entomology, -M.S. and Ph.D.--Plant Pathology	<ul style="list-style-type: none"> Exit interviews – written and oral Professional placement 	<ul style="list-style-type: none"> 1 (B.S.—Entomology) 4 (M.S.—Entomology) 6 (M.S.—Plant Pathology, Ph.D.—Entomology and Plant Pathology)
<u>Environmental Science</u>		
B.S.— Environmental Policy, Water Resources, Natural Resources	<ul style="list-style-type: none"> Grades and Client Reports Exit Interviews Alumni Survey Recruitment and Retention Data Placement Statistics Statistics on Enrolled, Degree Conferred, Faculty Survey, and Placement Employer Interviews 	<ul style="list-style-type: none"> 13 4 12 17
<u>Forestry</u>		
B.S., M.S.	<ul style="list-style-type: none"> Exit interviews Capstone course – student performance, faculty questionnaires student questionnaires Post-summer camp retention and graduation rates Graduate Student Satisfaction Survey (1994-1998) 	<ul style="list-style-type: none"> 10 24 all 80
<u>Horticulture and Landscape Architecture</u>		
B.S., Horticulture options	<ul style="list-style-type: none"> Tracking student graduation rates and academic performance Number of students on the College-issued graduation deficiency lists Intercollegiate competitions (Horticulture Judging Contest) Exit interviews Internships – student and employer evaluations 	<ul style="list-style-type: none"> 23 33 4 and 4 (teams only) +3 indiv. 6 20

B.S., Landscape Architecture (LA)	• Tracking student enrollment, graduation rates, and employment status	• 92
	• Records of visiting lecturers / critics	• 34
	• Professional jurors – evaluation of student projects	• 50
	• Records of student portfolio reviews	• 14
	• Capstone course evaluation	• 14
	• Exit interviews	• 14
	• Design Competition	• 18
	• Internships	• 4
	• Portfolios – digital	• 20
	• Study abroad survey	• 10
M.Ag., M.S. PhD. (Crop Science, Plant Science, Food Science, Environmental Science)	• Exams – preliminary, qualifying, and final	• 8 (All graduate students in Horticulture)
	• Thesis, formal reports, informal reports, or creative component	
	• Publications in print	
	• Professional presentations	
	• Exit interviews	
	• Student awards, scholarships, honorary societies	
B.S. Landscape Contracting options	• Scholarships, Honorary Societies and Web page development	
	• Alumni Surveys	
	• Graduation rates	• 59
	• Exit interviews	• 2
	• Internship reports	• 9
	• Internship cooperator reviews	• 9
	• External reviews	• 0
• Student Career Days	• 15	

College of Arts and Sciences

Academic Unit / Degree Program Assessed	Assessment Methods	Numbers of Individuals Assessed
<u>Art Department</u>		
B.A., Art History	• Art History Symposium	• 0
B.F.A., Studio Art	• Portfolio Review by outside evaluator	• 14
B.F.A., Graphic Design	• Portfolio Review by outside evaluator fall'03 and • spring'04	• 9 • 20
<u>Botany Department</u>		
B.S. Botany	• Focus groups, tracking grades, student satisfaction	• 62
B.S. Biological Sciences	• Alumni surveys • Presentations at seminars	• 189 sent/7 replied • 4
M.S. Botany Ph.D. Plant Science	• National standardized exams	• 0
<u>Chemistry Department</u>		
B.S.	• Alumni survey	• 6 BS
M.S., PhD.	• Exit interviews (oral, students written remarks on file) • Graduate student research symposia • Input from Colleges served by the Department • Research reports from capstone course (BS only)	• 2 MS • 6 PhD
<u>Communication Sciences and Disorders Department</u>		
B.S. in CSD	• Capstone course performance; course evaluations • Alumni surveys • Senior surveys	• 7-28 depending on method

M.S. in CSD	<ul style="list-style-type: none"> • Annual program reaccreditation by the American Speech-Language-Hearing Association • Exit written and oral interviews • Evaluation of students in externship placements • National certification examination, comprehensive examinations, theses • Alumni surveys • CDIS 5210 Clinical Practicum performance 	<ul style="list-style-type: none"> • 8-22 depending on method
<u>Computer Science Department</u>		
B.S.	<ul style="list-style-type: none"> • Graduating Senior Survey • Alumni surveys • Internship Employer Evaluations • Regional Competitions 	<ul style="list-style-type: none"> • 27 • 5 • 7 • 6 students/2 teams
M.S.	<ul style="list-style-type: none"> • Graduate Student Satisfaction Survey • Theses 	<ul style="list-style-type: none"> • 32 • 40
PhD	<ul style="list-style-type: none"> • Dissertation Presentations • National Research Presentation 	<ul style="list-style-type: none"> • 1 • 1
<u>English Department</u>		
B.A.	<ul style="list-style-type: none"> • Survey of Graduating Seniors • Alumni Survey 	<ul style="list-style-type: none"> • 25 • 25
<u>Foreign Languages and Literatures</u>		
B.A. in French, German, Russian, Spanish	<ul style="list-style-type: none"> • Monitoring of grades in designated advanced courses • Scores and pass rates from Oklahoma State Teacher Certification exams 	<ul style="list-style-type: none"> • 120 • 8
<u>Geography Department</u>		
B.A., B.S., B.S. (resource management)	<ul style="list-style-type: none"> • Instructor Evaluations—Core Courses • Transcript Evaluation • Graduation and Retention Statistics • Exit survey • Alumni Survey 	<ul style="list-style-type: none"> • 93/47 • 10 • 10 • 10 • 0

<u>School of Geology</u>		
B.S. and M.S.	<ul style="list-style-type: none"> • Capstone Courses • Area Concentration Achievement Test (ACAT) • Student Exit Survey • Graduation and Retention Rates • Job Placement Survey • Undergraduate Program Survey of Alumni • Graduate Program Survey of Alumni • Graduate Student Satisfaction Survey • Thesis Defense Outcomes 	<ul style="list-style-type: none"> • 15 • 5 • 3 • 67/72 • 67/72 • 13 • 13 • 8 • 13
<u>History Department</u>		
B.A., History	<ul style="list-style-type: none"> • Evaluation of general written work using University rubric • Analysis of upper-division history electives taken • Evaluation of performance in capstone courses, including review of research papers 	<ul style="list-style-type: none"> • 35 • 115 • 5
M.A., History	<ul style="list-style-type: none"> • Analysis of fields of study undertaken as reflected in Plans of Study • Evaluation of research component 	<ul style="list-style-type: none"> • 18 • 6
Ph.D., History	<ul style="list-style-type: none"> • Analysis of Fields of Study undertaken as reflected in Plans of Study • Evaluation of research component using departmental rubric 	<ul style="list-style-type: none"> • 22 • 3
<u>School of Journalism & Broadcasting</u>		
B.A., B.S. Journalism / Broadcasting	<ul style="list-style-type: none"> • Course Evaluations • Freshman/Sophomore Language Exam • Terminal Course Performance • Internship Evaluations • Honors Thesis • Graduate Survey 	<ul style="list-style-type: none"> • 4,498 • 303 • 167 • 101 • 6 • 6
<u>Mathematics Department</u>		
B.S., Math	<ul style="list-style-type: none"> • Exit Survey • Grades in core courses 	<ul style="list-style-type: none"> • 11 • 24
Ph.D., Math	<ul style="list-style-type: none"> • Comprehensive exams 	<ul style="list-style-type: none"> • 10 Ph.D.
<u>Department of Microbiology and Molecular Genetics</u>		
B.S. Microbiology	<ul style="list-style-type: none"> • Exit Interviews • Grades in Core Courses • Alumni Survey 	<ul style="list-style-type: none"> • 14 • 114 • 57

B.S. Cell and Molecular Biology	<ul style="list-style-type: none"> • Graduate Records Exam GRE B22 • Alumni Survey • Grades in BIOL 3024, CLML 3014, 4113 • Exit Interviews 	<ul style="list-style-type: none"> • 0 • 15 • 32 • 4
Medical Technology	<ul style="list-style-type: none"> • Grades in Core Courses • Grades in Clinical Courses • Acceptance Rate for Internships • ASCP Exam 	<ul style="list-style-type: none"> • 7 • 1 • 3/6 • 1
Graduate Program in Microbiology and Cell and Molecular Biology	<ul style="list-style-type: none"> • Annual Scholarly Report (survey of faculty and students for student achievements) • Exit Interviews 	<ul style="list-style-type: none"> • 15 • 3
<u>Music Department</u>		
B.A. Music in Education, Performance, and Business	<ul style="list-style-type: none"> • Student teaching evaluations • Oklahoma Subject Area Test • Oklahoma Professional Teaching Exam • Senior Recitals • Vocal juried auditions • Instrumental juried auditions • Keyboard juried auditions (majors) • National Association of Teachers of Singing – District Auditions • Music Department Exit Survey 	<ul style="list-style-type: none"> • 4 • 5 • 5 • 20 • 107 • 210 • 93 • 7 • 3
<u>Philosophy</u>		
B.A., M.A.	<ul style="list-style-type: none"> • Exit Questionnaires • Assessment of Oral Communication Skills 	<ul style="list-style-type: none"> • 15/21 • 7
<u>Physics Department</u>		
B.S.--Physics, M.S.--Physics, M.S.- Photonics, Ph.D.--Physics	<ul style="list-style-type: none"> • Exit Interview Reports, Student Course Evaluations, Alumni Survey (Informal) 	<ul style="list-style-type: none"> • 5 • 1 • 1 • 1

<u>Political Science</u>		
B.A.	<ul style="list-style-type: none"> • Exit Survey • Student Interviews • Law School Admission Test • Graduate Record Exam • Internship Evaluations 	<ul style="list-style-type: none"> • 40 • 25 • 20 • 7 • 12
M.A.	<ul style="list-style-type: none"> • Exit Interview • Comprehensive Exams • Methods courses • Thesis/Creative Component Defense • Surveys of Students' Committee Chairs • Presentation of Research • Student Evaluation of Courses 	<ul style="list-style-type: none"> • 3 • 4 • 11 • 2 • 2 • 0 • 0
<u>Psychology Department</u>		
B.A. and B.S., Psychology	<ul style="list-style-type: none"> • Comparison of average GRE Psychology Subject Test scores with average scores of all examinees nationwide 	<ul style="list-style-type: none"> • 64
<u>Sociology Department</u>		
B.S., Sociology	<ul style="list-style-type: none"> • Exit Interview • Student Self-assessment of Sociological Skills and Knowledge Survey 	<ul style="list-style-type: none"> • 9 • 50
M.A., PhD	<ul style="list-style-type: none"> • Comprehensive exam • Preliminary exam • Completion of PhD Dissertation • Completion of Masters Thesis 	<ul style="list-style-type: none"> • 10 • 6 • 8 • 3
<u>Statistics Department</u>		
<ul style="list-style-type: none"> • B.S. • M.S. • PhD 	<ul style="list-style-type: none"> • Interviews • Comprehensive and Oral exams • Comprehensive and Oral exams • Data Analysis (mid-level) 	<ul style="list-style-type: none"> • 20 • 6 • 2 • 140
<u>Theatre Department</u>		
B.A. Theatre, B.F.A Theatre, M.A. Theatre	<ul style="list-style-type: none"> • Semester performance juries and portfolio • Production Adjudicators • Internship and graduate school placement 	<ul style="list-style-type: none"> • 62 • 30 • 10

Zoology Department

B.S. Biological Science, Physiology, Wildlife & Fisheries, Zoology

- Survey of Student Engagement
- Survey of performance of department in meeting general objectives of degree programs

• 119 (juniors and seniors)
• 119 (juniors and seniors)

M.S., PhD. Wildlife & Fisheries, Ecology, Zoology

- Exit interviews

• 1

College of Business Administration

Academic Unit / Degree Program Assessed	Assessment Methods	Number of Individuals Assessed
<u>College-Wide Assessments</u>		
Undergraduate students (B.S., Accounting, Economics, Finance, Gen. Business, International Business, Management, Marketing, MIS, and Double Majors)	• CBA-NSSE Satisfaction Surveys	• 354
Graduate students (MS Accounting, MS Economics, MS MSIS, MS QFE, and MS TM)	• Satisfaction Surveys using web site	• 155
Graduate students (MBA)	• EBI Satisfaction Surveys	• n/a
Doctoral students (PhD., Accounting, Economics, Marketing, Finance, Management, Marketing, MSIS)	• Satisfaction Surveys	• 52
Doctoral Students (All)	• Group Meeting	• 42
Alumni	• Alumni Surveys	• 601

College of Education

Academic Unit / Degree Program Assessed	Assessment Methods	Numbers of Individuals Assessed
<u>School of Applied Health and Educational Psychology</u>		
Counseling Psychology, Ph.D.	<ul style="list-style-type: none"> • Passing grades on qualifying exams • Passing grades of relevant coursework • Satisfactory evaluations in practica and internship • Annual student evaluations • Success rates in obtaining internship placements • Success rates in completing internship placements • Accreditation of program by American Psychological Association (APA) 	<ul style="list-style-type: none"> • 7 • 41 • 39 • 41 • 10 • 8 • 61
Community Counseling, M.S.	<ul style="list-style-type: none"> • Satisfaction surveys (alumni) • Review of student progress 	<ul style="list-style-type: none"> • 51 sent, 13 returned • 61
Educational Psychology, M.S.	<ul style="list-style-type: none"> • Faculty evaluation and approval of competency domain portfolios (at end of program in lieu of comprehensive examinations) • Feedback from students of domain tasks as the tasks are approved by faculty • Determination of rates of program completion • Determination of numbers successfully completing the competency domain • Determine numbers of students successfully completing thesis, creative component or report 	<ul style="list-style-type: none"> • 2 • 2 • 2 • 2

