General Education Outcomes at Ohio University

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Executive Summary

- In this report results from three major projects are analyzed to assess the general education program at Ohio University: Tier II coursework taken to meet graduation requirements at Ohio University, a review of scores of Ohio University first-year and senior students on the ACT College Outcome Measures Project (COMP) which is designed to measure general education skills and knowledge, and results from the Survey of Alumni in which graduates (five years after graduating) rate general education competencies in terms of necessity and development at Ohio University.

- The analysis of Tier II coursework focuses on Tier II courses taken by bachelor's degree students who graduated in 1998-1999; students were required to take at least 30 hours in Tier II courses. On average each student took 14.8 Tier II courses for an average of 62.6 credit hours, more than twice the number of credit hours required. Most students took Tier II courses outside of their major.

- The five Tier II areas and percentage of total credit hours taken per area were as follows: Social Sciences (33 percent), Natural Sciences and Math (29 percent), Humanities and Fine Arts (20 percent), Applied Sciences and Technology (11 percent), and Cross-Cultural Perspectives (seven percent).

- Over 80 percent of the Tier II courses taken were offered by Arts and Sciences, seven percent each were offered by Health and Human Services and Fine Arts; none were offered by the College of Education.

- Offering departments which accounted for the highest percentages of Tier II credit hours taken were, in order, Economics, Chemistry, Psychology, Mathematics, Political Science, History, Sociology, Philosophy, Physics, Geography, and Biological Sciences; these departments accounted for 58 percent of the Tier II credit hours earned.

- In terms of ACT COMP results, 11 senior classes (and matching first-year classes) have been tested and analyzed between 1981 and 1995. The average percentile gain in the total score from first-year to senior year was 30 points for the 11 classes combined; the total score gain increased overall from 1981 to 1995.

- In terms of the six ACT COMP subscores the average percentile point gains for the 11 classes combined were 30 points for "Using the Arts," 28 points for "Solving Problems," 25 points for "Functioning Within Social Institutions," 25 points for "Clarifying Values," 22 points for "Communicating," and 19 points for "Using Science and Technology."

- An item analysis of ACT COMP results was performed to provide a more detailed analysis of the six subscales and 22 clusters of items within them. This analysis was based on Ohio University results from Form 11 of the ACT COMP (Form 11) and included results from seven first-year classes tested from 1991 to 1997 and four senior classes tested from 1992 to 1995. Comparisons were made in the aggregate between first-year and senior results.

- Because ACT COMP national norms were not available at the item level, the national norms and Ohio University results were converted to percent correct scores to provide a common basis of comparison. Ohio University seniors' percent correct subscores exceeded the national total and subscale percent correct scores by three to six percentage points, except for "Using Science and

Technology" which had the same score. Ohio University percent correct subscores ranged from 49 percent ("Communicating") to 62 percent ("Solving Problems").

- Comparing the percent correct ACT COMP subscores of seniors and first-year students, the senior subscores in all categories exceeded the corresponding first-year student subscores; the increases ranged from seven percent to 12 percent.

- There were increases in percent correct in all of the 22 ACT COMP item clusters from the first-year to the senior year. The largest increases occurred for "Identify Values" and "Describe Artistic Elements of a Culture" (15 percent each), and "Identify Social Aspects of Culture" and "Explain Social Limits within Institutions" (14 percent each). The smallest increases occurred for "Describe Scientific Concepts" (four percent), and "Oral, Media, & Nonverbal" (communication), "Collect Relevant Data," and "Identify Technology in Culture" (five percent each).

- The Survey of Alumni results from six graduating classes (1988 to 1993) were analyzed. From 83 percent to 92 percent of these classes rated general education courses as helpful in providing the skills and knowledge needed to perform their present job; this percentage decreased steadily from 1988 to 1993.

- The five general education competencies with the highest necessity ratings in the Survey of Alumni were, in descending order, the ability to communicate orally, to acquire new skills and understanding on one's own, to evaluate and choose between alternatives, to work in a team setting, and to think analytically; these ratings ranged from 95 percent to 99 percent in terms of being necessary.

- The Survey of Alumni competencies with the lowest necessity ratings were, in ascending order, the ability to place current problems into historical, cultural, and philosophical perspective, to convey meaning through artistic expression, to participate in community service activities, to cope with complex moral and ethical issues, and to organize and supervise the work of others; these ratings ranged from 47 percent to 78 percent in terms of being necessary.

- The Survey of Alumni competencies with the smallest differences between being necessary and developed at Ohio University were the ability to think analytically, to write well, and to organize and supervise the work of others; these differences ranged from one to four percent.