Educational Psychology, PhD.	• Effective Instruction: Qualifying Experience	• 10
	• Theoretical Knowledge: Qualifying Experience	• 10
	• Inquiry and Research Skills: Qualifying Experiences and Qualifying Products	• 10
	• Professionalism and Ethical Decision Making: Qualifying Experiences	• 10
	• Scholarly Production: Qualifying Products	• 10
	• Intra/Inter Personal Skills: Qualifying Experiences and Qualifying Products	• 10
	• Written and Oral Communication Skills	• 10
	• Domain Portfolio and Qualifying Experiences	• 10
	• Dissertation completed	• 7
	• Exit Interviews Conducted	• 4
• Count Students Graduating	• 6	
School Psychology, PhD and EdS	• Annual Program Faculty Evaluation, Plan of Study progress, time to degree, Advisor evaluation	• 20 Ph.D. 12 Ed.S.
	• Student self-evaluation	• 17 Ph.D., 10 Ed.S
	• Portfolio Assessment	• 20 Ph.D., 12 Ed.S
	• Comprehensive Exam	• 7 Ph.D., 9 Ed.S.
	• Grades in program course work	• 27 Ph.D., 13 Ed.S.
	• Practicum Logs, Practicum Evaluation Forms	• 13 Ph.D., 10 Ed.S
	• Progress toward internship, Internship Logs and Evaluation Forms	• 7 Ph.D., 7 Ed.S
	• Professional organization memberships	• 23 Ph.D, 11 Ed.S
	• Licensure, certification progress	• 2 Ph.D, 2 Ed.S
	• Dissertation Progress	• 27 Ph.D.
	• Research Team Advisor Evaluation	• 18 Ph.D., 4 Ed.S.
	• Research presentations and publications	• 17 Ph.D.
	• Teaching Assistantship evaluations	• 16 Ph.D., 0 Ed.S
• Graduate Assistant Evaluation	• 19 Ph.D., 4 Ed.S.	
• Progress toward Postdoctoral experience/Employment	• 3 Ph.D., 3 Ed.S.	
Athletic Training	• Student Clinical, Education Experience, and Portfolio	• 31
	• NATABOC Examination	• 7

Health Promotion, B.S.	<ul style="list-style-type: none"> • Senior Capstone Course • Number of students graduating • Internship exit interviews • Completion of Internships • Projects in Program Design • Certification Exams • Number of Students Placed in the Field 	<ul style="list-style-type: none"> • 29/29 • 30 • 30 • 30 • 33 • 33/34 • 23/30
Health & Human Performance, M.S.	<ul style="list-style-type: none"> • Post Graduation Employment – 75% of all students seeking employment will find employment in a related field within six months of graduation 	<ul style="list-style-type: none"> • 12 M.S., 4 Ed.D.
Leisure Studies, B.S., M.S., Ed.D., Ph.D.	<ul style="list-style-type: none"> • Number of students graduated • Number of students placed in the field • Number of students who passed national certification exams • Comparison of certification exam scores with regional and national data • Accreditation Review • Departmental goals and objectives 	<ul style="list-style-type: none"> • 68: 31 Leisure Services Mgmt. 37 in Therapeutic • 18 M.S. • 11 doctoral
Physical Education, B.S.	<ul style="list-style-type: none"> • Portfolio Submission I • Portfolio Submission II • Portfolio Submission III • Professional Exams • Physical Education Exit Interviews • NASPE/NCATE Program assessment every 5 years • College of Education Assessment of Portfolio 	<ul style="list-style-type: none"> • 14 • 21 • 20 • 35+ • 21 • 100 approx. • 55 (three different levels)
School of Educational Studies		
Aviation and Space, B.S, M.S., and Ed.D.	<ul style="list-style-type: none"> • The BS is assessed by graduation checks • The M.S. is assessed by the faculty reviewing the creative component. • The Ed.D is assessed by looking at comprehensive examinations and reviewing the responses of the students. Each student is given eight questions to answer over a two day period. 	<ul style="list-style-type: none"> • 44 B.S. • 11 M.S. • 8 Ed.D.

M.S., Education-al Leadership Studies	<ul style="list-style-type: none"> • Oklahoma state administration licensure examination • GRE/MAT scores, gender, and ethnicity of doctoral students admitted to School Administration and Higher Education • GRE/MAT scores of College Student Development • Pilot study to gather data from internship mentors 	<ul style="list-style-type: none"> • 56 • 54 • 15 • 5
Ed.D., School Administration & in Higher Education	<ul style="list-style-type: none"> • Portfolio evaluation scores (MS students in School Administration) • Evaluation rubrics created • Graduate Program Alumni Survey • Analysis of the number of doctoral students in School Administration and in Higher Education, their current status, anticipated graduation date, and faculty advisement/ load 	<ul style="list-style-type: none"> • 20 • 20 • 26 • 150
<hr/>		
Research, Evaluation, Measurement, and Statistics, M.S., Ph.D.	<ul style="list-style-type: none"> • SWOT Analysis—student input 	<ul style="list-style-type: none"> • 1 M.S. • 3 Ph.D.
<hr/>		

School of Teaching & Curriculum Leadership

Bachelor of Science in: Elementary Education, Secondary Education, Technical and Industrial Education	<ul style="list-style-type: none"> • Performance on certification examinations for Oklahoma educators • Performance on professional education portfolios that demonstrate the achievement of goals and competencies for beginning teachers Submission I, II & III • Student Assessment of professional education preparation • Performance of student teachers by cooperating teachers and university supervisors • Performance during first year of teaching (residency year) • Survey of principals who recently hired program graduates 	<ul style="list-style-type: none"> • 113 OSAT • 279 OGET • 309 OPTE • 373 Elementary • 245 Secondary • NA • 75 Elementary level • 81 Secondary level • 240 • 5
<hr/>		

Master of Science in Teaching, Learning, and Leadership	<ul style="list-style-type: none"> • Performance on advanced level, state certification examinations for Oklahoma educators • Performance on comprehensive examinations • Student assessment of graduate program preparation • Performance on theses or creative component projects • Performance on qualifying examinations 	<ul style="list-style-type: none"> • 7 Library/Media • 14 Reading Specialist • 15 Special Education • 100 • 139 • 84 • 12
Doctor of Philosophy in Education (Ph.D.).	<ul style="list-style-type: none"> • Dissertations completed • Performance on qualifying examinations • Student assessment of graduate program preparation 	<ul style="list-style-type: none"> • 10 • 7 • 12

College of Engineering, Architecture, and Technology

Academic Unit / Degree Program Assessed	Assessment Methods	Numbers of Individuals Assessed
<u>School of Architecture</u>		
B.S.—Architecture and Architectural Engineering	<ul style="list-style-type: none"> • Professional Advisory Committee Surveys • Alumni Survey 	<ul style="list-style-type: none"> • 18 in-state and 7 regional • 9
<u>School of Chemical Engineering</u>		
B.S.	<ul style="list-style-type: none"> • Fundamentals of Engineering Exam • Senior Survey in the fall semester • Exit interview fall and spring • End of course survey—student response to objectives • End of course evaluation by the faculty • Course evaluations • Feedback by Celanese visitors on student design problem • External academic contests and scholarships • Student participation in School’s activities • AIChE National Data • Industrial feedback (IAC and recruiters) • Alumni Survey • Employer Survey of Communications • ABET Accreditation visit 	<ul style="list-style-type: none"> • 69 (5 years) • 25 • 21 • 7x25 • 7x25 • 10x25 • 1x25 • 8 • >100 • Many • ~20 • 28 (96 and 00) • 24 • 1
<u>School of Civil and Environmental Engineering</u>		
B.S. Civil Eng	<ul style="list-style-type: none"> • Exit Interviews • FE exam • Board of Visitors • Student Advisory Committee • ABET Evaluation • Faculty and Professional Evaluations 	<ul style="list-style-type: none"> • 29 • 24 • * • 8 • ** • 26
M.S., Civil Eng	<ul style="list-style-type: none"> • Exit Interviews • Theses/Reports Defense (Committee Evaluation) • Board of Visitors 	<ul style="list-style-type: none"> • 23 • 23 • *

M.S., Env Eng	<ul style="list-style-type: none"> • Exit Interviews • Theses/Report Defense • Board of Visitors 	<ul style="list-style-type: none"> • 7 • 7 • *
PhD	<ul style="list-style-type: none"> • Exit Interviews • Theses/Report Defense (Committee Evaluation) 	<ul style="list-style-type: none"> • 0 • 0
<u>School of Electrical & Computer Engineering</u>		
B.S. Electrical Eng.,	<ul style="list-style-type: none"> • Exit Survey 	<ul style="list-style-type: none"> • ~80
B.S. Electrical Eng.	<ul style="list-style-type: none"> • FE exams 	<ul style="list-style-type: none"> • 31
Computer option	<ul style="list-style-type: none"> • Course Content Survey • Instructor Survey • Capstone Design II Written and Oral Reports (Consultants) • Evaluations of Final Exams 	<ul style="list-style-type: none"> • ~200 • 22 (faculty) • ~80 written and ~80 oral • ~120
<u>School of Industrial Engineering and Management</u>		
B.S.	<ul style="list-style-type: none"> • Industrial Advisory Board • Fundamentals Examination (national in scope) • Undergraduate student Advisory Council • Senior Exit Survey/Interview • Capstone Projects (with outside clients) • Class grades • Course evaluations 	<ul style="list-style-type: none"> • 14*** • 13 • 6**** • 26 • 15 • All • All
M.S., M.I.E., M.M.S.E., and PhD	<ul style="list-style-type: none"> • Industrial Advisory Board • Graduate Student Advisory Council • Graduate exit surveys/interviews • Graduate TA/RA performance evaluations fall '02 and spring '03 • Thesis and dissertation proposals • Thesis and dissertation defenses • Class grades • Course outcome evaluations 	<ul style="list-style-type: none"> • 14*** • 6**** • 12 • 52 • All • All • All • All

School of Mechanical and Aerospace Engineering

B.S.-- Mechanical Engineering	• Performance of seniors on National Fundamentals of Engineering Exam	• 65
B.S.--Aerospace Engineering	• Graduating Senior Exit Survey	• 90
M.S.--Mechanical Engineering	• Final Defenses of Reports and Theses by all degree candidates	• 30
Ph.D--Mechanical Engineering	• Final Defenses of Dissertations by all degree candidates	• 4

Construction Management Technology

B.S.	• Exit Surveys	• 31
	• Course evaluations	• 294
	• Employer reviews of student performance in internships	• 47
	• AIC Graduate Placement Surveys	• 27
	• National CQE Level I	• 33
	• Regional ASC/AGC and NAHB student competitions	• 24

Electrical Engineering Technology

B.S.E.T.- Electronics or Computer Technology, or Telecommunications Technology	• FET Examinations	• 15
	• Exit Surveys	• 22
	• Employer statistics	• 24
	• EET Industrial Advisory Council Review	• 6

Fire Protection and Safety Technology

B.S. Engineering Technology, Fire Protection and Safety	• Exit Interviews	• 20
	• National Exams	• 3
	• Portfolios	• 36

Mechanical Engineering Technology

B.S., MET	• Fluid Power Society	• 40
	• Capstone Design Course	• 41
	• Embedded Assessment	• 200+
	• Industrial Advisory Council Review	• 9

- The Board of Visitors evaluates program components (curriculum, students, faculty, facilities, etc.) While they do speak to individual students, they do not formally assess specific individuals.
- ** The visiting team from the Accrediting Board for Engineering and Technology did not evaluate individual student achievements. However, they provided a very thorough review of our School's Self Study and met with many students and faculty. In doing so, they identified program strengths and weaknesses. As such, this periodic external review is another valuable assessment for our undergraduate program.
- *** Number of board members.
- **** Number of advisory group members.

College of Human Environmental Sciences

Academic Unit / Degree Program Assessed	Assessment Methods	Numbers of Individuals Assessed
<u>College-Wide Assessments</u>		
Entering Undergraduates	• College Student Inventory (CSI)	• 233
	• Critical Thinking Disposition Inventory (CTDI)	• 233
Midlevel Undergraduates	• Critical Thinking Disposition Inventory (CTDI)	• 348
	• Critical Thinking Skills Test (CTST)	• 350
Seniors AY 2003	• Modified NSSE	• 261
<u>Design, Housing, & Merchandising (DHM)</u>		
B.S.	• Academic and Design Portfolios	• 150
	• Internship employer survey	• 89
	• Senior survey	• 82
	• Embedded Course Projects	• 544
<u>Human Development and Family Science (HDFS)</u>		
B.S.	• Admission to professional Education (ECE)	• 37
	• Early Childhood Education Portfolio Review	• 44
	• Admission to HDFS Internship	• 118
	• Modified NSSEE	• 124
	• Course Evaluations	
	• Skills Demonstrations	
	• Faculty Observation	
<u>Hotel & Restaurant Administration</u>		
B.S.	• Senior Exit Survey	• 21
	• Modified NSSE	• 20
	• Alumni Survey '02	• 3
<u>Nutritional Sciences</u>		
B.S.	• Undergraduate Alumni of Dietetics Program pass rate on national Registration Exam	• 13
	• Alumni of Dietetics Internship Program –pass rate on national Registration Exam	• 12
	• Modified NSSE	• 27

Student and Alumni Surveys

15. What assessment activities were used to measure student satisfaction? Describe the measures used, which students were assessed, how many students, and how they were selected.

Student and alumni surveys are conducted to evaluate student and alumni perceptions of academic and campus programs and services, and the results are used in developing and improving those programs and student services. These surveys complement program outcomes assessment because they are designed to provide feedback from students and alumni for use in continuous quality improvement in academic and student programs.

Annual OSU Alumni Surveys

Alumni surveys are conducted every year at OSU; undergraduate program alumni and graduate program alumni are surveyed in alternate years. The purpose of these surveys is to identify institutional strengths and areas for improvement as indicated by recent graduates; to track the careers and continuing education of recent OSU graduates; and to assess achievement of learning outcomes as perceived by alumni from individual academic programs. All alumni surveys target alumni who are 1- and 5-years post-graduation; include common questions that cover employment and career issues, continued education, and general satisfaction; and include program-specific questions for the purpose of program outcomes assessment as well as assessing alumni satisfaction. The Office of University Assessment and Testing coordinates the alumni surveys. The OSU Bureau for Social Research conducts the survey as telephone interviews with alumni. Alumni surveys have become a cornerstone of assessment at the university, college and program level by providing regular feedback from OSU graduates about their perceptions of their educational experiences at OSU and ideas regarding program development.

The 2004 Survey of Alumni of Undergraduate Programs targeted 5,875 undergraduate program alumni who received their degrees in 1998 or 2002 (i.e., alumni at one- and five-years post-graduation). A total of 2,520 alumni completed the survey. Highlights of survey results are provided in Appendix D.

Noel-Levitz Student Satisfaction Inventory (Tulsa campus)

The Noel-Levitz, Inc. Student Satisfaction Inventory (SSI) is administered each year on the Tulsa campus to evaluate student satisfaction programs and services on the Tulsa campus. Since the Tulsa campus has experienced rapid enrollment growth in the past two years, this survey provides an effective means for monitoring student perceptions of programs and services. This feedback allows the institution to review and modify services available to students, if appropriate. The Student Satisfaction Inventory measures student satisfaction using twelve composite scales that measure Academic Advising Effectiveness, Campus Climate, Campus Life, Campus Support Services, Concern for the Individual, Instructional Effectiveness, Recruitment and Financial Aid Effectiveness, Registration Effectiveness, Responsiveness to Diverse Population, Safety and Security, Service Excellence, and Student Centeredness. The results provide comparison information with other institutions and allow year-to-year comparisons within the institution.

The SSI was distributed to all currently enrolled students in the Spring 2004 Semester (2,583 students). Instructors were given survey packets and asked to distribute the instrument in class. Student could either complete the survey in class, if the instructor allowed class time, or complete

the survey and return it to the instructor within a two-week time frame. Completed surveys were returned by 327 students (13%).

Graduate Student Satisfaction Survey

The Graduate Student Satisfaction Survey is administered in alternate years by the Office of University Assessment and Testing for the Graduate College. The target population for this survey is all OSU graduate students who are enrolled during the semester the survey is conducted. A telephone survey is being developed that will be conducted by the OSU Bureau for Social Research in Fall 2004.

The National Survey of Student Engagement (NSSE)

The NSSE is designed to obtain information about student participation in programs and activities that institutions provide for their learning and personal development, and results provide an estimate of how undergraduates spend their time and what they gain from attending college. The NSSE allows comparison between OSU and peer institutions in areas of academic challenge, student involvement in active and collaborative learning, student interaction with faculty, educational experiences, and campus environment. NSSE also includes items related to student satisfaction, and those results are described in this section of the report. OSU participated in the NSSE in 2000 and 2002 and will participate again in 2005.

16. What were the analyses and findings from the 2003-04 student satisfaction assessment?

OSU Alumni Surveys: 2004 Survey of Alumni of Undergraduate Programs

Response Rate. A total of 2,520 alumni telephone interviews were completed, resulting in an overall response rate of 42% (Table 1). Out of the initial target population of 5,875 alumni, 2,485 alumni could not be reached because either there was no phone number available or the number was deemed 'unreachable' (e.g., wrong number, disconnected). After accounting for 'unreachable' alumni, the overall adjusted response rate was 74% (Table 1).

Out of the total population of survey respondents, 26% were alumni from the College of Arts & Sciences, 24% from the College of Business Administration, 14% from the College of Agricultural Sciences and Natural Resources, 15% from the College of Engineering, Architecture and Technology, 9.1% from the College of Human Environmental Sciences, and 11% were from the College of Education.

Current Employment Information. Over eighty-five percent of alumni (n=2,153) reported that they were employed. Of these, 91% were employed full-time. Approximately 20% were employed by educational institutions; 33% of alumni described their employer as large corporations; 27% were employed by small corporations or small businesses; 10% were employed by government agencies; 5.4% were employed by nonprofit organizations and 4.6% were self-employed. The most frequently reported annual salary range for alumni one and five years post-graduation was \$26,000-35,000 per year (28%). Nearly 50% of alumni reported annual salaries of greater than \$35,000 per year, and 15% of alumni reported annual salaries of less than \$26,000 per year. In general, 93% of alumni (n=1,690) responded that their undergraduate program prepared them very well or adequately for their current position. Only respondents who reported that their current position was slightly, moderately, or highly related to their degree program were included in this calculation.

Continued Education - Graduate or Professional Schools Attended After OSU. Of the alumni surveyed, 716 (28%) had completed or were currently enrolled in a graduate or professional school. Of these alumni, 6.1% were pursuing or had completed doctoral degrees, 64% were pursuing or had completed a masters degree, 12% were pursuing or had completed business degrees, 8.1% were pursuing or had completed law degrees, 6.4% were attending or had attended medical schools, and 1.7% were pursuing or had completed 'other' degrees. Of the 716 alumni who were attending or had completed graduate school, over 50% (n=370) attended Oklahoma State University, and 23% attended graduate school at other Oklahoma institutions. Most alumni (94%) stated that their OSU graduate program had prepared them very well or adequately for additional graduate or professional school programs.

Resident Information (in-state / out-of-state). Approximately 68% of the alumni who participated in the survey were living in Oklahoma and 32% were out-of-state. Because the survey did not attempt to reach alumni who were not in the U.S., the alumni who live outside of Oklahoma may be under-represented.

Highlights from the 2004 Undergraduate Program Alumni Survey results are shown in Appendix D.

Noel-Levitz Student Satisfaction Survey (OSU-Tulsa campus)

Students at OSU-Tulsa reported higher degrees of satisfaction with all twelve scales when compared to peer institutions, with the most notable increase in the area of Safety and Security. Items included in this scale pertain to the amount of parking available on the campus, the responsiveness of the security department and how well lighted the parking lots are at night.

The results of the year-to-year comparison for OSU-Tulsa reveal that students' level of satisfaction with Campus Support Services increased significantly. Items included in the Campus Support Services scale are computer labs, library resources, bookstore services and tutorial services.

17. What changes occurred or are planned due to student satisfaction assessment?

OSU Alumni Surveys: 2004 Survey of Alumni of Undergraduate Programs

Results of the undergraduate program alumni survey are widely distributed to faculty and administrators at the college- and university-levels. The alumni survey results have the biggest impact in effecting change at the program level, and specific program changes that have resulted from the alumni surveys are discussed in outcomes assessment reports for individual academic programs. All OSU programs have begun to use results of the annual OSU alumni surveys in the five-year academic program reviews coordinated by Academic Affairs and, where applicable, as part of professional accreditation self-studies and reports. For many academic programs, the alumni surveys coordinated by the Office of University Assessment and Testing are now a cornerstone of their outcomes assessment efforts and results are regularly used in curriculum planning.

Noel-Levitz Student Satisfaction Survey (OSU-Tulsa campus)

OSU-Tulsa continues to upgrade computer labs with the latest technology and equipment; additionally, the campus is responsive to requests from faculty for software that will enhance the learning experience on the Tulsa campus. The library expanded its electronic databases between Spring 2003 and Spring 2004, which assists students at both the undergraduate and graduate level with research projects. OSU-Tulsa also implemented a Writing Lab at the beginning of the Spring 2004 semester, a service requested by students for several semesters.

Graduate Student Assessment

18. What assessment activities were used to measure graduate students? Describe the measures used, which students were assessed, how many students, and how they were selected.

[see below]

19. What were the analyses and findings from the 2003-04 graduate student assessment?

[see below]

20. What changes occurred or are planned due to graduate student assessment?

[see below]

Responses to Questions #18 – 20

Graduate student assessment is considered to be part of Program Outcomes Assessment for each academic unit; graduate degree programs are among the degree programs assessed for each college, school, or department. Graduate student assessment methods, numbers of students assessed, results of assessments, and uses of results of assessment are described and summarized in the Program Outcomes Assessment section of this report, Table 12.1, and in Appendix E (bound separately).

Graduate Student Satisfaction Survey

In addition to the graduate student assessment that is conducted in individual academic units, the Graduate College periodically conducts the Graduate Student Satisfaction Survey to evaluate graduate students' satisfaction with their educational experiences at OSU. The survey is intended to provide information to identify areas for improvement and gauge success of services provided by the Graduate College. A survey was conducted in 2000, and again in 2002. In Fall 2004, a Graduate Student Satisfaction Survey will be administered as a telephone survey and will target all currently enrolled graduate students.

Special Assessment Projects

The Office of University Assessment conducts and provides financial support for special assessment projects aimed at evaluating the effectiveness of academic or student programs, results of strategies developed to improve student learning, or factors that contribute to the educational impact of the university experience on students. Special projects that are conducted within a single academic discipline are reported in the program's annual report or a separate outcomes assessment report. Special projects that are conducted at the college-, university-, or other program levels are described here.

Assessment of Honors College Programs

The OSU Honors College annually evaluates its program by conducting surveys of students regarding their courses, advising within the Honors College, and their overall experiences in the program. Faculty members are also surveyed to provide input on Honors courses, students, and overall program quality. The College also tracks active participants and graduates. Results of these assessments are described in the Honors College Annual Reports.

In Spring 2004, the Honors College prepared an honors-specific Survey of Student Engagement. A 57-question survey was sent to all active participants in The Honors College (n=701) by first class mail in February 2004. Advisors also sent reminder e-mail messages to their honors advisees asking for their participation. The response rate was 25.7% (n = 180). Analysis of the data was not completed in time to be reported this year, but will be reported in the 2004-05 annual report.

Assessment of Academic Services for Student Athletes (ASSA)

Reading Skills Assessments/Accommodations

The Office of Academic Services for Student Athletes conducted a study to identify student-athletes with a reading deficiency or disability, diagnose the extent of the problem, and help the identified students improve their reading skills. All incoming student-athletes (freshmen and transfer students) identified as academically at-risk and/or with an ACT reading sub-score of 19 or below took the computer version of the Nelson-Denny Reading Test. Additionally, any returning student-athletes with ACT reading sub-scores of 19 or below were tested. The initial candidate pool consisted of 68 individuals.

The Nelson-Denny results were analyzed by a reading specialist, and any student with a score significantly below average (below a 10th grade ability level) was further tested, this time with the Burns-Roe Reading Inventory. Of the group initially screened, only six participants required further testing. All were identified as deficient in reading rather than possessing a disability. Based on the Burns-Roe results, the specialist developed a study plan to address each individual's weaknesses. All six students met weekly with the reading specialist to monitor and improve their basic reading skills.

Reports from the specialist throughout the fall semester indicated improvement by all students. The specialist gauged improvement with a number of tools designed to measure reading speed, comprehension, and vocabulary, fluency, and other areas identified by the Burns-Roe Reading Inventory.

The results of the study prompted the creation of a full-time position within the ASSA unit. The new Learning Specialist will identify students with learning disabilities and deficiencies (in all areas, not limited to reading), and create specialized study regimens to accommodate students' academic needs.

Student Satisfaction Survey

The Office of Academic Services for Student Athletes conducted a study to gauge students' perceptions and evaluation of the tools and services offered by ASSA, and to assess student-athletes' attitudes towards their academic careers. The target population was all student-athletes, freshmen through fifth-year seniors. In total, 434 paper surveys were distributed to students as they entered or exited the Academic Center, and were left in the main lobby as well. In total, 65 (15%) of the surveys were returned.