- The three competencies with the largest necessity-development rating differences were the ability to place current problems into historical, cultural, and philosophical perspective, to convey meaning through artistic expression, and to use the computer as an analytical tool; differences ranged from 16 to 29 percent. Using the computer analytically had the greatest necessity-development difference in which necessity was rated higher than development (16 percent difference).

GENERAL EDUCATION OUTCOMES AT OHIO UNIVERSITY

The Office of Institutional Research has results from three major projects related to the general education program at Ohio University. First, students are required to take courses which meet graduation requirements under the Tier II (breadth of knowledge) general education program. An analysis of Tier II courses reveals patterns of enrollment in terms of five topical course areas and in terms of specific courses themselves. Second, the ACT College Outcome Measures Project (COMP) has been administered over 18 years; results of this project have been published in separate annual reports. However, an item analysis the COMP results can reveal detailed areas of strengths and potential problems in student preparation. Third, a long-term Survey of Alumni (completed by graduates about five years after completing a bachelor's degree) has been conducted at regular intervals over a period of 18 years. The Survey of Alumni asks graduates to rate 15 general education competencies in terms of how necessary they are to graduates in their current endeavors and how well they were developed at Ohio University. The last review of the Tier II, COMP, and Survey of Alumni general education outcomes was performed in 1991. This report is intended to describe Ohio University's general education program and to stimulate discussion of it among the campus community.

The Tier II Requirement

The general education program at Ohio University underwent a review that was implemented in 1979. The Tier I (English composition and quantitative skills) component was first required of first-year students entering in 1979. The Tier II (breadth of knowledge or "distribution") component was first required of first-year (freshmen) students entering in 1981. A 1986 report of the "Tier II Review Committee" concluded that students had taken more "Third World Cultures" (now "Cross-Cultural Perspectives") since the inception of the Tier II component. Guidelines for the Tier III (synthesis) component were established in 1985. These three "Tier" components constitute the current general education requirements for graduation at Ohio University.

The analysis of the Tier II component focuses on Tier II courses taken by students who graduated with bachelor's degrees during academic year 1998-1999. The Tier II requirement for these students consisted of 30 credit hours (though they could take more) in the following areas: Applied Science and Technology, Humanities and Fine Arts, Natural Sciences and Mathematics, Social Sciences, and Cross-Cultural Perspectives. Students were required to take at least four hours in each of four of the above areas, but no more than two of the four areas could be satisfied with courses in the same department. In addition, students could take no more than 12 hours of the Tier II requirement with courses in one department, and only one course in a student's major could be applied toward the Tier II requirement.

Courses taken by bachelor's degree graduates graduating in 1998-1999 (3,430 students) were examined from as far back as 1989-1990 to determine the Tier II courses they took. On average each student took 14.8 Tier II courses (about 4 to 5 hours each) for an average of 62.6 credit hours. Students took more than twice the number of credit hours as were required (30 credit hours). The greatest number of credit hours were taken in Social Sciences, followed by Natural Sciences and Mathematics, Humanities and Fine Arts, Applied Science and Technology, and Cross-Cultural Perspectives, as shown in the Student Profile table below.

Most of the students took courses which were not in their major, as required for Tier II courses. In the aggregate, about seven percent of the Tier II courses taken were in the students' majors. The following tables show how the earned Tier II credit hours in each Tier II area were distributed across the colleges offering them (college profile) and how the earned Tier II credit hours were distributed across the Tier II areas within the student's college (student profile).

EARNED CREDIT HOURS IN TIER II COURSES
BY OFFERING COLLEGE WITHIN TIER II AREA:
COLLEGE PROFILE

Offering College	Applied Sciences and Tech	Humanities and Fine Arts	Natural Sciences and Math	Social Sciences	Cross-Cultural Perspectives	Total
ART	30%	56%	100%	90%	99%	81%
BUS	0%	0%	0%	4%	0%	1%
COM	4%	9%	0%	3%	0%	3%
EDU	0%	0%	0%	0%	0%	0%
ENT	11%	0%	0%	0%	0%	1%
FAR	0%	35%	0%	0%	1%	7%
HHS	55%	0%	0%	3%	0%	7%
Total	100%	100%	100%	100%	100%	100%

As can be seen in the College Profile table, the greatest proportion of the earned credit hours in Tier II courses were offered by the College of Arts and Sciences, followed by Health and Human Services, Fine Arts, Communication, Business, and Engineering and Technology; none were offered by Education. All or virtually all of the Tier II courses in Natural Sciences and Math, Cross-Cultural Perspectives, and Social Sciences were offered by Arts and Sciences. Tier II courses in Applied Sciences and Technology were offered primarily by Health and Human Services, Arts and Sciences, and Engineering and Technology. Tier II courses in Humanities and Fine Arts were offered by Arts and Sciences and Fine Arts.

EARNED CREDIT HOURS IN TIER II COURSES
BY TIER II AREA WITHIN STUDENT COLLEGE:
STUDENT PROFILE

Student College	Applied Sciences and Tech	Humanities and Fine Arts	Natural Sciences and Math	Social Sciences	Cross-Cultural Perspectives	Total
ART	9%	20%	35%	25%	11%	100%
BUS	14%	19%	22%	39%	6%	100%
COM	11%	25%	13%	44%	8%	100%
EDU	11%	12%	29%	42%	6%	100%
ENT	8%	13%	59%	19%	2%	100%
FAR	9%	43%	15%	24%	9%	100%
HHS	15%	13%	29%	37%	5%	100%
UNC	11%	19%	29%	32%	9%	100%
Total	11%	20%	29%	33%	7%	100%

As can be seen in the Student Profile table, students majoring in all colleges except for Arts and Sciences took the smallest portion of their Tier II credit hours in the Cross-Cultural area. Arts and Sciences majors earned the smallest portion of their Tier II credit hours in Applied Sciences and Technology, while they earned the largest portions of their Tier II credit hours in Natural Sciences and Mathematics. Business majors earned the greatest portion of their Tier II credit hours in the Social Sciences area. Communication majors earned the greatest portion of their Tier II credit hours in Social Sciences. Education majors earned the greatest portions of their Tier II credit hours in Social Sciences and in Natural Sciences and Mathematics. Engineering majors earned the greatest portion of their Tier II credit hours in Natural Sciences and Mathematics. Fine Arts majors earned the greatest portion of their Tier II credit hours in Humanities and Fine Arts. Health and Human Services majors earned the greatest portions of their Tier II credit hours in Social Sciences. University College majors earned the greatest portions of their Tier II credit hours in Social Sciences and in Natural Sciences and Mathematics.

The following table shows, in descending order, the proportion of Tier II credit hours earned by the 1998-1999 class in each academic unit which offered the Tier II courses. Fifty-eight percent of the earned Tier II credit hours are accounted for by the top 11 academic units.

PERCENTAGE OF TOTAL EARNED TIER II CREDIT HOURS

BY OFFERING ACADEMIC UNIT

Department	Credit Hours Earned	Percent of Total
Economics	14588	6.9
Chemistry	13708	6.4
Psychology	12940	6.1
Mathematics	12442	5.9
Political Science	12235	5.8
History	12076	5.7
Sociology	10660	5.0
Philosophy	8986	4.2
Physics	8923	4.2
Geography	7872	3.7
Biological Sciences	7792	3.7
Health Sciences	7712	3.6
Anthropology	6480	3.0
Comparative Arts	6076	2.9
Spanish	6008	2.8
Geology	5391	2.5
Physical Science	5307	2.5
Environ. & Plant Biology	4676	2.2
Interpersonal Communication	3912	1.8
African American Studies	3190	1.5
Biology	3015	1.4
Linguistics	3005	1.4
Management Systems	2568	1.2
Food & Nutrition	2492	1.2
Art History	2448	1.2
Hearing & Speech Science	2393	1.1
English	2172	1.0
Music	2061	1.0
French	2028	1.0
Child & Family Studies	2016	0.9
Film	1740	0.8
Social Work	1701	0.8
Humanities	1520	0.7
Computer Science	1470	0.7
Women's Studies	1248	0.6
Journalism	1240	0.6
Theater	1045	0.5
Commun. Systems Mgt.	1012	0.5
Microbiology	691	0.3
International Studies	624	0.3
Art	616	0.3
German	568	0.3

Chemical Engineering	540	0.3
Retail Management	492	0.2
Industrial Technology	428	0.2
Dance	396	0.2
Japanese	340	0.2
Classics Texts in Transl.	336	0.2
Telecommunications	256	0.1
Latin	236	0.1
Italian	192	0.1
Classical Archaeology	148	0.1
Astronomy	118	0.1

The following table presents, in descending order, Tier II courses which accounted for the greatest percentages of the total Tier II credit hours earned. In terms of the percentage of students who took each Tier II course, the top five Tier II courses were PSY 101 (75 percent), ECON 103 (62 percent), HLTH 202 (56 percent), SOC 101 (48 percent), and ECON 104 (44 percent).