ASSA reports that survey respondents were usually more responsible and academically successful than most of their student-athlete peers, and the survey results were accordingly skewed. These students had very positive attitudes toward their academic endeavors and high expectations for themselves while at OSU. These students' evaluations of the Academic Enhancement Center, their respective tutors, and overall satisfaction levels were high. For example, on a scale of 1 to 10, with 10 as "Excellent" and 1 as "Very Poor," overall usefulness of the Academic Enhancement Center earned a 9.7, quality and usefulness of tutors earned a 9.6, and overall satisfaction with academic support provided by ASSA was a 9.5. Attitudes towards academics rated consistently positive, as indicated by an average priority of 1 or 2 over athletics, social life, and career development.

The results seem to be as much a function of the participants' own efforts and willingness to take advantage of the academic tools ASSA has to offer as an estimation of service quality. So while the results of the satisfaction survey are overwhelmingly positive, they should not be interpreted as being representative of the total population of student athletes.

CEAT Study of Factors Influencing Student Performance in Math 2144

The College of Engineering, Architecture and Technology (CEAT) developed an ethnographic study of factors that influence student performance in MATH 2144. The study is intended to:

- identify key student characteristics that can help advisors to more accurately place and advise students in their first mathematics course,
- identify study habits, attitudes, and other characteristics of students who are more likely to be successful in the course,
- to identify learning environment characteristics that may influence student success in the course, and
- to identify instructional characteristics that may influence student success in the course.

Data for the study was collected in Fall 2002 and Spring 2003 from 297 students. Analysis of the data is underway and results will be reported in the 2004-05 annual report.

Pilot Project with the National Forum on College-Level Learning

The Pew Charitable Trusts sponsored a pilot project in which the National Forum on College-Level Learning worked with five states (Oklahoma, Kentucky, Illinois, South Carolina, and Nevada) to develop a model for collecting comparable information across states to assess college-level learning for purposes of national benchmarking. With coordination provided by the Oklahoma State Regents for Higher Education, several colleges and universities in Oklahoma collected assessment

data for this project. At OSU, a sample of students participated in the Collegiate Learning Assessment (CLA) to assess higher-order collegiate skills of reasoning, communication, and problem-solving. A sample of OSU alumni participated in the Collegiate Results Survey to provide alumni perceptions about how well prepared they are for the world of work. The results of this statewide assessment were reported in the National Center for Public Policy and Higher Education's report card, *Measuring Up 2004*.

APPENDIX A

**Report on Student Satisfaction with the
Northern Oklahoma College/Oklahoma State University
Gateway Program**



Student Satisfaction with the NOC/OSU Gateway Program

Spring 2004

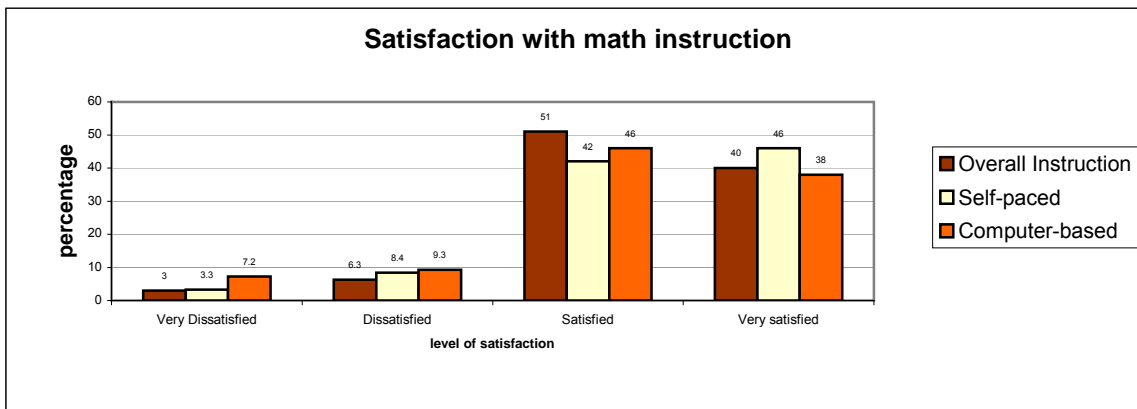
In Fall 2003, 442 students enrolled in the Northern Oklahoma College/Oklahoma State University Gateway program, taking at least one remedial course at NOC facilities and at least one course on the OSU campus. In March 2004, a telephone survey of these students was conducted to provide students' perceptions about their experience, including whether or not they believed NOC remedial courses adequately prepared them for OSU courses, their satisfaction with the quality and methods of instruction, and to identify any logistical or other problems they encountered while taking courses at NOC.

Surveys were completed by 248 students, 56% of the total population. The response rate of students for whom we had accurate U.S. telephone numbers was 67%. Nearly all students (96%) who participated in the survey had taken remedial math at NOC in Fall 2003, so this report focuses on those students' responses. Of the 248 survey participants, 16 took remedial English at NOC, and 3 took remedial Science; responses are not reported here for those classes.

Satisfaction with Instruction

Students reported high levels of satisfaction with the quality and method of instruction at NOC in Fall 2003. The survey items reported in the table below are the following:

1. Overall: How satisfied were you with the quality of instruction provided in the NOC math course(s) you took?
2. Self-paced: The method of instruction for the NOC math course was self-paced, with assistance from instructors and tutors. How satisfied were you with this method of instruction?
3. Computer-based: How satisfied were you with the computer-based instruction in your NOC math course?



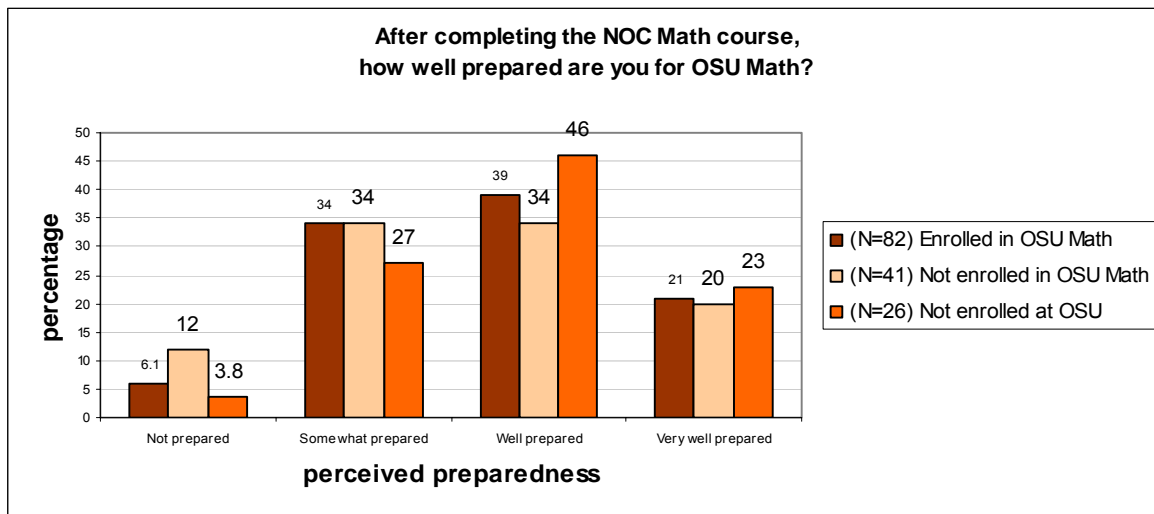
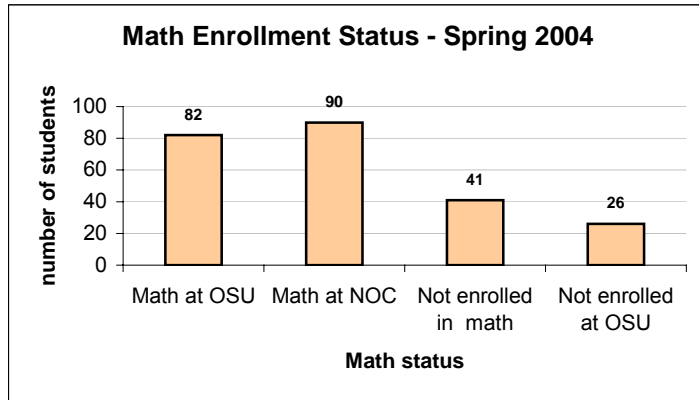
Responses of satisfied and very satisfied were given by 91% of students for overall instruction, 88% for self-paced instruction, and 84% for computer-based instruction.

Math Status for Spring 2004 and Perceptions of Preparedness for OSU Math

Of the 239 survey participants who took math at NOC in Fall 2003, 72% were enrolled in a math course in Spring 2004.

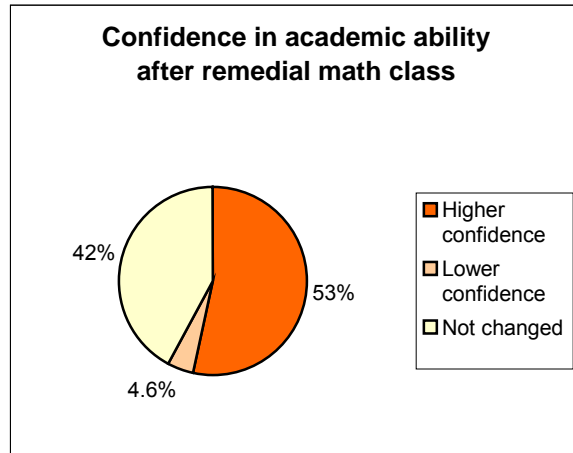
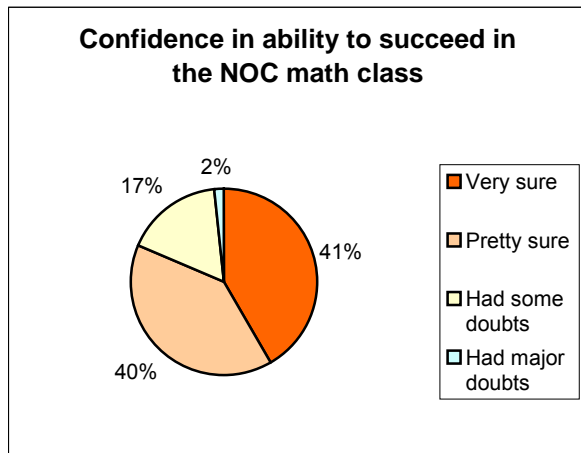
One-third (34%) were enrolled in math at OSU, and 38% were again enrolled in remedial math at NOC.

The chart at right reports numbers, not percentages.



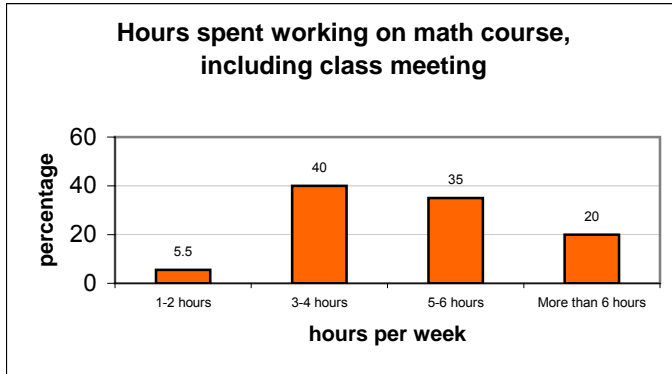
More than half (60%) of students enrolled in OSU math in Spring 2004 said they were well-prepared or very well-prepared as a result of taking the NOC course.

Confidence in Academic Ability



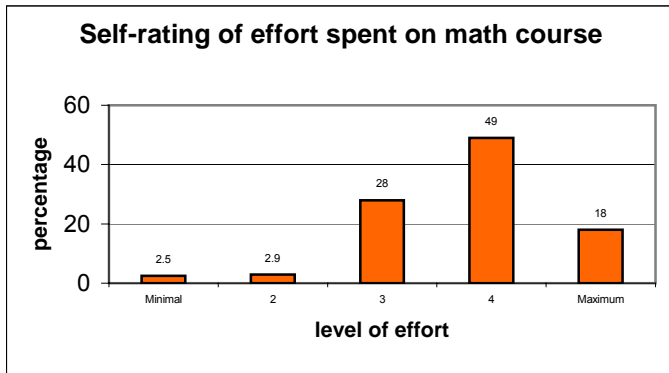
81% indicated that they were “very sure” or “pretty sure” they could succeed in the NOC remedial math course; 53% said their confidence in their academic ability was higher as a result of taking the math course.

Self-Estimated Time and Effort



Time on Task
 ←Students were asked to indicate the average number of hours per week they spent working on their NOC math course, including time spent in the classroom and study time.

Since the class met for 2.5 hours each week, responses indicate that 55% of students worked at least 2.5 hours outside of class and 45% worked 1.5 hours or less outside of the class meeting.



Estimate of Effort Expended

←Using a scale of 1 to 5, where 1 is minimal effort and 5 is maximum effort, students were asked to describe the amount of effort that they put into the math course they took at NOC.