TOP TIER II COURSES IN TERMS OF CREDIT HOURS EARNED

Course	Percent of Total
PSY 101, General Psychology	6.1
ECON 103, Principles of Microeconomics	4.0
SOC 101, Introduction to Sociology	3.9
HLTH 202, Health Sciences & Lifestyle Choices	3.6
ECON 104, Principles of Macroeconomics	2.8
MATH 163A, Introduction to Calculus	2.7
PHIL 101, Fundamentals of Philosophy	2.4
C A 117, Introduction to Fine Arts	2.2
CHEM 151, Fundamentals of Chemistry I	2.1
ANTH 101, Introduction to Cultural Anthropology	2.1
POLS 101, American National Government	1.9
INCO 101, Fundamentals of Human Communication	1.7
BIOS 103, Human Biology	1.7
CHEM 152, Fundamentals of Chemistry II	1.6
POLS 102 , Issues in American Politics	1.5
BIOL 101, Principles of Biology	1.4
LING 270, The Nature of Language	1.4
AAS 150, Introduction to Blank Media	1.4
BIOS 171, Introduction to Zoology	1.3
GEOG 201, Environmental Geography	1.2
MGT 200, Introduction to Management	1.2
PHYS 201, Introduction to Physics	1.2
HCFN 128, Introduction to Nutrition	1.2
HSS 108, Introduction to Speech Disorders	1.1

SOC 201, Contemporary Social Problems	1.1
GEOG 121, Human Geography	1.1
PHIL 130, Introduction to Ethics	1.1
PHYS 202, Introduction to Physics	1.1
SPAN 211, Intermediate Spanish	1.0
CHEM 153. Fundamentals of Chemistry III	1.0
HCCF 160, Introduction to Child Development	1.0
MATH 263B, Calculus	1.0
P SC 100, Survey of Astronomy	1.0
GEOG 101, Physical Geography	1.0
PBIO 100, The World of Plants	1.0
HIST 131, Introduction to Non-Western History	1.0
MATH 263A, Analytical Geometry and Calculus	1.0
SPAN 213, Intermediate Spanish	1.0
ENG 200, Introduction to Literature	1.0
SPAN 212, Intermediate Spanish	1.0
GEOL 101, Introduction to Geology	1.0
S W 101, Introduction to Social Welfare and Social Work	1.0
PBIO 103, Plants and People	1.0
P SC 100D, Moons and Planets: The Solar System	1.0
C S 230, Computer Programming	1.0
MATH 163B, Introduction to Calculus	1.0
CHEM 121, Principles of Chemistry	1.0
MATH 263C, Calculus	1.0
POLS 103, The United States in World Affairs	1.0
HIST 101, Western Civilization in Modern Times	1.0
HIST 213, History of the United States Since 1900	1.0
MUS 100, Introduction to Music Theory	1.0
PHYS 251, General Physics	1.0
WS 100, Introduction to Women's Studies	1.0
CHEM 123, Principles of Chemistry III	1.0
JOUR 105, Introduction to Mass Communication	1.0
HIST 123, Western Heritage: Modernity	1.0
C A 118, Introduction to Fine Arts	1.0
GEOL 215, Environmental Geology	1.0
HIST 212, History of the United States, 1828-1900	1.0
PHYS 203, Introduction to Physics	1.0
ANTH 201, Introduction to Biological Anthropology	1.0
PHYS 252, General Physics	1.0
COMT 101, Consumer Issues in Commun. Systems Mgt	1.0
HIST 211, American History to 1828	1.0
ANTH 202, Introduction to Anthropological Archaeology	1.0

The following table identifies the five Tier II courses which accounted for the greatest percentages of credit hours earned within each Tier II area. The percentage of the total Tier II area credit hours accounted for by the top five courses combined is also indicated.

TOP FIVE TIER II COURSES WITHIN EACH TIER II AREA

IN TERMS OF CREDIT HOURS EARNED

APPLIED SCIENCE AND TECHNOLOGY:	Percent of
Course	Area Credit Hours
HLTH 202, Health Sciences & Lifestyle Choices	34
GEOG 201, Environmental Geography	12
HCFN 128, Introduction to Nutrition	11
HSS 108, Introduction to Speech Disorders	10
PBIO 103, Plants & People	7
Total	74

HUMANITIES AND FINE ARTS:	Percent of
Course	Area Credit Hours
PHIL 101, Fundamentals of Philosophy	13
C A 117, Introduction to Fine Arts	11
INCO 101, Fundamentals of Human Communication	9
AAS 150, Introduction to Black Media	7
PHIL 130, Introduction to Ethics	6
Total	46