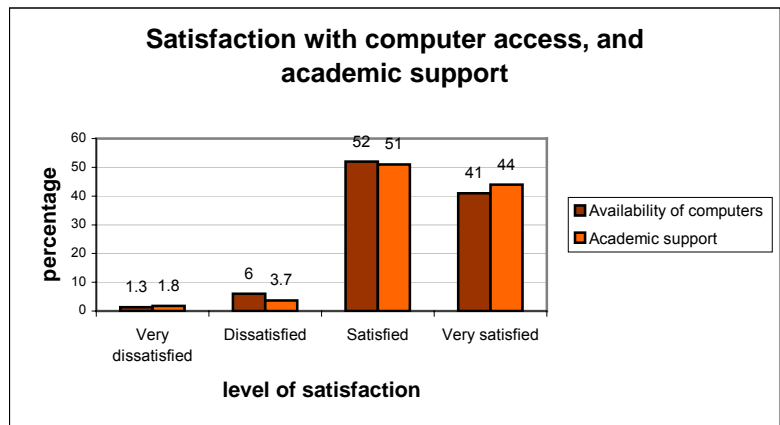
18% of students indicated giving maximum effort; 76% of students described their effort as “3” or “4” on the scale. The average self-rating of effort was 3.8.

Would students take the course at NOC if they had it to do over again?

When asked if they would enroll at NOC for math, if they could choose again, 32% said “definitely yes,” 43% said “probably yes,” 17% said “probably no,” and 8% said “definitely no.”

Satisfaction with Support

Most students indicated that they were “satisfied” or “very satisfied” with the availability of computers outside of class (93%) and with academic support available to them outside of class, such as tutoring (95%).



Experiences of Gateway Students

Employment

- 8% worked more than 30 hours weekly
- 18% worked 16-30 hours weekly
- 12% worked 1-15 hours weekly
- 62% did not work for pay

Residence for Fall 2003

- 52% residence hall
- 30% off campus
- 8% with parents or relatives
- 6% OSU apartment
- 4% sorority or fraternity house

Time to walk to OSU class from NOC

- 28% had plenty of time
- 23% barely had enough time
- 12% did not have enough time
- 37% no class immediately following

Used OSU transit for transportation

- 83% never
- 12% occasionally
- 2% frequently
- 3% every day

Participated in student organizations

- 28% yes
- 72% no

Observed problems that seemed to be unique to NOC (not at OSU)

- 12% yes
- 88% no

For the following open-ended questions, responses were categorized under the headings listed, with the number of responses indicated. A report of verbatim responses is available.

How would you describe the workload for the NOC math courses?

Appropriate	221	Too much	10
-------------	-----	----------	----

What advice would you give to new OSU students who will take remedial classes at NOC?

Do the work	42	Course is helpful	33
Don't get behind	30	Use the tutors	14
Go to class	13	Communicate with instructor	11
You can do it	7	Ask for help if you need it	5

What advantages did you experience or observe with your NOC courses, as compared to your OSU courses?

- ability to work at own pace (N=61)
- computer-based instruction (51)
- classes were smaller (48)
- good instructor/helpful attitude (43)
- more one-on-one assistance (30)
- availability and quality of tutoring (22)
- more interaction and personal attention (11)

What could be done to improve the quality of instruction and academic support services for students taking remedial courses at NOC?

- more instruction from teacher (29)
- separate students by class level (8)
- increase availability of tutors (8)
- smaller classes/more one-on-one (8)
- improve computer system (6)
- increase parking availability (4)
- relate content more to OSU courses (3)

	<u>Composition</u>			<u>Mathematics</u>			
	Fall 01	Fall 02	Fall 03	Fall 01	Fall 02	Fall 03	
Remedial course instructors	OSU	OSU	NOC	OSU	OSU	NOC	(Fall 2003 does not include 188 students who enrolled in Math 0023)
Students enrolled (number)	20	29	41	382	366	217	
Passed remedial course	16/20 (80%)	23/29 (79%)	37/41 (90%)	62%	59%	77%	
	Sp 02	Sp 03	Sp 04	Sp 02	Sp 03	Sp 04	
1 semester retention rate	16/20 (80%)	18/23 (78%)	32/37 (87%)	88%	92%	91%	
Enrolled in OSU course							
ENGL 1113 or MATH 1483, 1493, or 1513 (% of students enrolled in spring courses)	14/16 (88%)	13/23 (56%)	20/37 (49%)	71%	76%	65%	
Passed OSU course with C or better	7/14 (50%)	9/13 (69%)	11/20 (55%)	62%	62%	63%	
Passed OSU course with D or better	9/14 (64%)	10/13 (77%)	14/20 (70%)	80%	80%	78%	
	Fall 02	Fall 03	Fall 04	Fall 02	Fall 03	Fall 04	
1 year retention rate	10/20 (50%)	13/29 (57%)	21/41 (57%)	76%	77%	68%	
Admission information							
ACT subscore (English or Math)	16.0	12.8	13.7	16.6	17.0	15.4	
High school subject GPA (English or Math)	2.3	2.7	2.8	N/A	2.5	2.4	

Data provided by OSU's Office of Institutional Research and Information Management.

APPENDIX B

**OSU General Education Assessment Committee
2004 Annual Report**

GENERAL EDUCATION ASSESSMENT COMMITTEE ANNUAL REPORT, 2004

2004 General Education Assessment Committee Membership

Jeff Hattey (chair, Plant & Soil Sciences), John Gelder (Chemistry), Frances Griffin (Business Management), Ed Walkiewicz (English), Rick Rohrs (History), Greg Wilber (Civil and Environmental Engineering), Pam Lumpkin (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, and 2004), math problem solving skills (data collection in 2002 and 2003), and science problem solving skills (data collection in 2003 and 2004). The Committee will begin developing an institutional portfolio for assessment of students' critical thinking in 2005, using a rubric pilot tested in 2004. 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. When completed, the database will provide 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.

During the past academic year the General Education Designation Request form has been reconstructed to align with future institutional software. This form provides the data records that comprise the General Education Course Database. The existing database is currently being merged into the new database so that future analysis can include information gathered prior to conversion of the General Education Designation Request Form.

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.

Committee Goals for 2004

- A. The Committee planned to continue development of the institutional portfolio for assessing student written communication skills as in previous years. The committee recommended that two portfolio-scoring groups each review about 70 samples of randomly collected student work demonstrating written communication skills. Because each group consists of three faculty members, this required six faculty reviewers for the 2004 written communication skills portfolio (two Committee members and four additional faculty reviewers).
- B. The Committee also projected continuation of the institutional portfolio for evaluating students' science problem solving skills as pilot-tested in 2003. The committee recommended that a portfolio-scoring group, consisting of three faculty members, evaluate the science skills portfolio (two Committee members and one additional faculty reviewers). It was expected that this group of reviewers could review about 150 samples of student work demonstrating science problem solving skills.
- C. The Committee planned to develop and pilot-test an institutional portfolio to evaluate student critical thinking skills. Two Committee members worked on this portfolio with assistance from one additional faculty reviewer.

Assessment of Written Communication Skills

2004 collection of writing samples

The University Assessment and Testing Office supervised the collection of student writing artifacts for the Written Communication Skills Institutional Portfolio in Spring 2004. Instructors from the following undergraduate courses contributed random samples of student work to the 2004 written communication skills institutional 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
AGEC 3323	Ag Product Marketing and Sales		10	2	0
AGED 3203	Planning the Community Program in Ag Ed		10	10	9
BCOM 3113	Written Communication		11	11	11
BCOM 3113	Written Communication		10	10	10
CIVE 3813	Environmental Engineering Science		10	10	10
ECON 3823/ HIST 4513	American Economic History	S	10	10	10
ENGL 1413	Critical Analysis and Writing II		9	9	8
ENGL 4520	Problems in English: Pursuing Postmodernism		10	10	10
GEOG 1113	Introduction to Cultural Geography	I, S	10	10	10
HDFS 3453	Management of Human Service Programs		10	10	10
HHP 2213	Principles in Health Ed & Health Promotion		12	12	12
HIST 1103	Survey of American History		10	10	10
PHIL 3803	Business Ethics	H	10	10	10
POLS 3953	Minorities in the American Political System	S	10	10	10
SOIL 4463	Soil and Water Conservation		10	10	10
Total Number of Writing Artifacts (samples)			152	144	140*

*The number of artifacts reviewed in 2004 was less than the number collected because the student information could not be found in OSU Student Information System databases (n=1), or the student was determined to be a graduate student (n=1). In one course, it was decided that all samples would not be evaluated because they did not meet the criteria for assessment (n=10).

Artifacts were collected as in previous years. 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.

2004 written communication skills portfolio reviews

Six faculty reviewers for the written communication skills institutional portfolio met and completed their work in May and June 2004. The portfolio reviewers included Frances Griffin (Business Management), Rick Rohrs (History), Jon Comer (Geography), Sarah Price (Physical Education), Stacy Thompson (Human Development and Family Science), and Dwayne Cartmell (Agricultural Education, Communications, and 4-H Youth Development).

All portfolio reviewers met for two training sessions where they received background information on the procedure, and practiced scoring samples of student work using the written communication skills scoring rubric developed for this purpose in 2001. During these two initial sessions, reviewers discussed questions and concerns regarding use of the rubric, discussed scores given to samples of student work, and developed a common approach for evaluating student writing samples.

As with past groups of reviewers, by the end of training sessions with all reviewers present, the reviewers were scoring fairly consistently with little variation among individual members. Sixteen artifacts were scored during the training session. The scoring committee then divided into two sub-groups, each of which undertook to score 64 artifacts. Scoring was done individually, and each sub-group then met to reach consensus scores where there was variation in individual scores. The final scores were then submitted to the Assessment and Testing Office for compilation and interpretation.

Written communication skills scores from each review group

Review Group	Artifact Score	Number of Artifacts	Percent of Artifacts
#1 (64 artifacts scored)	1	6	9%
	2	16	25%
	3	23	36%
	4	15	23%
	5	4	6%
#2 (64 artifacts scored)	1	0	0%
	2	16	25%
	3	25	39%
	4	16	25%
	5	7	11%
16 artifacts scored during training	1	0	0%
	2	6	38%
	3	8	50%
	4	2	13%
	5	0	0%

Rubric for evaluating student written communication skills

The General Education Assessment Committee developed the following rubric for evaluating samples of student writing in 2001. Minor revisions were made to the rubric in 2004; the revised rubric is provided below. Reviewers scored the artifacts independently and then met to develop a consensus score for each artifact; each artifact received a whole-number score from 1 to 5.

Score	Characteristics
5	<p style="text-align: center;">Content & Organization</p> <p>Topic/thesis is clearly stated and well developed; details/wording is accurate, specific, appropriate for the topic & audience, with no digressions; evidence of effective, clear thinking; completely accomplishes the goals of the assignment</p> <hr/> <p>Paragraphs are clearly focused and organized around a central theme; clear beginnings and endings; appropriate, coherent sequences and sequence markers</p>
	<p style="text-align: center;">Style & Mechanics</p> <p>Word choice appropriate for the task; precise, vivid vocabulary; variety of sentence types; consistent and appropriate point of view and tone</p> <hr/> <p>Standard grammar, spelling, punctuation; no interference with comprehension or writer's credibility</p>
4	Exhibits some characteristics of "3" and some characteristics of "5"
3	<p style="text-align: center;">Content & Organization</p> <p>Topic is evident; some supporting detail; wording is generally clear; reflects understanding of topic and audience; generally accomplishes goals of the assignment</p> <hr/> <p>Most paragraphs are focused; discernible beginning and ending paragraphs; some sequence markers</p>
	<p style="text-align: center;">Style & Mechanics</p> <p>Generally appropriate word choice; variety in vocabulary and sentence types; appropriate point of view and tone</p> <hr/> <p>Some non-standard grammar, spelling, and punctuation; errors do not generally interfere with comprehension or writer's credibility</p>
2	Exhibits some characteristics of "1" and some characteristics of "3"
1	<p style="text-align: center;">Content & Organization</p> <p>Topic is poorly developed; support is only vague or general; ideas are trite; wording is unclear, simplistic; reflects lack of understanding of topic and audience; minimally accomplishes goals of the assignment</p> <hr/> <p>Most paragraphs are rambling and unfocused; no clear beginning or ending; inappropriate or missing sequence markers</p>
	<p style="text-align: center;">Style & Mechanics</p> <p>Inappropriate or inaccurate word choice; repetitive words and sentence types; inappropriate or inconsistent point of view and tone</p> <hr/> <p>Frequent non-standard grammar, spelling, punctuation interferes with comprehension and writer's credibility</p>

Student demographics associated with written communication skills artifacts, 2001- 2004