NATURAL SCIENCES AND MATHEMATICS:	Percent of
Course	Area Credit Hours
MATH 163A, Introduction to Calculus	9
CHEM 151, Fundamentals of Chemistry	7
BIOS 103, Human Biology	6
CHEM 152, Fundamentals of Chemistry II	6
BIOL 101, Principles of biology	5
Total	33

SOCIAL SCIENCES:	Percent of
Course	Area Credit Hours
PSY 101, General Psychology	18
ECON 103, Principles of Microeconomics	12
SOC 101, Introduction to Sociology	12
ECON 104, Principles of Macroeconomics	8
POLS 101, American National Government	6
Total	56

CROSS-CULTURAL PERSPECTIVES:	Percent of
Course	Area Credit Hours
ANTH 101, Introduction to Cultural Anthropology	28
SPAN 211, Intermediate Spanish	14
HIST 131, Interaction to Non-Western History	12
SPAN 213, Intermediate Spanish	12
SPAN 212, Intermediate Spanish	11
Total	77

Analysis of COMP Subscores

Background and General Results

The American College Testing (ACT) College Outcomes Measures Project (COMP) Objective test instrument is used to provide a detailed study of Ohio University students' general education skills and to help assess the impact of Ohio University's general education program. The instrument is nationally normed and designed to assess student abilities in the following six subscales: "Communicating," "Solving Problems," "Clarifying Values," "Functioning Within Social Institutions," "Using Science and Technology," and "Using the Arts." ACT scores the COMP, providing subscores in these six areas as well as a total score. The first three subscales listed here are considered content areas, and the last three are considered process (skill) areas. Detailed definitions of these six areas are in Appendix A.

The Office of Institutional Research began administering the COMP to first-year students and seniors in 1981-1982. To examine the effects of the general education program this analysis will focus primarily on senior COMP results, with comparisons to first-year student COMP results. Fourteen senior classes have been tested and analyzed as of 1995, and senior COMP scores have increased since 1981-1982. Increases in senior COMP scores coincide with the implementation in 1984-1985 of the three-tier general education program at Ohio University. The COMP was given to three classes of seniors who took general education classes prior to the Tier system and to 11 subsequent classes of seniors who took all or most of the general education Tier requirements. Seniors as a group scored below the 50^{th} percentile nationally before the Tier system was implemented and just over the 60^{th} percentile after the Tier system was implemented. Increases in COMP scores were also coincident with the gradual increase, since 1981-1982, in the average senior ACT aptitude and with implementation of selective admissions in 1988-1989. Selective admissions is based, in part, in ACT aptitude scores and high school rank. Senior COMP scores since 1992 increased to their highest levels.

From 1981 to 1995, 11 sets of COMP results were collected and analyzed in which individual senior COMP scores were matched with their corresponding first-year student COMP scores. Figure 1 shows that the first-year/senior percentile score gains have fluctuated from class to class. Yet Figure 1 reveals an overall increase in COMP score gains from the initial first-year/senior class pair (81 & 85) to the last (91 & 95). Considering the 11 senior classes combined, statistically significant score gains from the first to the senior year were found for the total scores and all of the subscores. As shown in Figure 2, the average percentile point gain for the 11 classes combined was 30 points for the total score, 25 points for "Functioning Within Social Institutions," 19 points for "Using Science and Technology," 30

points for "Using the Arts," 22 points for "Communicating," 28 points for "Solving Problems," and 25 points for "Clarifying Values."

Item Analysis

A detailed item analysis of COMP items was performed to provide an in-depth description of general education skills and to examine how they have changed from the first-year to the senior year. The item analysis examines the six subscales as well as sets of items (clusters) within each subscale. An item analysis requires that the same version (form) of the COMP be used in all groups of students whose results are to be compared. COMP Form 11 was the most recent version for which there were adequate numbers of both first-year students and seniors. These groups included 2196 first-year students who took the COMP in 1991, 1992, 1993, 1994, 1995 , 1996, and 1997, and 499 seniors who took the COMP in 1992, 1993, 1994, and 1995. In the item analysis comparisons are made in the aggregate between the group of first-year students' results and the group of seniors' results.