		2001-03		2004		All Years	
		no. of artifacts	pct	no. of artifacts	pct	no. of artifacts	pct
Number of Artifacts	# collected	521	-	152	-	673	-
	# scored	431	-	144	-	575	-
	#used in analysis	422	-	140	-	562	-
Class	Freshman	69	16%	19	14%	88	16%
	sophomore	82	19%	25	17.9%	107	19%
	junior	106	25%	39	27.9%	145	26%
	senior	165	39%	57	40.7%	222	40%
College	CAS	158	37%	38	27%	196	35%
	CASNR	52	12%	24	17%	76	14%
	CBA	67	16%	31	22%	98	17%
	COE	54	13%	13	9.3%	67	12%
	CEAT	34	8.1%	15	11%	49	8.7%
	CHES	43	10%	15	11%	58	10%
	UAS	8	1.9%	4	2.9%	12	2.1%
Gender	female	226	54%	73	52%	299	53%
	male	196	46%	65	46%	261	46%
Admit Type	Regular (A, AR)	256	61%	78	56%	334	59%
	Alternative Admit (F)	18	4.3%	4	2.9%	22	3.9%
	Adult Admit (G)	4	.9%	4	2.9%	8	1.4%
	"Third Door" Admit (K)	3	.7%	2	1.4%	5	.9%
	International (J)	2	.5%	1	.7%	3	.5%
	Transfer (M, MR)	123	29%	47	34%	170	30%
	Other or Blank	8	1.9%	4	2.9%	12	2.1%
ACT	<22	98	23%	38	36%	136	30%
	22 to 24	97	23%	29	21%	126	22%
	25 to 27	81	19%	20	14%	101	18%
	28 to 30	52	12%	17	12%	69	12%
	>30	25	5.9%	1	.7%	26	4.6%
OSU GPA	<2.0	24	5.7%	7	5%	31	5.5%
	2.0 to 2.49	54	13%	19	14%	73	13%
	2.50 to 2.99	81	19%	46	33%	127	23%
	3.00 to 3.49	144	34%	31	22%	175	31%
	3.50 to 4.00	118	28%	37	26%	155	28%

Student demographics associated with written communication skills artifacts, 2001- 2004
(continued)

College	Major	No. of Artifacts	College	Major	No. of Artifacts
CASNR	AGBU	14	CBA	ACCT	12
	AGCM	4		ECON	10
	AGEC	8		FIN	3
	AGED	17		GNBU	10
	ANSI	16		INBU	4
	BIMB	6		MGMT	12
	ENVR	5		MIS	6
	LCON	1		MKTG	20
	PASS	5		MSCS	1
	all	76		UND	20
CAS	AMSD	2	all	98	
	ART	15	COE	ATRN	2
	BIOC	5		AVED	3
	BIOL	6		EDUCncrt	1
	CDIS	3		ELEM	15
	CHEM	3		HLTH	13
	CLML	1		HPRO	12
	CS	3		LEIS	3
	ECON	1		PHED	2
	ENGL	32		SCED	14
	GEOL	3		UND	2
	HIST	3	all	67	
	JB	20	CEAT	ARCE	1
	MATH	2		ARCH	7
	MUSC	1		BAE	1
	PHIL	3		CHEN	5
	PHSL	1		CIVE	16
	PHYS	1		CMT	1
	POLS	22		ELEN	3
	PREP	2		ET	1
PSYC	6	FPST		6	
SOC	4	IEM		1	
SPAN	2	MEEN/AERS	4		
UND	49	MET	2		
WLDL	2	UND	1		
ZOOL	4	all	49		
all	196	CHES	DHM	5	
UAS	UAAA		8	FRCD/HDFS	29
	UAAD		4	HRAD	5
	UAAS		1	NSCI	18
	UACC		3	UND	1
	UATP		1	all	58
	UAUN		1		
	all	18			

Written communication skills scores, 2001 - 2004 (years combined)

		<u>Score</u>					Avg	n	
		1	2	3	4	5			
Overall Scores	Overall	n	27	155	241	116	23	2.92	562
		%	4.8%	27.6%	42.9%	20.6%	4.1%		
By Class	Freshmen	n	8	31	37	11	1	2.61	88
		%	9.1%	35.2%	42.0%	12.5%	1.1%		
	Sophomores	n	5	30	48	18	6	2.91	107
		%	4.7%	28.0%	44.9%	16.8%	5.6%		
	Juniors	n	7	41	61	31	5	2.90	145
		%	4.8%	28.3%	42.1%	21.4%	3.4%		
	Seniors	n	7	53	95	56	11	3.05	222
		%	3.2%	23.9%	42.8%	25.2%	5.0%		
By Class (regular admit only)	Freshmen	n	4	26	32	8	0	2.63	70
		%	5.7%	37.1%	45.7%	11.4%	0		
	Sophomores	n	2	18	33	14	5	3.03	72
		%	2.8%	25.0%	45.8%	19.4%	6.9%		
	Juniors	n	2	14	37	13	2	2.99	68
		%	2.9%	20.6%	54.4%	19.1%	2.9%		
	Seniors	n	2	25	51	31	7	3.14	116
		%	1.7%	21.6%	44.0%	26.7%	6.0%		
By Transfer Status	Native Students* (domestic only)	n	19	104	172	79	18	2.93	392
		%	4.8%	26.5%	43.8%	20.1%	4.5%		
	Transfer Students	n	8	51	69	37	5	2.89	170
		%	7.4%	30%	40.5%	21.7%	2.9%		

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

Key findings

- Writing scores for samples from freshmen had significantly lower scores than writing samples for seniors (n=562, p<0.05); 44% of the freshmen writing samples had scores of “1” or “2” and 56% had scores of “3” or higher. In contrast, 73% of writing samples from seniors received a score of “3” or higher. When only regularly admitted students were included in the analysis (i.e., excluding transfer, international, and alternatively admitted students), the contrast was even more pronounced. Considering only regularly admitted students, 77% of work produced by seniors received scores of 3 or higher.
- Although students who start their career at OSU (“native” OSU students) are slightly more likely to receive high scores on their writing samples, there is no statistically significant difference between the writing scores of native and transfer students, even when only regularly admitted native students are considered in the comparison.

Assessment of Science Problem-Solving Skills

2004 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 2004 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 2004 science problem-solving skills institutional portfolio:

Three faculty reviewers for the science problem-solving skills institutional portfolio met and completed their work in June and July 2004. The portfolio reviewers included John Gelder (Chemistry), Ed Walkiewicz (English), and Nigel Jones (Architecture).

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
BOT 1404	Plant Biology	N	25	0	0
CHEM 1314	General Chemistry	L, N	26	26	26
CHEM 1515	General Chemistry	L, N	26	26	24*
GEOG 1114	Physical Geography	L, N	78	26	26
MICR 1513	Inquiry-Based Biology	L, N	26	0	0
NSCI 2114	Principles of Human Nutrition	N	26	0	0
PHYS 1014	Descriptive Physics	N	25	25	25
PHYS 1313	Inquiry-Based Physics	L, N	15	15	15
RLEM 2913	Ecology and Natural Resources	N	24	0	0
ZOOL 3123	Human Heredity	N	25	25	25
Total Number of Science Artifacts (samples)			296	143	141

The artifacts collected from BOT 1404, MICR 1513, NSCI 2114, and RLEM 2913 were determined to not be appropriate for assessing science problem-solving skills using this method and were not scored or included in analysis. *Two artifacts could not be scored due to missing information.

Rubric for evaluating students' science problem-solving skills

The General Education Assessment Committee developed the following rubric for evaluating students' science problem-solving skills in 2003, and made minor revisions in 2004. Reviewers scored the artifacts independently and then met to develop a consensus score for each artifact; each artifact received a whole-number score from 1 to 5. Scores of "2" indicate work that has some elements of "1" and some elements of "3." Scores of "4" indicate work that has some elements of "3" and some elements of "5."

Rubric for evaluating students' science problem solving skills

Aspects	(1)	(3)	(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; Organizes the response in a manner that 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 the language of science 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 possesses 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 an appropriate graphical or tabular format; Provides a 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 make attempt to apply appropriate solution; Adopts inappropriate strategy for solving the problem; Attempts to use irrelevant information; Fails to provide a graphical representation of the mathematical thought process or provides an incorrect one.	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 they 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.

Student demographics associated with science problem solving skills artifacts, 2003-2004

		2003		2004		Total Years	
		no. of artifacts	pct	no. of artifacts	pct	no. of artifacts	Pct
Number of Artifacts	# collected	165	-	296	-	461	-
	# scored	68	-	143	-	211	-
	#used in analysis	68	-	141	-	209	-
Class	freshman	27	39.7%	49	34.8%	76	36.4%
	sophomore	21	30.9%	46	32.6%	67	32.1%
	junior	14	20.6%	27	19.1%	41	19.6%
	senior	6	8.8%	19	13.5%	25	12.0%
College	CAS	19	27.9%	59	42.6%	78	37.3%
	CASNR	17	25.0%	38	26.2%	55	26.3%
	CBA	0	0%	9	6.4%	9	4.3%
	COE	22	32.4%	22	15.6%	44	21.1%
	CEAT	6	8.8%	8	5.7%	14	6.7%
	CHES	2	2.9%	5	3.5%	7	3.3%
	UAS	2	2.9%	0	0	2	1.0%
Gender	female	45	66.2%	90	63.8%	135	64.6%
	male	23	33.8%	51	36.2%	74	35.4%
Admit Type	Regular (A, AR)	47	69.1%	96	68.1%	143	68.4%
	Alternative Admit (F)	4	5.9%	4	2.8%	8	3.8%
	Adult Admit (G)	0	0%	0	0%	0	0%
	"Third Door" Admit (K)	0	0%	0	0%	0	0%
	International (J)	1	1.5%	3	2.1%	4	1.9%
	Transfer (M, MR)	15	22.1%	34	24.1%	49	23.4%
	Other or Blank	1	1.5%	4	2.8%	5	2.4%
ACT	<22	18	31.0%	28	24.6%	46	26.7%
	22 to 24	16	27.5%	34	29.8%	50	29.1%
	25 to 27	13	22.4%	32	28.1%	45	26.2%
	28 to 30	6	10.3%	15	13.1%	21	12.2%
	>30	5	8.6%	5	4.4%	10	5.8%
OSU GPA	<2.0	3	4.4%	10	7.1%	13	6.2%
	2.0 to 2.49	11	16.1%	13	9.2%	24	11.5%
	2.50 to 2.99	16	23.5%	36	25.5%	52	24.9%
	3.00 to 3.49	20	29.4%	35	24.9%	55	26.3%
	3.50 to 4.00	18	26.4%	47	33.3%	65	31.1%

Science problem-solving skills scores, 2003-2004

		Score					Avg	N	
		1	2	3	4	5			
Overall Scores	Overall	n	5	70	83	47	4	2.88	209
		%	2.4%	33.5%	39.7%	22.5%	1.9%		
By Class	Freshmen	n	2	32	32	10	0	2.66	76
		%	2.6%	42.1%	42.1%	13.2%	0		
	Sophomores	n	3	19	24	19	2	2.97	67
		%	4.5%	28.4%	35.8%	28.4%	3.0%		
	Juniors	n	0	12	18	10	1	3.00	41
		%	0	29.3%	43.9%	24.4%	2.4%		
	Seniors	n	0	7	9	8	1	3.12	25
		%	0	28.0%	36.0%	32.0%	4.0%		
By Class (regular admits only)	Freshmen	n	2	29	29	9	0	2.65	69
		%	2.9%	42.0%	42.0%	13.0%	0		
	Sophomores	n	3	11	17	14	0	2.93	45
		%	6.7%	24.4%	37.8%	31.1%	0		
	Juniors	n	0	4	8	5	1	3.17	18
		%	0	22.2%	44.4%	27.8%	5.6%		
	Seniors	n	0	1	3	6	1	3.64	11
		%	0	9.1%	27.3%	54.5%	9.1%		
By Transfer Status	Native Students* (domestic only)	n	5	50	61	37	3	2.89	156
		%	3.2%	32%	39.1%	23.7%	1.9%		
	Transfer Students	n	0	16	19	10	1	2.91	46
		%	0	34.8%	41.3%	21.7%	2.2%		

*all domestic native students, regardless of admit type

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

Key findings

- The science problem-solving skills portfolio is limited to assessing science problem-solving skills of students, primarily freshmen and sophomores, in entry-level science courses. The data are too limited at this point to make generalizations about students' science problem-solving skills, but this approach appears to be promising for this type of assessment.
- Science scores from the institutional portfolio were significantly correlated with OSU GPA, classification, credit hours earned from OSU, and cumulative hours earned (n=141, p<0.01); and with ACT Composite scores and ACT Reading sub-scores (n=141, p<0.05).

Assessment of Critical Thinking Skills

Background information regarding assessment of critical thinking

The criteria and goals for each General Education area designation include some aspect of critical thinking as part of their desired results. For example, those courses designated with an “A” (analytical and quantitative thought) list as their first goal that “Students will critically analyze and solve problems using quantitative, geometric, or logical models.” Those courses designated with “H” (humanities) have the goal that “Students will critically analyze the relationships of aesthetics, ideas, or cultural values to historic and contemporary cultures.” Similar goals are stated for those courses designated as social and behavioral sciences (“S”), natural sciences (“N”), contemporary international cultures (“I”), and scientific investigation (“L”).

The General Education Assessment Committee focused on assessment of critical thinking as one of the committee’s primary tasks over the summer of 2004. In addressing this topic, the committee took an approach similar to that previously taken in the development of rubrics to assess writing, math, and science problem-solving skills.

Development of critical thinking assessment plan

A sub-committee of the General Education Assessment Committee was formed to develop a quantitative measure that could be used to determine the extent to which the General Education program is achieving the stated goal of developing the critical thinking skills of OSU students. The instrument is intended for use in institution-level assessment, as part of the institutional portfolio, but it is hoped that it will also gain acceptance as a tool for faculty to assess critical thinking at the course- and assignment-level as well.

The development process involved the following steps:

1. Review of published information from peer institutions and researchers on assessment of critical thinking in an academic setting,
2. Participation in AAHE Critical Thinking Assessment Workshop (June 12),
3. Review of critical thinking assessment efforts on the OSU campus,
4. Development of draft rubric,
5. Pilot study applying draft rubric to artifacts already in hand,
6. Revision of rubric based on the pilot study, and
7. Development of a summary report of these activities.

The committee concluded that a campus-wide discussion of critical thinking and its assessment, parallel with this effort to develop a measurement process, would be valuable. These activities would be analogous to the “writing across the curriculum” efforts of previous years. A plan was developed to begin a series of “brown-bag” seminars on campus, with the purpose of introducing the findings of the committee, including the critical thinking assessment rubric, bringing in speakers with experience in teaching and assessing critical thinking at the college level, and highlighting the efforts of OSU faculty currently having success in assessing the critical thinking development of their students. Plans for these campus-wide efforts are presented below.

A pilot study using the rubric developed to assess critical thinking

The committee has focused particularly on efforts to assess critical thinking at the university or institution level. This, of course, ultimately involves assessing critical thinking at the course and assignment level. But institution-level assessment requires a broader approach that is not discipline specific. The literature on critical thinking and its assessment in educational settings is large and highly varied. The committee could not identify a universally accepted definition of critical thinking, especially one that fits across all disciplines. A variety of rubrics for evaluating the level and quality of critical thinking in individual writing examples are found in the literature, as

are discussions of their application in the classroom. A number of these sources have been collected in a “critical thinking” library in the Office of University Assessment and Testing.

A variety of rubrics for evaluating critical thinking, generally at the course or individual assignment level, have been published (Facione and Facione 1994, Condon *et al.* 2004). The rubric that seemed most readily applicable to the goals of the assessment committee, and that faculty felt had the greatest potential for use on campus, was that published by Condon and coworkers at Washington State University (Condon *et al.* 2004, also available at <http://wsuctproject.wsu.edu>). Use of this rubric does not require a precise definition of critical thinking, but rather lists many of the key characteristics of critical thinking, and allows the reviewer (or professor using it for an individual assignment) to describe the degree to which a completed assignment exhibits those characteristics.

This rubric was adapted, with the authors’ permission, for use by the OSU general education assessment committee, and is shown in Figure 1. This adaptation has several features that make it useful. One important feature of this rubric is that it is consistent in format and scale to those rubrics already in use by the committee to assess student writing, math skills, and science problem-solving skills. This will allow for consistency in data collection and presentation. Furthermore, the rubric can be applied in the same way as the previously developed rubrics. That is, it can be applied to classroom artifacts from across campus, and these artifacts can be kept anonymous with respect to both student and professor. Lastly, the characteristics listed are broad enough that they can be applied across disciplines. While the details will be very different, a critical assessment of a work of art, an economic plan, or an engineering design, for example, will share these characteristics.

A trial run was performed with the rubric using twelve artifacts that had been previously collected for this year’s writing assessments. With the permission of the course instructors, artifacts of assignments that specifically called for some level of critical analysis were chosen. Three evaluators read and evaluated the artifacts using the critical thinking rubric, ranking each artifact for each of the seven characteristics listed, on a 1 to 5 scale.

Any analysis of these results must first acknowledge the very small sample size used (12 artifacts). The primary conclusion that can be made from the data, perhaps, is that the overall consensus scores were low (2.5 out of 5). However, one of the apparent strengths of the rubric in this form is that it allows the monitoring of student achievement in the various aspects of critical thinking separately. It has the potential for allowing the identification of particular weaknesses in student performance. One category did yield noticeably lower scores than the other subcategories, (4) “Assessment of key assumptions.” It was felt by the reviewers that this was, in part, due to the nature of the assignments and the vague description of this characteristic. This will be addressed further below. An attempt was also made to correlate the consensus scores with the classification of the students. Again, given the small sample size, no trend was seen and these data are not presented.

Following the pilot study, the evaluators assessed the rubric. Application of the rubric to specific student artifacts was challenging. In part, this was due to the nature of the assignments used. While all called for critical thinking, some had very specific constraints which made the rubric difficult to apply to them. For example, some assignments asked very specific questions, such that the basic premise of the question could be assumed without ever being acknowledged by the student. Other topics seemed to specifically omit certain aspects of the rubric. For example, an assignment explicitly asking only for the student’s perspective may have precluded them from considering other relevant perspectives. Finally, the quality of writing in some of the artifacts made evaluation difficult at times. While most would agree that high-quality writing and high-quality thinking will be strongly correlated, reviewers found examples of insightful thinking hidden by poor use of language. Unclear writing also made it difficult to identify individual characteristics within the artifact for the rubric. It was sometimes difficult to discern, for example, the student’s perspective and what the student considered to be a background fact.

Consequently, the rubric was further adapted to address some of these concerns. The revised rubric is shown in Figure 2. The primary difference here is that four characteristics have been listed as “essential,” with the remaining characteristics listed as “optional.” It will be at the discretion of the evaluating committee to determine which set of optional characteristics are evaluated, based on the assignment at hand. In this way, the rubric will maintain its flexibility, while still always providing four values, and a consensus score, that can be tracked and used for comparison (among groups, over time, etc.). Hence, it will be important for the review committee to see the assignment before evaluating the assignment’s artifacts. Any “optional” characteristics that are to be evaluated should be determined at this time.

Campus-wide discussion of critical thinking assessment

The first step in starting a campus-wide discussion of critical thinking (and its assessment) took place on September 30. A lunch-hour seminar, “Developing and Assessing Critical Thinking” was presented by Jeff Hattey and Greg Wilber, members of the critical thinking assessment subcommittee. Lunch was provided by the Office of University Assessment and Testing. The seminar was attended by 57 faculty members and led to a lively discussion about critical thinking on the OSU campus. It also resulted in several participating faculty offering to provide artifacts for next summer’s assessment activities in which the critical thinking rubric will be put to use.

Additional seminars, in conjunction with other university assessment activities, are being developed. Specifically, the leaders of the Washington State critical thinking project will be invited to present some of their work, most likely in the week before the Spring 2005 semester.

Committee plans for critical thinking assessment

During the 2004-2005 academic year, the critical thinking sub-committee’s activities will be focused on two goals: continuing development of the campus-wide conversation on critical thinking, and gathering of artifacts for evaluation next summer using the adapted critical thinking rubric. Accumulating enough artifacts and enough data to be statistically meaningful takes time. These efforts will be critical in ensuring that data is available and can be used in improving critical thinking development and assessment in the General Education program, as well as throughout the college, at OSU.

References

Condon, W.; Kelly-Riley, D.; Johnstone-Yellin, J.; and Mincks, R. 2004. Integrating and Assessing Critical Thinking Horizontally and Vertically. Presented at the AAHE Assessment Conference, Denver, CO, June 2004.

Facione, P.A., and Facione, N.C.. 1994. Holistic Critical Thinking Scoring Rubric. California Academic Press.

Rubric adapted from Washington State University course evaluation for critical thinking

	Skill	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 identified and 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 stated, however, little or no support for the position is provided.		The student's own position on the issue is stated and support has been drawn from experience or information not available from assigned sources.
3	Consideration of OTHER salient perspectives and positions that are important to the analysis of the issue.	Does not acknowledge other possible perspectives.		Acknowledges other possible perspectives although they are not clearly stated.		Uses other perspectives noted previously, and additional diverse perspectives drawn from outside information.
4	Assessment of the key assumptions .	Does not identify the key assumption and/or ethical issues that underlie the issue.		The key assumption(s) are and/or ethical issue(s) that underlies the issue is clearly stated. Data is identified but not evaluated for validity.		The key assumption and/or ethical issue that underlies the issue is clearly stated, and the validity of the assumption and ethical dimensions that underlie the issue is assessed. Data is identified but not evaluated for validity.
5	Assessment and use of supporting data/evidence .	No supporting data or evidence is utilized.		Evidence is identified but not carefully examined. Source(s) of evidence are not questioned for accuracy, precision, relevance, and completeness. Inferences of cause and effect are not stated. Facts and opinions are stated although not clearly distinguished for value judgments.		Evidence is identified and carefully examined. Source(s) of the evidence are questioned for accuracy, precision, relevance, and completeness. Inferences of cause and effect are stated and potential consequences are addressed. Facts and opinions are stated and clearly distinguished for acknowledgement of value judgments.
6	Consideration of the influence of the context on the issue.	The problem is not connected to other issues or placed context.		The context of the question is provided although it is not clearly analyzed. Limited consideration of the audience is provided. No 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.
7	Discussion of conclusions, implications and consequences .	Conclusions are not provided.		Conclusions are provided without discussion implications or consequences. No 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.

Figure 1. Critical Thinking rubric (version 1), used in pilot scoring study

Critical thinking rubric (adapted from Washington State University course evaluation for critical thinking)

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 identified and 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 stated; however, little support for the position is provided.		The student's own position on the issue is stated and support has been drawn from experience or information not available from assigned sources.
3 Assessment and appropriate use of supporting data/evidence .	No supporting data or evidence is utilized.		Evidence is used but not carefully examined. Source(s) of evidence are not questioned 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. Little or no 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 positions that are important to the analysis of the issue.	Does not acknowledge other possible perspectives.		Acknowledges other possible perspectives although they are not clearly stated.		Uses other perspectives noted previously, 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. No 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 some characteristics of '3' and no characteristics of '5'

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

Figure 2. Critical Thinking rubric (version 2), based on revisions resulting from pilot study.

General Education Institutional Portfolios Overview

The numbers of samples scored and used in analysis for each institutional portfolio developed in 2001, 2002, 2003, and 2004 are shown below. Institutional Portfolios for written communication skills assessment were developed in 2001 (pilot test year), 2002, 2003 and 2004; portfolios for math problem-solving skills were developed in 2002 (pilot test year) and 2003; and portfolios for science problem-solving skills were developed in 2003 (pilot test year), and 2004. Samples sizes have been increased in each year of portfolio development to allow sufficient samples sizes for data analysis. The 2004 pilot study portfolio for the assessment of critical thinking is not reported here; a full-scale Institutional Portfolio for assessment of critical thinking will be developed and reported in 2004-05.

Number of samples in each portfolio, 2001 – 2004

Year	Portfolio Type			Total number of samples - all portfolios
	Written Communication Skills	Math Problem-Solving Skills	Science Problem-Solving Skills	
2001	86	-	-	86
2002	111	76	-	187
2003	225	269	68	562
2004	140	-	141	281
All Years	562	345	209	1116

Overall portfolio scores for subject-area portfolios, years combined

	Artifacts	Score				
		1	2	3	4	5
Written Communication Skills (2001, 2002, 2003, 2004)	N	27	155	241	116	23
	%	4.8%	27.6%	42.9%	20.6%	4.1%
Science Problem-Solving Skills (2003, 2004)	N	4	40	55	39	3
	%	2.8%	28.0%	38.5%	27.3%	2.1%
Math Problem-Solving Skills (2002, 2003)	N	26	100	102	88	29
	%	7.5%	29.0%	29.6%	25.5%	8.4%

The written communication skills institutional portfolio is developing into an effective assessment tool. Faculty reviewers agree that this as a reasonable way to holistically evaluate undergraduate students' written communication skills. The increased sample size in this portfolio has allowed more confidence in the analysis and implications of the results.

The portfolios for math and science also have the potential to provide useful information for assessing student achievement of general education learner goals. However, these portfolios are

different from the writing portfolio in some important ways. Unlike student writing samples, which are collected from courses across the undergraduate curriculum, math and science artifacts can only be obtained from a limited number of lower division courses. Students in some majors that are not related to math or science may choose to take as few as two math courses and two science courses to meet general education requirements, and would generally not be expected to demonstrate math or 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 written communication skills. 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 2005

- A. The Committee will meet in Fall 2004 to determine committee membership for work to be completed in summer 2005. Although a 3-year rotating membership cycle has been articulated for the Committee, flexibility in this schedule may be required.
- B. The Committee plans to continue the institutional portfolio for assessing student written communication skills as in previous years. The committee recommends that two portfolio-scoring groups each review about 70 samples of randomly collected student work demonstrating written communication skills. Because each group consists of three faculty members, this will require six faculty reviewers for the 2005 written communication skills portfolio (two Committee members and four additional faculty reviewers).
- C. The Committee also plans continuation of the institutional portfolio for evaluating students' math problem-solving skills. The committee recommends that a portfolio-scoring group, consisting of three faculty members, evaluate the math skills portfolio (two Committee members and one additional faculty reviewer). It is expected that this group of reviewers could review about 150 samples of student work demonstrating math problem-solving skills.
- D. The Committee recommends, if funding is available, continuation of the institutional portfolio for evaluating students' science problem-solving skills. Although the timeline calls for assessing science and math portfolios in alternate years, the committee believes it would be beneficial to do both, so that a sufficient sample size for analysis can be provided within a shorter timeframe. The committee recommends that a portfolio-scoring group, consisting of three faculty members, evaluate the science skills portfolio (two Committee members and one additional faculty reviewer). It is expected that this group of reviewers could review about 150 samples of student work demonstrating math problem-solving skills.
- E. The Committee plans to develop the first full-scale institutional portfolio to evaluate students' critical thinking skills. The Committee recommends that two portfolio-scoring groups, consisting of six faculty members, evaluate the critical thinking portfolio (two Committee members and four additional faculty reviewers). It is expected that this group of reviewers could review about 150 samples of student work demonstrating critical thinking skills.
- F. The Committee plans to present an information session 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.