The six COMP subscales are comprised of 60 individual items in the COMP Objective Test. Items within each subscale are identified by ACT as activities that represent specific skills or competencies; Appendix B presents the complete COMP sampling matrix of these items and the content and process areas they represent. For the item analysis the 60 items were collapsed into 22 clusters of items, ten in the process areas, and 12 in the content areas. This was done in order to provide the more detailed look at general education skills and abilities than is afforded by the six general subscale areas and to reduce the total number of items to a smaller and more reliable number of clusters. Within each subscale area these clusters are as follows:

COMMUNICATING
- Oral, Media, & Nonverbal
- Written
- Numeric/Graphic

SOLVING PROBLEMS
- Identify and Define
- Select Solutions
- Collect Relevant Data
- Create/Evaluate Solutions

CLARIFYING VALUES
- Identify Values
- Assess and Evaluate Values
- Analyze Rationale and Implications of Values

FUNCTIONING WITHIN SOCIAL INSTITUTIONS
- Explain Social Limits within Institutions
- Explain Social Change
- Explain Social-Individual Relationship
- Describe Social Structures
- Identify Social Aspects of Culture

USING SCIENCE AND TECHNOLOGY
- Explain Impact of Technology on Culture, Individual, and Nature
- Describe Scientific Concepts
- Identify Technology in Culture

USING THE ARTS
- Identify Relationship between Arts and a Culture
- Explain Artistic Theory
- Explain Individual Impact
- Describe Artistic Elements of a Culture

In the present item analysis first-year students and seniors are compared in the aggregate in terms of the subscores and cluster scores. Comparisons are also made with the most recent (1995) national senior COMP results provided by ACT. The COMP national norms are routinely reported in terms of percentile ranks. For this report, however, COMP results were converted to "percent correct" scores, since national percentile norms are not available for individual items which comprise the 22 clusters. The "percent correct" measures provide a common basis of comparison for both national results and Ohio University results. ACT developed the COMP in such a way that the "average" student would correctly answer 50 percent of the items. The table below shows that nationally seniors got more than 50 percent correct in the total score and on all subscale areas except for "Communicating" and "Using the Arts."

SUBSCALE	TOTAL POINTS POSSIBLE	NATIONAL AVERAGE	NATIONAL AVERAGE % CORRECT
Total	120	63.7	53%
Communicating	36	15.4	43%
Solving Problems	48	27.4	57%
Clarifying Values	36	21.4	59%
Functioning in Social Institutions	40	21.1	53%
Using Science and Technology	40	23.4	59%
Using the Arts	40	19.1	48%

The table below presents the percent correct subscores and cluster scores for first-year students and seniors at Ohio University. Within each subscale area the cluster scores are presented in descending order in terms of the senior results. There is also a column showing the difference in percent correct between the first-year students and seniors.

ACT COMP PROCESS (SKILL) AREAS

	Percent Correct		
	First-Year	Seniors	Difference
COMMUNICATING	41%	49%	8%
Written	60%	68%	8%
Oral, Media, & Nonverbal	51%	56%	5%
Numeric/Graphic	20%	31%	11%
SOLVING PROBLEMS	53%	62%	9%
Collect Relevant Data	69%	74%	5%
Select Solutions	56%	66%	10%
Identify and Define	57%	65%	8%
Create/Evaluate Solutions	45%	55%	10%
CLARIFYING VALUES	49%	61%	12%
Identify Values	60%	75%	15%
Assess and Evaluate Values	51%	62%	11%
Analyze Rationale and Implications of Values	44%	56%	12%

ACT COMP CONTENT AREAS

	Percent Correct		
	First-Year	Seniors	Difference
FUNCTIONING W/IN SOCIAL INSTITUTIONS	48%	59%	11%
Explain Social-Individual Relationship	77%	84%	7%
Identify Social Aspects of Culture	46%	60%	14%
Describe Social Structures	48%	58%	10%
Explain Social Change	46%	57%	11%
Explain Social Limits w/in Institutions	31%	45%	14%
USING SCIENCE AND TECHNOLOGY	52%	59%	7%
Describe Scientific Concepts	71%	75%	4%
Identify Technology in Culture	62%	67%	5%
Explain Impact of Technology on Culture, Individual & Nature	46%	54%	8%
USING THE ARTS	43%	54%	11%
Describe Artistic Elements of a Culture	60%	75%	15%
Explain Artistic Theory	51%	59%	8%
Identify Relationship between Art and a Culture	40%	51%	11%
Explain Individual Impact	30%	38%	8%

As can be seen in the table above, the six senior percent correct subscores were, in descending order, "Solving Problems" (62%), "Clarifying Values" (61%), "Functioning Within Social Institutions" (59%), "Using Science and Technology" (59%), "Using the Arts" (54%), and "Communicating" (49%). Although the process (skill) areas had both the highest and lowest overall percent correct subscores, Ohio University seniors scored about the same, on average, in process areas as they did in the content areas. In Figure 3 Ohio University seniors' percent correct subscores are compared graphically to those for the national senior sample. As shown in Figure 3, Ohio University seniors' percent correct subscores were higher than the national norms for the total score and for each subscore except for "Using Science," which equaled the national norms percent correct subscore. For most subscales the senior's percent correct subscores exceeded the norms by four to six percentage points; the norms were exceeded the least (two percentage points) in "Clarifying Values." Like the national senior norms, Ohio University seniors' lowest percent correct subscores were in "Communicating" and "Using the Arts."