Appendix C

General Education Courses Area Designations – Criteria and Goals

OKLAHOMA STATE UNIVERSITY
GENERAL EDUCATION COURSES AREA DESIGNATIONS –CRITERIA AND GOALS
(revised July 2003, accepted March 2004)

General education courses at Oklahoma State University provide students with general knowledge, skills, and attitudes conducive to lifelong learning in a complex society. Specifically, general education at Oklahoma State University is intended to:

- Construct a broad foundation for the student's specialized course of study,
- Develop the student's ability to read, observe, and listen with comprehension,
- Enhance the student's skills in communicating effectively,
- Expand the student's capacity for critical analysis and problem solving,
- Assist the student in understanding and respecting diversity in people, beliefs, and societies, and
- Develop the student's ability to appreciate and function in the human and natural environment.

Every general education course is aligned with one of four content areas: analytical and quantitative thought (A), humanities (H), social and behavioral sciences (S), and natural sciences (N). In addition, OSU students must participate in an international dimension course (I) and in natural sciences courses that include a lab component and have a scientific investigation (L) designation. A course is qualified to be part of the general education curriculum if it meets the needs of students in all disciplines without requiring extensive specialized skills and satisfies all the criteria for a specific general education area. The criteria for each general education area follow.

General Education Area Designations*

***All goals listed under each designation must be met for a course to receive that designation.**

ANALYTICAL AND QUANTITATIVE THOUGHT - (A)

1. Criteria:

- a. Courses designated "A" incorporate the study of systems of logic and the mathematical sciences.
- b. Courses designated "A" will place primary emphasis on the development of the intellect through inductive and/or deductive processes. Their aim should be broader than proficiency in techniques and should include appreciation of how the processes can supplement intuition and provide ways to analyze concrete problems.

2. Goals:

- a. Students will critically analyze and solve problems using quantitative, geometric, or logical models.
- b. Students will form inferences using logical systems and mathematical information and communicate them in writing.
- c. Students will give appropriate multiple representations (symbolical, visual, graphical, numerical, or verbal) of logical or mathematical information.
- d. Students will estimate, analyze, or check solutions to problems to determine reasonableness, alternative solutions, or to determine optimal methods or results.

HUMANITIES - (H)

1. Criteria:

- a. Courses designated "H" concentrate on the expression, analysis, and interpretation of ideas and the aesthetics or values that have formed and informed individuals and societies.
- b. Courses designated "H" emphasize the diversity in the expression of human ideas and aesthetic or cultural values.

2. Goals:

- a. Students will critically analyze the relationships of aesthetics, ideas, or cultural values to historic and contemporary cultures.
- b. Students will develop an understanding of how ideas, events, arts, or texts shape diverse individual identities.
- c. Students will demonstrate their understanding through written work that provides them the opportunity to enhance their writing skills; upper division “H” courses will include extensive written work.¹

SOCIAL AND BEHAVIORAL SCIENCES - (S)

1. Criteria:

- a. Courses designated “S” propose theoretical constructs to explain human behavior and society in social and/or physical environments.
- b. Courses designated “S” are normally based on empirical observation of human behavior rather than the study of aesthetics, ideas, or cultural values.

2. Goals:

- a. Students will critically analyze generalizations about society and explore theoretical structures.
- b. Students will understand the role of empirical observation in the social and behavioral sciences.
- c. Students will demonstrate their understanding through written work that provides them the opportunity to enhance their writing skills; upper division “S” courses will include extensive written work.¹

NATURAL SCIENCES - (N)

1. Criteria:

- a. Courses designated “N” feature the systematic study of natural processes and the mechanisms and consequences of human intervention in those processes.
- b. Courses designated “N” place primary emphasis on the subject matter of one or more basic physical or biological sciences in a broadly integrative fashion.

2. Goals:

- a. Students will understand the scientific inquiry process.
- b. Students will critically analyze the physical world using the language and concepts of science.
- c. Students will use the methodologies and models of science to select, define, solve, and evaluate problems in biological and physical sciences.
- d. Students will evaluate evidence, interpretations, results, and solutions related to the physical and biological sciences.
- e. Students will understand the consequences of human intervention in natural processes and mechanisms.
- f. Students will demonstrate their understanding through written work appropriate to the discipline that provides them the opportunity to enhance their writing skills.²

CONTEMPORARY INTERNATIONAL CULTURES - (I)

1. Criteria:

- a. Courses designated “I” emphasize contemporary – the current time in the context of the discipline - cultures outside the United States. Courses concerning ethnic and cultural minorities within the U.S. do not qualify.
- b. At least one-half of the course materials must relate to contemporary, not historical, cultures.

2. Goals:

- a. Students will critically analyze one or more contemporary cultures external to the United States.
- b. Students will understand how contemporary international cultures relate to complex, modern world systems.
- c. Students will demonstrate their understanding through written work that provides them the opportunity to enhance their writing skills; upper division “I” courses will include extensive written work.¹

SCIENTIFIC INVESTIGATION - (L)

1. Criteria:

- a. Courses designated “L” must include the equivalent of at least one semester credit hour of laboratory experience aimed at interpreting scientific hypotheses.
- b. Courses designated “L” emphasize scientific inquiry and experimental methodology.

2. Goals:

- a. Students will critically analyze scientific problems, formulate hypotheses, conduct appropriate experiments, and interpret results.
- b. Students will solve problems using scientific inquiry and experimental methodology.
- c. Students will communicate procedures, results and conclusions to others.
- d. Students will demonstrate their understanding through written work appropriate to the discipline that provides them the opportunity to enhance their writing skills.²

Effective August 2004, all new requests for General Education designations must meet criteria and goals in this document. However, courses with approved General Education designations that meet all criteria and goals except the writing requirements will retain the General Education designation. When the General Education Advisory Council reviews the course in three years or when course modifications are submitted, the course must satisfy all criteria and goals, including the writing requirements, to retain the General Education designation.

¹The writing requirement for H, S and I courses is defined as follows:

Lower division courses - outside of class writing assignments appropriate to the discipline that are graded with feedback on writing. Minimum of 5 pages of writing assignments during semester.

Upper division courses - outside of class writing assignments that give students the opportunity to incorporate feedback in subsequent writing assignments (by revising and resubmitting one assignment or submitting more than one assignment). Minimum of 10 pages of writing assignments during semester.

²Faculty who teach “N” and “L” courses will describe writing assignments that are appropriate to the discipline.

Appendix D

2004 Undergraduate Program Alumni Survey Highlights



Survey of Alumni of Undergraduate Programs 2004 Highlights

Office of University Assessment and Testing

The 2004 OSU Survey of Alumni of Undergraduate Programs was conducted to provide data to gauge perceptions of various aspects of the undergraduate programs and services and to identify areas where improvements may be needed. A full copy of the report can be obtained from the Office of University Assessment and Testing (744-6687). This sheet describes highlights from the survey results.

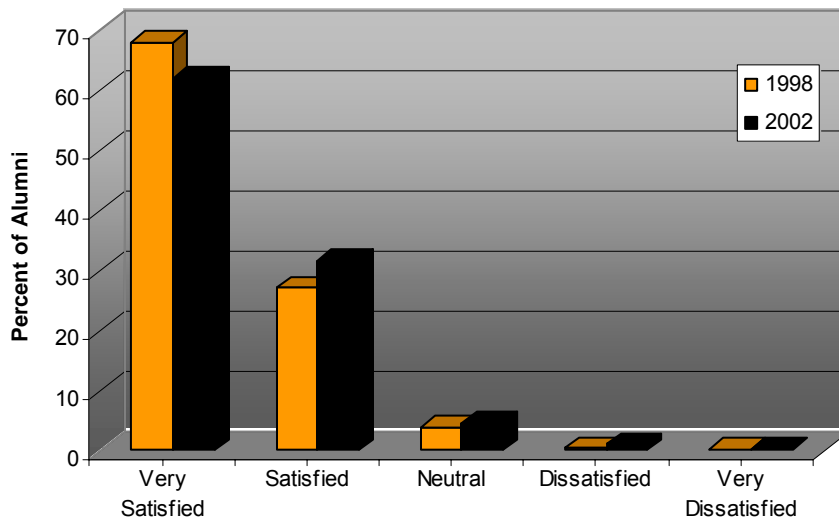
Population: The target population for this survey was alumni of undergraduate programs who completed their degrees in calendar years 1998 and 2002. The total of alumni in the target population was 5,875. Only alumni from academic programs that elected to participate in the survey were included in the target population.

Methods: The survey was administered as a telephone interview. The OSU Bureau for Social Research conducted the survey interviews in February and March of 2004 and coordinated data collection. The Office of University Assessment and Testing analyzed and summarized data and prepared the reports.

Results: A total of 2,520 surveys were completed by alumni of undergraduate programs, resulting in a 43% response rate. There were 968 respondents who graduated in 1998 and 1,552 respondents who graduated in 2002.

OVERALL SATISFACTION

How satisfied are you with your overall educational experience at OSU?



- 85% of alumni were employed (89% of 1998 alumni and 83% of 2002 alumni).

- 28% of alumni had completed or were currently enrolled in graduate programs or professional schools (of those, almost 52% were enrolled or had attended OSU graduate programs).

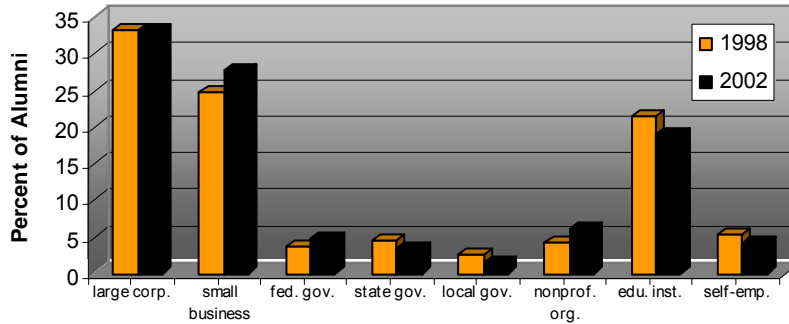
- 96% of alumni said they were somewhat satisfied / very satisfied with the quality of instruction in their major.

- 84% of alumni said they were somewhat satisfied / very satisfied with academic advising at OSU.

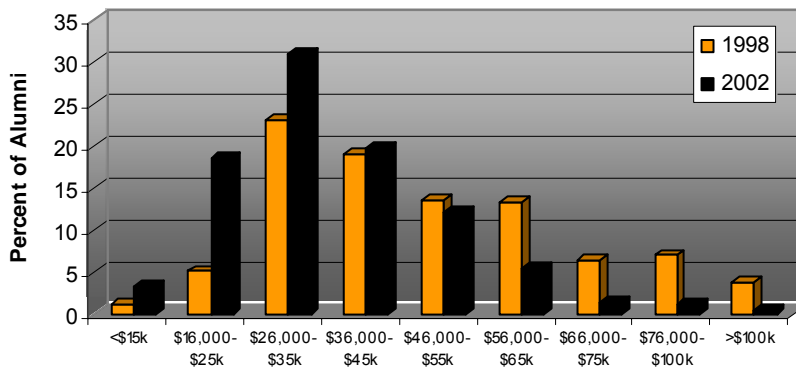
For a detailed report on alumni survey results for your college or program, please contact the OSU Office of University Assessment and Testing (744-6687).

EMPLOYMENT

Which of the following best describes your employer?



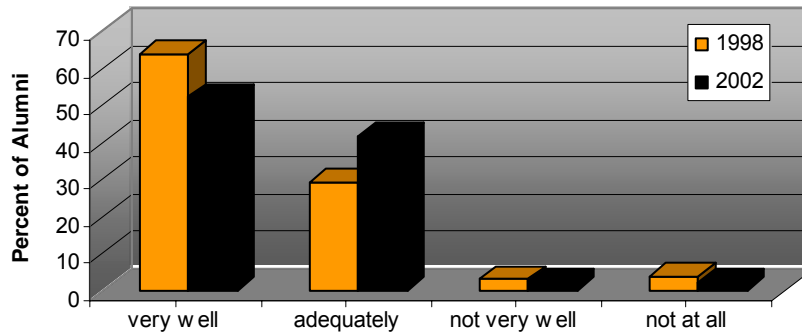
What is your approximate total annual salary?



- 85% of alumni were employed; of those, 91% were employed full-time.
- 4% of alumni were not employed and seeking employment.
- 71% of alumni said their current position was highly / moderately related to their undergraduate studies at OSU.
- 93% of alumni said their undergraduate studies had prepared them very well / adequately for their current position.
- The median salary for recent OSU graduates ranged from \$36k/yr to \$45k/yr.

CONTINUING EDUCATION

How well did your OSU undergraduate program prepare you for graduate school?



- 28% of OSU graduates were attending or had completed a graduate or professional school program.
- 94% of alumni said their undergraduate studies prepared them very well or adequately for a graduate or professional school program.
- 75% of alumni stayed in Oklahoma for continuing education.