With respect to individual cluster scores in the table above, it can be seen that the six highest senior percent correct scores were, in order, for "Explain Social-Individual Relationship (84%), "Identify Values," "Describe Scientific Concepts," and "Describe Artistic Elements of Culture" (each 75%), "Collect Relevant Data" (74%), and "Written" (68%). All six subscale areas were represented among the top cluster scores. The six lowest senior cluster scores were, in order, for "Numeric/Graphic" (31%), "Explain Individual Impact" (38%), "Explain Social Limits within Institutions" (45%), "Identify Relationships between Art and a Culture" (51%), "Explain the Impact of Technology on Culture, the Individual, and Nature" (54%), and "Create and Evaluate Solutions" (55%). All six subscale areas are represented among these six lowest cluster scores. Also, three of these lowest cluster scores are below the 50% score expected of the "average" college student.

Comparing the percent correct subscores of seniors and first-year students, the senior subscores in all categories exceeded the corresponding first-year subscores. This suggests that there were gains from the first-year to the senior year at Ohio University in all skills and knowledge areas measured by the ACT COMP. The greatest differences between the first-year and senior percent correct subscores in the six subscale areas were, in descending order, Clarifying Values (12 percent increase), Functioning within Social Institutions and Using the Arts (each with 11 percent increase), Solving Problems (nine percent increase), Communicating (eight percent increase), and Using Science and Technology (seven percent increase).

In terms of individual cluster scores in the Process (skill) areas, the two largest cluster score increases between first-year students and seniors were for "Identify Values" (15 percent increase) and "Analyze Rationale and Implications of Values" (12 percent increase). The Process cluster areas with

the smallest increases in percent correct scores were "Collect Relevant Data" and "Oral, Media, & Nonverbal" (each with a five percent increase). In terms of individual cluster scores in the Content areas, the areas with the largest increases between first-year students and seniors in percent correct scores were "Describe Artistic Elements of a Culture" (15 percent increase) and "Explain Social Limits within an Institution" and "Identify Social Aspects of Culture" (each with a 14 percent increase). The Content areas with the smallest increases in percent correct scores were "Describe Scientific Concepts" (four percent increase), and "Identify Technology in Culture" (five percent increase).

The Survey of Alumni

The Survey of Alumni collects information from Ohio University's bachelor's degree recipients through a mailed questionnaire sent to them five years after graduation. For this section results will be used from six surveyed classes who graduated between 1987-1988 and 1992-1993. From 83 percent to 92 percent of these classes rated general education courses as helpful in providing the skills and knowledge needed to perform their present job (five years after graduating); this percentage decreased steadily from 1988 to 1993. From 1988 to 1993 the respondents' ratings of their major courses as helpful to their present job ranged from 94 percent or 96 percent.

Graduates were asked to rate each of 15 competencies in terms of necessity in their current occupation and to indicate how effective Ohio University was in developing them. They are listed in order of reported need in the most recent (1992 and 1993) studies as follows:

1. Ability to communicate effectively orally;
2. Ability to acquire new skills and understanding on my own;
3. Ability to evaluate and choose between alternative courses of action;
4. Ability to think analytically;
5. Ability to work in a team setting;
6. Ability to formulate creative and original ideas and solutions;
7. Sensitivity to feelings and perceptions of others;
8. Ability to write well;
9. Ability to use the computer as an analytical tool;
10. Ability to apply knowledge from my major field to new problems;
11. Ability to organize and supervise work of others;
12. Ability to cope with complex moral and ethical issues;
13. Ability to participate in community service activities;
14. Ability to convey meaning through artistic and creative expression;
15. Ability to place current problems in historical, cultural, and philosophical perspective.

The results from 1988 through 1993 are listed in descending order of reported need in the table below. The results for 1992 and 1993 combined are presented graphically in Figure 4.

(percent responding)	1988	1989	1990	1991	1992	1993
The Ability to Communicate Effectively Orally						
Needed	98%	98%	99%	99%	99%	99%
Developed at O.U.	91	91	92	91	91	92
The Ability to Acquire New Skills and Understanding on One's Own						
Needed	98%	98%	98%	98%	98%	98%
Developed at O.U.	92	92	93	94	93	94
The Ability to Evaluate and Choose between Alternatives						
Needed	97%	97%	97%	97%	98%	97%
Developed at O.U.	89	90	91	91	89	90
The Ability to Work in a Team Setting*						
Needed	--	--	--	--	97%	96%
Developed at O.U.	--	--	--	--	91	92
The Ability to Think Analytically						
Needed	95%	94%	95%	94%	96%	96%
Developed at O.U.	96	95	95	95	95	97
The Ability to Formulate Creative and Original Ideas and Solutions						
Needed	95%	95%	95%	94%	96%	95%
Developed at O.U.	89%	88	90	91	90	90
Sensitivity to the Feelings and Perceptions of Others						
Needed	92%	93%	92%	93%	92%	92%
Developed at O.U.	78	79	81	81	83	83
The Ability to Write Well						
Needed	89%	89%	88%	88%	88%	88%
Developed at O.U.	90	91	92	92	91	92
The Ability to Use the Computer as an Analytical Tool						
Needed	79%	80%	81%	81%	83%	83%
Developed at O.U.	63	67	64	65	63	66
The Ability to Apply Knowledge from One's Major to New Problems						
Needed	82%	83%	81%	81%	80%	80%
Developed at O.U.	90	89	88	90	90	90
The Ability to Organize and Supervise Work of Others						
Needed	80%	77%	79%	77%	78%	78%
Developed at O.U.	74	73	73	74	74	74

	1988	1989	1990	1991	1992	1993
The Ability to Cope with Complex Moral and Ethical Issues						
Needed	68%	69%	68%	67%	70%	70%
Developed at O.U.	74	76	75	78	78	80
The Ability to Participate in Community Service Activities						
Needed	55%	58%	54%	56%	54%	53%
Developed at O.U.	67	68	67	68	66	69
The Ability to Convey Meaning though Artistic Expression						
Needed	53%	53%	54%	53%	49%	47%
Developed at O.U.	73	70	70	73	70	68
The Ability to Place Current Problems into Historical, Cultural, and Philosophical Perspective						
Needed	45%	49%	48%	48%	48%	46%
Developed at O.U.	75	75	76	76	75	76

*Item first asked in 1992 and 1993.

On average the top five competencies' ratings of necessity, were, in order, for the abilities to communicate orally (about 99 percent), to acquire new skills and understanding on one's own (about 98 percent), to evaluate and choose between alternatives (about 97 percent), to work in a team setting (about 97 percent), and to think analytically (about 95 percent). The competencies with the lowest ratings of necessity on average were, in order, the abilities to place current problems into historical, cultural, and philosophical perspective (about 47 percent), to convey meaning through artistic expression (about 52 percent), to participate in community service activities (about 55 percent), to cope with complex moral and ethical issues (about 69 percent), and to organize and supervise the work of others (about 78 percent).

In terms of the differences between ratings of how needed and developed the competencies were, the competencies which, on average, had the smallest, approximate necessity-development differences were, in order, the abilities to think analytically (one percent difference), to write well (three percent difference), and to organize and supervise the work of others (four percent difference). The competencies with the largest necessity-development differences were, in order, the abilities to place current problems into historical, cultural, and philosophical perspective (29 percent difference), to convey meaning through artistic expression (19 percent difference), to use the computer as an analytical tool (16 percent difference), and to participate in community service activities (13 percent difference). Using the computer analytically had the greatest necessity-development difference in which necessity was rated higher than development.

While most of the necessity and development ratings of these competencies were stable over these studies, the ratings of several competencies displayed fairly steady increases or decreases over the studies reported. Ratings of the development of sensitivity to the feelings and perceptions of others increased from 1988 to 1993, as did ratings of the development of the ability to cope with complex moral and ethical issues. Necessity ratings decreased from 1988 to 1993 for the ability to apply knowledge from one's major to new problems, while from 1988 to 1993 necessity ratings steadily increased for the ability to use the computer as an analytical tool. Ratings of the necessity of the ability to convey meaning through artistic expression were stable from 1988 to 1991 but decreased in 1992 and 1993.

To some extent graduates rated competencies higher if they were related to their academic areas. For example, engineering graduates gave relatively higher ratings for the ability to think analytically and to use the computer; and their necessity-development rating differences in these competencies were smaller than for the university as a whole. Fine Arts graduates gave much higher ratings for the ability to convey meaning through artistic expression than did the university as a whole. Communication graduates gave higher development ratings to the ability to communicate orally than did the university as a whole.